

# **DEFINING AND MEASURING FOUR RECENTLY EVOLVED DEVELOPMENT CONCEPTS:**

## **Pro-poor Growth, Pro-poor development, Inclusive Growth, and Inclusive development.**

By Nanak Kakwani email : n.kakwani@unsw.edu.au  
and Sidiques Zakaria<sup>1</sup>

### **Abstract:**

This paper views shared prosperity broadly. Economic Growth enhances total prosperity, increasing the economic pie in society, but the pie distribution determines how the population shares the pie. Economists are deeply divided, and some believe that society must focus on policies to enlarge the pie and then have policies to divide the pie equitably. The belief is that expanding the pie size and dividing the pie are mutually exclusive. We do not share this view; we view the two phenomena as interrelated. Based on a social welfare framework, we have developed an integrated methodology to evaluate growth and distribution simultaneously. Linking the two phenomena gives rise to four development goals: (i) pro-poor growth, (ii) inclusive growth, (iii) pro-poor development, and (iv) inclusive development. The literature has not distinguished these four concepts. This paper defines the four goals, providing a methodology to operationalize them using real-world data. The paper provides a case study of India using state-level data. This empirical analysis informs whether growth and development in India have been pro-poor and inclusive over two decades.

**JEL CODE:** D63, D31, O11, O20, O47

**Key Words:** shared prosperity-poor, inclusive growth, and development, poverty, inequality

---

<sup>1</sup> We are grateful to Professors Hanumantha Rao, Mahendra Dev, Sukhadeo Thorat, and Revathi Ellanki for their helpful comments when we presented the paper at the Centre for Economic and Social Studies, Hyderabad, India

## 1. Introduction

In the 1950s and 1960s, trickle-down was the dominant development strategy for bettering people's lives. It implied that economic growth was the dominant factor that would automatically enhance people's living standards. The growth process, resulting from market forces, generally benefits the wealthy first, and then in the second round, the poor benefit when the rich start spending their gains from growth. The trickle-down ensures a vertical flow of the benefits of growth from the rich to the poor. Thus, economic growth only benefits the poor indirectly through vertical flows from the rich. The trickle-down was silent on how much benefits of growth will flow to the poor. The rich may reap huge benefits, but at the same time, the poor may receive only a meager fraction of the total benefits.<sup>2</sup>

Thus, the view in development economics was that the government's strategy should promote investments, increase production capabilities, and enhance economic growth. The governments need not be concerned with how economic growth distributes benefits among the people, and the distribution was not considered a fundamental problem for serious study.

In the 1970s, many economists became skeptical of trickle-down development thinking. The World Bank economists Chenery, Ahluwalia, Bell, Duloy, and Jolly (1974) published an influential book entitled *Redistribution with Growth* with the vital message that "while growth policies have succeeded beyond expectations of the first development decade, the very idea of aggregate growth as a social objective is objectionable." Ahluwalia (1976) observed that despite high economic growth in developing countries, poverty remained high due to worsening income distribution. The relative shares of the growth

---

<sup>2</sup> Jawaharlal Nehru, the first prime minister of independent India, was first to use the expression "Trickle-Down" as early as in 1933 in *Whither India* "reprinted in *India's freedom India*", Unwin Books, no 29 (London: Allen and Unwin, 1962. He used the expression in connection with the British exploitation of India.

benefits at the low end of the distribution were almost insignificant. In this context, Bhagwati's seminal paper "Poverty and Public Policy," published in the *World Development* 1988, also raised the possibility that high economic growth may even increase poverty. He called it 'immiserizing growth to the poor.'

Despite these concerns, the trickle-down development strategy continued until the new millennium. The World Bank economists Dollar and Kraay (2002) published a highly influential paper entitled "Growth is good for the poor." that concluded that "growth generally does benefit the poor, and that anyone who cares about the poor should favor the growth-enhancing policies of the good rule of law, fiscal discipline, and openness to international trade." This paper implied that growth is good for the poor irrespective of the growth pattern. The possible immiserating growth of the poor may never happen. However, extreme poverty continues to exist worldwide, and economic growth may be insufficient to alleviate poverty. We require pro-poor growth, favoring the poor to reduce poverty rapidly. Kakwani and Son (2022) point out that Dollar-Kraay derived their conclusions based on cross-country regression models, which suffer from conceptual problems, resulting in misleading conclusions.

Martin Bronfenbrenner published a seminal book in 1971 entitled *Income Distribution Theory*. He raised an important question, "Is distribution a sufficiently important problem for serious study, and if so, why?" Chapter 1 of his book presents a representative sample of divergent views of economists. Some economists viewed distribution as fundamental, while others thought that distribution was unimportant. We need not review this debate, but it is essential to draw attention to a quotation from the first prime minister of independent India, Pundit Jawaher Lal Nehru's book *Glimpses of World History*, published in 1939, written when he was in prison.

*"Democracy, if it means anything, means not merely equality of possessing a vote, but economic and social equality."*

Bheem Ramji Rao Ambedkar, the architect of India's constitution, echoing Nehru's perception of democracy, said on 26 January 1950: we are going to enter into a life of contradictions. In politics, we will have equality of one man and one vote; still, we shall continue denying people equality in social and economic life because of our social and economic structure. His concern was, how long shall we continue to live this life of contradictions? How long shall we deny equality in our social and economic life? He is essentially emphasizing the need for maintaining a balance in political, social, and economic opportunities for the effective function of democracy.

Economic Growth provides means, but distribution is fundamental to achieving Nehru's and Ambedkar's economic and social equality vision. In this context, the following quotation from Sen and Dre'ze (1989) is helpful.

*"Economic growth is very important as a means for bettering people's lives, but to go much faster, it has to be combined with devoting resources to remove illiteracy, ill health, undernutrition, and other deprivations."*

America has been the wealthiest economy in the world; recently, the Nobel Laureate economist Angus Deaton (7 June 2023) has emphasized the flipside of American progress, calling it economic failure or failed economics. He argues, "growth is worthless to those who do not share it. GDP is blind to who benefits and who loses, and over the last half-century, most Americans have not seen the growth in incomes that might seem warranted by the growth in the economy". Thus, Deaton has forcefully argued that we cannot achieve prosperity for all through economic growth without considering the distribution of the output generated by economic growth.

*The World Bank* has recently proposed a new model of development focusing on the bottom 40 percent of the population. This model aims to achieve two objectives: (i) reduce extreme poverty in the globe to 3 percent by 2030 and (ii) foster economic growth that benefits the bottom 40 percent of the population (Rosenblatt and McGavock 2013). The

second goal, targeting the bottom 40 percent of the population, is built on shared prosperity. The basic idea is that growth fosters shared prosperity if the bottom 40 percent of the population could benefit from economic growth.

This view of shared prosperity is somewhat restrictive. In this paper, we view shared prosperity more broadly. Economic Growth enhances total prosperity, increasing the whole economic pie, but the distribution determines how the population shares the pie (prosperity). There is a deep division among economists: Some believe that society must focus on policies to enlarge the pie first and then have policies to divide the pie equitably. The belief is that expanding the pie size and dividing the pie are mutually exclusive. We do not share this view; we view the two phenomena as interrelated. Mahendra Dev (2008) has also argued that growth and equity objectives should be pursued simultaneously.

In this paper, we propose to link the two phenomena that give rise to four development goals: (i) pro-poor growth, (ii) inclusive growth, (iii) pro-poor development, and (iv) inclusive development. The literature has not distinguished the four concepts. [These four goals are the alternative characterizations of shared prosperity.](#) This paper defines the four concepts and provides a social welfare framework to operationalize them using real-world data.

Based on a social welfare framework, we have developed an integrated methodology to evaluate the size of the pie and its distribution simultaneously. Our proposed social welfare framework links economic growth and distribution into a composite index, combining four development goals through this linkage. From this framework, we can also determine the contributions of growth and distribution to social welfare and well-being. This decomposition is essential to understand the policy implications of shared prosperity.

The paper provides a case study of India using state-level data.

Alleviating poverty and reducing inequality are two central goals of economic development. Poverty has existed in the world for centuries. But, the awareness of its existence has increased recently in the Western

world. Social attitudes have changed, and many developed countries have achieved a level of affluence where it is recognized that poverty can be alleviated without having much adverse impact on economic growth.

The concern for rising income inequality has recently increased, and addressing rising inequality has become the top agenda for many governments and international development agencies. The widening income gap between the top 1 percent and the bottom 99 percent has recently become a political issue in the United States. The Nobel Laureate Joseph Stiglitz wrote a provocative article in *Vanity Fair* in 2011, entitled "Of the 1% by the 1%, for the 1%", leading to political protests against 1%. Because of increasing public concerns about inequality, many governments have instituted redistribution policies through taxation and government transfer programs. Social welfare or safety-net programs have increased manifold. According to a World Bank report, *The State of Social SafetyNets 2015*, as many as 1.9 billion people are beneficiaries of safety net programs.<sup>3</sup>

Economists have long recognized that economic growth is necessary but insufficient to achieve rapid poverty alleviation and reduction of inequality. A significant shift toward distribution happened in the 1990s and the new millennium. The consensus among development economists is that we must have a mixture of growth-enhancing and distribution policies to achieve the two central development goals. Pro-poor and inclusive growth are the new mantras to achieve such goals. This paper provides a social welfare function framework to define and measure pro-poor and inclusive growth. The two concepts are distinct but related, and the recent literature has failed to provide a concise distinction between the two.

Pro-poor and inclusive growth are measured in income space, providing means to better people's lives. Means are essential, but as Sen (1983, 1984, 1985, 1987) writes, "Ultimately, the focus has to be on what life

---

<sup>3</sup> Kakwani and Son (2016) have developed the idea of social rate of return, which is a new tool for evaluating social welfare programs.

people lead, and what they can or cannot do or can be or cannot be." Following this logic, Sen developed a comprehensive standard of living or well-being framework, employing two fundamental concepts, "functionings and capabilities". In his seminal book, *Development as Freedom*, published in 1999, Sen viewed development as the freedom people have to achieve the functionings they value.

Functioning is an achievement, whereas capability is the ability to achieve. Thus, functionings are directly related to what life people lead, whereas capabilities are related to the freedom people have in choosing their life or functioning. Therefore, following Sen's idea, this paper considers development as the enhancement of people's well-being. The paper develops two new concepts: (i) pro-poor development and (ii) inclusive development. Measuring the two concepts requires generalizing the social functions to the social well-being functions. The paper defines the pro-poor and inclusive well-being functions, providing methods for deriving the pro-poor and inclusive development indicators.

