



Development  
Progress

Project Note

03

# Measuring wellbeing

## Different approaches, their implications and an illustration

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### Key messages

- For some time, many people have argued that we must look at more than economic growth when measuring progress. But there has been less attention on how to measure progress and to compare the performance of different countries. This note provides an overview of the *Development Progress* project's measurement component.
- The measurement work seeks to examine which countries have progressed, underlining the difference that measurement makes. It compares three ways of measuring performance: absolute change, relative change and 'deviation from fit'.
- A comparison of a small number of Asian 'tigers' in the 1970s and African 'lions' in the 2000s uses these methods illustrate interesting results. It shows that a small number of African countries are performing better across several indicators than Asian 'tigers' did during their first decade of rapid economic development, broadly in contrast to current pessimism towards Africa's development trajectory.

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Over the last decade, there has been a surge of interest in defining and measuring wellbeing. Research has focused on conceptual foundations (e.g., Alkire 2002, Gough and McGregor 2007), participatory accounts (e.g., Narayan et al. 2000, Chambers 2007) and multidimensional measurement (e.g., UNDP 2010, Santos, 2013). These perspectives define progress as more than just economic growth: they assert that multiple dimensions are needed in order to provide a rounded view of wellbeing.

These dimensions can be aggregated into composite measures – as in Bhutan’s multidimensional Gross National Happiness index or the internationally comparable Multidimensional Poverty Index (Alkire and Santos 2010). Alternatively they can be presented in a ‘dashboard’ that reflects diverse components and trajectories (see Ravallion 2011), as in the Millennium Development Goals (MDGs). Interest in wellbeing is increasingly evident in domestic policymaking and also in the international arena, where notable efforts include the Stiglitz-Sen-Fitoussi Commission on Economic Performance and Social Progress (CMEPSP, Stiglitz et al. 2009), which advances the argument that new measures of performance are needed, and OECD’s *Measuring the Progress of Societies and Better Life Initiative*,<sup>1</sup> which seeks to apply this argument to measurement and policy in the OECD and beyond.

While a great deal of attention has been concentrated on *what* to measure, rather less has been focused on *how* to measure and compare country performance. This note provides an overview of the measurement component of ODI’s *Development Progress* project – outlining what it will measure and addressing in more detail the diversity of methods that it will employ. It will illustrate the potential implications of these choices through a comparison of progress among a group of Asian ‘tigers’ for the 1970s and African ‘lions’ for the 2000s.

## Measuring Progress

*Development Progress*, a flagship ODI project funded by the Bill and Melinda Gates Foundation, aims to address where, when, how and for whom progress has occurred in developing countries over the last two decades. The project includes a substantial measurement component.

The first phase of this work focused on the Millennium Development Goals (MDGs). Measurement work culminated in ODI’s ‘MDG Report Card’, which sought to identify and compare which countries had made the most progress toward each goal (ODI 2010). The ‘MDG Report Card’ argued for the use of both absolute and

relative measures of change, with the former tending to highlight progress in Low Income Countries and the latter in Middle Income Countries. Building on this phase, we are now deepening the measurement work to analyse new dimensions of wellbeing and ways of examining change, as well as the extent to which progress was equitable and occurred along multiple dimensions at the same time.

## Dimensions of wellbeing

Building closely on the framework proposed by the CMEPSP report, the *Development Progress* project adopts the definition of ‘progress’ as an “improvement in the sustainable and equitable wellbeing of a society” (Hall et al. 2010). The project measures progress in eight dimensions:

- *Material living standards* – Basic material aspects of progress; and economic security;
- *Health* – Physical, mental and social wellbeing, not merely the absence of disease or illness;
- *Education* – Schooling, knowledge, skills and competencies;
- *Environment* – Including the quality of air, land and water, biodiversity and climate change; and at the household level, access to clean water and improved sanitation;
- *Political voice and governance* – The inclusiveness and functioning of governing institutions that ‘enable individuals to participate in political processes;
- *Security* – Freedom from violence against property and person, and the fear thereof;
- *Employment* – Including quantity and to the extent possible, quality; and
- *Social cohesion* – Encompassing inclusion, trust and mobility.

