

**Defining and Measuring Four Development Concepts:
Pro-poor Growth, Pro-poor development, Inclusive growth, and Inclusive development.**

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

Nanak Kakwani

University of New South Wales, Australia

Email: n.kakwani @unsw.edu.au

with

Zakaria Siddiqui

GIFT, Thiruvanthapuram

Debate on Pie and its distribution

- **Economic growth generates goods and services in the economy, which we may characterize as economic pie, which needs to be enlarged to achieve total prosperity, which includes the economic means generated by economic growth that contribute to people's standard of living or well-being.**
- **The pie distribution determines how the population shares the pie. If the pie is shared equitably, we may call it **shared prosperity**. Our ultimate social objective is to achieve shared prosperity. Economists are deeply divided about how we achieve shared prosperity.**
 1. **Some believe that society must focus on policies to enlarge the pie first and then we should have policies to divide the pie equitably.**
 2. **The belief is that expanding the pie size and dividing the pie are mutually exclusive.**
 3. **We do not subscribe to this view; we believe that the two phenomena i.e., growth and its distribution are interrelated.**
 4. **The two phenomena are simultaneous outcomes of the economic processes, the actual impact depending on policies we adopt.**

What is done in the paper?

- This paper develops a social welfare framework, that provides an integrated methodology to evaluate growth and distribution simultaneously.
- Linking the two phenomena gives rise to the recently evolved four development goals:
 - pro-poor growth
 - inclusive growth
 - pro-poor development, and
 - inclusive development.
- These four goals are the alternative characterizations of shared prosperity. This paper defines these four goals, providing a methodology to operationalize them using real world data.
- The methodology is applied to the Indian data to determine whether India's growth and development have been pro-poor and inclusive over the two decades in the new millennium. **For future work, we plan to apply our methodology to measure these development goals globally covering 150 countries.**

Is Distribution of Pie Fundamental?

- 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 benefits of growth will trickle-down to the poor, resulting in poverty reduction.
- Ahluwalia, Carter, and Chenery (1974) in their seminal book, *Redistribution with Growth*, observed that although the world's output expanded at an unprecedented rate in the past quarter of a century, the benefits of growth reached the world's poor to a minimal degree. This failure happened because of the worsening income distribution.
- Despite these concerns, 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."
- 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. There was no clear consensus on the issue.
- If we want to achieve shared prosperity, we consider distribution along with economic growth to be fundamental. Let me draw your attention to a quotation from 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."

Increased focus on distribution

- Bheem Ramji Rao Ambedkar, the architect of India's constitution, echoing Nehru's perception of democracy, said on the 26th 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."*
- A significant shift toward distribution happened in the 1990s and the new millennium. The consensus among development economists was that we must have a mixture of growth-enhancing and distribution policies to achieve the central development goals.
- Pro-poor and inclusive growth became the new mantras to achieve such goals.

Pro-poor growth

- The United Nations (2000) and OECD (2001) defined pro-poor growth as benefiting the poor and providing 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 focus on policies to achieve pro-poor growth, and the broad policies do not help measure pro-poor growth.
- We provided three alternative definitions of pro-poor growth.

Three alternative definitions of Pro-poor Growth

- 1. Relative definition:** If the growth rate is positive, the growth process is pro-poor if it benefits the poor proportionally more than the non-poor. If the growth rate is negative, the growth process is pro-poor if the proportional loss of income from negative growth is less for the poor 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.

- 2. Absolute Definition:** If the growth rate is positive, the growth process is pro-poor if the poor enjoy greater absolute benefits from growth than the non-poor. When growth is negative, the growth process is absolute pro-poor if the absolute loss of income from negative growth is less for the poor than for the non-poor.

Kakwani and Son (2008) proposed this definition, implying that growth results in the redistribution of income in favor of the poor in absolute sense.

- 3. Poverty Reducing Growth:** Growth is pro-poor if it reduces poverty.

Ravallion and Chen (2003) proposed this definition. 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.

Poverty Equivalent Growth Rate (PEGR)

- 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 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.
- The derivation of the PEGR utilized the poverty decomposition, which expressed growth in poverty as the sum of the inequality-neutral growth and income redistribution effects. This decomposition quantitatively measure how much is the impact of growth and how much the redistribution effect on poverty reduction, Kakwani (2000). It encompasses the three definitions of pro-poor growth discussed in the previous slide. The detailed derivation of it is given in Kakwani and Son (2008).
- This technique requires the estimation of the growth elasticity of poverty η , interpreted as the percentage reduction in poverty when the mean income increases by 1 percent, provided the relative inequality has not changed.
- Many researchers have found the estimation of this elasticity rather difficult. We offer an alternative method of estimating prop-poor growth using the poverty social welfare approach.

Defining Poverty Social Welfare Function (PSWF)

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

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

$$= 0 \quad \text{if } x \geq z \quad \text{z is the poverty line.}$$

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

$$\int_0^H v(z, x) f(x) dx = \frac{(k+1)}{H} \int_0^H \left[\frac{H-F(x)}{H} \right]^k f(x) dx = 1 \quad \text{which gives the class of PSWFs:}$$

$$x^*(z, k) = \frac{1}{H} \int_0^z x v(z, x) f(x) dx = \frac{(k+1)}{H} \int_0^z x \left[\frac{H-F(x)}{H} \right]^k f(x) dx, \quad \text{which is the money metric social welfare function.}$$