Finally, the paper provides a case study of India using state-level data. This empirical analysis informs whether growth and development in India have been pro-poor and inclusive over two decades.

## **2. What is Pro-poor Growth?**

The term pro-poor growth is relatively new and emerged in the late 1990s. Many development practitioners began discussing it but did not offer a precise concept of pro-poor growth. International agencies such as the United Nations (2000) and OECD (2001) defined pro-poor growth as benefits to the poor and provided them with opportunities to improve their economic situation. *The Poverty Reduction Strategy* of the Asian Development Bank describes pro-poor growth as labor-absorbing growth accompanied by policies and programs that mitigate inequalities and facilitate income and employment generation for the poor, particularly women and other traditionally excluded groups. These definitions are very broad and focused on policies to achieve pro-poor growth. Before discussing policies, it makes logical sense to define pro-

poor growth precisely. The broad policies are not a helpful guide in measuring pro-poor growth.

Kakwani and Pernia published their "What is Pro-poor Growth" paper in Asian Development Review 2000. They explained the concept of pro-poor growth and argued that it represents a significant departure from the "trickle-down" phenomenon. They argued that pro-poor growth is biased in favor of the poor, meaning that the poor must enjoy higher benefits of growth than the non-poor. Based on this definition, they proposed an operational measure of pro-poor, which informed when one could say that growth is pro-poor. And if so, to what degree?

In 2008, Kakwani and Son proposed three alternative definitions of pro-poor growth. A brief review of these definitions is now provided.

**(i) Relative definition of pro-poor growth:**

**The growth is relative pro-poor (anti-poor) if the relative growth rate of the population is positive, and the poor benefit proportionally more (less) than the non-poor.**

**The growth is also relative pro-poor (anti-poor) if the relative growth rate of the population is negative, and the poor proportionally suffer a smaller (larger) decline in their income than the non-poor.**

Kakwani and Pernia (2000) proposed this definition, implying that growth results in income redistribution favoring the poor. This is a relative concept of pro-poor growth because the growth process reduces relative inequality.

**(ii) Absolute definition of pro-poor growth:**

**The growth is absolute pro-poor (anti-poor) if the absolute growth rate of the population is positive, and the poor benefit absolutely more (less) than the non-poor.**

**The growth is also absolute pro-poor (anti-poor) if the absolute growth rate of the population is negative, and the poor absolutely suffer a smaller (larger) decline in their income than the non-poor**



Kakwani and Son (2008) proposed this definition, implying that growth results in the redistribution of income in favor of the poor, contributing to a greater absolute gain of income for the poor than the non-poor. If the growth is negative, the redistribution of income due to growth leads to a smaller loss of absolute income for the poor than for the non-poor. This is an absolute concept of pro-poor growth because the growth process reduces the absolute inequality of income. Kolm (1976) developed the idea of absolute inequality, which remains unchanged when everyone's income changes by the same amount. This paper has extended this idea to measuring absolute pro-poor growth.

### **(iii) Poverty-reducing Growth:**

**Growth is pro-poor (anti-poor) if it reduces (increases) poverty.**

Ravallion and Chen (2003) proposed this definition, defining growth as pro-poor if it reduces poverty. Rauniar and Kanbur (2009) also classify growth as pro-poor if it reduces income poverty. Kakwani and Son (2008) demonstrated that this is the weakest definition of pro-poor Growth when Growth is positive and the strongest definition if growth is negative. This definition also does not specify how much poverty reduction should be to classify the growth as pro-poor.

From international comparisons, we found that more than 95% of growth spells showed a poverty reduction when growth is positive, so we identify most growth spells as pro-poor when growth is positive when growth is negative and still reduces poverty, which is an improbable event so we will not identify growth as pro-poor in more than 99% of spells. Thus, classifying growth as pro-poor based on if it reduces poverty can lead to an erroneous conclusion about the pro-process of growth.

Economic Growth generates people's incomes, so it would be intuitive to define pro-poor growth in terms of how the growth process distributes

the incomes among the poor and non-poor. In our formulation, we have defined pro-poor growth as whether the poor receive more proportional or absolute income benefits, and our social welfare framework revolves around these two definitions. The literature has provided several alternative poverty measures, some poverty measures may show a poverty reduction, and others may show an increase in poverty. Thus, we may arrive at contradictory conclusions if our definition of pro-poor growth focuses on poverty measures.

### **3. Poverty Equivalent Growth Rate (PEGR) Explained**

The linkage between growth and poverty is complex and determined by inequality changes. Thus, pro-poor growth provides the interrelationship between three factors: poverty, inequality, and growth, known in the literature as the PIG axis (Sumner, 2003). Kakwani and Son (2008) developed the idea of a "poverty equivalent growth rate" (PEGR) that takes into account both the growth rate in mean incomes and how the benefits of growth are distributed among the poor and non-poor. It encompasses the three definitions of pro-poor growth discussed in the previous section. This paper demonstrates that the PEGR satisfies an essential requirement that the magnitude of poverty reduction is a monotonically increasing function of the PEGR. Thus, the PEGR is an effective tool to reduce or alleviate poverty; maximization of the PEGR implies a maximum reduction in poverty. The government's social objective should be to maximize the PEGR.

It is not essential to explain the derivation of the PEGR here because it is already published in the Review of Income Wealth 2008. The following hypothetical example can provide an intuitive explanation of the (PEGR). Suppose the actual growth rate is 7 percent, which has reduced poverty by 10 percent, meaning that  $\delta = -0.10$  and  $\gamma = 0.07$ . Suppose the growth elasticity of poverty is  $\eta = -1.2$ , interpreted as a 1 percent increase in mean income reduces poverty by 1.2 percent, provided the relative inequality had not changed. The growth in poverty under the counterfactual that inequality had not changed would be  $-1.2 \times 0.07 =$

$-0.084 \approx -8.4$  percent. The actual poverty reduction is 10%, meaning that the actual poverty reduction is higher than the reduction that would have occurred if growth were inequality neutral, which gives a pro-poor index  $\varphi = \frac{(-.10)}{(-.084)} = 1.19$ . Hence the poor enjoy 19 percent higher benefits than the non-poor, so growth is pro-poor. The  $PEGR = 0.07 \times 1.19 = 0.08 \approx 8$  percent, which is higher than the actual economic growth rate of 7 percent. Thus, there is a gain of 1 percent in the growth rate because growth is pro-poor.

Suppose the economy suffered a recession, so the economic growth rate declined by 5 percent, implying  $\gamma = -0.05$ , which led to an increase in poverty by 7%, giving  $\delta = 0.07$ . If the recession were inequality neutral, poverty would have increased by  $-1.2 \times (-0.05) = 0.06 \approx 6$  percent. The actual increase in poverty is 7 percent, which yields the pro-poor index  $\varphi = \frac{7}{6} = 1.17$ . It means that the poor suffer a 17 percent higher loss of income than the non-poor; therefore, the recession is anti-poor. Thus, the  $PEGR = -0.05 \times 1.17 = -0.059 \approx -5.9$  percent, which is lower than the actual growth rate of -5 percent. Therefore, society suffers a loss of growth rate equal to 0.9 percent. A similar interpretation applies to the absolute PEGR.

This hypothetical example has a critical message. It shows that pro-poor growth contributes to a gain in the growth rate in poverty reduction, while anti-poor growth results in the loss of the growth rate in poverty reduction. This result is intuitive and can be more readily conveyed to policymakers.

#### **4. Poverty Social Welfare Approach to Pro-poor Growth**

The PEGR requires the specification of the poverty line and an aggregate poverty measure, and several poverty measures are available in the literature based on alternative assumptions. The PEGR can be calculated for any poverty measure, a general method encompassing any poverty measure. Any income and expenditure household survey can be

used to operationalize the technique. This technique requires the estimation of the growth elasticity of poverty  $\eta$ , and Kakwani and Son (2008) proposed to estimate the elasticity using the poverty decomposition proposed by Kakwani (2000). Many researchers have found the estimation of this elasticity rather difficult. This section offers an alternative method of estimating prop-poor growth using the poverty social welfare approach developed in this paper.

Suppose  $z$  is the poverty line, the income below which individuals cannot satisfy their minimum needs. Persons are identified as poor if their income  $x$  is below the poverty line.<sup>4</sup> We develop below a general class of poverty social welfare functions and show how it can drive a class of pro-poor growth indices.

Suppose  $v_k(z, x)$  is the weight given to a poor person with income  $x$ , when poverty line is  $z$ , defined as

$$v_k(z, x) = \frac{(k+1)}{H} \left[ \frac{H-F(x)}{H} \right]^k \quad \text{if } x < z \quad (4.1)$$

$$= 0 \quad \text{if } x \geq z$$

$F(x)$  is the probability distribution function, which is the probability of a person with income less than  $x$ .  $H$  is the proportion of poor identified by the poverty line  $z$ .

