Measures of Development - Concepts, Causality, and Context[*†]

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I

Behind the very concept of development lies two things: first, a gap between the actual and the possible; and second, a hope that a certain process of change will translate the potential into reality.

However, beyond this basic conceptual point, there is very little that people universally agree on regarding development. Just to give two prominent examples, consider the notions proposed by Robert Lucas and Amartya Sen. To Robert Lucas (1988) the field of development economics involves studying what explains the variation over time and across individuals, households, regions, and countries of per capita income. In contrast, Amartya Sen (1988, 1999) argues that human development is about the expansion of capabilities of individuals, by increasing access and opportunities to the things they have reason to value. There has been a significant amount of work in the last few decades in development economics that has advanced our understanding of what constraints the economic potential of the poor, whatever is our notion of development (see, for example, Banerjee and Duflo, 2010 and Ghatak, 2015).

Some of the disagreement has to do with the goals of development which in turn depends on one's ideal view of society and quality of life for an individual. This is often expressed as a disagreement over the correct measure or index of development. Some of the disagreement has to do with what is the right path to achieve a certain goal, even when there is no disagreement over objectives.

The goals of development inevitably involve some subjective judgement, but there are a number of objective indicators that are popularly used to measure different aspects of development. Some popular examples of such indices would include per capita income, percentage of the population below the poverty line, measures of inequality such as the Gini coefficient, and human development indicators. But objective as these may appear, no indicator can truly capture all the dimensions of a something as multi-faceted as the quality of life. Which

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indicator do we use to determine measure development, then? And when each of these indicators throws up a different image, how are we to arrive at a more or less accurate overall picture?

The simplest among the development indicators is per capita income and the rate of its growth. Despite its popularity, however, per capita income has quite a few limitations as an index of development. For one, it can capture the value of only those goods and services that are bought and sold in the market. The actual elements that determine one's quality of life, such as education, health, environment, infrastructure, and law and order, remain outside its ambit. As do indicators such as life satisfaction and happiness, which are translated into numbers these days, based on answers from respondents to questions like 'Would you describe yourself as happy?' Economists such as Richard Layard (see, for example, Layard, 2006) hold this to be the best indicator of development since the rest are merely inputs contributing to it. However, this indicator has no objective yardstick and depends entirely on individual perception and social influence. That is why it is not of much help when comparing two countries or two different periods of time.

If per capita income is too narrow an index of development, and life satisfaction too diffuse, then perhaps a middle ground could be reached by adopting the human development index. At the basis of this index lies Amartya Sen's capability theory. According to this theory, the goal of development is the gradual enhancement of an individual's capability; while an individual's wellbeing cannot be determined by policies or cardinally measured, it can be safely said that enhancing her capability will enable her to realize her goals. This index, formulated has been appearing in the UN Development Report since 1990, and it comes up inevitably in any discussion on development (see, Anand and Sen, 1994). It is essentially the average of three different indices — per capita income, mortality rate which is the index of health), and an index of education. The third used to be determined earlier by the rate of adult literacy and enrolment rate in schools, but from 2010, the basis shifted to mean years of schooling.

Education and health do not merely contribute to the rise of national income, but they are also important indicators of our quality of life. While Flaubert may have been laughing at our 'pursuit of happiness' when he laid down "the three requirements of happiness" ("To be stupid, selfish, and have good health are three requirements for happiness, though if stupidity is lacking, all is lost"), he could not ignore the importance of good health. But capability cannot be determined by education and health alone; it depends considerably on the rights that citizens are allowed to enjoy. For instance, education and health indicators can hardly paint the true picture of development in countries where a citizen's democratic rights are violated regularly. Such violations can range from curbing one's freedom of expression, to giving a free rein to crime, extortion and violence, using the law and order machinery to commit extra-legal atrocities, and taking away people's property and livelihoods (often in the name of development). Some organizations, such as Amnesty International, have been publishing indices based on citizens' rights, but development indices have not reflected this aspect so far.

That's just one side of the story. The per capita income approach also fails to capture inequality among sections of the population. In other words, it is quite possible for two countries — one with abject poverty and abundant affluence existing side by side and the other with a more equitable distribution of wealth — to have the same per capita income. If our democratic principles mandate that every individual's wellbeing count in the measure of social welfare, then our development index must dig deeper than collective income and take into account the distribution of wealth.

Most economists work around this problem by looking at the percentage of the population below the poverty line. But this method offers only a limited perspective on the problem of inequality as inequalities may exist among those who live above the poverty line, as well as between those living above and below the poverty line. Moreover, we need to keep in mind that inequality is a relative indicator while the poverty line is an absolute one, so the two need not necessarily be connected, and one may well be greater or lesser than the other.