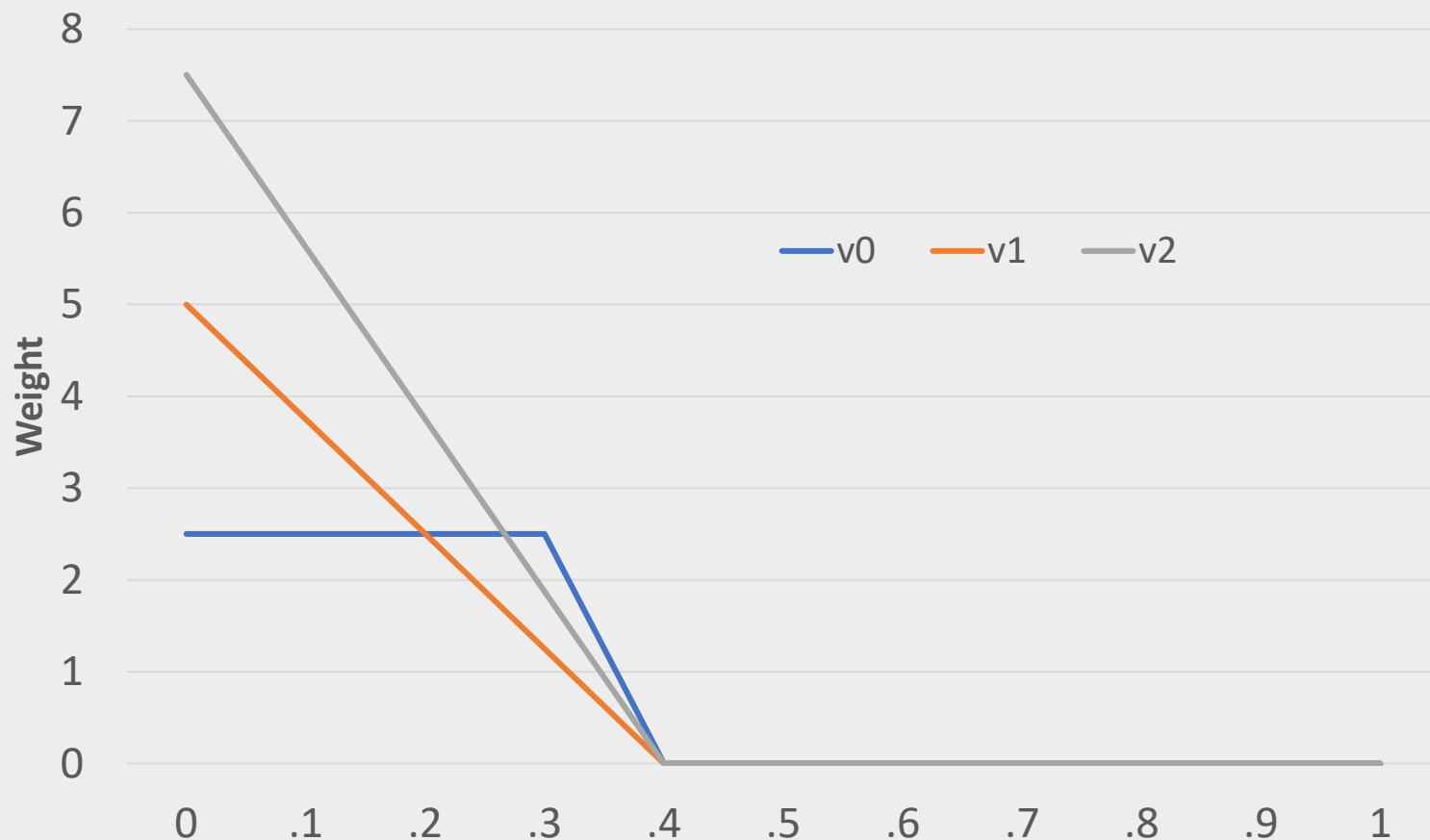
- This social welfare class depends on the income ranking of the poor. Sen (1976) proposed the idea of rank order from the viewpoint of capturing the relative deprivation suffered by persons when they compare their economic circumstances with others in society.

- When $k = 0$, $x^*(k)$ becomes $x^*(0) = \frac{1}{H} \int_0^z x f(x) dx$, which is the mean income of the poor, meaning that social welfare function is insensitive to the inequality among the poor. k must be greater than 0 to capture inequality among the poor.

$F(x)$ is the probability distribution function, the % of persons, who have income less than x . H is the proportion of poor identified by the poverty line z .

Illustration of weights in PSWF

figure 1: Poverty Social Welfare Functions weights: $H=0.4$



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. As k increases, the curve becomes steeper giving greater relative to the poorer persons among the poor.

k is interpreted as the inequality aversion parameter: the larger the value of k greater is the relative weight given to poorer persons among the poor.

What is relative pro-poor growth?

- Suppose $\gamma = \Delta \ln(\mu)$ is the relative growth rate of the mean income of the society, which gives equal proportion weight to everyone.
- Further, suppose $\gamma(k) = \Delta \ln(x^*(k))$ is the growth rate of the social welfare $x^*(k)$, which gives all the weight to only the poor, with the poorest getting the maximum weight.
- If $\gamma(k) > \gamma$, the growth will be relative pro-poor because the growth will benefit the poor proportionally more than the non-poor. That leads to a relative pro-poor index $\rho(k)$ given by
$$\rho(k) = \frac{\Delta \ln(x^*(k))}{\Delta \ln(\mu)} = \frac{\gamma(k)}{\gamma}$$
- Suppose $\gamma > 0$; Growth will be pro-poor (anti-poor) if $\rho(k)$ is greater (smaller) than 1. If $\gamma < 0$, the growth will be pro-poor (anti-poor) if $\rho(k)$ is smaller (greater) than one because the poor suffer a smaller (larger) loss of income due to the downturn in the economy.
- The pattern of relative growth is determined by $\gamma(k) = \gamma + (\rho(k) - 1)\gamma$
- *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).*

What is absolute pro-poor growth?