The total weight in the domain of  $x$  adds up to 1:

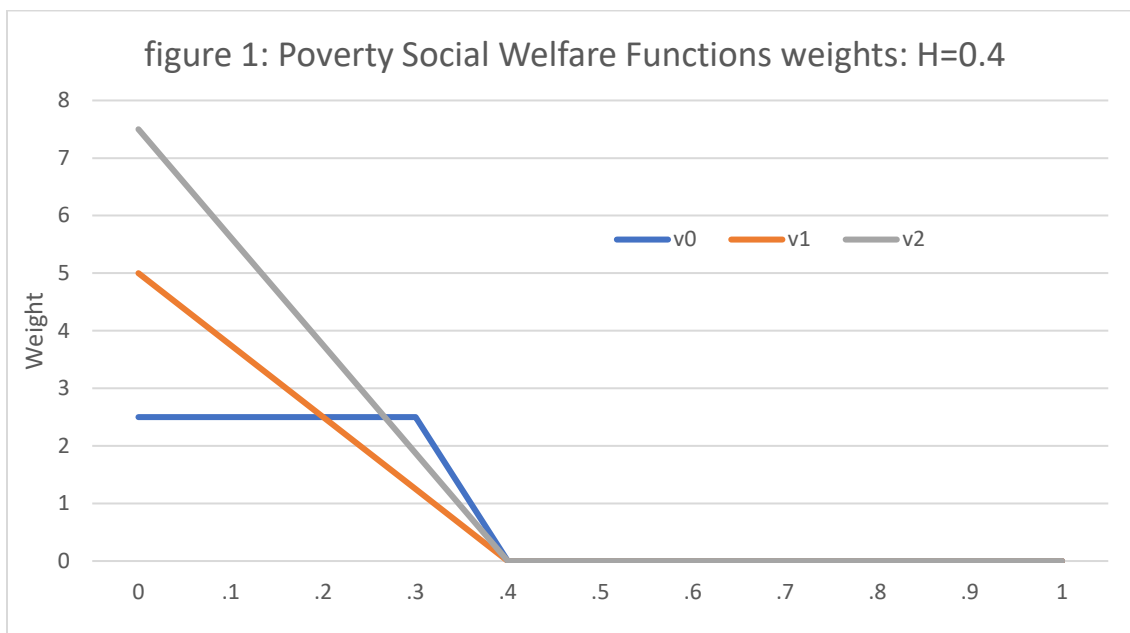
$$\int_0^H v(z, x) f(x) dx = \frac{(k+1)}{H} \int_0^H \left[ \frac{H-F(x)}{H} \right]^k f(x) dx = 1 \quad (4.2)$$

The poorest person gets the maximum weight of  $(k+1)$ , which decreases monotonically as income increases and becomes 0 when the income of the poor increases to the poverty line  $z$  or higher. Thus, all the weight is given to the poor, and the non-poor receives zero weight, which

---

<sup>4</sup> This approach of identifying the poor was suggested by Rawintree as early as in 1901. Most recently, Using the consumer theory, Kakwani (2011) developed a new model of calculating the poverty line that satisfies persons' caloric needs and basic non-food needs.

characterizes poverty social welfare functions. Figure 1 depicts the weights assigned to the poor; For an illustration, H is assumed to be 0.4.



The figure depicts the three alternative weighting schemes. When  $k = 0$ , every poor receives the exact weight of 2.5 until the income of the poor equals the poverty line so that all the non-poor receive zero weights. When  $k = 1$  or  $k = 2$ , the weight decreases monotonically as the income of the poor increases, attaining the value 0 when the poor cross the poverty line. This weighting scheme leads the following class of poverty social welfare functions.

$$x^*(z, k) = \frac{1}{H} \int_0^z x v(z, x) f(x) dx = \frac{(k+1)}{H} \int_0^z x \left[ \frac{H-F(x)}{H} \right]^k f(x) dx, \quad (4.3)$$

which is the money metric poverty social welfare function measured in the income currency such as Dollar or Rupees. This social welfare class depends on the income ranking of the poor. Sen (1976) proposed the idea of rank order ranking from the viewpoint of capturing the relative deprivation suffered by persons when they compare their economic circumstances with others in society. The basic intuition behind the rank ordering is that the lower a person is on the welfare scale, the higher this person's sense of deprivation. Intuitively, the person suffering from the

highest deprivation must receive the most importance, thus, must receive the largest weight.

When  $k = 0$ ,  $x^*(z, k)$  becomes

$$x^*(z, 0) = \frac{1}{H} \int_0^z x f(x) dx, \quad (4.4)$$

which equals the mean income of the poor. It is the most straightforward poverty social welfare function. This social welfare function has one limitation; it gives equal weight to all the poor irrespective of economic circumstances. All poor cannot be identical; they have different incomes, so they must have different weights. Figure 1 shows that when  $k > 0$ , the importance given to the poor decreases linearly as their income increases. As  $k$  increases from 1 to 2, Figure 1 also shows that the weight function becomes steeper, giving relatively greater weight to the poorer persons among the poor. It means that the parameter  $k$  is interpreted as the inequality aversion parameter; as  $k$  rises, more and more importance is given to transfers among the poor at the lower end of the distribution and less weight to the transfer at the top. This is a desirable property if society is concerned with giving greater importance to poorer persons among the poor. Thus, it would be more appropriate to measure pro-poor growth using the general class of poverty social welfare functions in (4.3) for  $k > 0$ ; the higher the value of  $k$ , the greater society's inequality aversion.

Suppose  $\gamma = \Delta \ln(\mu)$  is the relative growth rate of the mean income of the society, which can be shown to give equal proportion weight to everyone in society. Further, suppose  $\gamma(z, k) = \Delta \ln(x^*(z, k))$  is the growth rate of the social welfare  $x^*(z, k)$ , which gives all the weight to only the poor, with the poorest getting the maximum weight. We may now define the pro-poor index as follows.

If  $\gamma(z, k) > \gamma$ , the growth will be pro-poor because the growth will benefit the poor proportionally more than the non-poor. That leads to a relative pro-poor index  $\rho(z, k)$  given by

$$\rho(z, k) = \frac{\Delta \ln(x^*(z, k))}{\Delta \ln(\mu)} = \frac{\gamma(z, k)}{\gamma}, \quad (4.5)$$

where  $\gamma(z, k)$  is the relative growth rate of the poverty social welfare  $x^*(z, k)$ . Poverty social welfare function gives the highest weight to the poorest person in society, and the weight decreases monotonically with income, becoming zero as the person's income becomes equal to or higher than the poverty line  $z$ . The non-poor persons get zero weight, which implies that the growth will be pro-poor if the growth in social welfare  $\gamma(z, k)$  is higher than the growth in the mean of society  $\gamma$ , because the poor will receive greater proportional growth benefits.

Suppose  $\gamma > 0$ ; growth will be pro-poor (anti-poor) if  $\rho(z, k)$  is greater (smaller) than 1. If  $\gamma < 0$ , the growth will be pro-poor (anti-poor) if  $\rho(z, k)$  is smaller (greater) than one because people experiencing poverty suffer a smaller (smaller) loss of income due to the downturn in the economy.

The pattern of relative growth is determined by

$$\gamma(z, k) = \gamma + (\rho(z, k) - 1)\gamma \quad (4.6)$$

which immediately shows that *there will always be a gain (loss) in the relative growth of poverty social welfare if the growth process is pro-poor (anti-poor)*. The decision rule regarding the gain or loss in growth rate is straightforward to explain to the policy makers: *the gain signifies pro-poor growth, and the loss the anti-poor growth*.

Similar to the relative pro-poor index in (4.3), we can also define an absolute pro-poor index for the class of social welfare function.  $x^*(k)$  as

$$\rho^*(z, k) = \frac{\Delta x^*(z, k)}{\Delta \mu} = \frac{\gamma_A^*(z, k)}{\gamma_A} \quad (4.7)$$

From definition (ii), the growth is absolute pro-poor (anti-poor) with an absolute positive growth rate,  $\gamma_A$ , the poor receive greater (smaller) absolute benefits than the non-poor, implying that  $\rho^*(z, k)$  is greater (smaller) than 1. Similarly, if  $\gamma_A < 0$ , the growth is pro-poor (anti-poor) if the absolute loss of growth for the poor is smaller (larger) than that of the non-poor, implying that  $\rho^*(k) < 1$  [ $\rho^*(k) > 1$ ].

The pattern of absolute growth is determined by

$$\gamma_A^*(k) = \gamma_A + (\rho^*(k) - 1)\gamma_A \quad (4.8)$$

which immediately shows that *there always will be a gain (loss) in the absolute growth of social welfare if the growth process is absolute pro-poor (anti-poor)*.

## 5. What is pro-poor development?

First, we need to clarify what development is. It is a complex issue, having different meanings for different people, and economic growth is commonly perceived as development. If a country achieves high economic growth, it is applauded as a country with a high level of development. Economic Growth is measured in income space, which provides people with the means to lead a better life. Means are necessary but insufficient to give people the quality of life they must have.

According to Nobel Laureate Amartya Sen (1983), economic development has to be concerned with the kind of life people can lead; what they can or cannot do, for example, whether they are well nourished, get an education, or able to escape avoidable morbidity. His idea of development relates to enhancing people's well-being (or standard of living). He developed the most comprehensive framework of well-being through functionings and capabilities. While functioning is people's achievement, the capability is their ability to achieve. Functionings are directly related to what life people lead, whereas capabilities are related to people's freedom in choosing the functionings they value. Thus, development is a multidimensional concept defined in terms of capabilities that reflect the extent of freedom people have in determining the life they wish to lead. Following this framework, we describe development as enhancing peoples' capabilities.

Economic Growth generates people's incomes which are the means enabling people to have a command over commodities. But Sen's idea of well-being relates to the kind of life people can lead. Thus, well-being is the people's ultimate achievement, which we call ends, whereas means generated by economic growth enable people to achieve these ends. It is



essential to note that there is no one-to-one relationship between means and ends.

We define development more narrowly as ends, whereas economic growth is as means. Means and ends have different characteristics; means can impact ends, so they are related, but still distinct, and policies to enhance means will differ from those that enhance ends.

The UNDP's human development index (HDI) is widely used globally to measure each country's social and economic development. It focuses on the following four factors: mean years of schooling (expected years of education), life expectancy at birth, and gross national income (GNI) per capita. The first three indicators are the well-being indicators, reflecting the countries' ultimate achievements, called ends. The GNI is the proxy for income, an aggregate measure of means, and the HDI is a composite index of means and ends. Our concern is whether we can legitimately combine the means and ends to obtain a composite well-being index. This paper defines and measures four development goals; pro-poor and inclusive growth based on means, and pro-poor and inclusive development on the ends. So, we treat them as different development goals.

Well-being is a multidimensional concept reflecting many aspects of people's lives. Several indicators measure well-being, and constructing a composite index to measure overall well-being is not essential. The construction of a composite well-being index suffers from many conceptual issues, well-documented in the literature [Kakwani and Son (2022)]. Unfortunately, the HDI combines different dimensions of well-being, including per GNI, to arrive at a composite index of development. Constructing a composite index requires weights to be assigned to various dimensions of well-being, and no meaningful method exists for determining the weights. The HDI gives the weights to different dimensions on an ad hoc basis, which has attracted massive criticism. We have refrained from constructing composite indices of pro-poor development. Our conclusions on pro-poor development derive from the

individual development indicators, which are sensible approaches to formulating policies.

