How do we measure wellbeing?

Rethinking the Human Development Index

International Science Council
The global voice for science

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About the International Science Council

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The ISC works at the global level to catalyse change by convening scientific expertise, advice and influence on issues of major importance to both science and society.

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Foreword

At a time of global polycrisis – marked by ecological breakdown, deepening inequalities, and profound technological and social transformations – our shared understanding of wellbeing and human development demands urgent reconsideration. For over three decades, the Human Development Index (HDI) has served as a vital signal in the discourse on development, a bold attempt to shift attention from income to people's capabilities and choices. Yet today, we must ask: does this foundational measure still reflect the complexity and urgency of the world we live in?

This paper, a result of a project of the International Science Council and the UNDP Human Development Report Office, is a timely and necessary contribution to that question. Drawing on consultations with a global community of experts, it offers a starting points of a reassessment of how we define and measure human wellbeing in the 21st century.

The International Science Council (ISC) is uniquely positioned to lead such a reflection. As the global voice for science, bringing together over 250 international scientific unions, academies, research councils and associations, the ISC serves as a critical platform for interdisciplinary collaboration, science advocacy, and science-policy engagement. Its commitment to mobilizing scientific knowledge for the public good is evident in this paper, which harnesses insights from economics and other social sciences, sustainability science, and beyond to illuminate new paths for rethinking and measuring human development.

The work recognizes that measurement is never neutral. Metrics shape the conversations we have, the policies we design, and the futures we imagine. As this report demonstrates, capturing human development requires not just better data, but better deliberation – more inclusive, participatory, and attuned to diverse values, lived experiences, and evolving risks. Metrics should reflect all these dimensions of human development.

Importantly, this is not a call to discard the HDI, but to build upon its strengths. The reflections gathered here illuminate a path toward a more nuanced and dynamic index – one that acknowledges elements such as agency, inequality, sustainability, culture, and interdependence as essential components of development. It is an invitation to capture key conditions for human development, such as social inclusion

and overcoming polarization. It also provides an opportunity to reimagine human development as a living, evolving framework – one capable of guiding action in an increasingly uncertain world.

We hope this paper will serve as an input and a basis for further deliberation as the global community strives to move beyond GDP toward metrics that better serve the transformative needs of our time.

Salvatore Aricò
CEO, International Science Council

Introduction

There is a broadly acknowledged and urgent need in the international community to develop methodology for measuring sustainability transformations that can integrate human wellbeing, environmental sustainability and equitable economic development, as reflected in several initiatives underway to examine options that provide a more holistic view of the current state and direction of change in societies than the currently ubiquitous reliance on Gross Domestic Product (GDP) can afford.

The concept of human development and the associated Human Development Index (HDI)[1] have been front runners in this effort, showing what a longstanding initiative based on a solid conceptual framework can achieve in terms of providing an easy-to-understand measure that is a snapshot of progress in human-centred development. The central premise of the human development paradigm has been that conventional measures of progress focused on income are not sufficient to promote and measure human wellbeing, and that progress should instead be seen as a process of enlarging people's choices and wellbeing, as well as enhancing their capabilities. This underpinning concept was accompanied by an index, which has provided a simple proxy for a measure of what is inherently multidimensional, for policy-makers, activists and academics in assessing trends, evaluating and comparing current situations and making decisions on and recommendations for improvement. The idea of human development, however, has always been much more complex and far-reaching than the HDI, which necessarily includes generalization and summarization. Key capabilities are instrumentalized in the HDI by the inclusion of proxies for three important ends of development – access to health, education and purchasing power – and the assumption that, empowered by these capabilities, among others, individuals can achieve their desired state of being.

The HDI has been a central element of the Human Development Reports in providing a single numerical index that can be used to compare the level of human wellbeing among countries or to monitor one country's progress over time, but it has had its share of criticism. Over the past 30 years, the United Nations Development Programme (UNDP) has in response been reviewing and re-articulating the human development paradigm to reflect the evolving development landscape as well as perspectives from research and other quarters. The family of human development

1 The HDI is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions. The health dimension is assessed by life expectancy at birth and the education dimension is measured by mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school-entering age. The standard of living dimension is measured by gross national income (GNI) per capita. The HDI uses the logarithm of income to reflect the diminishing importance of income with increasing GNI. The scores for the three HDI dimension indices are then aggregated into a composite index using the geometric mean.

metrics has been evolving and expanding as well – the HDI as a partial index of basic capabilities essential for wellbeing is complemented by a broader set of indices and statistics that give a fuller account of the state and prospects of human development, including the Inequality-adjusted HDI (introduced in 2010), the Planetary Pressures-adjusted HDI (introduced in 2020), the Gender Empowerment Measure and the Gender-Related Development Index (1995–2010), the Gender Inequality Index (2010 onwards), the Gender Development Index (2014 onwards), the Human Poverty Index (1997–2010) and the Multidimensional Poverty Index (2010 onwards).

There continue to be rapid changes to the different dimensions of human development and our understanding and experience of them, enabled by major advances in science and technology and new thinking on sustainability over the past three decades, which remain relevant to the UNDP's human development narrative and measurement.

We are at a crucial juncture in the multilateral policy trajectory, more than mid-way through the 2030 agenda, facing multiple global crises, high and increasing uncertainties in environmental, economic, social and geopolitical spheres, coupled with growing inequities and polarity that weaken our chances of achieving urgently needed just transitions. The time is ripe to update the tools, concepts, processes and institutions that guide thinking and action on ensuring wellbeing if they are to meet current challenges.

Science has and shall continue to play a key role in identifying the elements of wellbeing, summarizing this in measurements and providing policy-makers with a tool that is both useful and meaningful. Social science must particularly find a place at the table to be able to bring learning on inequality, sustainability, participation, resilience and other vital topics to inform developments. If a wellbeing metric is to be meaningful it must readily comprehensible and simultaneously able to express the complex and interconnected reality it represents. Can a metric embody a systems approach that captures interconnections in human, natural and technological systems? This question cannot be addressed effectively without strong contributions from global multidisciplinary and transdisciplinary science.

Project background

The ISC and the UNDP have been running a joint project on Rethinking Human Development to provide an opportunity for critical review and re-articulation of the human development paradigm. This partnership ran until June 2023 under the present agreement and was aimed at bringing the perspectives of the global scientific community to the vital discussion on human development to feed fresh perspectives and advances from various disciplines into this ongoing dialogue.

Phase I of the project in 2020–2021 focused on bringing varied insights to the conceptual understanding of human development, resulting in more than 70 contributions (interviews, essays and online submissions), an online platform and a report containing a synthesis essay, which provides key directions of thinking on the expanded notion of human wellbeing.

Phase II of the project in 2023 involved a similar consultation on metrics to measure human development and how to move towards experimental indices that reflect present and emerging dimensions of human development.

Conversations on Rethinking Human Development

In phase I of this project, a global dialogue was co-organized by the ISC and UNDP to seek views, inputs and aspirations about what human development means today and how it can evolve in the future. This resulted in rich discussions, clustered around nine interconnected directions for exploring multiple narratives:

1. A fresh start to rethinking the meaning of development that is free from the historical baggage and multiple connotations of the term
2. A visionary rethinking of our humanity and what it means to be human in today's world
3. Strengthening institutions and accountability
4. Human development within planetary boundaries
5. Redressing inequality and promoting social cohesion
6. Democratic deliberation that is needed for resilient socio-ecological systems
7. Making the digital age work for human development
8. A new narrative on 'value'
9. Reinvigorating and leveraging the role of scientific knowledge

Building upon the conceptual understanding of human development from the phase I consultation, phase II of the project attempted to answer the following key questions:

- What modifications do we need to make to the existing human development indices as better 'signalling devices' that provide policy-makers with information to evaluate choices and assess development performance?
- What new metrics do we need to experiment with to capture other critical dimensions of human development and the new human development paradigm?
- How can we construct the modified and new human development metrics?