- The absolute pro-poor index for the class of social welfare function $x^*(k)$ is

$$\text{given by } \rho^*(k) = \frac{\Delta x^*(k)}{\Delta \mu} = \frac{\gamma_A^*(k)}{\gamma_A}$$

- where γ_A is the absolute growth rate of the mean income, and $\gamma_A^*(k)$ is the absolute growth rate of the social welfare function $x^*(k)$. If $\gamma_A > 0$, growth will be absolute pro-poor (anti-poor) if $\rho^*(k)$ is larger (smaller) than one.
- If $\gamma_A < 0$, growth will be absolute pro-poor (anti-poor) if $\rho^*(k)$ is smaller (larger) than one
- The pattern of absolute growth is determined by $\gamma_A^*(k) = \gamma_A + (\rho^*(k) - 1)\gamma_A$
- 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).*

Our view of 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 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, 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.

Our view of development

- 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 creates opportunities that enhance well-being.
- **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 directly affects well-being, and we retain such opportunities as development components. Alternately, we can treat opportunities separately giving two additional goal, which call as pro-poor opportunities:
 - (i) Pro-poor opportunities provides more opportunities to the poor relative to the non-poor.

What is Pro-poor 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 poor enjoy a proportionally higher increase in well-being than the non-poor.**
- **(v) Absolute pro-poor development: The poor enjoy absolute higher well-being than the non-poor.**
- To measure pro-poor development, we must generalize **the poverty social welfare function (PSWF) to the poverty social well-being function (PSWBF)**, developed in the next slide. **This is my new idea in the literature.**

Pro-poor development

- Suppose $\omega(x)$ is the well-being indicator of a person with income x ; The proposed poverty social well-being function (PSWBF) is given by

$$\omega_P^*(k) = \frac{(k+1)}{H} \int_0^Z \omega(x) \left[\frac{H-F(x)}{H} \right]^k f(x) dx$$

- 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

$$\bar{\omega}_Z = \frac{1}{H} \int_0^Z \omega(x) f(x) dx$$

- 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.

Relative pro-poor development

- The pro-poor relative development index for the (PSWBF) is defined as

$$\tau_P(k) = \frac{\Delta \text{Ln}(\omega_P^*(k))}{\Delta \text{Ln}(\bar{\omega})} = \frac{\sigma_P(k)}{\sigma}$$

- defined as where $\sigma_P(k)$ is the relative growth rate of poverty social well-being, and σ 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 $\tau_P(k)$ is greater (less) than one. The pattern of pro-poor development is described by

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

- 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.

Absolute pro-poor development

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

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

- where $\sigma_P^*(k)$ is the absolute growth rate of poverty social well-being, and σ^* 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 $\tau_P^*(k)$ is greater (less) than one. The pattern of pro-poor development is described by

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

- 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.*

Defining Inclusive Growth -1

- The **pro-poor** growth is deliberately biased in favor of the poor, and its primary purpose is rapidly reducing poverty.
- We developed a framework for pro-poor growth employing poverty **social welfare functions assigning 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, **inclusive growth is 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, the debate in the USA has focused on the **1% against the 99%**, whereby the top 1% population gets the lion's share of growth benefits, and the bottom 99% receives a tiny percentage of advantages; we cannot classify such a growth process as inclusive.

Defining Inclusive Growth -2

- 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.
- We measure equality in income space using a class of social welfare functions.
- Since inclusive growth is broad-based growth, yielding benefits to 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.
- Discrimination based on gender, religion, or ethnicity may exclude many social groups from fully participating in the growth process.
- Inclusive growth ensures that all social groups can participate in economic activities and receive benefits to lead a decent life.
- We can empirically measure changes in inclusiveness by the growth in between social group inequality. We call it social inequity in economic growth. There is a close link between inclusive growth and economic benefits received by various social groups.

Inclusive Social Welfare Functions (ISWF)

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

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

$F(x)$ 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:

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

We propose to use a class of social welfare functions to draw conclusions based on society's different value judgments. k is the inequality aversion parameter that determines society's judgement.