Economic growth creates opportunities that enhance well-being. For instance, growth generates Employment, which provides people with means to enjoy a higher standard of living. Economic Growth generates resources in the form of tax revenue which the government can use to create opportunities for the people in education, health, nutrition, and living conditions, such as providing clean water, electricity, and sanitation. Opportunities are a process that has a direct bearing on well-being. In this paper, we retain such opportunities as components of development.

Pro-poor development concerns the performance of the poor in achieving development relative to the non-poor. We propose the following two definitions of pro-poor development:

**(iv) Relative pro-poor development:**

**The development is relatively pro-poor (anti-poor) if the relative well-being growth rate of the population is positive and the poor enjoy a proportionally higher (lower) increase in well-being than the non-poor.**

**The development is also relatively pro-poor (anti-poor) if the relative well-being growth rate of the population is negative and the poor suffer a proportionally lower (higher) decline in well-being than the non-poor.**

**(v) Absolute pro-poor development:**

**The development is absolute pro-poor (anti-poor) if the absolute well-being growth rate of the population is positive, and the poor enjoy an absolute higher (lower) increase in well-being than the non-poor.**

**The development is also absolute pro-poor (anti-poor) if the absolute well-being growth rate of the population is negative and the poor**

**suffer an absolute lower (higher) decline in well-being than the non-poor**

How can we operationalize pro-poor development? The following section discusses the measurement of pro-poor development.

## 6. The measurement of pro-poor development

Suppose  $\omega(x)$  is the well-being indicator of a person with income  $x$ ; several indicators characterize the overall well-being. For ease of presentation,  $\omega(x)$  will be referred to as well-being.

We propose generalizing the poverty social welfare function in (4.3) to achieve this objective. This generalization will be called Poverty Social Well-being Function. (PSWF) given by

$$\omega_p^*(z, k) = \frac{(k+1)}{H} \int_0^z \omega(x) \left[ \frac{H-F(x)}{H} \right]^k f(x) dx \quad (6.1)$$

which links the well-being with the economic circumstances of the poor.

When  $k = 0$ ,  $\omega_p^*(k)$  collapses to  $\bar{\omega}_z$  given by

$$\bar{\omega}_z = \frac{1}{H} \int_0^z \omega(x) f(x) dx \quad (6.2)$$

which is the mean well-being of the poor. This is the most straightforward poverty social well-being function. Its main limitation is that the well-being of all the poor gets the same weight irrespective of their economic situation. However, if  $k > 0$ , the weight given to the well-being of the poor varies with their income. The well-being of the poorest gets the highest importance.

The pro-poor relative development index for the (PSWF) is given by

$$\tau_p(z, k) = \frac{\Delta \text{Ln}(\omega_p^*(z, k))}{\Delta \text{Ln}(\bar{\omega})} = \frac{\sigma_p(z, k)}{\sigma} \quad (6.3)$$

where  $\sigma_p(z, k)$  is the relative growth rate of poverty social well-being, and  $\sigma$  is the relative growth rate of the well-being of the whole population. The development, based on definition (iv), will be relative pro-poor (anti-poor) if  $\sigma > 0$ , and  $\tau_p(z, k)$  is greater (less) than one. If

$\sigma < 0$ , and  $\tau_P(z k)$  is less (greater) than one, the development will be relatively pro-poor (anti-poor)

The pattern of pro-poor development is described by

$$\sigma_P(z k) = \sigma + (\tau_P(z k) - 1)\sigma \quad (6.4)$$

which immediately shows that *relative pro-poor development leads to a gain in relative well-being growth rate, while anti-poor development results in a loss in relative well-being growth rate*. Thus, we propose to measure the degree of relative pro-poor development by the gain or loss of relative growth in a well-being indicator.

The pro-poor absolute development index for the (PSWF) is given by

$$\tau_P^*(z k) = \frac{\Delta(\omega_P^*(z k))}{\Delta(\bar{\omega})} = \frac{\sigma_P^*(z k)}{\sigma^*} \quad (6.5)$$

where  $\sigma_P^*(z k)$  is the absolute growth rate of poverty social well-being, and  $\sigma^*$  is the absolute growth rate of the well-being of the whole population. The development, based on definition (v), will be absolute pro-poor (anti-poor) if  $\sigma > 0$ , and  $\tau_P(z k)$  is greater (less) than one. If  $\sigma < 0$ , and  $\tau_P(z k)$  is less (greater) than one, the development will be relatively pro-poor (anti-poor)

will be absolute pro-poor (anti-poor) if  $\tau_P^*(k)$  is greater (less) than one. The pattern of pro-poor development is described by

$$\sigma_P^*(z k) = \sigma^* + (\tau_P^*(z k) - 1)\sigma^* \quad (6.6)$$

which immediately shows that *absolute pro-poor development leads to a gain in absolute well-being growth rate, while anti-poor development results in a loss in well-being growth rate*. Thus, we propose to measure the degree of absolute pro-poor development by the gain or loss of absolute growth of a development indicator.

## 7. What is inclusive growth, and how did it evolve?

What is the origin of the term inclusive growth? Our simple answer is that we do not know, and our Google search did not help. The development literature, however, has integrated the concept of inclusive

growth into policymaking. In the new millennium, there has been widespread debate on the idea, still providing no clear definition of what inclusive growth is and how it differs from other development ideas proposed in the literature. The concept remains elusive, as pointed out by Ranieri and Romos in a One-pager publication of the International Policy Centre for Inclusive Growth published in 2013. A careful review of various ADB documents revealed many conflicting definitions of inclusive growth, as pointed out by Klassen (2010). He concluded that inclusive growth concepts are vague and do not allow easy quantitative operationalization. Further complicating matters, the World Bank defines inclusive growth in ways that are at odds with the ADB concept.

India's legendary economist C.H. Hanumatha Rao in his seminal 2017 paper on inclusive growth published in the Indian Economic Journal, made the following observations, "However, there is little clarity among many on the concept of inclusive growth. Very often, it is loosely used by identifying it with welfare schemes like Employment Guarantees and Public Distribution of Food grains, which do not make for inclusive growth by themselves. After all, several such schemes have been there in India."

India's eleventh five-year Plan (2007/08-2011/12) officially adopted inclusive growth as its development strategy. The implied meaning of inclusive growth is a growth process that yields broad-based benefits and ensures equal opportunity for all. This broad vision of the Eleventh Plan includes several inter-related components: rapid growth that reduces poverty and creates employment opportunities, access to essential services in health and education, especially for the poor, equality of opportunity, empowerment through education and skill development, employment opportunities underpinned by the National Rural Employment Guarantee, environmental sustainability, recognition of women's agency and good governance. The plan document identified 27 indicators for achieving the inclusive growth target. Of these 27

targets, 13 were to be monitored at the state level. These targets broadly relate to (i) poverty, (ii) education, (iii) health, (iv) women and children, (v) infrastructure, and (vi) environment.

Inclusive growth continued to be the focal point of the Twelfth Five-Year Plan (2012–2017). It defined inclusive growth from multiple perspectives in terms of 'poverty reduction, group equality, regional balance, inequality reduction, empowerment, and employment generation.' It lists inclusive achievements of the Eleventh Five-Year Plan in terms of conventional development outcome evaluation indicators such as gross domestic product (GDP).

Interestingly none of the targets mentioned in the 11th Five-Year Plan relate to growth in employment generation. However, a large chunk of academic writing focuses on employment growth in assessing India's inclusive growth [Shiela Bhalla (2006), Mehrotra et (2012), and Mitra (2012)]. Kannan (2022) discussed broader criteria for evaluating the inclusiveness of economic growth in India by invoking access to social security for masses of the working poor in India along with the growth of employment opportunities. Kannan (2022) also laments the official definition of inclusive growth, which ignores the growing inequality as it only concerns reducing absolute poverty.

The debate on inclusive growth advanced in India. Unfortunately, it did not clarify what inclusive growth is. Inclusive growth includes a cocktail of policies, which could lead to inclusive growth, but we do not know where we are heading. We cannot precisely measure inclusive growth without a precise definition, and policies do not define inclusive growth if we do not know where we are heading. We can only evaluate policies if they achieve inclusive growth, provided we know our achievement function. The following sections define inclusive growth and development, two distinct concepts.

## **8. Defining and Measuring Inclusive Growth**

The pro-poor growth is deliberately biased in favor of the poor, and its primary purpose is rapidly reducing poverty. In the previous sections, we developed a framework for pro-poor growth employing poverty social welfare functions, and these functions assign entire weight to the poor. The non-poor receives zero weight, meaning society is only concerned with the benefits of growth going to the poor and not with how the growth impacts the non-poor. In contrast, we view inclusive growth as broad-based growth, benefiting everyone, not just the poor. If the growth results in high inequality, some people receive excessive benefits, and others receive meager benefits. Recently, many countries have achieved rapid economic growth accompanied by a sharp increase in inequality, and we cannot classify such a growth process as inclusive.

Discrimination based on gender, religion, caste, or ethnicity may exclude many social groups from participating in growth. Inclusive growth ensures that all social groups can participate in economic activities and receive benefits to lead a decent life. Sukhdeo Thorat has made significant contributions to measuring social inequality in India. In their paper published in the Economic and Political Weekly 2012, Sukhdeo Thorat and Amaresh Dubey examined a critical question "Has Growth Been Socially Inclusive During 1993-94-2009?" In India, the caste system is crucial in excluding social groups such as scheduled cast and scheduled tribes from participating in the growth process. It would be challenging to link the discrimination suffered by the social groups to the inclusive growth developed in the paper. That would be our future project. The operationalizing of inclusive growth is produced below.

There is a one-to-one linkage between equality and social welfare function. How we measure equality depends on the social welfare function we choose, and we measure equality in income space using a class of social welfare functions. We view inclusive growth as broad-based growth, benefiting everyone, not just the poor. Hence, social welfare must assign positive weights to everyone's income so everyone participates in the growth process and benefits from it. The inclusive must also ensure that the growth benefits are equitably distributed. We

cannot achieve perfect equity when everyone receives the same proportional or absolute benefits. But, inclusive growth must ensure everyone can lead a socially acceptable minimum standard of living. That means that inclusive growth must achieve higher economic growth with equity so everyone can enjoy the minimum standard of living. It is, therefore, essential to measure the degree of inclusive growth to devise policies to enhance it.