II

We have talked so far about the four main indices to 'measure' development, viz. per capita income, human development, percentage of the population below the poverty line, and the Gini coefficient. There are a few other indicators which get mentioned in debates on development, and most of these serve as alternatives to the conventionally used human development indicators; these include infant mortality rate, measures of child malnutrition, school enrolment rates, and school completion rates. Dreze and Sen (2013) provides several examples of such indicators. However, there are yet more measures of development that are qualitatively different from the ones we just discussed. We cannot possibly engage with all of them in the space of this article, but it is important to mention, however briefly, a few of these measures.

First, when we calculate national income, we must allow for the depreciation of the capital stock needed to generate it. The idea behind this is that national income is not a one-time product, and the implicit assumption is that the economy is capable of continuing to produce the same or higher levels of national income. However, this mode of calculation has no room for the devaluation or depletion of natural resources. But we happen to live amidst ample proof of pollution and abuse of our natural environment all around us. Unlike buildings, infrastructure and machinery, natural resources cannot be rebuilt or replenished when needed. Changes in climate are taking a heavy toll on our farmers, pollution is leaving a few more of us sick every day, and unbridled construction work is leading to natural disasters and destruction all around. What makes the grim picture truly scary is that the price for our greed and downright apathy will have to be paid by the generations to come. Sadly, economists are yet to take cognizance of this threat. Only a few exceptions such as Arrow et al (2004) have argued in favour of including natural wealth and quality of environment, along with income and human resources, in formulations of development index. At an outside guess, one could say that China or India's development story wouldn't appear so impressive if one took into account the environmental impact along with income growth.

Second, a society where girl children are subject to the worst kind of discrimination cannot be evaluated with an overall development index that does not take this aspect into account. In education and health, for instance, girls often lag far behind boys, and so we need to apply the indices for these two parameters to girls and boys separately. In discussing development, we economists tend to assume that the causes of inequality are economic. But not all the factors determining one's economic status are economic in nature; some are rooted in social conditions. When girls and women are discriminated against in educational institutions and the workplace, we cannot possibly use the correlation between capability and economic status to arrive at any conclusion about overall efficiency of using talent and skills in the economy. The same goes for other forms of social discrimination, such as the kind faced by lower caste groups or ethnic minorities. Even if we were to ignore the ethical aspects of discrimination, we cannot deny the adverse effect that such forms of discrimination have on overall economic efficiency of a country. This would create an extra gap between the potential and the reality in terms of development indicators such as per capita income. Therefore, no matter what overall or aggregative index we use to measure development, we must take into account the relative development and growth rate across genders and social groups along with conventional indicators such as per capita income and rate of economic growth to capture social inequality.

Third, even if we are to concentrate solely on the economic aspect of development, we still come up against one important stumbling block - the indicators do not capture fluctuations in income patterns at all. Per capita income may be above the poverty line, but the more this income is liable to uncertainty, the lower should be the value of the development index. Theoretically, it seems eminently possible to formulate such an index, but in actual practice, we hardly ever come across one.

In short, every index of development has its particular strengths and limitations. Just as we can conduct a battery of tests on the human body and diagnose different ailments by analysing the results, so can we diagnose various development-related maladies from what the different indicators tell us. An added complication relative to the analogy with the human body is the problem of aggregation - the development of a country depends on the development of its individual citizens. Which aspects of a citizen's development should count, whether they should be objective or subjective, and how the data from all these indicators could be synthesized into an overall development index is a conceptually complex exercise. If the citizens of a country or state were all equal in all respects, then their per capita income and life span would be the same and their average would give us a fair and square development index without causing added concerns about inequality. But in such a scenario too, opinions might differ on which of these is the best measure of quality of life --- income, life span, education, health or life satisfaction. And then, even if we agree on one (or more) of these indicators as the best, we would still be fighting over the right way to measure inequality, because, after all, no two human beings are equal.

III

Economists who put per capita income and the rate of its growth above all else usually fall into two groups. The first group considers these to be the best indicators of development, while the second group feels that improvement on these counts is the best way to pull up the others (for instance, poverty alleviation). The first group sees income disparity not as a problem but as a natural outcome of the fact that some people are more capable and hard-working than others. They are also opposed to the idea of redistributing wealth to reduce inequality, on the ground that the step will raise the tax burden on citizens, leading to a fall in productivity as well as in investment, which in turn will culminate in a diminished national income. Strange as it may sound, this view is quite popular among Western right-wing economists, but has few proponents in India. So by Western standards, even our right-wing economists would appear to be quite left-leaning, given that they do not deny the importance of poverty alleviation as a social goal, whatever be their views on the means to that end. This is probably due to the fact that in the Indian context, it is impossible to deny that those who perform the hardest physical labour are poor, or that poverty is most often the result of a lack of opportunity. So the advocates of the growth-of-per-capita-income route to development see it as the best way of creating opportunity and employment for the poor, and of increasing government revenue, which could then be channelled into poverty alleviation programmes.