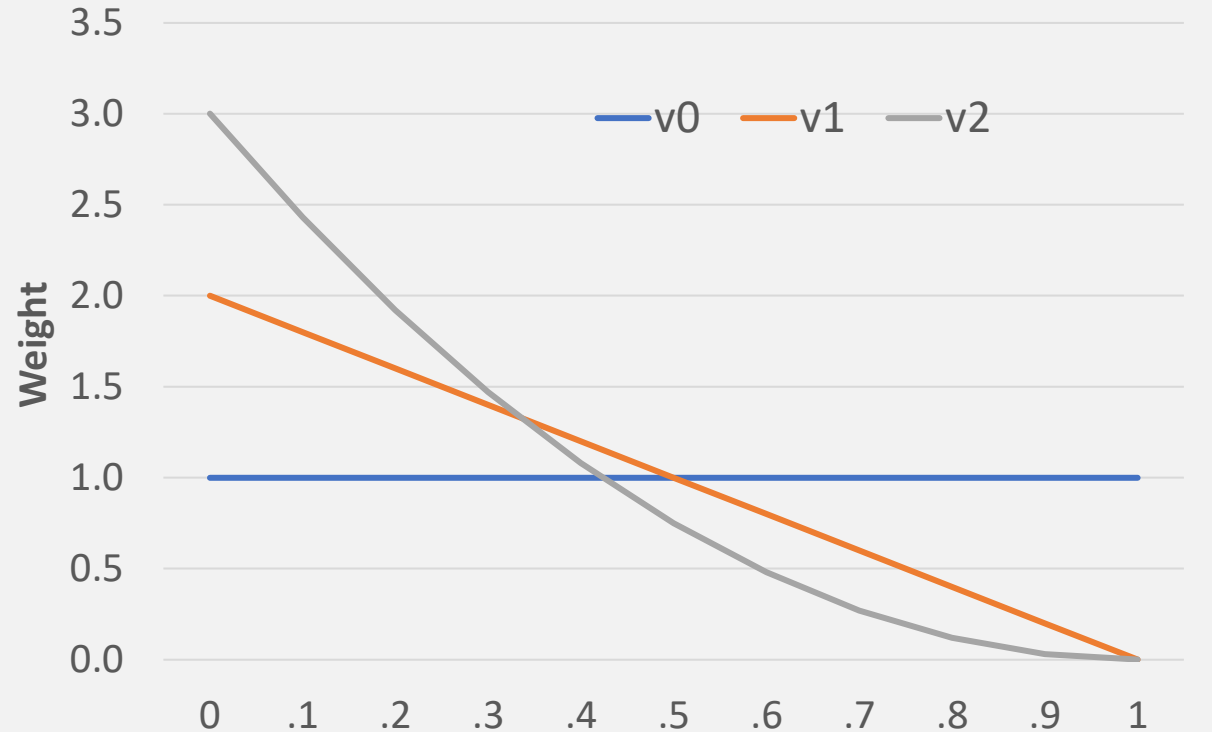
Illustration of weight in ISWF

Figure 2 depicts the weighting scheme underlying the class of social welfare functions. 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.

When $k > 0$, The social welfare function ensures that the poorest person gets the highest weight, decreasing monotonically as income increases.

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.

Figure 2: Social Welfare Functions Weights



k is interpreted as the inequality aversion parameter; as it increases, society gives greater significance to the incomes of the more impoverished.

Rules for relative inclusive growth

Like pro-poor growth, inclusive growth can be relative and absolute.

The **index of relative inclusive growth** is determined by

$$\delta(k) = \frac{\Delta \text{Ln}(w(k))}{\Delta \text{Ln}(\mu)} = \frac{\emptyset(k)}{\gamma},$$

where $\emptyset(k)$ is the relative growth rate of the social welfare $w(k)$, and γ is the relative growth rate of the mean income. If $\delta(k) > 1$, it captures the equity in growth, so we define growth to be relatively inclusive if $\delta(k)$ is greater than one. The growth will not be inclusive if $\delta(k)$ is less than one.

The pattern of relative inclusive growth is determined by

$$\emptyset(k) = \gamma + (\delta(k) - 1)\gamma$$

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

Rules for absolute inclusive growth

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

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

$\emptyset^*(k)$ is the absolute growth of social welfare, and γ_A the absolute growth rate of the mean income. $\delta^*(k)$ captures the absolute equity in the growth process.

The growth is absolute inclusive when $\gamma_A > 0$, and $\delta^*(k) > 1$ and absolute non-inclusive if $\delta^*(k) < 1$

If the **absolute growth is negative**, $\gamma_A < 0$, it would be absolute inclusive if $\delta^*(k) < 1$, implying that the poorer a person, the smaller will be their loss of income due to recession.

- The pattern of absolute inclusive is determined by $\gamma_A^*(k) = \gamma_A + (\rho^*(k) - 1)\gamma_A$
- which immediately shows that *there will be a gain (loss) in the absolute growth of social welfare if the growth process is absolute nclusive (absolute non-inclusive).*

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 $w(k)$. We refer to this generalization as inclusive social well-being function (ISWBF), defined as

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

- 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.

Rules for relative inclusive development

- The **relative inclusive development index** for the (ISWBF) is given by
- $$\tau(k) = \frac{\Delta \text{Ln}(\omega^*)(k)}{\Delta \text{Ln}(\bar{\omega})} = \frac{\sigma(k)}{\sigma}$$
- where $\sigma(k)$ is the relative growth rate of social well-being, and σ 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
- $$\sigma(k) = \sigma + (\tau(k) - 1)\sigma$$
- which immediately shows that *relative inclusive development leads to a gain in well-being relative growth rate, while non-inclusive development results in a loss in relative well-being growth rate.*

Rules for absolute inclusive Development

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

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

- where $\sigma^*(k)$ is the absolute growth rate of social well-being, and σ^* 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

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

- 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.***

Nature of Growth in India: Preliminaries

- We apply our methodology to determine if India has achieved the four development goals: (i) pro-poor growth, (ii) pro-poor development, (iii) inclusive growth, and (vi) inclusive development in the first two decades of the 21st 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. It is a multidimensional concept reflecting many aspects of the life people lead.
- 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)].

Indicators and units of Analysis

- We present results on pro-poor and inclusive development for the individual indices of well-being: (i) Infant mortality rate (or infant survival rate), (ii) Life expectancy at birth, (iii) adult literacy rate, (iv) percentage of children under five free of stunting, and (v) percentage of children under five free of wasting, (iV) percentage of children not weight by age . These six indicators can adequately capture four dimensions of well-being: child mortality, longevity, education, and child nutrition.
- We use Indian states as a unit of analysis, capturing the between-states variations and obtaining a broad picture of pro-poorness and inclusiveness at the national level. We have used real per capita net State Domestic Product (NSDP) in 2011 prices as a 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.

Trend Growth Rates of India's Prosperity

Table1: Trend growth rates of PC_GDP and well-being indicators 2001 to 2019

Indicators	Relative growth rates	Absolute growth rates
Real Per capita NSD:PC_NS DP	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
Share of children free from underweight	1.22	0.03

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 the 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.