We propose to utilize a class of inclusive social welfare functions to measure inclusive growth given by

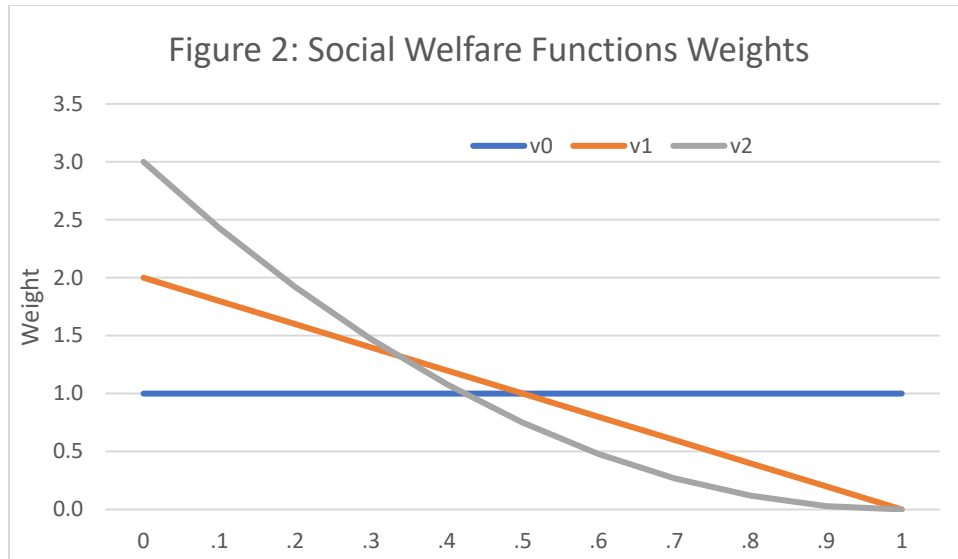
$$w(k) = (k + 1) \int_0^{\infty} x[1 - F(x)]^k f(x) dx \quad (8.1)$$

$F(x)$  is the probability distribution function, interpreted as the proportion of persons with income less than or equal to  $x$ . The total weight given to everyone's income adds to one:

$$(k + 1) \int_0^{\infty} [1 - F(x)]^k f(x) dx = 1 \quad (8.2)$$

Kakwani and Son (2022) have proposed this general class of social welfare functions. We use this class of social welfare functions to measure inclusive growth that considers society's different value judgments. Figure 2 depicts the weighting scheme underlying the class of social welfare functions in (8.1). When  $k = 0$ , everyone in society gets a weight equal to 1, in which case the social welfare  $w(k)$  reduces to the average income of the society. In this scenario, society would have no concern for inequality. When  $k > 0$ , the social welfare function in (8.1) ensures that the poorest person gets the highest weight, decreasing monotonically as income increases. Hence, the richest person receives the slightest importance. This property is desirable for any social welfare function to capture income equity.





If  $k = 1$ , the social welfare function  $w(k)$  reduces to the social welfare function proposed by Sen (1974). As  $k$  increases from 1 to 2, the weight function becomes steeper, implying that the higher the value of  $k$ , the greater importance is given to the poorer person in society.  $k$  is interpreted as the inequality aversion parameter; as it increases, society gives greater importance to the incomes of the more impoverished.

Like pro-poor growth, inclusive growth can be relative and absolute. The index of relative inclusive growth is determined by

$$\delta(k) = \frac{\Delta \ln(w(k))}{\Delta \ln(\mu)} = \frac{\phi(k)}{\gamma}, \quad (8.3)$$

where  $\phi(k)$  is the relative growth rate of the social welfare  $w(k)$ , and  $\gamma$  is the relative growth rate of the mean income.

If  $\gamma > 0$ , and  $\delta(k) > 1$ , the growth process captures the relative equity, so we define growth as relatively inclusive. The growth will not be inclusive if  $\delta(k)$  is less than one because the growth will not be equitable.

If  $\gamma < 0$ , and  $\delta(k) < 1$ , the growth will be equitable and, therefore, inclusive. If  $\delta(k) > 1$ ; the growth will not be equitable, and hence not inclusive,

The pattern of relative inclusive growth is determined by

$$\Phi(k) = \gamma + (\delta(k) - 1)\gamma \quad (8.4)$$

which immediately shows that *there will be a gain (loss) in the relative growth of social welfare if the growth process is relatively inclusive (non-inclusive)*.

Similar to the relative inclusive growth index in (8.3), we can also define an absolute inclusive growth index for the class of social welfare function  $w(k)$  in (8.1) as

$$\delta^*(k) = \frac{\Delta(w(k))}{\Delta(\mu)} = \frac{\Phi^*(k)}{\gamma_A} \quad (8.5)$$

$\Phi^*(k)$  is the absolute growth of social welfare, and  $\gamma_A$  the absolute growth rate of the mean income.

If  $\gamma_A > 0$ , and  $\delta^*(k) > 1$ , the growth captures absolute equity, so we define growth as absolute inclusive. The growth will not be absolute inclusive if  $\delta^*(k)$  is less than one because the growth will not be equitable.

If  $\gamma_A < 0$ , and  $\delta^*(k) < 1$ , the growth captures absolute equity, so we define growth as absolute inclusive. The growth will not be absolute inclusive if  $\delta^*(k) > 1$  because the growth will not be equitable.

The pattern of absolute inclusive is determined by

$$\gamma_A^*(k) = \gamma_A + (\rho^*(k) - 1)\gamma_A \quad (8.6)$$

which immediately shows that *there will be a gain (loss) in the absolute growth of social welfare if the growth process is inclusive (non-inclusive)*.

## 9. Inclusive Development

As discussed, economic growth is measured in income space, which provides people with the means to lead a better life. Means are necessary but insufficient to give people the quality of life they must have.

Inclusive development concerns the broad-based enhancement of the well-being of the population. The measurement of inclusive development requires generalizing the social welfare function given in (8.1). We refer to this generalization as inclusive social well-being function (ISWBF), defined as

$$\omega^*(k) = (k + 1) \int_0^{\infty} \omega(x)[1 - F(x)]^k f(x) dx \quad (9.1)$$

where  $\omega(x)$  is the well-being of a person with income  $x$ , when all the persons are arranged in ascending order of their income. In this function, the well-being of the poorest person in society is assigned the maximum weight of  $(k + 1)$ , decreasing monotonically to 0 as income increases.

The relative inclusive development index for the (ISWBF) is given by

$$\tau(k) = \frac{\Delta \ln(\omega^*(k))}{\Delta \ln(\bar{\omega})} = \frac{\sigma(k)}{\sigma} \quad (9.2)$$

where  $\sigma(k)$  is the relative growth rate of social well-being, and  $\sigma$  is the relative growth rate of the well-being of the whole population.  $\tau(k)$  captures the equity in the well-being of the society. The development will be relative inclusive (non-inclusive) if  $\tau(k)$  is greater (less) than one. The pattern of pro-poor development is described by

$$\sigma(k) = \sigma + (\tau(k) - 1)\sigma \quad (9.3)$$

which immediately shows that *relative inclusive development leads to a gain in well-being growth rate, while non-inclusive development results in a loss in well-being growth rate.*

The absolute inclusive index for the (ISWBF) is given by

$$\tau^*(k) = \frac{\Delta(\omega^*(k))}{\Delta(\bar{\omega})} = \frac{\sigma^*(k)}{\sigma^*} \quad (9.4)$$

where  $\sigma^*(k)$  is the absolute growth rate of social well-being, and  $\sigma^*$  is the absolute growth rate of the well-being of the whole population.  $\tau^*(k)$  captures the absolute equity in well-being. The development will be inclusive (non-inclusive) if  $\tau^*(k)$  is greater (less) than one. The pattern of pro-poor development is described by

$$\sigma^*(k) = \sigma^* + (\tau^*(k) - 1)\sigma^* \quad (9.5)$$

which immediately shows that *absolute inclusive development leads to a gain in absolute well-being growth rate, while absolute non-inclusive development results in a loss in absolute well-being growth rate.*

## 10. Nature of Growth in India: An Illustration

This paper has provided a methodology to measure the four goals of economic development, which include: (i) pro-poor growth, (ii) pro-poor development, (iii) inclusive growth, and (vi) inclusive development. This section applies this methodology to determine if India has achieved the four development goals and to what extent in the first two decades of the 21<sup>st</sup> century.

The pro-poor and inclusive growth is measured in income space, whereas the pro-poor and inclusive development is measured in the well-being space. Well-being is measured in terms of Sen's formulation of functionings and capability. This section analyzes pro-poor and inclusive development by the individual indices of well-being. Separate indices are more revealing for formulating policies to characterize well-being. A critical question arises about how we choose the well-being indicators. There can be numerous well-being indicators, so it is not plausible to analyze well-being by a large number of indicators mentioned in the literature. According to Sen's capability approach, we must focus on some basic functionings. What are these basic functionings and the corresponding capabilities? How can they be identified? An answer to this question requires value judgments. The solution also depends on how society prioritizes different capabilities. These priorities also rely on a country's economic resources. This issue sparked a sharp exchange between Nussbaum (2003) and Sen (2004) but emerging no clear answers.

In this case study, we have focused on the following prominent development indicators:

1. Infant mortality rate (or infant survival rate).
2. Life expectancy at birth.
3. Literacy rate.
4. The percentage of children under five is free of stunting and wasting (two indicators).

These five indicators can adequately capture four dimensions of well-being: child mortality, longevity, education, and child nutrition. Stunting and wasting refer to chronic (long-term) and acute (short-term) indicators of the prevalence of nutritional deficiency in children below five years of age. Stunting refers to shortness of height for a given age from a standard size that the healthy and well-nourished child is expected to achieve. Similarly, wasting refers to a child's inability to gain sufficient weight for a given height compared to the standard weight that a healthy and well-fed child of similar height should achieve. The World Health Organization (WHO 2006) has developed these standards from a sample of 8440 healthy breastfed infants and young children from Brazil, Ghana, India, Norway, Oman, and the United States.

Pro-poor and inclusive growth are measured in income space. Income or consumption is ideal for measuring pro-poor and inclusive growth per capita. But to do so requires nationally representative household income or expenditure surveys. Such surveys are available in India only for selected years, which precludes calculating trend growth rates over time. Given this data limitation, we have carried out the analysis using Indian states as a unit of analysis to obtain a consistent time trend to examine the direction of pro-poorness and inclusiveness. The main limitation of the state-level analysis is that it ignores the variations of pro-poorness and inclusiveness of growth within states. We capture the between-states variations and obtain a broad picture of pro-poorness and inclusiveness at the national level. We also present the state-level analysis of pro-poor and inclusive development. Since we have not utilized nationally representative household surveys to capture the distribution effects, we regard this illustration as preliminary, warranting a more detailed study.