Within each dimension, a set of indicators has been chosen to measure key aspects of progress in that area. Criteria such as the availability of data across countries and over time, and the intrinsic importance of indicators, were also taken into

account. To assess how countries performed on single as well as multiple dimensions of wellbeing, we study “a large and eclectic dashboard” of indicators (Stiglitz et al. 2009, p. 62) rather than aggregating data into a single, composite index.

Progress over time is measured using annual rates of change for our indicators at a country level between 1990 and 2010. We take 1990 as our starting point because it marked the widespread application of Washington Consensus policies following the debt crisis and the ‘lost decade’ of the 1980s in much of the developing world, and of the emergence of the human development framework. It is also the MDG benchmark. The analysis seeks to explore how rates of change affect numbers of people as well as countries.

### The difference measurement makes

*Development Progress* aims to make the choices that underlie measurement exercises explicit and to show how they matter. The project considers three ways of measuring change: absolute change; relative change; and deviation from fit. Measures of absolute change give more weight to the reduction of deprivations in countries where deprivations are high. This is because such countries have more room in which to advance. In turn, measures of relative change stress the reduction of deprivation where initial deprivations are lower by measuring change in relation to the starting point.<sup>2</sup> To illustrate this point, we consider changes in child mortality, which is used by UNICEF as a way of assessing country performance and in practice is highly correlated with other basic aspects of human development (Ranis et al. 2005), to compare progress over the past two decades according to both measures (Table 1).

However, the use of these techniques to compare progress across countries assumes implicitly that equal reductions of deprivation are possible at different development levels. In fact, considerable evidence demonstrates that progress for many indicators is more difficult to achieve where deprivation levels are high (and also very low).<sup>3</sup>

To take this non-linearity into account, an additional step is taken: on the basis of a regression, the ‘deviation from fit’ for each country is computed as the difference between each country’s actual performance and its ‘expected performance’, holding constant a country’s starting point and income category (low, medium, high, very high). The method, adopted in the 2010 Human Development Report (UNDP 2010), allows not only controlling for initial conditions but also highlights the experience of particular countries relative to the average of countries with those initial conditions. Focusing still on child mortality, we see that the amount of average annual change experienced varies inversely with the starting point, but with substantial variation around the trend, particularly for those countries in the middle of the distribution (Figure 1). Countries below the trend line recorded higher than average absolute reduction while those above did less well. The top performer in our sample – Timor Leste – is highlighted, as is the bottom performer – Haiti.

Because deviation from fit takes into account each country’s starting point as well as that of its comparators in the sample, it is not biased by design either for or against poorer countries (Gidwitz et al. 2010, p. 19). Therefore, in this project we emphasise ranking based on deviation from fit, and compare it with the results arising from the other methods.

**Table 1 – Top performers in reduction of child mortality using absolute and relative criteria for sample of 192 developing countries, 1990–2010**