Over the years, several modifications have been made to the HDI. Some were simple changes to the indicators included in the HDI; some were the introduction of new measures of human development to complement the HDI and capture additional dimensions of development such as poverty, inequalities, gender and environment. Other indices, statistical tables and statistical dashboards have also been added to provide a more comprehensive perspective on the relevant data to assess countries on human development.

However, there has been a growing interest in providing a more comprehensive set of measurements that capture other critical dimensions of human development. The UNDP's current thinking on modifying and expanding its human development metrics, summarized below, is largely consistent with the nine interconnection directions articulated in the phase I synthesis report.

First, the Human Development Report Office (HDRO) is looking to introduce human development metrics to account for what the 2019 Human Development Report referred to as 'enhanced capabilities,' which are becoming more essential to participate in social, political and economic life. The life-course approach, which has been applied by the UNDP to analyse youth vulnerabilities and gender inequalities, could be applied more broadly to capturing enhanced capabilities (*reflected in directions 1, 7 and 9 in phase 1, see box above*).

Second, agency – people's ability to have control over their own lives – is a crucial part of human development according to the conceptual background the HDI is rooted in. The current human development metrics speak to a set of capabilities essential for basic wellbeing, but they do not encompass many of the things that enhance agency (*reflected in directions 3, 5, 6 and 8*).

Third, the current human development metrics reveal little about the sustainability of human development in an era when environmental sustainability is a central and urgent concern for policy-makers and citizens. The UNDP HDRO recognizes the need to work with experts from different disciplines – including sustainability science and earth system science – to better capture environmental and sustainability factors in human development metrics (*reflected in directions 2, 4 and 9*).

With these points in mind, the UNDP HDRO is exploring a path to an expanded set of human development metrics to reflect the evolving landscape, but which is also built on a foundation of reaffirming the original intent of the human development approach – as simple measures of how countries fare on indicators that relate to human development and the Sustainable Development Goals.

Methodology

The ISC approached a list of experts from a range of backgrounds (see Annex I for a full list) to gather insights into the options for enhancing multidimensional wellbeing measurement regarding the HDI. The targeted list included individual experts from the field who have been active in debates surrounding the HDI, experts from organizations who have been working on multidimensional wellbeing indices, representatives of disciplinary associations and scientific programmes that work on related subjects (e.g. poverty, inequality, participatory research, data issues, sustainability and transdisciplinary science), policy advisors and development practitioners.

Around 50 experts were sent a questionnaire with the aim of gathering their views on the purpose the HDI serves and should serve, alternative dimensions, alternative measures for existing dimensions, weighting of dimensions and potential new directions, including gauging people's own priorities concerning wellbeing. A total of 17 responses were received. One important factor that restricted the response rate (as evidenced by responses to the initial request or follow-up communication) was that, while this exercise attempted to broaden the discussion to experts not primarily included in such discussions, non-statistical experts and those who had not already been relating to the HDI in their work were reluctant to engage in a discussion on the HDI given the technical complexity and already rich work associated with this area. This highlights the challenge of translating valuable theoretical and conceptual insights on wellbeing from across disciplines into better measurements without the bridging technical expertise.

Following this initial consultation, twelve in-depth interviews were carried out virtually or in person. Four of these were follow-up interviews with respondents who had filled in the questionnaire, as they had additional insights to contribute. These interviews followed the broad structure of the questionnaire sent out in the first phase but included additional questions to explore emerging ideas.

The outcomes of these consultations are summarized below. These were discussed at a workshop with an expert group, comprising the Steering Group[2] of the project as well as a few additional selected experts,[3] to feed into the UNDP HDRO efforts to fashion a reinvigorated HDI and/or complementary measures.

2 Annex I
3 Annex II

What we learnt from the consultations

1. Perceived purpose and value of current HDI

A MULTIDIMENSIONAL MEASURE AS AN ALTERNATIVE TO GDP: Almost all respondents acknowledged that the main purpose of the HDI has been to provide an alternative measure of wellbeing to income or consumption per capita. As a composite measure that includes non-economic dimensions, it has been relatively successful in providing a long-running alternative means of signalling progress, though it has not dislodged GDP as the single reigning benchmark in many policy arenas.

ENABLING INTER-COUNTRY COMPARISONS AND TRACKING PERFORMANCE OVER TIME: Another common response was that the HDI proves useful in providing a broad sketch of the performance of countries in terms of wellbeing – both comparisons over time and between countries at a given time. As one respondent stated, it is 'useful to elaborate a world ranking of development, to classify countries and to analyse evolutions.'

However, it was also noted that, for several policy decisions where country comparisons and classification are required (such as allocation of Official Development Assistance (ODA), membership of political forums such as the G20 or G7 and contributions towards multilateral bodies), income level continues to be used[4] by decision-makers as the main marker of a country's status and the obligations and entitlements associated with it.

Furthermore, the HDI ranking list also fails to recognize the relationships between countries and how higher ranking in one country may in part be driving low ranking in another. A case in point is that historical carbon emissions from the countries of the Global North are impacting development outcomes and potential in many countries of the Global South. Moreover, while the HDI measures basic needs, it does not control for the other side of the coin by including issues such as overconsumption in the high-income countries and by individuals. One respondent noted that macroeconomic structural issues at the national level could also have clear impacts on human development and its stability, and inter-country comparison should include such discussions rather than ironing over them by focusing on individuals.

4 Different thresholds are used by multilateral organisations such as the United Nations, the World Bank, OECD and IMF.

There was some concern expressed around whether the HDI has the same level of relevance when it comes to countries of the Global North and South. For higher-income countries, the only differences in measure tend to occur around variations in life expectancy, which are small and decreasing. This is linked to the fact that the HDI comprises a few and very basic indicators. Finally, it was mentioned several times that the HDI should also attempt to address intra-country comparison to be more relevant, as national-level comparisons have a more limited impact in providing policy signals for effecting change on the ground.

PROVIDING A COMPREHENSIVE MEASUREMENT OF HUMAN DEVELOPMENT:
Several responses saw the purpose and potential of the HDI as more far-reaching, in that it represents an effort to implement a multidimensional idea of wellbeing and seeks to enable a holistic form of development that considers several aspects of individual and societal progress (social, political, environmental, and emotional and mental), and they pointed out that the HDI has serious limitations in this regard. The simplicity of the indicator that contributes to its appeal also renders it less impactful in representing and effecting real change. Moreover, its current lack of critical dimensions – including sustainability, inequality and security – means it falls short of supporting the UNDP HDRO goal 'to contribute towards the expansion of opportunities, choice and freedom.'[5]

Specific mention was made of the inability of the HDI to provide any idea of inequalities within the country, the intersections of these inequalities (e.g. between gender, ethnicity, religion, disability, sexuality, class, caste and income) and the trade-offs and tensions between policy choices with relation to inequalities and to the environment. As the HDI measures the population-level average of dimensions it considers, it does not show a nuanced picture of human development, as averages cannot capture the disparities among and be representative of the entire population. It was also noted that, though the Inequality-adjusted HDI accounts for inequality in the three dimensions being measured, other important disparities may exist, such as cultural diversity, gender disparity and personal or cultural differences in valuing wellbeing, and that such differences could be captured by using a micro-level approach and collecting subjective data.

5 https://hdr.undp.org/about-hdro.

AN OPERATIONALIZATION OF SEN'S CAPABILITY APPROACH: A few respondents saw the HDI as an indicator of wellbeing that adopts Amartya Sen's capability approach, which states that human wellbeing should be evaluated in terms of the freedoms, opportunities and capabilities to achieve various functions, reach valuable states of being and perform valuable acts. It is an example of the way in which a conceptual and theoretical foundation can be embodied in a simple measure that can be widely communicated. It does, however, represent a narrow view of what the concept entails, as any index necessarily would.