We have used real per capita net State Domestic Product (NSDP) in 2011 prices to proxy for the state's real per capita income. It determines the economic situation of a state, providing its ranking. The ranking is required to calculate the social welfare functions discussed in the paper.

Growth rates can have wide yearly fluctuations, so it is essential to draw inferences based on trend growth rates. The least squares method applied to a semilog regression model commonly calculates the trend growth rates [World Bank's World Development Reports]. Kakwani (1997) has demonstrated that it has welfare implications, which are intuitively not appealing. In this section, we have used Kakwani's method to calculate trend growth rates, which have all the essential properties of a social welfare function.

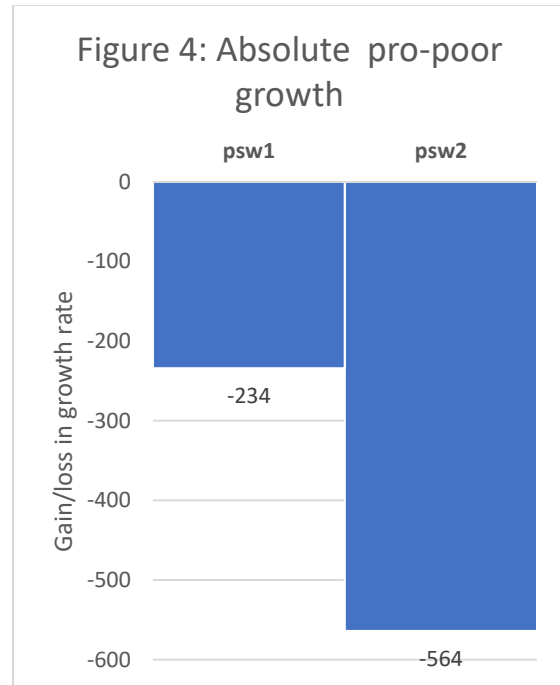
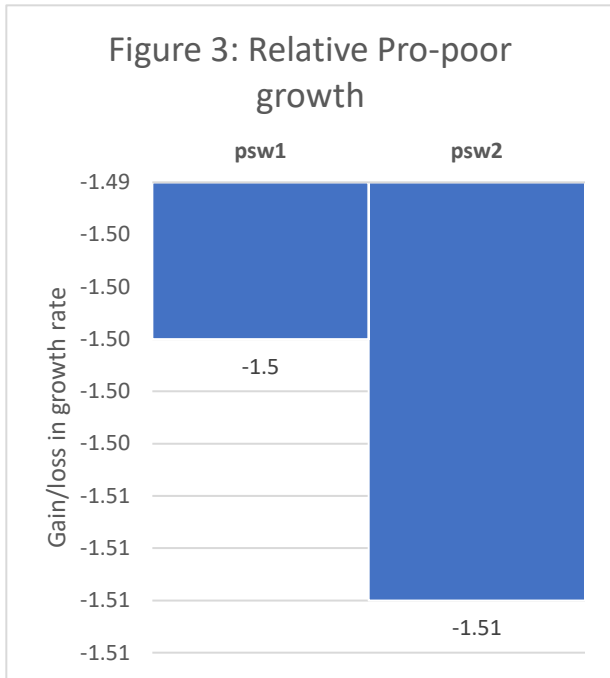
Table 1, presenting the trend growth rates of various indicators at the national level, shows that India's real per capita NSDP has been increasing annually at a real growth rate of 6.14 percent over the two decades; of 2001-2019. What we call a relative growth rate, but Table 1 also offers absolute growth rates, which show that the real per capita NSDP at the national level has been rising at an annual rate of Rs 3463 (in 2011 prices). Hence India's prosperity has been snowballing, but our main concern is whether this prosperity has been shared widely across all the states, among the poor and non-poor states. We answer this question by analyzing whether India's economic growth across states has been pro-poor and inclusive.

<b>Table1: Trend growth rates of poverty and inclusive social welfare and well-being</b>		
<b>Indicators</b>	<b>Relative growth rates</b>	<b>Absolute growth rates</b>
Real Per capita NSD:pc_NSDP	6.14	3463
Infant survival: ISR	0.21	2.03
Life expectancy at birth: LEB	0.57	0.38
Literacy rate: LR	3.03	1.04

Share of children free of stunting: CFS	1.54	0.92
Share of children free of wasting: CFW	0.12	0.1

Measuring pro-poor growth requires ranking the states from the poorest to the richest. We identify a state as poor if it belongs to the bottom 40 percent of the poorest states. The choice of 40 percent is arbitrary; we have chosen it because the World Bank used this figure in its recently proposed development model described in Rosenblatt and McGavock (2013). Ideally, we must construct a poverty line to measure poverty in each state based on household income and expenditure surveys. We did not follow this path because of the limited availability of the surveys.

Figures 3 and 4 answer whether India's real per capita NSDP growth rate has been pro- or anti-poor. We have used the two poverty social welfare functions, psw1, and psw2, which have the inequality aversion of 1 and 2 among the poor, respectively. Figure 3 shows that there has been a loss of relative growth rate of 1.50 and 1.51 percent for psw1 and psw2, respectively. It concludes that India's Growth has not been relatively pro-poor; the result holds for both social welfare functions. Figure 4 depicts absolute pro-poor growth, showing per person per annum loss of absolute growth rates of Rs 234 and 564 for social welfare functions psw1 and psw2, respectively. Thus, the emerging conclusion is that India's Growth had not been pro-poor, relatively and absolutely.

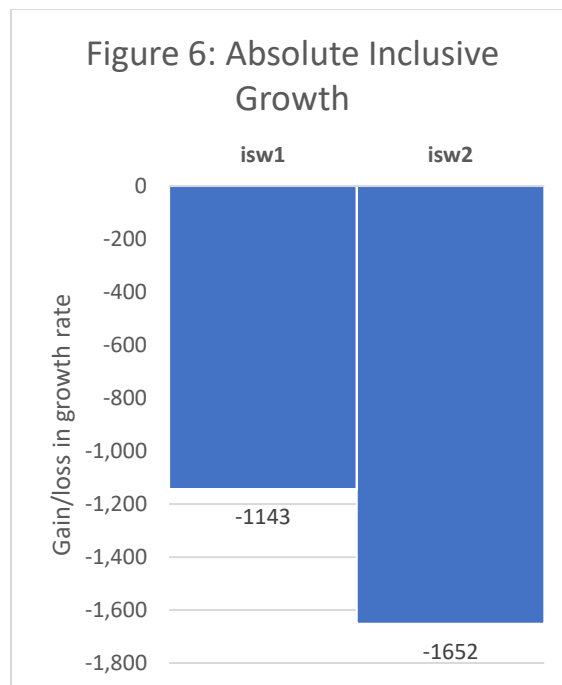
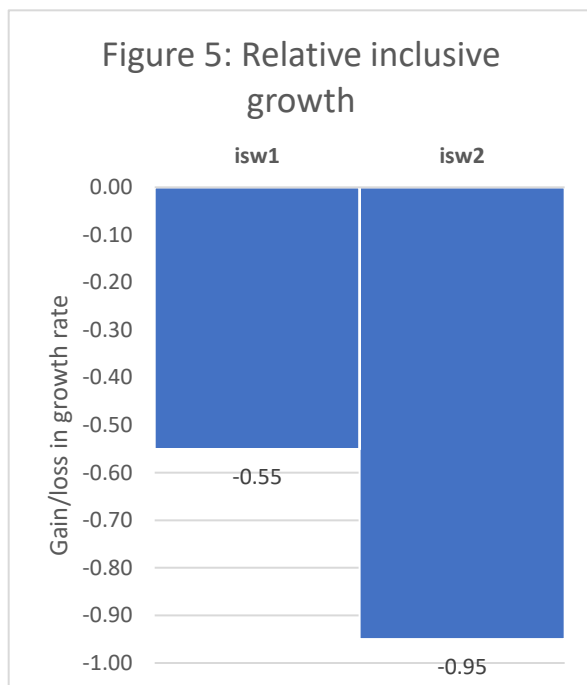


*Source:* Economic and Political Weekly Research Foundation Database

Figures 5 and 6 show whether growth was relative and absolute inclusive. This conclusion is based on the two inclusive social welfare functions, isw1, and isw2, with inequality aversion parameters 1 and 2, respectively. Figure 5 shows the loss of relative growth rates of 0.55 and 0.95 for isw1 and isw2, respectively. Similarly, Figure 6 shows the absolute per-person loss of real growth rates of Rs 1143 and Rs 1652 per annum, respectively. The losses of growth rates are higher for the social welfare functions with higher inequality aversion parameters. That suggests that the poorer the state, the smaller the benefits of growth. The losses of growth rates from Figures 5 and 6 indicate that Growth in India had not been inclusive, relatively, and absolutely.

This section has presented the patterns of economic Growth in India, suggesting that growth has not been either pro-poor or inclusive. India has achieved high and sustained growth in per capita NSDP in the two decades, generating total prosperity, but we cannot call it shared prosperity.