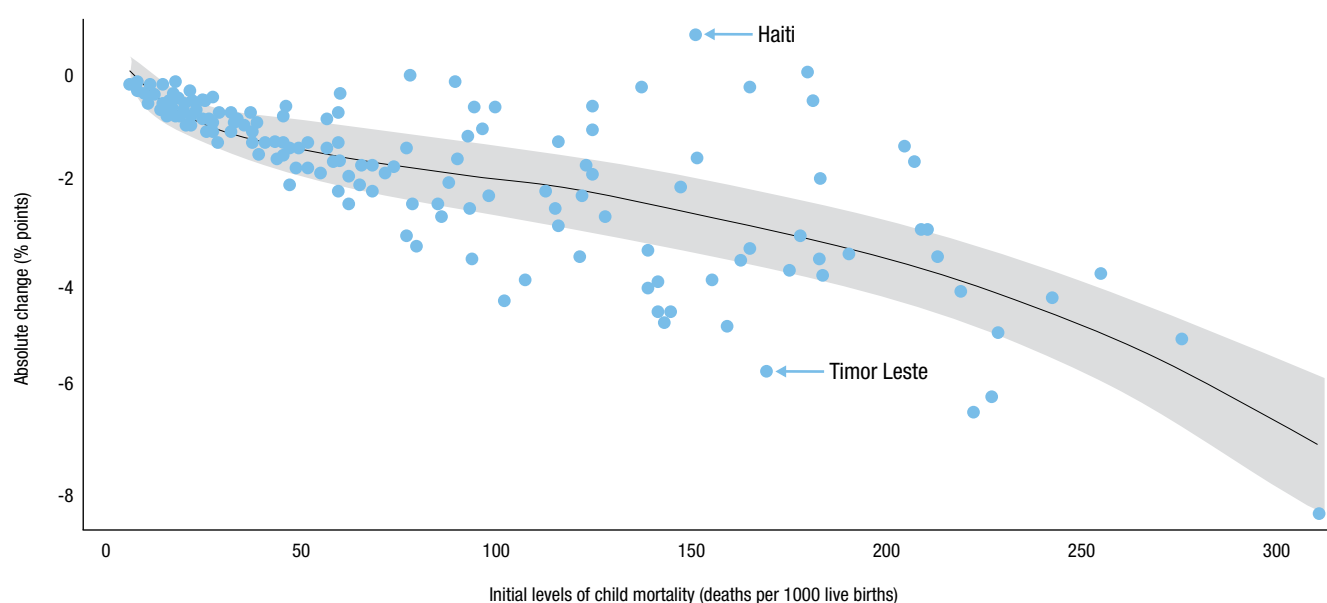
Absolute change	Relative change
Niger	Maldives
Malawi	Oman
Liberia	Turkey
Timor-Leste	Egypt
Sierra Leone	Peru
Guinea	Serbia
Madagascar	Portugal
Bangladesh	Estonia
Nepal	El Salvador
Lao People’s Democratic Republic	Czech Republic

Source: Computed from World Development Indicators database (2012).





**Figure 1: Absolute annual change in child mortality, controlling for initial levels and income categories: predicted trend and actual country experience, 1990–2010**



Source: Computed from World Development Indicators database (2012)

### An example of how dimensions and method matter: Asian ‘tigers’ and African ‘lions’

To further illustrate the new perspective that an expanded set of dimensions and methods can provide over different time periods, we turn to a comparison of performance in East Asia and sub-Saharan Africa. The ‘miraculous’ growth of South-East Asia has long served as a model for researchers and policymakers interested in development. Often overlooked, however, are the strides that many sub-Saharan countries have registered over the last decade, particularly when looking beyond income. To a large extent, this may be a result of the framing of the MDG targets: Africa’s “relative performance looks worse because of the particular way in which the MDG targets are set. As a result, some African successes are portrayed as failures” (Easterly 2009, p. 26). Critics have pointed to bias in the use of absolute targets

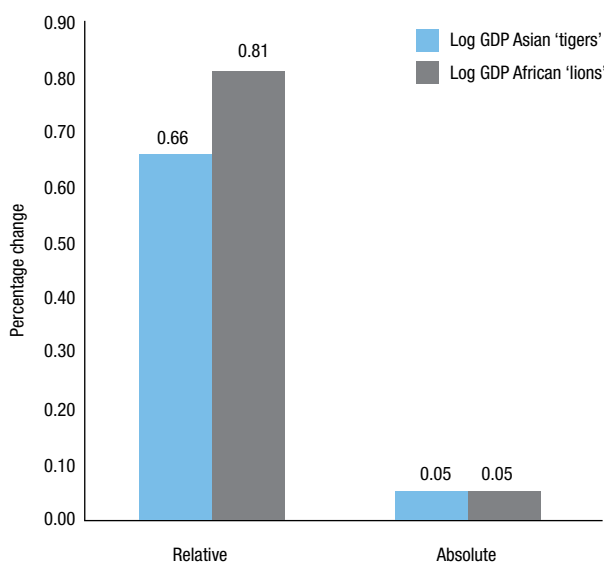
– e.g. universal primary education – as well as those defined in relative terms (e.g., the reduction of under-five mortality by two-thirds). The challenges these have posed to Africa have been commented upon widely – for example, in 2007, the MDG midway point, it was widely reported that Africa was the *only* region that was not on track to meet *any* MDGs.<sup>4</sup>

The comparison of the so-called Asian ‘tigers’ who experienced ‘miraculous’ economic take-off in the 1970s with a group of sub-Saharan African ‘lions’ for the 2000s provides a valuable counterpoint.<sup>5</sup> We make this comparison for leading indicators of material wellbeing, health, knowledge and political voice. For several indicators and measures of change, progress among the African ‘lions’ in the 2000s outstrips that of the Asian ‘tigers’ in the 1970s. We first consider absolute and relative change for the respective groups of countries and then use ‘deviation from fit’ criteria to illustrate individual country experience.