While the capability approach has space for consideration of emerging concerns and increasingly universal policy goals such as environmental sustainability, the HDI does not reflect this evolution. In the words of one respondent, 'the numbers do not reflect the interesting development story which prevents the HDI from serving its purpose in creating a momentum around the discussion on development.' The past few Human Development Reports, for example, have been centred upon complex ideas such as agency, values and planetary boundaries,[6] uncertainty[7] and inequality.[8] The core HDI is an increasingly narrow representation of the concerns that human development literature is engaging with, in light of real-world issues.

A SIGNAL FOR POLICY EFFECTIVENESS OR NEED FOR POLICY INTERVENTION: The usefulness of the HDI to monitor commitments towards social and economic improvements at national, regional and global level and as a guide to correct existing government policy from a comparative perspective was mentioned in a few responses.

However, when asked about examples of the HDI being used in policy advocacy or decision-making in their experience, no affirmative answers were forthcoming in this consultation[9] beyond use in report writing and other communication. A common reason stated for this was that the HDI provides only a snapshot at the national level, whereas national, regional and local policy-makers and practitioners contend with more localized or sectoral contexts. This restricts the usefulness of the HDI to inter-country comparisons and the occasional national-level communication or mention

6 UNDP. 2020. *Human Development Report 2020. The Next Frontier: Human Development and the Anthropocene*. New York, UNDP.

7 UNDP. 2021. *Human Development Report 2021–22. Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World*. New York, UNDP.

8 UNDP. 2019. *Human Development Report 2019. Beyond Income, Beyond Averages, Beyond Today: Inequalities in Human Development in the 21st Century*. New York, UNDP.

9 However, there are examples brought forward by members of the Project Steering Committee in discussions on how changes in HDI have triggered high-level meetings in certain countries to bring together political leaders, government agencies and departments, representatives of multilateral and international organizations and other senior representatives of stakeholders.

in high-level national policy documents, rather than really aiding policy choices and identifying policy gaps. The advantages that the HDI could bring to decision-making have, as one respondent pointed out, 'largely been out of reach of local governments and communities who could benefit from these the most.'

This seems to be a common challenge for high-level international development initiatives, including the Sustainable Development Goals, where some evidence suggests that only limited transformative political impact has been achieved, mainly in the discursive sphere (in how people understand and communicate about development), whereas normative and institutional impact, from legislative action to changing resource allocation, remains rare.[10]

A MEANS OF INITIATING DELIBERATION AND COMMUNICATION ON MULTI-DIMENSIONAL WELLBEING: One of the key areas where the HDI was seen as useful by several respondents is as an embodiment of multidimensional wellbeing that is well recognized and can be used for communication across policy, media, academic and civil society audiences. 'Its main role is that it exists, stimulates discussion and debate and opens scope for improvement,' as one respondent put it.

It was observed that the HDI as a longstanding initiative has a stronger recognition and familiarity than any other international wellbeing measure, and it has gone some way in encouraging policy-makers and the public to consider dimensions of human development that extend beyond economic ones. It was noted that measurements like the HDI offer a better starting point for conversation on progress of countries than GDP, though in both cases the conversation needs to get beyond the high-level metric to understand drivers and implications. A conversation starting with HDI is more likely to develop in a way that foregrounds complex issues than a conversation that starts with GDP.

The need to improve the communication around the HDI to leverage this function came up a few times in discussions. It was suggested that a better visual presentation with options for interactive tools would help people understand and derive meaning from the numbers and thus aid usability across stakeholders. It was also mentioned that better message development around some of the nuances, including some complementary indices included in the Human Development Reports, would help people understand their added value in terms of what they mean for development interventions.

10 Biermann, F., Hickmann, T., Sénit, C. A. et al. 2022. Scientific evidence on the political impact of the Sustainable Development Goals. *Nat. Sustain.*, Vol. 5, pp. 795–800. doi: 10.1038/s41893-022-00909-5

While the HDI was never claimed as a representation of all that human development covers, it is one of the most visible parts of the Human Development Reports and captures a higher level of attention than most multidimensional wellbeing measures, which made some respondents feel that it needs to carry more of the message behind the reports than it currently does.

IN SUMMARY, while the HDI has helped expand perspectives and stimulated debate on human development according to most experts consulted, several of them see scope for improvement in its representation of the conceptual background as well as the functions it can serve beyond communication. In terms of the former, the capabilities approach is far more encompassing of the possibilities of what human wellbeing should comprise than the HDI begins to capture. Moreover, advances in our understanding of wellbeing and the sharpening of certain challenges to wellbeing globally have increased the need for a reconsideration of how much the HDI can tell us about wellbeing and progress towards it. There is an increasingly shared understanding that 'development' can no longer be meaningfully understood or measured without including sustainability or inequality among other dimensions.[11] Several experts felt that an index of human wellbeing should have the following functions: better enable measuring and guiding interventions that support wellbeing, including at the community level; address needs of a diverse set of groups in society, especially the most marginalized; and enable intra- and inter-country dialogue and incorporate consideration for wellbeing of future generations. This requires an index that is more complex but also enables access, reproducibility and disaggregation at different scales and for different groups within dimensions. Further distillation of the response to what is the end goal of the HDI can help guide some of the difficult choices that accompany the task of enabling it to evolve.

This consultation brought together perspectives from experts with various backgrounds that entail different theoretical and conceptual understandings and varying levels of familiarity with the technicalities of calculating the HDI. The differences in the perceived primary purpose of the HDI in the responses underpin the diversity of expectations from the index, and this is reflected in the rest of the discussion on whether and how the HDI needs to change.

11 There have therefore been suggestions to change the nomenclature of the HDI to reflect its broader scope than the traditional development concerns. Options provided were 'human flourishing' and 'human transformation.'

2. Ideas on modification of the current HDI: alternative indicators and/or weighting of the current dimensions

The discussion on options for modifying the HDI covered the following broad components:

- → Looking at alternative or second-order indicators of the currently included dimensions on income, health and education.
- → Weighting dimensions differently to indicate varying importance of dimensions.
- → Replacing the current dimensions with alternative dimensions.
- → Adding more dimensions to build a more complex and exhaustive index.

A few responses expressed that no change is needed in the current HDI despite its shortcomings, as it represents an option for a simple index that captures the basic minimum criteria of human development and any other measure would embody similar compromises and simplifications. However, most experts fell somewhere on the spectrum of suggesting some changes to how dimensions are measured and weighted, to those who felt more dimensions and more complex measures (including subjective measures) are necessary to make the HDI a more meaningful tool in advancing human development.

ALTERNATIVE INDICATORS FOR CURRENT DIMENSIONS: Choice of indicators for each dimension is a key area of decision both for what the dimension can represent and where policy-makers could potentially focus their efforts. These choices, however, are mediated by considerations of data availability, quality, frequency of updates and conceptual relevance.

Regarding the ***economic/income or decent standard of living dimension*** of the HDI, a few respondents felt that there is a need to move away from a GDP/Gross National Income (GNI)-related measure altogether and replace it with a measure that encompasses a broader idea of economic progress (approaches suggested as examples included green GDP, natural capital and inclusive wealth). On a conceptual level, some felt that, if the purpose of the HDI is to increase capability, it should focus not on the potential means reflected in income but on the outcomes; a long and healthy life and knowledge could potentially be achieved independent of income levels.[12] On a more practical level, it was also pointed out that, since GDP is regularly and more frequently updated than the other indicators, movements in HDI have tended to be dominated by changes in the GDP component.[13]

12 The standard of living dimension is currently measured by GNI per capita. The HDI uses the logarithm of income, to reflect the diminishing importance of income with increasing GNI.