Has India's growth been pro-poor and inclusive in 21st century?

- Measuring pro-poor and inclusive growth requires ranking the states from the poorest to the richest. We have ranked states by their net per capita real state net domestic product. We have defined a state as poor if it belongs to the poorest 40 percent of states, which is arbitrary; we have chosen it because the World Bank used this figure in its recently proposed development model [Rosenblatt and McGavock (2013)].

Pro-poor growth: Relative and absolute

Figure 3: Relative Pro-poor growth

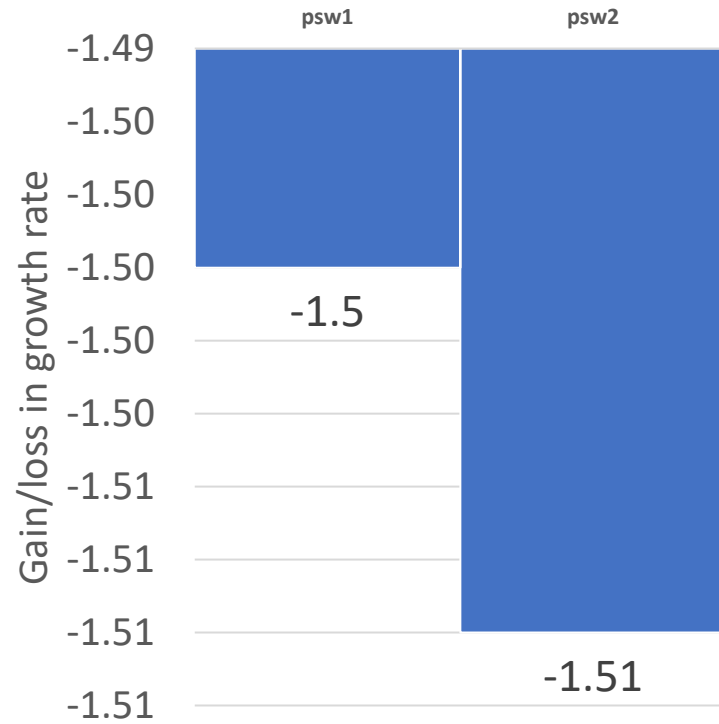
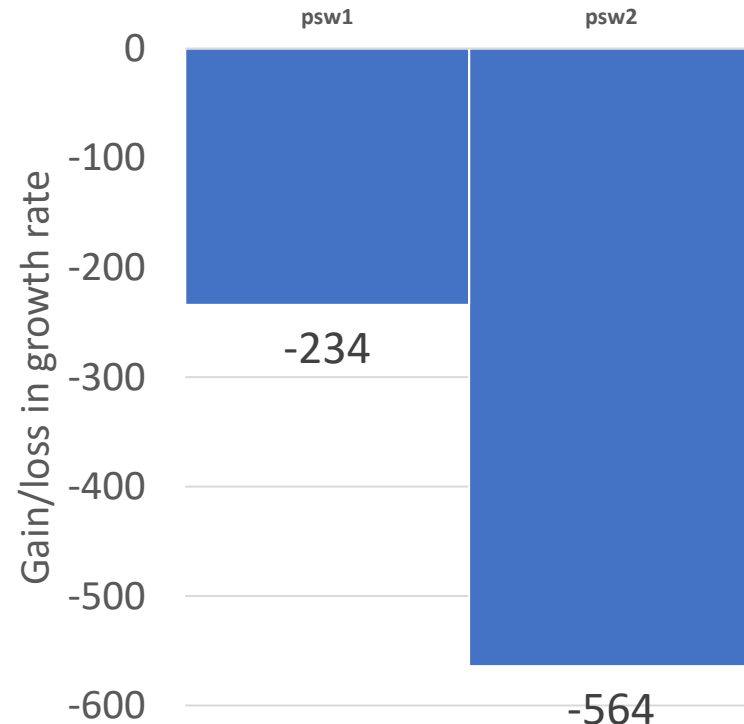


Figure 4: Absolute pro-poor growth



Figures 3 answers whether India's real per capita NSDP growth rate has been pro- or anti-poor. The two social welfare functions, psw1, and psw2, representing inequality aversion of 1 and 2 among the poor, respectively. 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**