Consider change in (the log of) per capita GDP (Figure 2). Income per head grew relatively more quickly among the African 'lions' in the 2000s than the Asian 'tigers' in the 1970s but both grew equally when looking at absolute annual change.<sup>7</sup> Patterns of primary school enrolment also diverge sharply: African enrolment grew 4.1 percentage points each year in absolute terms, or at a relative rate of nearly 4 percent, while in Hong Kong, Indonesia and Korea, absolute enrolment changed 1.1 percentage points yearly on average, or at a rate of 1.4 percent (Figure 3).

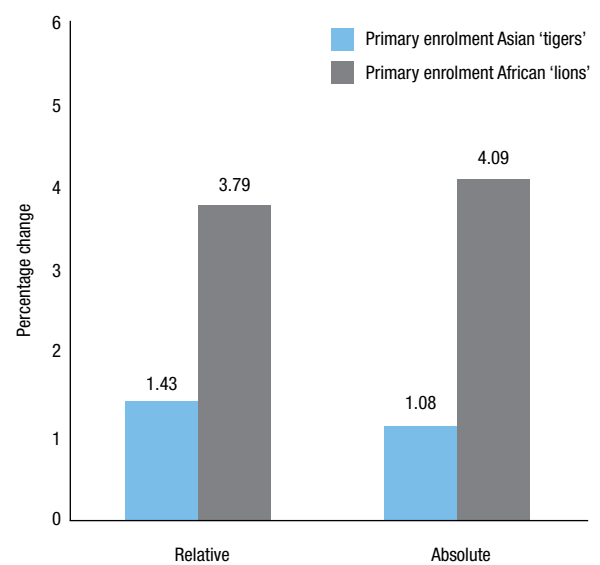
For health, we revisit under-five mortality (Figure 4). Among the Asian 'tigers', child mortality fell over 4 percent yearly, nearly double the rate of the African tigers. But in absolute terms, the fall of nearly 4 percentage points per year in Africa was slightly higher than that experienced in Asia (just under 3 percentage points per year). With life expectancy, improvements among the African 'lions' in the 2000s outstripped those of the Asian 'tigers' in the 1970s in both absolute and relative terms (Figure 5). Finally, examining levels of political freedom for the respective two

**Figure 2 – Change in log per capita GDP**

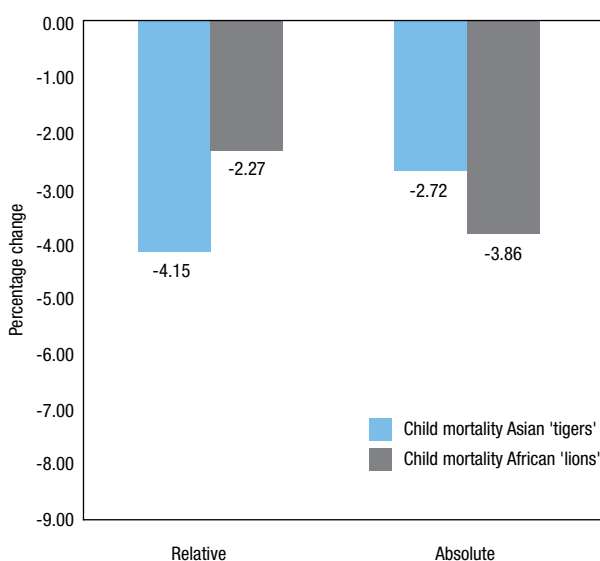


Source: Computed from World Development Indicators database (2012)