13 Stiglitz, J. E., Sen, A. and Fitoussi, J. P. 2009. *Report by the Commission on the Measurement of Economic Performance and Social Progress.* Paris, CMEPSP. https://ec.europa.eu/eurostat/documents/8131721/8131772/Stiglitz-Sen-Fitoussi-Commission-report.pdf

Among those who felt that income itself is a valuable measure to retain, there were suggestions to include poverty and inequality indicators along with the income indicator. Other suggestions follow: replacing national income with measures of household income, despite the complications in differences in household size, as this better represents purchasing power; adjusting per capita income for inequality; and replacing GNI with Net National Income (NNI), and specifically adjusted NNI from the World Bank database, as GNI gives no insight into the sustainability of economic growth. The countervailing consideration would be potentially increased measurement error.[14]

For the ***education or knowledge component*** of the HDI (currently measured in expected years of schooling and mean years of schooling) and the ***health or longevity dimension*** (currently measured in life expectancy at birth), it was conceded that quality measures with adequate data coverage across countries are difficult to find. One expert noted that the measures are not fast moving enough and do not adequately reflect progress in these dimensions, carrying the risk of frustrating countries that are making efforts in this area. In the health dimension for instance, life expectancy changes only very slowly and other measures would be needed to capture the quality of life. Some examples of fast-moving 'flow indicators' suggested in the health dimension – that reflect 'quality' in terms of physical and mental health at all stages of life – include infant or child mortality, child morbidity, prevalence of major disease (e.g. malaria, tuberculosis, HIV and hepatitis) and indicators of old-age health issues (e.g. percentage of old people suffering from dementia or Alzheimer's disease). For the education dimension, examples include high-school graduates per year standardized appropriately, professional graduates per year (such as engineers, IT graduates and graduates of vocational training institutes) and digital access to education, which is becoming increasingly essential for expansion of knowledge. A solution that has been posed in the literature for this is to include one stock and one flow indicator per dimension to make the index more responsive and reflective of change due to past and recent policy efforts.[15]

To measure progress in education, years of schooling was pointed out as potentially the most debatable indicator, as interpretation depends greatly on specific institutions and national or local schooling systems. Moreover, it says little about the quality and level of knowledge or capabilities gained.[16] One suggestion was to add a measure of

14 One respondent also suggested that average income is not a very meaningful measure and that a simple, if limited, solution for thinking beyond averages might be to consider only the bottom 50% of the population in terms of income (but potentially also in the health and education dimensions) to adjust for inequalities.

15 Foster, J. E. 2013. Reflections on the Human Development Index; Saisana, M. 2013. Additional considerations. "Reflections on the Human Development Index" (paper by J. Foster). Both presented at the UNDP's Second Conference on Measuring Human Progress, 4–5 March 2013.

16 Several studies show the limitations of enrolment and completion rates in reflecting education outcomes. For a review see Kovacevic, M. 2010. *Review of HDI Critiques and Potential Improvements*. Human Development Research Paper. New York, UNDP. https://hdr.undp.org/content/review-hdi-critiques-and-potential-improvements

years of schooling for girls, as this can change the picture considerably in some cases and has implications for the impact of education on society overall. A broader view is that there is a need to move beyond formal schooling to other forms of education and knowledge acquisition, including due to the increasing relevance and potential of digital access to education.

It may be worthwhile broadening the scope of how knowledge is conceived in this paradigm through a concept such as '***knowledge capital***.' While basic education is an important part of knowledge acquisition, all societies rely on multiple knowledge systems. Science[17] and other knowledge systems (including local and indigenous knowledge[18]) can be seen as a kind of 'capital' or stock measure, and they are vital intangible assets that, if made explicit as an element of development, could encourage societies to invest in and promote the generation, transmission and safeguarding of such knowledge for human wellbeing. These shared ways of knowing are important elements of global cultural diversity, and they provide a foundation for locally appropriate sustainable development. As the ISC position paper Science as a Global Public Good (2021) notes, 'Science may serve the global public good directly by responding to an expressed need (a challenge), by creating new knowledge that enables activities that have not hitherto been possible (an opportunity), or in new knowledge that lies latent as a knowledge resource that may enable unpredictable future uses. It is important, however, not to see the utility of knowledge only though the limited lens of supply and demand. Scientific knowledge can enrich human perspectives in ways that cannot be captured on a balance sheet.'

Though this dimension is closely interlinked with other forms of capital (augmentation of economic, human, natural and social capital are all influenced by ways in which societies produce and share knowledge), it could be argued that 'knowledge capital' is a distinct and central element of wellbeing that influences progress as well as intra- and inter-society equity.

Similarly in the health dimension, life expectancy gives little insight into the quality of life lived, even if restricting this dimension to the health element (and not expanding it to questions of human rights, participation in community life, leisure time, safety

17 ISC defines science as the systematic organization of knowledge that can be rationally explained and reliably applied. It is inclusive of the natural (including physical, mathematical and life) and social (including behavioural and economic) science domains, which represent the ISC's primary focus, as well as the humanities, medical, health, computer and engineering sciences. See Boulton, G. S. 2021. *Science as a Global Public Good*. Paris, ISC. https://council.science/wp-content/uploads/2020/06/ScienceAsAPublicGood-FINAL.pdf

18 Local and indigenous knowledge refers to the practices, understandings, skills and competencies, as well as the philosophies and cosmovisions developed by societies with long histories of interaction with their natural surroundings and a continuing dependence on natural resources. See UNESCO, *Local and Indigenous Knowledge Systems (LINKS).* Paris, UNESCO. https://www.unesco.org/en/links/mission?hub=408

and freedom from discrimination and the like, which can be important to determining quality of life and therefore wellbeing). A modified life expectancy model, such as the WHO Healthy Life Expectancy or disability adjusted life years models, was suggested as an alternative with potential to expose nuances at population subgroup level. For more subjective components, the Sustainable Development Solutions Network provides an example of a subjective wellbeing ladder score derived from Gallup data, and the EQ5D is an example of a methodology for evaluating health outcomes that addresses some components of quality of life including mental wellbeing. The Years of Good Life indicator[19] includes subjective aspects in terms of years with positive life satisfaction, along with dimensions of life expectancy and capable longevity (being out of poverty and cognitively able and having no severe activity limitations).

Moreover, it was noted that, if the goal is indeed to have the health dimension of wellbeing reflected in the HDI, indices related to the health sector, such as availability of and access to health care, prevalence of malnutrition and other health issues that impact quality of life in populations and aspects related to mental health, merit further consideration. Such indicators can also arguably be more representative of policy and social relations and individual capabilities than life expectancy.

The challenge of correlation of dimensions was also discussed by many respondents. If dimensions reinforce each other (e.g. if there is a strong relationship between education and income, health and income in some countries), there is a possible missed opportunity to add additional information through inclusion of alternative dimensions that may represent other key areas of wellbeing. However, for those who consider that the main purpose of the HDI is not to maximize information presented on wellbeing but to capture an encapsulated picture on human development, this correlation represents a valuable view on the interconnections between dimensions which is a source of additional inequality between countries.

Several responses discussed the desirability of expanding the existing three dimensions in two principal ways: by adding ***subjective measurements*** to better grasp the nuances of these dimensions that are difficult to capture but are nonetheless central aspects of wellbeing, and by adding granularity to the dimensions by exploring ***micro-level approaches***.

Inclusion of subjective data (meaning based on what people consider as important economic, health and knowledge indicators) could enhance the HDI with important information, since people's value of the different dimensions may differ for various

19 The years of good life indicator is an example of an attempt to combine objective and subjective elements. See Lutz, W. et al. 2021. Years of good life is a well-being indicator designed to serve research on sustainability. *PNAS* Vol. 118, No. 12. https://pure.iiasa.ac.at/id/eprint/15402/

reasons[20] (such as personal experiences, abilities and culture). In the economic dimension, for example, addition of subjective measures such as economic insecurity at the individual or household level could provide insights into wellbeing that are currently missing. The health dimension could include mental wellbeing (psychological, emotional and social aspects) as an important marker of overall health. In the education dimension, the value of alternative systems of knowledge including, but not limited to indigenous knowledge, would be an example. Micro-level approaches would be one way to include such perspectives, and they carry the added benefit of potentially improving the representativeness of the index. Micro-level data could also then be aggregated to the population level to give a macro picture that accounts for diversity and disparities within populations.