On the other hand, those who prioritize inequality in development calculations feel that the development of human capital of the poor would push up national income in the long run by expanding its human capital base, and hence should be considered as an investment. In their view, therefore, redistribution, if kept within a limit, is, a positive thing. The difference between these two groups of economists is thus not always one of ideology, but over the best means to the goal of development -- just as the disagreement between the Amartya Sen and Jagdish Bhagwati camps in the context of development policy in India is not over the need to remove poverty, but over the road taken to attain that goal.

But the indicators of development alone are not enough to provide a reliable roadmap. As mentioned earlier, these are mere symptoms. The real malaise lies deeper within and needs further investigation. For instance, many are of the opinion that a rise in per capita income brings down poverty, and a cursory glance at the statistics will, in fact, throw up a correlation between the two indicators. But which among the two is the cause, and which the effect? It seems possible enough that if per capita income rises, then poverty could fall, but it seems equally plausible that if poverty falls, per capita income would rise. Or it could just as well be that some other extraneous factor, such as a shift in government policy or a change in the economic environment (such as investment in infrastructure, use of new technology in farming, opening up of new export markets, or expansion of the banking system) is responsible for a rise in per capita income and a fall in poverty levels.

To understand the effect of government policies and the economic environment on the different development indicators, we need to go beyond exploring correlations and establish causality instead. Mainstream development economics has of late been more mindful of this need and recognizes that suggesting outlay amounts is not enough since the lion's share of the allocated amount is wasted or siphoned away before it can reach the poor. The emphasis now is on giving concrete recommendations on planning and implementation of new schemes on education, health, microfinance, farm technology, and poverty alleviation.

IV

Let us now turn our attention to the political context of development. Development policies cannot be examined in isolation of the political setting. When a government decides to follow a particular development policy, it is prompted as much, if not more, by political calculations as by ideologies and development indices. The presence of opposition parties, public opinion, the media, the legal system and civil society in a democracy ensures that the party in power must compromise, or take one step back for every two steps forward in trying to implement its chosen policies. The downside of having so many stakeholders is that often, implementation of policies and schemes that would clearly benefit the most, gets stalled. But thankfully, there is an upside as well.

Notwithstanding what the ruling dispensation's favourite development indicator is, it cannot get complacent with improving performance on that front alone; it has to look at the others as well, or be ready to face uncomfortable questions. An authoritarian political system, however, has no problems of this kind, and can carry out unpopular but necessary policies on a short-term basis. But of course, authoritarian regimes are quite likely to act to maximize their own narrow objectives and turn a blind eye to overall indicators of development.

To give an example, raising per capita income is given such enormous importance in China that the fates of provincial administrators hang in fine balance depending on their state's performance on that front. A recent study reveals that in this bid to raise per capita income, most of the provinces have compromised on pollution control (see Jia, 2017). In the absence of the traditional checks and balances of a democracy, the pollution levels could actually reach disastrous proportions unless the Central Committee takes notice of the ticking time bomb. China's one-child policy, which has now been partially reversed, too has precipitated its own set of problems. The ratio of women in the population has been steadily going down, leading to the usual social problems.

India too has its share of problems due to pollution or gender discrimination. And of course, there's no denying that China is far ahead of India, not only in levels and growth rate of per capita income, but also in poverty reduction, education, health and most of the important indicators of development. What is significant, however, is that the two development indicators where China has not managed to beat India fair and square (leaving aside measures of freedom and democracy) are pollution indicators and the gender ratio. And this, I would like to argue, has a lot to do with the political systems of the two countries.

On the other hand, it is true that if we look solely at the gender-based development indicators, India lags behind Bangladesh, a country that ranks far behind it in terms of national income and its rate of growth. This would invariably raise questions about the importance India's policymakers give to half of the country's population. If one of the fundamental principles of representational democracy is to aim its governance engines at the welfare of the maximum, then we have to admit that India is in the process of development at best, and nowhere close to being an ideal democracy.

The more evolved and developed a democracy, the less risky its efforts at raising the national income. This is because a democratic system's in-built checks and balances (including the media, civil society and the competition among political parties to come to power) will ensure that the ruling party or coalition cannot ignore the other development indicators and put all its energies behind the growth of national income. Research shows that as a country moves up the democratic scale, expenditure on education and health increases in proportion to national income. Also, the affluence resulting from the growth of national income begins to get reflected in national revenue, raising hopes of a possible increase in spending on social and human development. In countries that show little signs of progress on the democracy front, we have no option but to depend more heavily on the human and social development, and environment-related indicators while determining their performance on the development index. In other words, a country's political status as a democracy or its progress on the democratic scale, plays a big role in determining the extent of influence its national income or the rate of growth of per capita income will have on its overall development.