Inclusive growth: Relative and Absolute

Figure 5: Relative inclusive growth

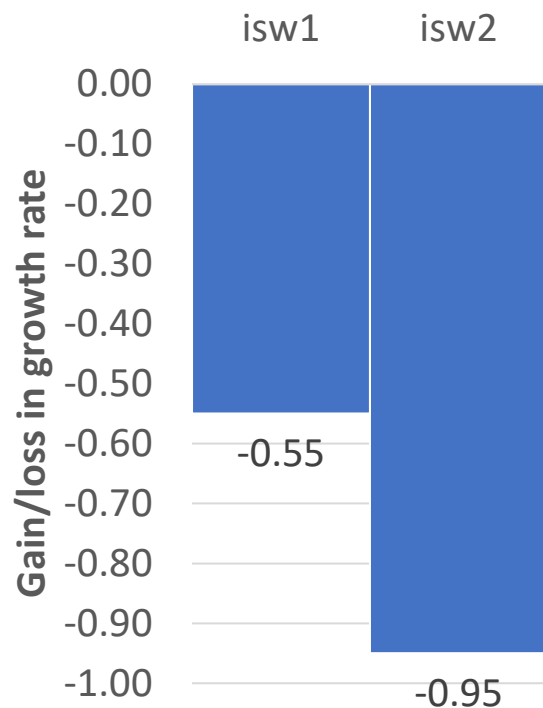
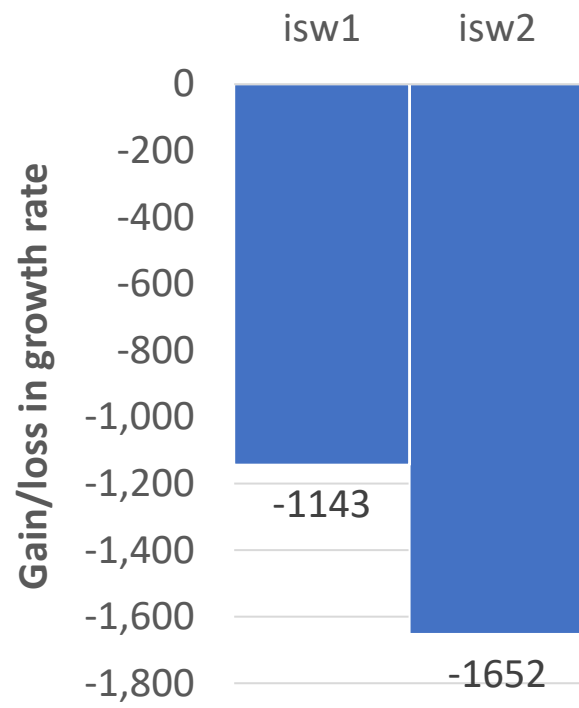


Figure 6: Absolute Inclusive Growth



Figures 5 and 6 show whether growth was relative and absolute inclusive, respectively. We base this conclusion 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 growth rate losses indicate that India's growth had not been inclusive, relatively, and absolutely.

The growth patterns indicate India's economic growth has not been pro-poor or inclusive. India has achieved high and sustained growth in the two decades, generating total prosperity, but this prosperity is not shared equally by all states.

India's Relative Pro-poor Development

Figure7: Relative pro-poor development

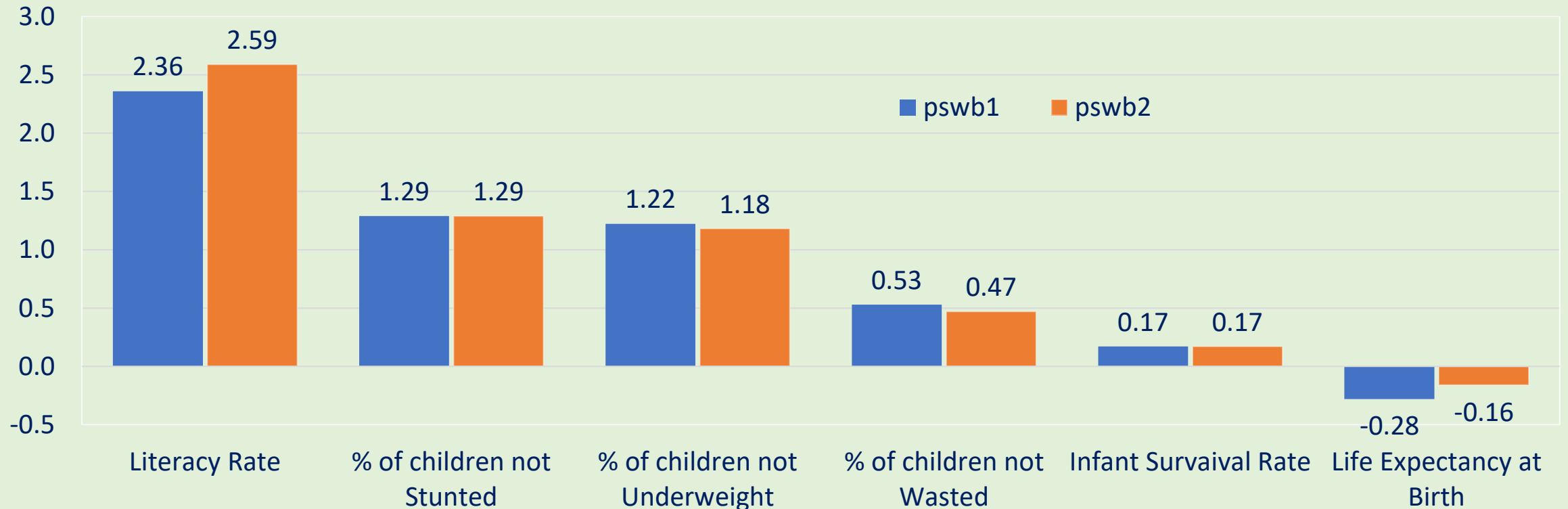


Figure 7: Except for the life expectancy at birth, all well-being indicators achieved a gain in growth rate of relative pro-poor development.