Concerning ***weighting*** of the different dimensions, respondents were divided on whether equal weighting to dimensions assigned in the HDI is desirable. Around half the experts were against any change in weighting given to the dimensions. The main reason cited was that all weighting includes some level of arbitrary judgement and equal weighting has the benefit of being simple and easy to understand and is thus a reasonable compromise. Additionally, some experts pointed out that there is some evidence that changing weighting to principal component analysis (PCA)-based weights does not significantly alter indicators and rankings and it is thus a moot point.[21] However, there are normative implications hidden in the choice of equal weighting that are not obvious at first glance.[22] For example, an examination of the implied marginal rates of substitution in the HDI found that 'the HDI's implicit monetary valuation of an extra year of life rises from a remarkably low level in poor countries to a very high level in rich ones. In terms of both absolute dollar values and the rate of GDP growth needed to make up for lower longevity, the construction of the HDI assumes that life is far less valuable in poor countries than in rich ones; indeed, it would be nearly impossible for a rich country to make up for even one year less of life on average through economic growth, but relatively easy for a poor country.'[23]

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20 A recommendation to use both objective and subjective indices is found in the report of the Stiglitz Sen Fitoussi Commission, but it does not provide any answers on how to combine them or deal with issues arising. https://ec.europa.eu/eurostat/documents/8131721/8131772/Stiglitz-Sen-Fitoussi-Commission-report.pdf

21 Results of PCA of the correlation matrix of the HDI components show that PCA weights are approximately equal at 1/3 after normalization. For examples see Nguefack-Tsague, G. et al. 2011. On weighting the components of the Human Development Index: a statistical justification. J. *Human Dev. Capab*., Vol. 12, No. 2, pp. 183–202. doi: 10.1080/19452829.2011.571077; and Kovacevic, M. 2010. *Review of HDI Critiques and Potential Improvements*. Human Development Research Paper. New York, UNDP.
To note, these references investigate one alternative, i.e. PCA weighting. For an alternative example that focuses on the robustness of the results for alternative normative weighting schemes that reflect different value judgements on the relative importance of these well-being dimensions, see Decancq, K. and Ooghe, E. 2010. Has the world moved forward? A robust multidimensional evaluation. Econ. Lett., Vol. 107, Issue 2, pp. 266–69.

22 Decancq, K. and Lugo, M. A. 2013. Weights in multidimensional indices of wellbeing: an overview. *Econom. Rev.*, Vol. 32, No. 1, pp. 7–34. doi: 10.1080/07474938.2012.690641.

23 Ravallion, M. 2012.Troubling tradeoffs in the Human Development Index. *J. Dev. Econ.*, Vol. 99, No. 2, pp. 201–09. doi: 10.1016/j.jdeveco.2012.01.003.

There is an agreement, however, even among the proponents of retaining the equal weighting, that this is a political and normative and not a technical issue, thus any choice must make explicit the assumptions and goals embedded in it.

The other half of the respondents pointed out that fixed weights assigned to dimensions implicitly make assumptions about equal importance of the dimensions, and therefore about substitutability of components, and they take a particular stance on trade-offs. The main shortcoming of assigning equal weighting is that the value placed on each dimension may vary by country and population subgroup. In principle, different weights could be applied to countries or across different years to express heterogeneity in the value people place on different dimensions of wellbeing.[24] One way to do this would be for individuals to rank the determinants of their wellbeing (rather than researchers and policy-makers doing this), which could be used to extrapolate how each dimension should be weighted by specific population subgroups and on a country level. Compiling these varying views and weighting them accordingly should give a better picture of what is truly valued in each country. Such a parallel available weighting would correspond more closely to the collective subjective sense of a population's level of human development. The OECD Better Life Index dashboard provides an often-cited example of one way this can be achieved. It is to be noted, however, that this would compromise cross-country and temporal comparisons.

Another suggested method was to make the weighting dependent on the values taken by the measures (to capture the idea of decreasing marginal returns; for example, as income becomes relatively less important, health becomes more important in richer societies). A few experts opined that health and education should be weighted higher than income in a 'post-capitalistic' society as income is only a means to higher wellbeing and does not represent a development outcome.

A further recommendation was to explore an endogenous (data-driven) weighting scheme within a dimension once additional indicators have been added to each dimension, using statistical techniques such as from a factor analysis model or principal components method, in addition to the exogenous scheme of equal weights between dimensions. Comparing the two can provide useful insights on the relative importance of different dimensions and help us to choose one or the other option in full knowledge of both results, or even combine the two in an optimal manner.[25]

24 For examples see Decancq, K. et al. 2019. Multidimensional poverty measurement with individual preferences. *J. Econ. Inequal.*, Vol. 17, pp. 20–49. https://link.springer.com/article/10.1007/s10888-019-09407-9; and Ravallion, M. 2010. *Mashup Indices of Development*. Policy Research Working Paper Series 5432. Washington, DC, The World Bank. https://openknowledge.worldbank.org/handle/10986/15345

25 Krishnakumar, J. 2007. Going beyond functionings to capabilities: an econometric model to explain and estimate capabilities. *J. Human Dev.*, Vol. 8, No. 1, pp. 39-63. doi: 10.1080/14649880601101408

3. Inclusion of new dimensions

Almost all the respondents expressed that the current HDI is too narrow and called for additional dimensions and related indices to better capture wellbeing.[26] The two respondents who felt that the current HDI should not be changed did so on the basis of retaining the simplicity, non-repetition and ease of understanding that the current three dimensions provide, along with the postulation that opening up the dimensions would lead to a inconclusive debate on why some dimensions should be included and not others from a long list that merit consideration, and how these should be weighted. They felt that this would ultimately lead to a more opaque and contentious measure, undermining the whole exercise. A suggested partial solution was that other measurements could be provided in a dashboard alongside for consideration and ease of understanding.

The UNDP HDRO has responded to the issue of expanding the dimensions in two main ways. The first has been to make modular adjustments to the HDI, such as in the Gender Development Index (ratio of female over male HDI), and the second is to publish complementary composite indices alongside the HDI, such as the Multidimensional Poverty Index, to provide some additional insights into development issues not included in the HDI. While several respondents did refer to the Inequality-adjusted HDI, it was noted almost across the board that this has not received as much attention and traction as the HDI itself and was seen by some as a half-measure compared with making the HDI itself more relevant.

The inclusion of new dimensions is a technical but also a philosophical and conceptual exercise. It connects to the discussion in the first phase of this project, in which one of the recurring themes was that, if the goal remains to put humans at the centre of development, the time is ripe for the human development paradigm to re-examine what it means to be human today. This would mean acknowledging the coalescence around the idea that the conditions that make us human are deeply embedded in our relationships with the natural world and with society. While the Human Development Reports have come to eloquently express this idea over recent years with their focus on the Anthropocene, uncertainty, inequality and the like, the HDI has hardly kept pace, remaining centred around individuals and narrow basic needs. Given the recognizability of the HDI, its potential value in representing and tracking wellbeing and its aspiration of supporting the achievement of wellbeing around the globe, this lag could be seen as a lost opportunity and unrepresentative of where the global community needs to focus efforts, as it is increasingly doing.

26 Interestingly, the respondents that did not favour inclusion of any new dimensions were all economists with similar research backgrounds.

Environmental sustainability and inequality were the two front runners for most respondents when asked about what dimensions merit consideration for inclusion, though several others were mentioned.