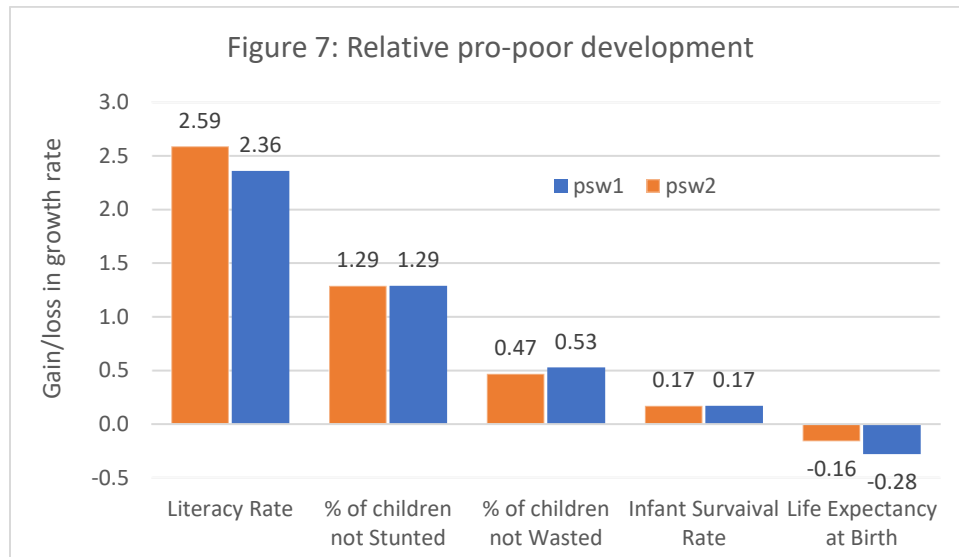


*Source:* Economic and Political Weekly Research Foundation Database

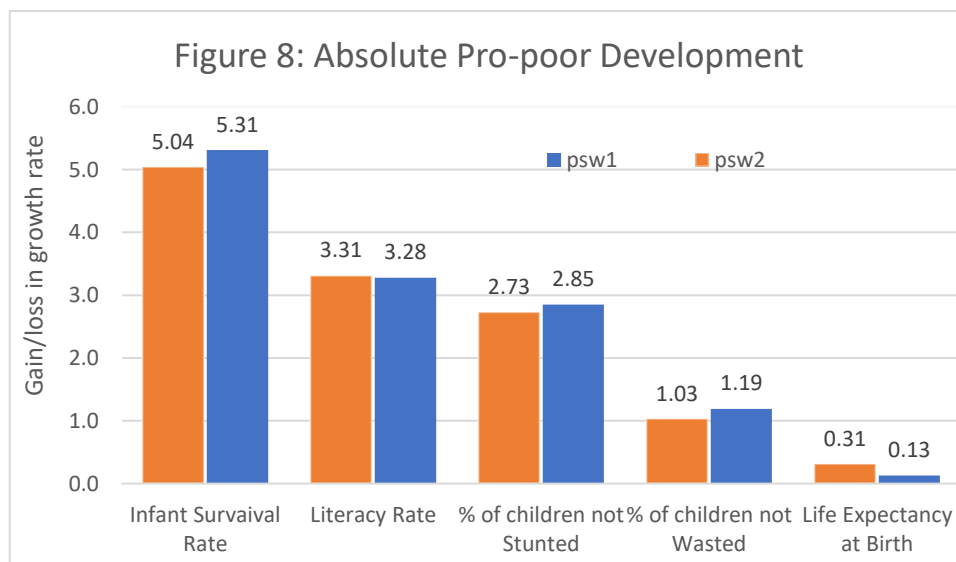
How has India performed in achieving development? To answer this question, we look at the pattern of development. Table 1 shows that all development indicators have had positive trend growth rates. Among them, the adult literacy rate has the highest trend growth rate.

We may conclude from the trend growth rates that India's well-being has increased over the two decades. A pertinent question is whether the development has been pro-poor and inclusive. Figure 7 shows that, except for the life expectancy at birth, all well-being indicators achieved a gain in relative pro-poor development growth rates in well-being. Figure 8 shows all well-being indicators have achieved a gain in absolute pro-poor growth rates, with no exception. Among the five well-being indicators, that signifies that development had been relatively pro-poor except for the life expectancy at birth, but absolute pro-poor among all five indicators, implying that the poorer states have more or less achieved relatively and absolutely higher performance in well-being. However, the degree to which development is pro-poor varies significantly across well-being indicators (Figure 7). For instance, progress in reducing illiteracy and stunting has been highly pro-poor

relatively. Still, progress in improving life expectancy and reducing IMR and wasting has been much less so in a relative sense.

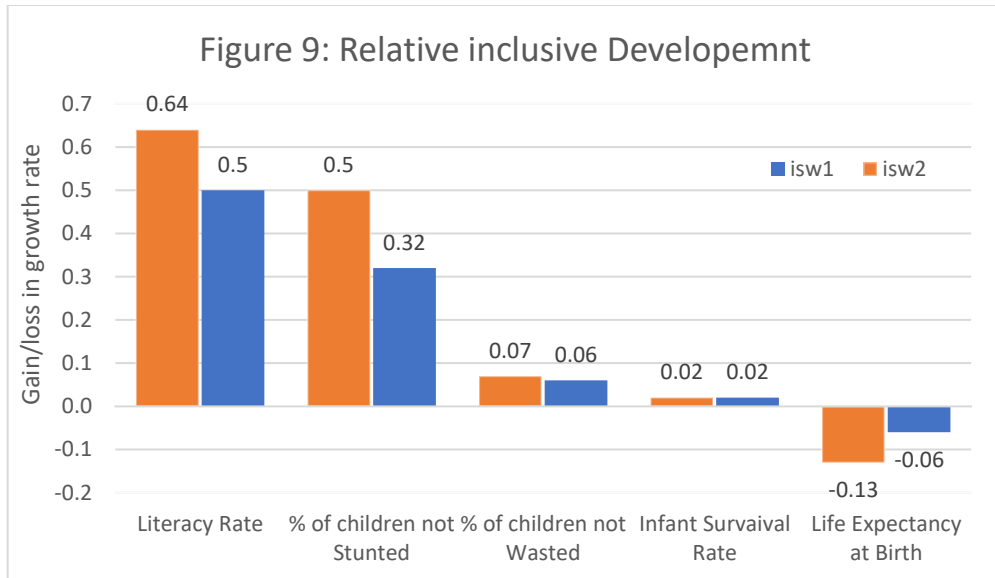


*Source:* Economic and Political Weekly Research Foundation Database

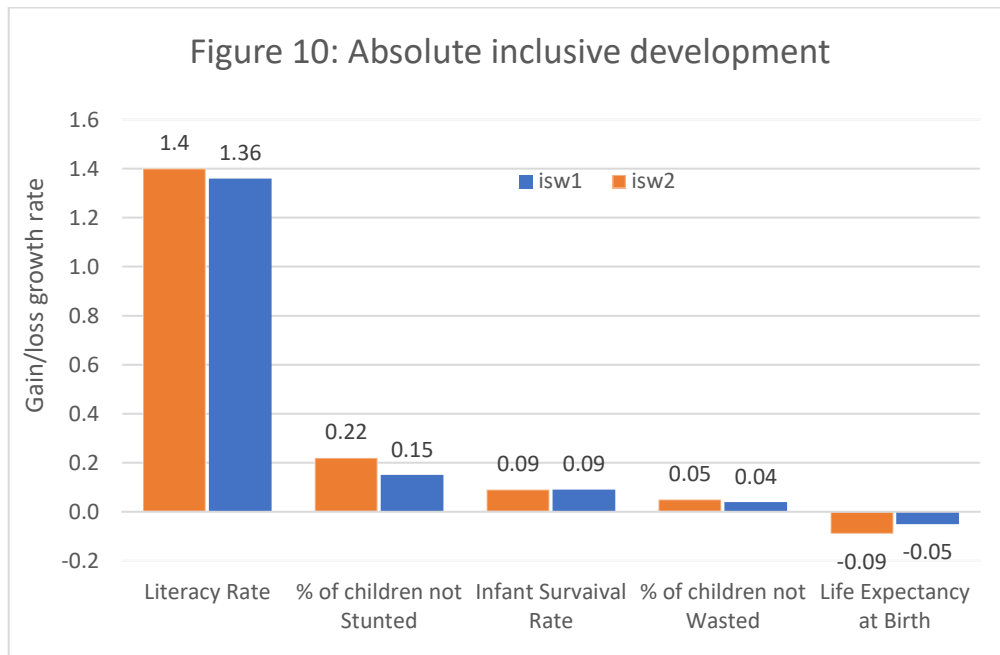


*Source:* Economic and Political Weekly Research Foundation Database

Figures 9 and 10 tell whether the development had been inclusive. Again except for life expectancy at birth, development had been broad-based and inclusive, relatively and absolutely.



*Source: Economic and Political Weekly Research Foundation Database*



*Source: Economic and Political Weekly Research Foundation Database*

We have identified that the life expectancy at birth has been neither pro-poor nor inclusive. That is a relatively long-term indicator of development, so the impact of rising or falling income on it would be realized in the long run.

We conclude from this section that although economic growth has been neither pro-poor nor inclusive, except for life expectancy at birth, development among the five well-being indicators has been both poor and inclusive, relatively and absolutely. This conclusion may surprise many development practitioners: How can development be both pro-poor and inclusive when economic growth is neither pro-poor nor inclusive? We explain below that this result is plausible.

As pointed out, our development concept is restricted to well-being indicators. The literature (for instance, the UNDP human development index) includes both income (means) and well-being indicators (ends), which causes lots of confusion regarding what development is. We distinguish the means and ends, which we must not mix. Growth and development are measured in different spaces, possibly giving conclusions in opposite directions. The two spaces have different characteristics, which we explain as follows.

The NSDP used as a proxy for per capita income has much wider variations across states, but well-being indicators vary in a narrow range. Unlike income indicators, well-being indicators have asymptotic limits, reflecting physical and biological maxima. For instance, the average life expectancy at birth has a maximum limit of not more than 85 years because people cannot live forever.<sup>5</sup> Another essential characteristic, as articulated by Kakwani (1993), is that as the standard of living or well-being reaches progressively higher levels, it becomes increasingly difficult to achieve the same degree of improvement further. For instance, it is easier to increase the average life expectancy at birth from 60 to 65 years than from 80-85 years. Thus, at a higher level of well-being, an incremental improvement would represent higher levels of achievement than a similar incremental improvement from a lower base.

---

<sup>5</sup> Although some individuals may live over 100 years, but no country in the world has achieved the average life expectancy more than 85 years, so we assume that the maximum limit is 85years. The female life expectance is generally 2 to 3 years higher than of male.

So, the relationship between achievement and values of well-being indicators is not linear.

Consequently, the observed difference in the values of indicators does not reflect the actual achievement in well-being between different individuals. Thus, we must interpret pro-poor and inclusive development with caution. Kakwani (1993a) has provided a method of measuring the actual achievement of well-being indicators. Future research must utilize Kakwani's method of measuring pro-poor and inclusive development based on achieved well-being.