Empirical Results: Absolute Pro-poor Development

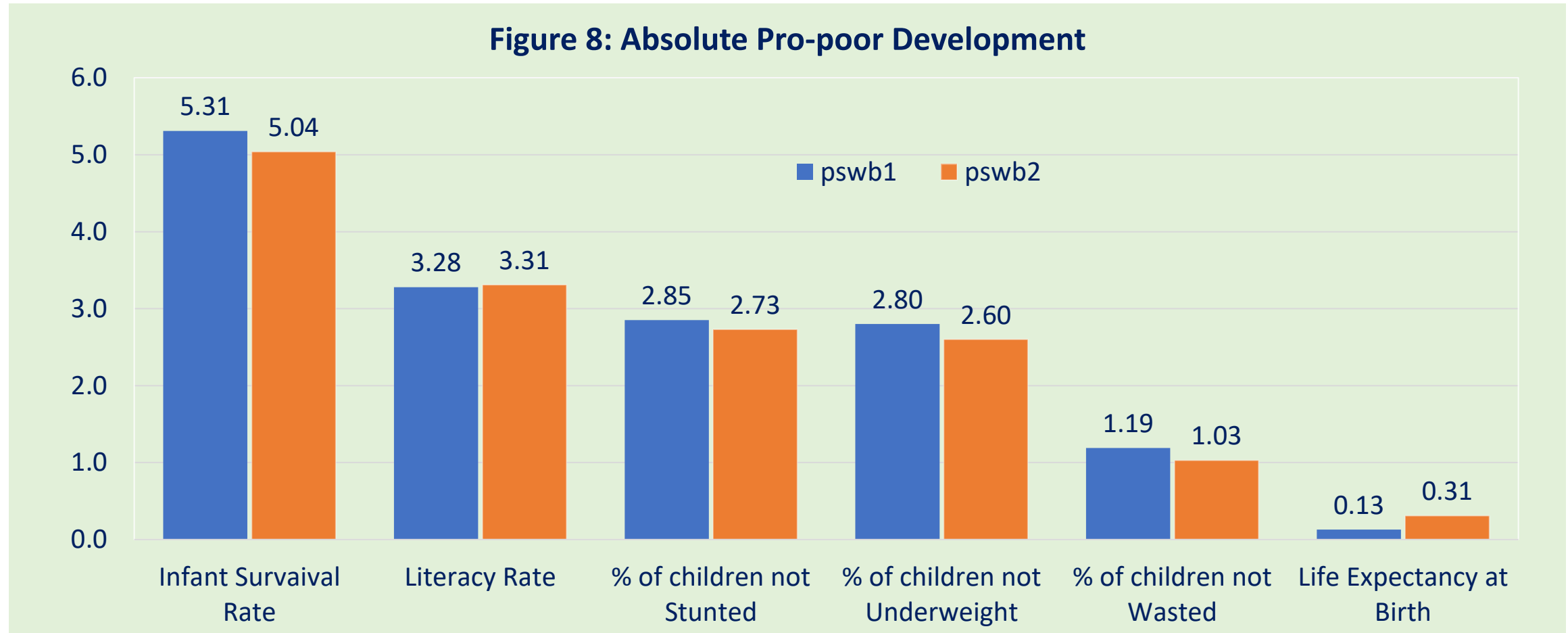
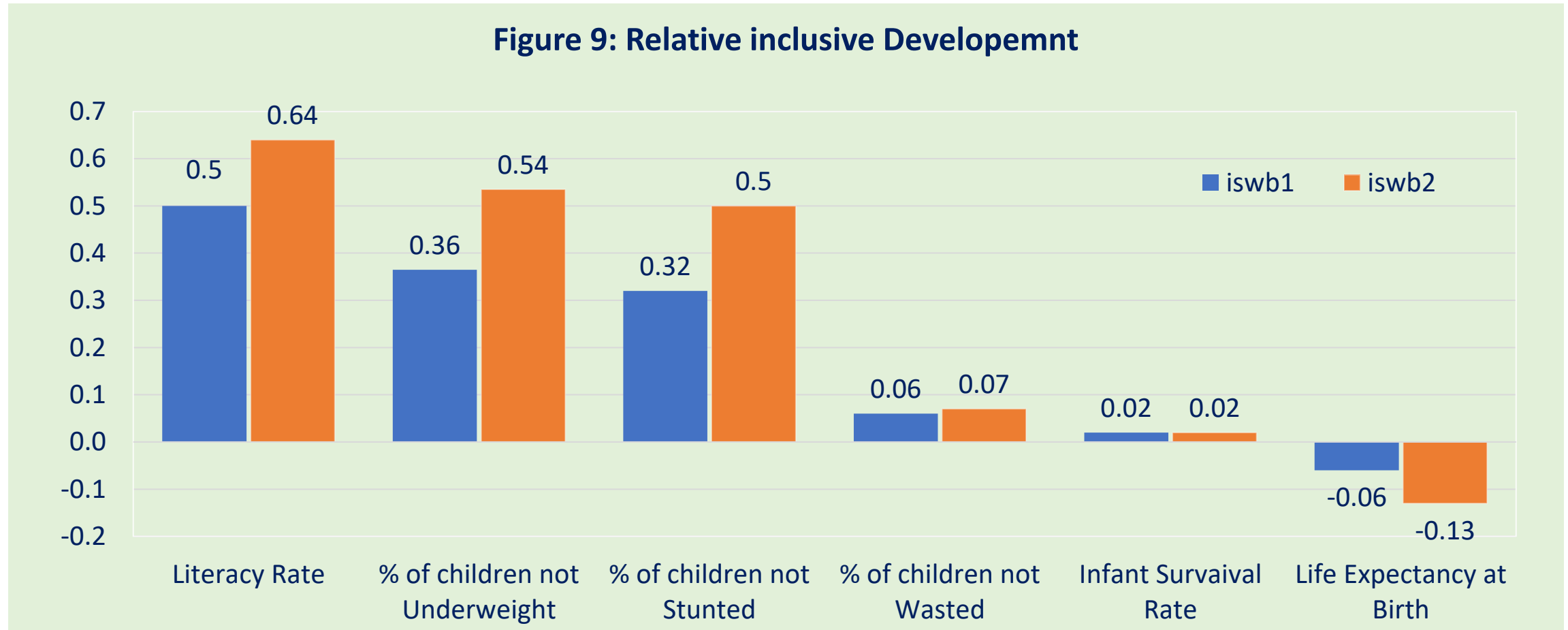


Figure 8 shows all well-being indicators have achieved a gain in absolute pro-poor growth rates, with no exception.