The ***environmental sustainability*** dimension includes aspects of climate change (greenhouse gas emissions as well as costs of climate change impacts), biodiversity and ecosystem services, environmental quality and pollution, deforestation and reforestation rates, percentage of land and marine ecosystems under protected areas, access to and use of material resources and communal land, and 'natural capital' stocks. There was some discussion around greenhouse gas emissions as an indicator. Many felt that this would be a desirable addition, especially to balance the high HDI scores of high-income countries, which ignore their negative impact on global development, while a few felt that mixing current wellbeing with the wellbeing of future generations would be inappropriate and the climate change indicators should be restricted to easily measurable current impacts such as forest fires, floods, drought and other outcomes (as well as risks and vulnerabilities of populations towards such outcomes) that limit capabilities. Data for such environmental impacts are more easily available and focus on wellbeing and agency within a country, which some argue is what the HDI aims to reflect.

The choice of indicators would, as always, depend on how environmental sustainability is conceptually expressed in terms of the capability approach (e.g. the capability to benefit from and conserve environmental resources for future generations). Inclusion of such a dimension could go some way in signalling its centrality in our collective idea of development as it has evolved since the HDI was instituted.

Inequality was also almost universally seen as a dimension that could no longer be ignored in the HDI. A few respondents underlined that adjusting existing dimensions for inequality was inadequate and it must form an independent dimension with its own indicators. Comparing the HDI, which is an average measure, with the Inequality-adjusted HDI could be useful and raise important areas for policy.

While there are several prevalent measures of inequality, some respondents mentioned the need to consider cumulative deprivation (which includes interactions between different dimensions at the individual level). Suggested indicators included the Gini coefficient, Palma ratio, decile distributions, poverty rates, employment and education rates by subgroups, and gender, race, ethnicity and caste disparity measures. Existing multidimensional indices for environment and inequality could provide some useful insights.[27]

27 See for example: Environmental Performance Index: https://epi.yale.edu/, Climate Vulnerability Index: https://cvi-heritage.org/, and Multidimensional Vulnerability Index: https://www.un.org/ohrlls/mvi.

Not entirely separate from the inequality dimension, ***social relations, rights and structural aspects*** were commonly brought up, based on the critique that the current HDI is too individual-centric to recognize that most opportunities and freedoms are relational and capabilities of individuals are dependent on and can be constricted by social, economic and cultural factors. The measurement of existence and quality of social relations is an area of interest for this reason. Closely linked to such 'social capital' or social capabilities are considerations of underlying governance and structural issues that can significantly impact lives of individuals and communities despite their education, health or income achievements. This part of the discussion recalls the stress on interconnectedness in several responses in the first phase of this project, which already anticipated that, even more than in conversations on development in general, indexes and metrics tend to obscure the complexities of social life that are central to the human development narrative.

Social protection, public infrastructure, availability and access to public services, and opportunities to participate in public life, including political rights and civil liberties, provide important opportunities but also increase resilience and reduce vulnerabilities. Moreover, inequality is often rooted in structural issues at both community and global levels.[28] There is evidence that countries with more effective institutions (government and non-government) perform better in a range of dimensions related to human development,[29] and that living in a democratic system positively affects human development, measured by life expectancy and literacy rates, even controlling for GDP.[30] Rather than simply ensuring conditions for economic growth and meeting basic needs, effective and transparent governments and other institutions can provide a space for people to exercise their agency, voice their opinions, form a sense of community, demand accountability and thus be central to development in a broader sense.[31] Measurements could include membership in social institutions, unpaid work (in time or monetary equivalence), reliance on personal networks for job or educational opportunities, guarantees of basic civil and political rights, political stability, regulatory

28 Parekh, S. 2011. Getting to the root of gender inequality: structural injustice and political responsibility. *Hypatia*, Vol. 26, No. 4, pp. 672–89; Haddad, E. A. 1999. *Regional Inequality and Structural Changes: Lessons from the Brazilian Experience*, 1st edn. Abingdon, Routledge. doi: 10.1201/9780429449406; Royce, E. 2022. *Poverty and Power: The Problem of Structural Inequality*. Lanham, Rowman & Littlefield; Dill, B. T. and Zambrana, R. E. 2020. Critical thinking about inequality: an emerging lens. McCann, C., Kim, S-k. and Ergun, E. (eds), *Feminist Theory Reader*. Abingdon, Routledge, pp. 108–16.

29 OECD. 2012. Background Report for the OECD Strategy on Development. Paris, OECD. https://web-archive.oecd.org/2014-01-22/264256-Background%20Report_OECD_Strategy_on_Development.pdf

30 Vollmer, S. and Zeigler, M. 2013. Political Institutions and Human Development: Does Democracy Fulfil Its 'Constructive' and 'Instrumental' Role? Policy Research Working Paper 4818. Washington, DC, The World Bank. doi: 10.1596/1813–9450–4818

31 Tridico, P. 2007. Institutions, human development and economic growth in transition economies. Eur. J. Dev. Res., Vol. 19, No. 4, pp. 569–93. doi: 10.1080/09578810701667607; Kaufmann, D. et al. 2010. The Worldwide Governance Indicators: Methodology and Analytical Issues. World Bank Policy Research Working Paper 5430. Washington, DC, The World Bank.

quality, rule of law and control of corruption, as well as subjective elements that are an important part of this dimension such as aspects of dignity, trust in local and national government and institutions, satisfaction with basic services, identity and belonging.[32]

Economic and other forms of insecurity are an increasingly important area of concern in light of global transformations (as noted in the 2022 Human Development Report), and some respondents proposed the need to include in the discussion income volatility and the capacity to sustain an exogenous shock, including through elements such as job security, share of households with only one employed working-age member, level of savings, share of individuals with no access to social protection, share of unemployed people not receiving unemployment benefits, share of people of pension age not receiving a pension and perceived economic risk. Security, i.e. protection from physical and mental threat, was mentioned by a couple of respondents in terms of prevalence of domestic violence, crime rates (homicides or assaults), social violence such as riots and so on.

Respondents were also asked to deliberate on the question of ***agency*** (the ability to participate in decision-making and make desired choices[33]) and how this can be enhanced. One insight was that this is a question closely linked to the structural aspects mentioned above, as agency is derived from and exercised in the structural context. Agency is individual but also collective, as individual agency depends on social connections and structures, just as it influences them. An example mentioned was the role of women in local decision-making, which can have exponential impact on economic, social and political empowerment. Agency is also linked closely to life satisfaction, which a few responses mentioned. Welzel and Ingelhart (2010) posit that feelings of agency are linked to human wellbeing through a sequence of adaptive mechanisms that promote human development, once existential conditions permit, as follows: '(1) in response to widening opportunities of life, people place stronger emphasis on emancipative values, (2) in response to a stronger emphasis on emancipative values, feelings of agency gain greater weight in shaping people's life satisfaction, (3) in response to a greater impact of agency feelings on life satisfaction, the level of life satisfaction itself rises.'[34] It is also closely linked to the aspect of values and is therefore contextual.[35]

32 For a discussion on an index of economic and social rights fulfilment, see for example Fukuda-Parr, S. et al. 2009. An index of economic and social rights fulfilment: concept and methodology. *J. Hum. Rights*, Vol. 8, No. 3, pp. 195–221. doi: 10.1080/14754830903110194

33 UNDP. 2020. *Human Development Report 2020. The Next Frontier: Human Development and the Anthropocene*. New York, UNDP.