**Figure 3 – Change in primary school enrolment<sup>6</sup>**

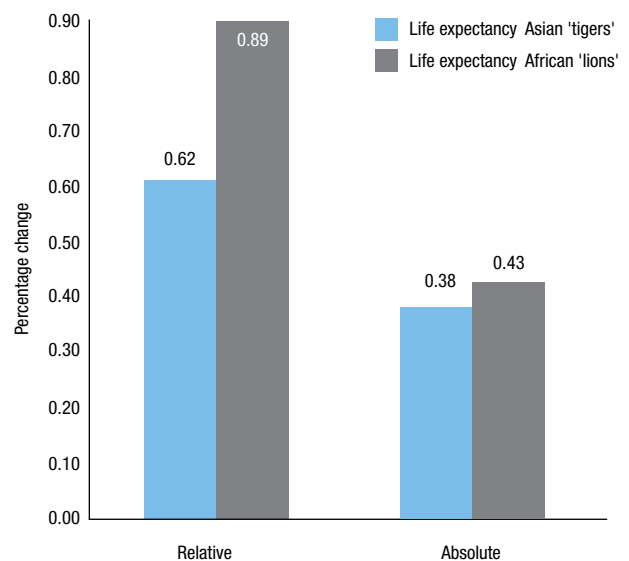


**Figure 4 – Change in child mortality<sup>8</sup>**



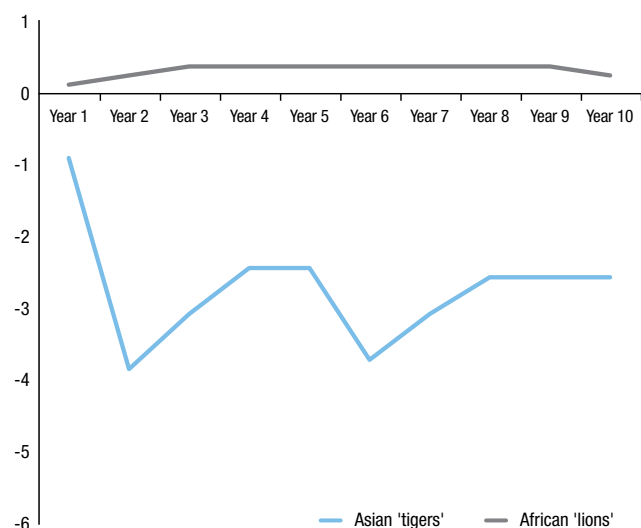
Source: Computed from World Development Indicators database (2012)

**Figure 5 – Change in Life Expectancy**



decades, it is clear that the East Asian economic take-off took place in a context of greater authoritarianism than the last decade of progress among the ‘lions’ (Figure 6).

**Figure 6 – Polity score for African ‘lions’ for 2001-2010 and Asian ‘tigers’ for 1971-1980**



Source: Computed from Polity IV database (2010)

These data consider countries to be the unit of analysis. To consider the impact on numbers of people, we recomputed the data to account for the relative size of countries in each region – e.g. that the population of Indonesia in 1980 was nearly four times that of the Republic of Korea. When we ‘weight’ the indicators within each group to account for each country’s relative population, the amounts of change recorded differ but the rankings of the two sets of countries remain unchanged across the five indicators.

Finally, we consider how individual East Asian and sub-Saharan African countries performed. We control for their starting point by pooling data for developing countries in the East Asia and Pacific (EAP) region for the 1970s with those from Sub-Saharan Africa in the 2000s, and examine ‘deviation from fit’ (Table 2).<sup>9</sup> Two indicators are compared: GDP per capita and child mortality. Again many of the African ‘lions’ exhibit strong performance relative to the Asian ‘tigers’. None of the ‘tigers’ appears among the top ten performers on child mortality; the Republic of Korea, the highest-ranking ‘tiger’, features at number 13, followed by Malaysia at number 22. Interestingly, China occupies tenth place.<sup>10</sup>

On GDP per capita, the ‘tigers’ feature more strongly – four of the six are among the top 10 performers. But here too the presence of several African countries is notable.