V

How do alternative concepts of development affect our policy debates? At least in the context of India, it seems that economic policy debates are forever stuck in a rather tedious back and forth between two dominant narratives on the state of the economy. One centes around growth (see, for example, Bhagwati and Panagariya, 2012) and the other around poverty (see, for example, Dreze and Sen, 2013). Anytime one camp talks of double digit growth and catching up with China, the other points out that India fares worse than sub-Saharan Africa or a relatively poor neighbouring country like Bangladesh in certain social indicators. Every upbeat story about India's growing economic clout seems to be inevitably accompanied by an account bemoaning the abysmal state of India's social indicators.

The problem with the growth-based narrative is that, while growth is necessary for poverty alleviation or improvements in social indicators, it is not sufficient. For example, take the dream growth rate of 10%. It will take 26 years of sustained growth of 10% per year in incomes (no country in history has had a quarter century of sustained double-digit growth!) to bring an Indian who is right on the poverty line up to merely the current level of per capita income, which is low by global standards to start with. Growth can bring improvements in standard of living, but a poor person would have to wait for a quarter of a century for even a glimmer of that!

The problem with the redistribution-based narrative is that, if you focus just on redistribution, it would hardly make a dent on poverty. Yes, as attractive it may sound to some to tax the rich, if we take the ratio of total billionaire wealth to GDP, it stood at only 10% in 2012 (starting with 1% in the mid-90s). If we took all of this wealth, and divided it among the poor (350 million Indians), each will get roughly the same as the amount marking the current poverty line (roughly $450 per year), and more importantly, this will be a one-time affair!

Growth is indeed necessary for long term poverty alleviation. But to take advantage of growth opportunities, the poor need access to human capital, the key inputs to which are education and health. While it is true that in the post-liberalization era growth has indeed lifted millions out of poverty, it is also true that the extent to which growth has made a dent on poverty (growth elasticity of poverty being the technical term) has been lower in India than in China and other comparable countries. This is mainly because of the shockingly low levels of human capital for a large chunk of the population.

Whatever is one’s favourite measure of development, the key to sustained increases in standard of living is clearly lies in fostering mobility through investments in human capital. Markets create opportunities for those with human capital and it is the responsibility of the government to ensure that the poor acquire the human capital necessary to take advantage of these opportunities. Fostering investment in the human capital of children is therefore a win-win strategy - it helps achieve both higher growth rates and reduces poverty, and removes the apparent tension between these objectives as implied by the growth versus redistribution debate. And once people are educated and achieve a certain minimum threshold level of income, they can decide for themselves what is the best path of development suited to them.

Bibliography

Anand, Sudhir and Amartya Sen (1994): “Human Development Index: Methodology and Measurement” New York: Human Development Report Office Occasional Paper 12; 1994. Reprinted in S. Fukuda-Parr and A. K. Shiva Kumar, eds., *Readings in Human Development* (New Delhi: Oxford University Press, 2003).

Arrow, Kenneth, Partha Dasgupta, Lawrence Goulder, Gretchen Daily, Paul Ehrlich, Geoffrey Heal, Simon Levin, Karl-Göran Mäler, Stephen Schneider, David Starrett and Brian Walker (2004): “Are We Consuming Too Much?” *The Journal of Economic Perspectives*, Vol. 18, No. 3, pp. 147-172.

Banerjee, Abhijit and Esther Duflo (2010): *Poor Economics: Rethinking Poverty and the Ways to End It*, Noida: Random House.

Bhagwati, Jagdish and Arvind Panagariya (2012): *India’s Tryst with Destiny: Debunking Myths that Undermine Progress and Addressing New Challenges*, Noida: Collins Business.

Dreze Jean and Amartya Sen (2013): *An Uncertain Glory : India and Its Contradictions*, London: Allen Lane.

Ghatak, Maitreesh (2015): “Theories of Poverty Traps and Anti-Poverty Policies”, *World Bank Economic Review*, Papers and Proceedings of the ABCDE, Vol 29 (Supplement 1): S77-S105.

Layard, Richard (2006): “Happiness and Public Policy: a Challenge to the Profession”, The Economic Journal, Volume 116, Issue 510, pp. C24–C33.

Lucas, Robert E. (1988): “On the Mechanics of Economic Development”, Journal of Monetary Economics, 22, 3-42.

Sen, Amartya (1988): "The Concept of Development", Chapter 1, Handbook of Development Economics, Volume L Edited by H. Chenery and T.N. Srinivasan, Elsevier Science Publishers B.V., 1988.

Sen, Amartya (1999): Development as Freedom. Oxford: Oxford University Press

Jia, Ruixue (2017): “Pollution for Promotion”, Working Paper, University of California, San Diego.