34 Welzel, C. and Inglehart, R. 2010. Agency, values, and well-being: a human development model. Soc. Indic. Res., Vol. 97, pp. 43–63. doi: 10.1007/s11205-009-9557-z

35 Eccles, J. S. 2008. Agency and structure in human development. Res. Hum. Dev., Vol. 5, No. 4, pp. 231–43. doi: 10.1080/15427600802493973

Along with the examination of the connections of individual wellbeing to people's place in, connections to and power to act in the social and natural world around them, the need to explore the ***inward-looking aspects of wellbeing*** was also underlined by some. This includes aspects such as people's emotional and mental wellbeing, as well as people's feeling of connectedness with other people and the flora and fauna of the world (sense of belonging), happiness[36] and life satisfaction. The 2020 Human Development Report began deliberation on these issues. Examples of potential measures include share of individuals satisfied with their life, share of individuals experiencing various positive and negative feelings (fear, stress, sadness and happiness) and share of individuals with high life meaning.

The fact that the HDI does not include any ***forward-looking measures*** was noted. This refers to signals for what may become significant determinants of human development in future and may need attention today by policy-makers and the general public. Issues related to climate change are a part of this; other examples include artificial intelligence, digital access and governance, disaster warning systems, anticipated impacts of misinformation and social polarization, and other vulnerabilities to non-linear development problems. The idea is that any overlooked aspects of the current course of human development that pose dangers for the near or far future should impact HDI scores.

The need to seriously explore the possibilities of ***participatory methods of collecting data*** for more nuanced, contextual and granular-level data was a recurring theme in several discussions. This relates to the suggestion to consider dimensions and indicators that are more subjective or for which large-scale data are not readily available. Cultural understandings of wellbeing are context specific and can differ greatly. In addition to those aspects mentioned above, the example was cited of the rich insights that participatory methods have brought to poverty research. This includes the idea that poverty leads people to underutilize resources available to them, manifesting a 'poverty of aspirations,'[37] and that there are many hidden dimensions of poverty that can only be revealed by including people with the lived experience of poverty in the research.[38]

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36 See for example: *World Happiness Report*s(Helliwell, J. F., Layard, R., Sachs, J. D., De Neve, J.-E., Aknin, L. B., & Wang, S. (Eds.). (2025). World Happiness Report 2025.University of Oxford: Wellbeing Research Centre)

37 Appadurai, A. 2004. The capacity to aspire: culture and the terms of recognition, Rao V. Walton (ed.), *Culture and Public Action*. Washington, DC, The World Bank.

38 See Bray, R. et al. 2019. *The Hidden Dimensions of Poverty*. Montreuil, Fourth World Publications. This report details an international participatory research project to identify the key dimensions of poverty and their relationships, which involved teams in Bangladesh, Bolivia, France, Tanzania, the United Kingdom and the United States, including people with direct experience of poverty, academics and practitioners who worked closely with marginalized groups as co-researchers in national research teams.

National-level aggregate data often do not reveal actionable detail, whereas participatory processes can take into account contextual aspects that are especially important to account for, despite the challenge they present for comparability across contexts. Bottom-up approaches to assessing human development are based on individually measurable characteristics that can be aggregated to subpopulations. Such a focus on subpopulations, rather than nations, is essential for answering questions directly relevant to policy-makers, other decision-makers and communities, such as how progress differs by gender or by various ethnic or socio-economic groups in a population and how it differs by urban/rural place of residence or other geographic units. Moreover, participatory data can validate and provide nuance when used to complement aggregated data.

Experts in participatory methods asserted that the process of data collection itself is a part of building and validating capabilities and enhancing agency. Such methods also build recognition of and buy-in to the results. However, methods of data collection cannot be the same across the board because participatory and local methods are context driven. This also means they take time and require a lot of flexibility. Measuring qualitative change can be difficult but is not impossible if measures are well defined and processes well documented. Cyclical participatory research can provide further means of verification and quality control. A well-designed longitudinal study on perceptions of wellbeing built on participatory methods could provide valuable lessons on potential indicators that can realistically be based on such methods for a wide-scale index.

Of course, this brings its own set of challenges, which have prevented wider uptake of this approach, including the fact that participatory methods tend to complicate the picture and add elements that may not be easy to access and quantify and carry issues of compatibility, uniformity and scale that are serious impediments for retaining the simplicity of the HDI. However, if the aspiration is for the HDI to continue to represent a people-centric vision of development, it is worth exploring possibilities for graduation to inclusion of ideas and participation beyond a narrow set of experts in making the normative and technical decisions about what wellbeing is and is not.

The ***key challenges*** that the consulted experts foresee in the inclusion of the new elements suggested were predictably dominated by data availability, quality, comparability and update synchronization across countries. The trade-off between having a more nuanced index and covering as many countries as possible remains a strong deciding factor in what the potential for new directions is.

A couple of respondents felt that existing data sources for the measurement of the HDI have not yet been exhausted and that a discussion on a desirable list of indicators should proceed, and then be balanced by questions of data availability, reliability, update frequency and possibilities of additional data collection.

It was noted though that data availability in several areas has improved tremendously since the basic elements of the HDI were decided. Administrative, satellite and 'big data' availability in some areas has expanded.[39] Methods of participatory data collection have also evolved and been tested in wellbeing studies in different contexts in the meantime. Moreover, digital means of collecting and sharing data have provided new possibilities that have not yet been sufficiently leveraged in economic statistics.[40] While there have been growing expectations about the added value of digitalization for pursuing development through the Sustainable Development Goals – for instance, through novel data sources, enhanced analytical and data visualization capacities and collaborative digital ecosystems – there is evidence that this potential has not been adequately explored in research or practice.[41] There remain untapped possibilities in using novel sources of data including big data, as is increasingly being employed in large-scale studies to uncover broad patterns and linkages between elements[42] in areas such as subjective wellbeing,[43] environment and human health,[44] social connections[45] and inequality.[46]

The collection of more subjective, micro-level data across multiple countries will provide several new challenges compared with secondary sources of country-level data, as noted above, and will require far more financial, technical, human and time resources and consequently political will and government backing. Furthermore, the increase in complexity of the index would necessarily lead to complicated

39 Alkire, S. and Fortacz, A. 2021. *Human Flourishing on a Shared Planet: Capabilities, Agency and Values*. Forthcoming.

40 High-Level Committee on Programmes (HLCP), Chief Executives Board for Coordination. *Valuing What Counts: UN System-wide Contribution on Beyond GDP*. New York, United Nations. https://unsceb.org/sites/default/files/2023-01/Valuing What Counts - UN System-wide Contribution on Beyond GDP %28advance unedited%29.pdf

41 Castro, G. et al. 2021. Unleashing the convergence amid digitalization and sustainability towards pursuing the Sustainable Development Goals (SDGs): a holistic review. *J. Clean. Prod.*, Vol. 280, No. 1. doi: 10.1016/j.jclepro.2020.122204

42 Savage, M. 2016. The use of big data in the analysis of inequality, *World Social Science Report 2016. Challenging Inequalities: Pathways to a Just World*. Paris, UNESCO.

43 Maike Luhmann, M. 2017. Using Big Data to study subjective well-being. *Curr. Opin. Behav. Sci.*, Vol. 18, pp. 28–33. doi: 10.1016/j.cobeha.2017.07.006.

44 Fleming, L. et al. Big Data in environment and human health. *Oxford Research Encyclopedias, Environmental Science*. doi: 10.1093/acrefore/9780199389414.013.541.

45 Putnam, R. 2000. *Bowling Alone: The Collapse and Revival of American Community*. New York, Simon & Schuster.

46 Piketty, T. 2013. *Capital au XXIe siècle* [Capital in the Twenty-First Century]. Paris, Editions du Seuil.

deliberations on questions such as what is necessary to include and what not, what is reliable and representative across contexts, what kind of weighting is appropriate and how a balance can be struck between maintaining rigour and capturing decisive subtleties. This would be a political exercise calling for layered dialogue on a large scale. As one respondent stated, 'the measurement of these new dimensions will complicate the promotion of the HDI concept among people who rely primarily on income as a measure; on the other hand, they may imbue the HDI with greater validity and usefulness in broader contexts.'