The empirical analysis presented in the paper is to illustrate how we can apply our methodology to conclude the pro-poorness or inclusiveness of growth and development. Ideally, we must use nationally representative household surveys to do such analysis, which we could not do without institutional support. This paper focuses on defining and measuring the four development goals as identified. Using the methodology developed in the paper, India's researchers must thoroughly study whether economic growth and development are pro-poor and inclusive.

## **11. Concluding Remarks**

The World Bank has recently proposed a new model of development focusing on the bottom 40 percent of the population. This model aims to achieve two objectives: (i) reduce extreme poverty globally to 3 percent by 2030 and (ii) foster economic growth that benefits the bottom 40 percent of the population. The second goal targeting the bottom 40 percent of the population, is built on shared prosperity. The basic idea is that growth fosters shared prosperity if the bottom 40 percent of the population could benefit from economic growth.

This view of shared prosperity is somewhat restricted. This paper has viewed shared prosperity more broadly. Economic Growth enhances total prosperity, increasing the national economic pie, but the pie distribution determines how the population shares the pie. Economists are deeply divided, and some believe that society must focus on policies to enlarge the pie first and then have policies to divide the pie equitably.

The belief is that expanding the pie size and dividing the pie are mutually exclusive. This paper does not share this view; it views the two phenomena as interrelated.

Based on a social welfare framework, the paper has developed an integrated methodology to evaluate growth and distribution simultaneously. Linking the two phenomena gives rise to four development goals: (i) pro-poor growth, (ii) inclusive growth, (iii) pro-poor development, and (iv) inclusive development. The paper has significantly contributed to defining the four concepts, providing a methodology to operationalize them using real-world data. These four development goals constitute shared prosperity, simultaneously dealing with growth and distribution. The paper has applied this methodology to determine if India has achieved the four development goals and to what extent in the first two decades of the 21<sup>st</sup> century. This empirical study is preliminary and based on Indian states as the unit of analysis, which has many limitations.

The empirical analysis presented in the paper shows that India's growth pattern is neither pro-poor nor inclusive. India has achieved high and sustained growth in per capita GDP in the two decades, generating total prosperity, but it cannot be called shared prosperity.

Still, the paper concludes that overall development has been both pro-poor and inclusive, relatively and absolutely. This conclusion may surprise many development practitioners: How can development be both pro-poor and inclusive when economic growth is neither pro-poor nor inclusive? The paper explains that this result is plausible. One possible explanation is as follows:

Unlike income indicators, well-being indicators have asymptotic limits, reflecting physical and biological maxima. For instance, the life expectancy at birth has a maximum limit of not more than 85 years because people cannot live forever. Another essential characteristic of well-being indicators is that as the standard of living or well-being reaches progressively higher levels, it becomes increasingly difficult to further achieve the same degree of improvement. For example, it is

harder to increase the life expectancy at birth from 80 to 85 years than from 60 to 65. Thus, at a higher level of well-being, an incremental improvement would represent higher levels of achievement than a similar incremental improvement from a lower base. So, the relationship between achievement and values of well-being indicators is not linear.

Consequently, the observed difference in the values of indicators does not reflect the actual achievement in well-being between different individuals. Thus, we must interpret pro-poor and inclusive development with caution. Kakwani (1993a) has provided a method of measuring the actual achievement of well-being indicators. Future research must utilize Kakwani's method of measuring pro-poor and inclusive development based on achieved well-being.

The empirical analysis presented in the paper is to illustrate how we can apply our methodology to conclude the pro-poorness or inclusiveness of growth and development. Ideally, we must use nationally representative household surveys to do such analysis, which we could not do without institutional support. This paper focuses on defining and measuring the four development goals as identified. Using the methodology developed in the paper, the researchers in India must thoroughly study whether economic growth and development are pro-poor and inclusive.

The paper defines inclusive growth as broad-based growth whereby every social group can participate in the growth process. Discrimination based on gender, religion, caste, or ethnicity may exclude many social groups from participating in growth. In India, the caste system is crucial in excluding social groups such as scheduled cast and scheduled tribes from participating in the growth process. It would be challenging to link the discrimination suffered by the social groups to the inclusive growth indicators developed in the paper, which should be a priority for future research.

This paper has precisely defined and provided a methodology for measuring the four development goals. It would be worthwhile for India's policymakers and researchers to assess the impact of various policies on measures of the four development goals.

There is a close relationship between economic growth and environmental deterioration, and ecological deterioration has a massive impact on people's well-being. Including pro-environment growth along with the four development goals explored in the paper would be worthwhile.

Policymaking is a process that should be continuously assessed. We need to constantly prioritize policies that achieve the four development goals efficiently in the most cost-effective way. Thus, policymakers must develop a monitoring system to know how we achieve our goals.

## References

- Ahluwalia, M. S. (1976). Inequality, poverty, and development. *Journal of development economics*, 3(4), 307-342.
- Bhagwati, J. N. (1988). Poverty and public policy. *World Development*, 16(5), 539-555.
- Bhalla, S. (2007). Inclusive Growth? Focus on Employment. *Social Scientist*, 24-43.
- Bronfenbrenner, M. (2017). *Income distribution theory*. Routledge.
- Chenery, H., Ahluwalia, M. S., Duloy, J. H., Bell, C. L. G., & Jolly, R. (1974). *Redistribution with growth; policies to improve income distribution in developing countries in the context of economic growth*. Oxford University Press.
- Dollar, D., & Kraay, A. (2002). Growth is Good for the Poor. *Journal of economic Growth*, 7, 195-225.
- Dreze, J., & Sen, A. (1989). *Hunger and public action*. Oxford University Press, Oxford  
URL: <https://academic.oup.com/book/2070>
- Hanumantha Rao. C.H, "Inclusive Growth: An Overview of Performance and Change Ahead", *The Indian Economic Journal*, Volume 58, Issue 1
- Kakwani, N.(2011), "A new model of constructing poverty thresholds" in *the Measurement of Individual Well-being and Group Inequalities*, (Editors) Joseph Deutsch and Jacques Silber, Pages 261-279, Routledge: London and Newyork.
- Kakwani, N. (1993). Poverty and economic growth with application to Côte d'Ivoire. *Review of income and wealth*, 39(2), 121-139.
- Kakwani, N. (1993a), "Performance in Living Standards: An International Comparison." *Journal of Development Economics*, Vol 41, pp 307-336.
- Kakwani, N. (1997). Growth rates of per-capita income and aggregate welfare: An international comparison. *Review of Economics and Statistics*, 79(2), 201-211.
- Kakwani, N. (2000). On measuring poverty growth and inequality components with application to Thailand. *Journal of quantitative economics*, 16(1), 67-80.



- Kakwani, N., & Son, H. H. (2008). Poverty equivalent growth rate. *Review of Income and Wealth*, 54(4), 643-655.
- Kakwani, N., & Son, H. H. (2016). *Social Welfare Functions and Development: Measurement and Policy Applications*, Palgrave Macmillan, London
- Kakwani, N., & Son, H. H. (2022). *Economic Inequality and Poverty: Facts, Methods, and Policies*. Oxford University Press.
- Kannan, K. P. (2022). India's Elusive Quest for Inclusive Development: An Employment Perspective. *The Indian Journal of Labour Economics*, 65(3), 579-623.
- Klassen, Stephan (2010), "Measuring and Monitoring Inclusive Growth: Multiple Definitions, Open Questions, and Some Constructive Proposals, 'ADB Sustainable Development Working Papers Series.
- Kolm, S. C. (1976). Unequal inequalities. I. *Journal of Economic Theory*, 12(3), 416-442.
- Lok Sabha (2014) "Constituent assembly debates (Proceedings): Vol XI" Reprinted by Lok Sabha secretariat, New Delhi, Sixth Reprint.  
URL: <https://loksabha.nic.in/writereaddata/cadebatefiles/C25111949.html>
- Mahendra Dev, S. (2008). *Inclusive Growth in India: Agriculture, Poverty, and Human Development*. Oxford University Press
- Mehrotra, S., Gandhi, A., Saha, P., & Sahoo, B. K. (2012). Joblessness and formalization: Challenges to inclusive Growth in India. *IAMR occasional paper*, 9, 2012.
- Mitra, A. (2012). Introduction in Mitra, A. (ed) *Insights into inclusive Growth, Employment and well-being in India*. Springer Science & Business Media.
- Nehru, Jawaharlal (1939). *Glimpses of world history*, Lindsay Drummond, London
- Nussbaum, M. (2003). 'Capabilities as Fundamental Entitlements: Sen and Social Justice.' *Feminist Economics*. 9 (2-3): 33 – 59.
- OECD (2001). 'Rising to the Global Challenge: Partnership for Reducing World Poverty.' Statement by the DAC High-Level Meeting, 25-26 April. Paris: OECD.
- Planning Commission (2008). *Eleventh Five Year Plan 2007-12 Volume I: inclusive growth*. Planning Commission, Government of India. Oxford University Press, New Delhi
- Planning Commission (2014). *Twelfth Five Year Plan (2012–2017) Faster, More Inclusive and Sustainable Growth Volume I*. Planning Commission, Government of India, SAGE Publications India, New Delhi
- Rauniyar, G., & Kanbur, R. (2009). Inclusive growth and inclusive development. Occasional paper, 8. Independent Evaluation Department, Asian Development Bank, Manila
- Ravallion, M., & Chen, S. (2003). Measuring pro-poor growth. *Economics Letters*, 78(1), 93-99.
- Rosenblatt, D., & McGavock, T. (2013). A note on the simple algebra of the shared prosperity indicator. *World Bank Policy Research Working Paper*, (6645).
- Sen, A. (1974). Informational bases of alternative welfare approach: aggregation and income distribution. *Journal of Public Economics*, 3(4), 387-403.
- Sen, A. (1983). Development: Which way now? *The Economic Journal*, 93(372), 745-762.
- Sen, A. (2004). 'Capabilities, Lists, and Public Reason.' *Feminist Economics*, 10(3): 77- 80
- Sen, A. K. (1976) Poverty: An ordinal approach to measurement. *Econometrica* 44:219-231

Sen, A. K. (2019). *Development as Freedom*, New York: Alfred A. Knopf

Stiglitz, J. (2011). Of the 1%, by the 1%, for the 1%. May 2011 issue, *Vanity Fair*.

Thorat, S., & Dubey, A. (2012). Has growth been socially inclusive during 1993-94-2009-10?. *Economic and Political Weekly*, 43-53.

United Nations (2000). *A Better World for All*. New York: United Nations.