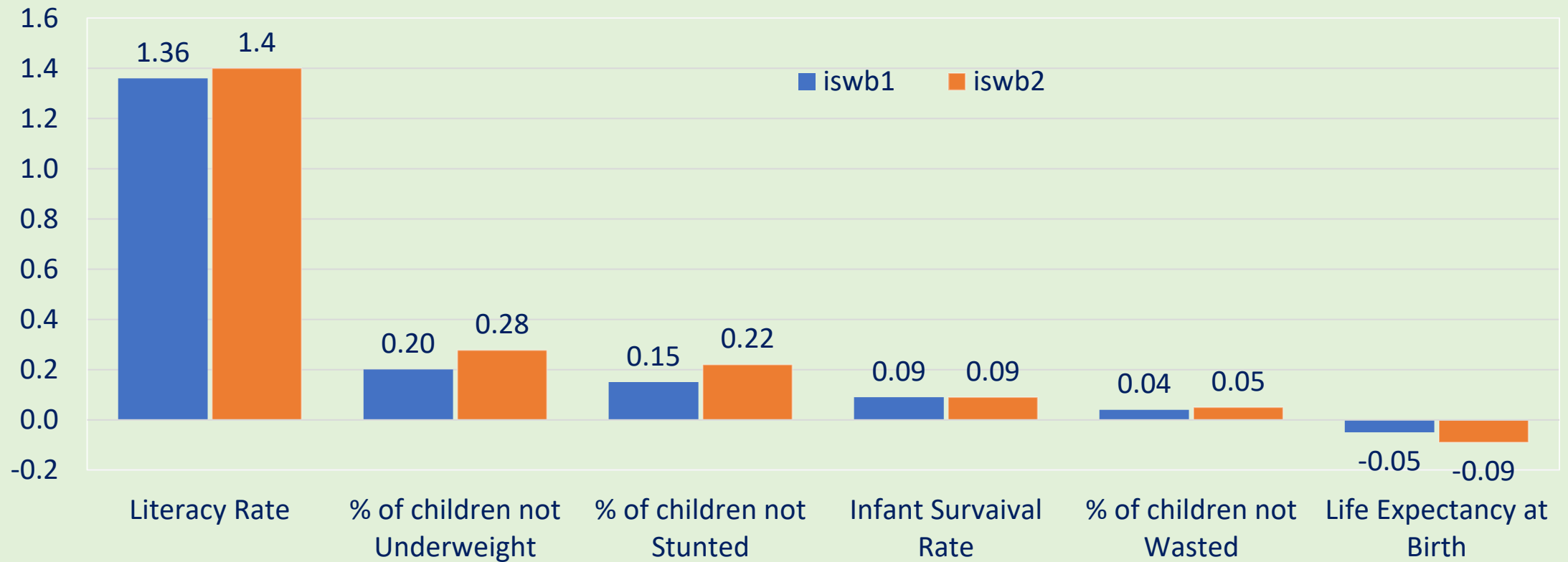
Empirical Results: Relative inclusive development



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

Empirical Results: Absolute inclusive development

Figure 10: Absolute inclusive development



Summary of pro-poor and inclusive development

- **We conclude that although economic growth has been neither pro-poor nor inclusive, overall development has been both poor and inclusive, relatively and absolutely, with the exception of life expectancy at birth, which is neither pro-poor nor inclusive.** 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.
- **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). 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**
- **Kakwani (1993) observed 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 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. So, the relationship between achievement and values of well-being is not linear. If the poorer states in India have low well-being than the richer ones, so their incremental improvement may be higher.**

Concluding Remarks

- This lecture has developed a social welfare framework, providing an integrated methodology to evaluate growth and distribution simultaneously. Linking the two phenomena gives rise to four development goal
 1. Pro-poor growth
 2. Pro-poor Development
 3. Inclusive growth
 4. Inclusive Development

We have provided a precise definition of the four concepts, methodology to operationalize them using real world data

- We have applied this methodology to determine if India has achieved the four development goals and to what extent in the first two decades of the 21st century.
- We propose to apply our methodology to measures the four development goals globally covering 150 countries to determine how the world has performed in achieving these goals.

Concluding Remarks (continued)

- We cannot precisely measure pro-poor/inclusive growth without a precise definition. Policies do not define inclusive growth if we do not know where we are heading.
- Effectiveness of policies in achieving inclusive/pro-poor can be assessed only if we know our achievement function.
- Our paper has provided a methodology to evaluate policies to achieve the four development goals, which contribute to shared prosperity.
- **Discrimination** based on gender, religion, caste, or ethnicity may exclude many social groups from participating in growth. **In India, the caste system plays a key role in excluding some social groups** such as schedule cast and schedule tribe from participating in the growth process.
- It would be worthwhile to link the discrimination suffered by the social groups to the inclusive growth indicators developed in the paper (Thorat).

Future directions of research

- Our work is in progress on developing **methodologies to measure the contributions of social groups to the pro-poor and inclusive growth** so that we know the extent to which social groups are able to participate in the growth process and benefiting from it.
- There exists a close relationship between economic growth and environmental deterioration. **The environment deterioration has a huge impact on people's well-being.** It would be worthwhile to include **pro-environment growth** to the list of four development goals explored in the paper.
- The policy making is a process, which should be continuously assessed. We need to constantly prioritize policies that achieve the four development goals efficiently in the most cost-effective way. To achieve it, the PIDS may develop a monitoring system to know how the Philippines is performing in achieving the four goals.