Transdisciplinary science can contribute much in this area. The bridging of the gap between rich theoretical understanding developed in the social sciences (including but also outside of economics) over the past few decades and the statistical expertise that can condense these complex ideas into measurable numerical goals will require more effort. This is a big challenge as a vast literature exists on what a 'good life' entails that countries must aim to secure for their citizens, yet converting these dimensions to simple, easy-to-understand and positivistic measurements remains a hard knot to untangle. Most exercises seem to end at the point of acknowledgement of the importance of other dimensions without effective and scalable technical solutions that can bring them into play with powerful indicators and ways to combine them.

4. Exploring potential new directions: reflecting varying preferences

One of the questions that was posed was 'Given that people in different countries and even within countries may prioritize elements of wellbeing differently (for instance, some may value education more highly than income while others may value income more highly than education), should the HDI take these different priorities into account?'

Around half the responses opposed (or partially opposed) such an approach on grounds of practicality and of conserving possibilities of cross-country comparison. Some asserted that, if the three dimensions are to be retained, preferences are unlikely to reveal significant differences as the dimensions are highly correlated. For OECD countries, there is evidence that cross-country variation of weights is limited. For non-OECD countries, this would have to be examined, though there is some work to show that elements that define wellbeing and human development are extremely similar across the world and among diverse communities.[47]

Many of the opposing views were qualified by the suggestion that this would still be a valuable exercise, but at a country level, where countries could create their 'bespoke HDIs' in parallel with the global HDI exercise. Such an effort could sit well with the proposal to continue and intensify promotion of local, national and regional reports and cross-report learning, as these provide vital spaces for learning about local specificities, challenges and opportunities.[48] The other proposal that this links with is to have a 'build your own HDI' dashboard approach, where people can choose the importance they give to each aspect and view the resulting change in positioning of countries to test findings like country rankings or improvement over time, with sensitivity checks based on different weights.[49]

47 Boarini, R., Kolev, A. and McGregor, A. 2014. *Measuring Well-being and Progress in Countries at Different Stages of Development: Towards a More Universal Conceptual Framework*. OECD Development Centre Working Papers, No. 325. Paris, OECD. doi: 10.1787/5jxss4hv2d8n-en

48 Gasper, D. 2020. *Four Suggestions for the Rearticulation of Human Development in Conversations on Rethinking Human Development*. Paris, ISC.

49 The OECD Better Life Index (BLI) is an example of an interactive composite index that aggregates average measures of a country's wellbeing outcomes through weights defined by users. A study of these weights by analysing the responses given by close to 130,000 users between 2011 and 2018 showed that health status, education and life satisfaction are the aspects that matter the most for BLI users in OECD countries. Men assign more importance to income than women, while women value community and work–life balance more than men. Health, safety, housing and civic engagement become more important with age, while life satisfaction, work–life balance, jobs, income and community are particularly important for young people. There are also clear regional patterns in the choices by BLI users; for instance, education, jobs and civic engagement are particularly important in South America, while personal safety and work–life balance matter a lot in Asia-Pacific. Analysis carried out on a subset of observations (BLI users who completed an extended questionnaire) shows that, for several wellbeing dimensions (jobs, housing, community, health, education, civic engagement, personal safety, life satisfaction and work–life balance), there is a positive and linear relationship between individual preferences and self-reported satisfaction in the same dimension, with evidence of distinctly different patterns of association within the population in the case of income and education. See Balestra, C. et al., 2018. *What Matters the Most to People? Evidence from the OECD Better Life Index Users' Responses*. OECD Statistics Working Papers, No. 2018/03. Paris, OECD. doi: 10.1787/edf9a89a-en

The other half of the respondents supported the idea and believed that this would lead to a more nuanced understanding of development and add validity to the results and that a categorization of countries based on people's priorities would help make the measure more meaningful, avoiding comparisons across extremely divergent contexts. This connects to the issue of having limited indices and dimensions, and whether expanding the current dimensions would provide more space for engagement and generate knowledge about countries that may not rank so highly on one or more of the traditional HDI measures, but highly in terms of equity, sustainability or other aspects the populations may value.

Wellbeing priorities would be based on each country's culture and values, which can vary markedly across the population of very diverse countries. Such priorities could be assessed from micro-level data. Regarding how such information could be attained, in addition to the suggestion of crowd sourcing it through an online dashboard, appropriately designed surveys were the most popular answer (including household surveys complemented by participatory engagement, getting governments to include questions that can be used to determine what their population values in their national censuses and using demographic data accompanying the responses to make some generalizations about population subgroups).

Other responses included focus groups representative of various population subgroups, involvement of local social science researchers and trained observers and use of existing secondary sources (such as the World Values Survey). The definition of the relevant groups would therefore be a crucial choice. In the words of one respondent: 'In an ideal world, the basic underlying concept should be individual wellbeing and the weight given to the different individuals should be determined by a parameter of inequality aversion. A sensitivity analysis with regard to this parameter would be preferable. Practically, it may be hard to work with individuals and population subgroups would be the main unit of engagement (gender, income, rural/urban, age, etc.).'

While there remains much scope to discuss which specific methodologies might be feasible and reveal the desired results, the central idea is that a more transparent and widespread discussion on dimensions, indices and priorities would balance validity and resonance with people against standardization across larger contexts.

5. Concluding remarks

While development, values and aspirations can be fairly universal, there are many nuances that must remain in view. To undertake a discussion on a subject anchored in the broad possibilities of exploration offered by the human development paradigm but ensure it remains anchored in technical and practical realities, without getting unduly limited by them, is the great challenge that rethinking the HDI entails.

It is clear that, to prioritize and capture such concepts in numbers, some hard choices will have to be made, these choices will be political, entail complicated negotiations and take time to produce actionable conclusions. Careful measures to increase transparency and democratization of these processes are called for. A reinforced community of practice is needed that requires pooling of expertise, common concepts and 'translation' of conceptual insights into statistical tools if experts, policy-makers and even the broader public are to collaborate.

The HDI has done much to move the conversation over the past three decades about how we measure and track progress around the globe, and now it must contend with big questions to increase its impact, including around how it is conceived (can it encompass a more expansive view of human development?), who it is aimed at (can it enable policy-makers more effectively and address a broader audience?) and what is measured (can it go a step further in including granular and subjective data and capture concepts like values and connectedness with other people and the planet?), all in a context where there is a proliferation of both data and urgent development challenges.

Where do we go from here? Options for progress

The following directions for exploration are summarized from the discussion above:

- → Consider possibilities of revising indicators within current dimensions, including adding subjective aspects. Along with looking at feasibility in terms of data availability, reliability, update frequency etc., this should entail consideration of participatory methods of data collection and potential of digital tools as means of generating and sharing data.
- → Conduct a feasibility study on the inclusion of additional dimensions to explore the possibility of a broader HDI, which explicitly includes pressing development concerns that are evident today. This would entail both a conceptual/theoretical and an empirical/technical exercise. This work would include learning from other existing measures of multidimensional wellbeing.
- → Explore the potential of conducting deliberations on the HDI with a wider audience to foster more participation and transparency but also bring in a wider set of perspectives into the discussions on how the HDI can evolve and how it can be used. While there exist rich insights generated from a range of social sciences and humanities in the recent past that are directly relevant to the discussion on the HDI, there is a bridging of expertise needed to translate this to statistical possibilities.
- → Strengthen the messaging and communication around the calculation of and narratives contained within the HDI. Many of the past and recent changes and the options and challenges for future development of the HDI are poorly understood beyond a narrow set of experts. Moreover, while the Human Development Reports contain broader narratives on wellbeing, the HDI also contains some important inferences and nuances. It would benefit audiences if these were presented in as transparent, clear and accessible manner as possible. Also consider the enhanced visual and interactive elements in presenting the index to promote engagement and understanding.

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