The comparison shows that according to some important indicators of human development, a small number of African countries are presently performing more strongly across a number of measures of change than several Asian ‘tigers’ did during their first decade of rapid economic

**Table 2 – Top performers in GDP growth and reduction of child mortality using ‘deviation from fit’ criteria for sub-Saharan Africa from 2001-2010 and East Asia from 1971-80**

Rank	Absolute change	Relative change
1	Equatorial Guinea	Rwanda
2	Angola	Niger
3	Singapore	Liberia
4	Hong Kong SAR, China	Malawi
5	Chad	Botswana
6	Ethiopia	Senegal
7	Malaysia	Zambia
8	Indonesia	Mozambique
8	Sierra Leone	Ethiopia
10	Rwanda	China

Source: Computed from World Development Indicators database (2012).

development. This stands in contrast to the so-called ‘Afro-pressivism’ often voiced with respect to Africa’s development trajectory. But this analysis must be qualified in several respects. Africa’s gains may be largely driven by buoyant commodity prices and capital investments rather than labour-intensive development; it is not yet clear that they will result in structural transformation. The convergence of education and health levels across poorer and richer countries has been attributed to technological advances, the spread of ideas and changes in societal structures, and to international cooperation, possibly as it has coalesced around the MDGs (UNDP 2010, Kenny and Sumner 2011). And while comparable data is not readily available, growth among the Asian ‘tigers’ seems to have been much more pro-poor and equitable than in the African ‘lions’, an area in which further research is needed.

## Conclusion

By including a range of dimensions and measures, and making the underlying parameters explicit, the measurement work under Development Progress will aim to identify those countries that have progressed over the past two decades. Equally we will look at how progress has been distributed within countries – i.e., at who benefits – and the extent to which countries have progressed across multiple dimensions. We hope to identify where progress in certain dimensions seems to be correlated across countries and where it does not. Together, the measurement and the case studies will provide valuable evidence concerning how gains have been made and how they might be emulated more broadly.

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## Endnotes

1. [www.oecd.org/forum/oecdforum2011measuringprogress.htm](http://www.oecd.org/forum/oecdforum2011measuringprogress.htm), [www.oecd.org/statistics/betterlifeinitiative/measuringwell-beingandprogress.htm](http://www.oecd.org/statistics/betterlifeinitiative/measuringwell-beingandprogress.htm).
2. To assess relative change, we look both at the growth rate and at shortfall from target. The latter measure, commonly applied to MDG performance, measures the gap from a given target – e.g., 100 percent enrolment in primary education – and favours countries that are closer to the target. For the sake of simplicity, this note addresses simply the growth rate.
3. In other words, that the relationship between economic development and other aspects of progress is non-linear. For example, tracing primary school enrolment between 1960 and 2000, Clemens et al (2004) show that country performance can be characterised by an "S-Curve" (or logistic curve) with "remarkably little" variation such that marginal changes require more effort at very low and very high levels of enrolment. They find a similar pattern for the ratio of girls to boys in gross primary enrolment and infant mortality. Klasen and Lange (2012) report similar results.
4. Easterly (2009) gives numerous examples of how this – and similar statements – are in widespread circulation.
5. Countries and the appropriate time periods were identified based on a literature review. The review pointed to eight Asian 'tigers': Hong Kong, Indonesia, Japan, Republic of Korea, Malaysia, Singapore, Taiwan (China) and Thailand (see Stiglitz 1996); of these, we exclude Taiwan owing to a lack of data, and Japan because it had already attained 'developed' status as of 1970. The review suggested six African 'lions': Angola, Chad, Ethiopia, Mozambique, Nigeria and Rwanda (see Zachary 2012, Economist 6 January, 2011).
6. Net primary school enrolment. Our criteria for inclusion dictate that a country must have a data point in the first four years and in the last four years to be included in computations. For this variable, only three Asian countries – Hong Kong, Indonesia and Republic of Korea – had adequate data. Angola too lacked adequate data to be included in the Africa sample.
7. Average per capita GDP in constant 2000 US\$ was \$2592 for the six 'tigers' in 1971, more than eight times that of the six 'lions' in 2001, which was \$303.
8. No under-5 mortality data are available for Hong Kong in the 1970s.
9. Deviation from fit is calculated on the basis of a non-linear regression of actual change on initial levels and a regional dummy.
10. Child mortality in China (109 per 1,000 live births) was higher than all the Asian 'tigers' except Indonesia in 1971 and above the EAP average – but it fell 43 percent over the decade to 62 per 1,000 live births, by which point it was significantly below the region's average.