

The HDI and the Chimeric Quest for a Holistic Economic Index

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ABSTRACT

By providing crucial information about the economy's state, economic indices empower policymakers to make informed adjustments to guide the economy in a more favorable direction. Given their considerable influence on policy, it is essential that economic indices measure what matters most. Historically, the most prominent economic index was gross domestic product (GDP), but concerns about its limitations prompted many economists and international organizations to call for the creation of a new economic index that would offer a more comprehensive assessment of a country's development. The result was the Human Development Index (HDI), which measures development as an aggregate of performance in three domains—standard of living, health, and education. This paper evaluates the extent to which the HDI, as an economic index, succeeds in presenting a holistic assessment of a country's development. It concludes that, while the HDI does indeed provide a more comprehensive assessment of economic development than GDP, it also has considerable shortcomings. Chief among these are its failure to reflect disparities in the distribution of achievement within the domains measured, as well as the exclusion of important domains, such as sustainability and human rights. It further argues that the quest for a holistic economic index is itself chimeric, as economic indices face an inherent tradeoff between specificity and breadth. Therefore, policymakers and analysts should place less weight on individual metrics and instead rely on a "development dashboard," which incorporates multiple indices in conjunction with one another.

Introduction

Economic indices play an important role in shaping policy. Trying to manage an economy without them would be like trying to fly an airplane without gauges to measure your location, altitude, speed, and fuel—it would be almost impossible to know where you are or where you're going. By providing crucial information about the economy's state, economic indices empower policymakers to make informed adjustments that can guide the economy in a more favorable direction. Given the considerable influence that economic indices can wield on policy, it is essential that they measure what matters most. Historically, the most prominent economic index was gross domestic product (GDP), which measures the value of all goods and services produced within an economy over a given period. However, while it is undeniable that this metric has its uses, it provides only a limited portrait of a country's development. It wasn't long before many economists and international organizations, fueled by growing concerns about the shortcomings of GDP, began advocating for the creation of a more comprehensive measure of development. The eventual result was the Human Development Index (HDI). Re-

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¹ Stiglitz, Joseph. "GDP Is the Wrong Tool for Measuring What Matters." *Scientific American*, August 1, 2020. https://www.scientificamerican.com/article/gdp-is-the-wrong-tool-for-measuring-what-matters/

² Stiglitz, Joseph. "GDP Is the Wrong Tool for Measuring What Matters." *Scientific American*, August 1, 2020. https://www.scientificamerican.com/article/gdp-is-the-wrong-tool-for-measuring-what-matters/



flecting the belief that "people and their capabilities" should be the "ultimate criteria for assessing the development of a country," the HDI was designed to offer a holistic measure of a country's level of development.³ This paper evaluates the extent to which the HDI, as an economic index, accomplishes that goal. It concludes that, while the HDI does indeed provide a more comprehensive assessment of economic development than GDP, it also has considerable shortcomings. It further argues that the quest for a holistic economic index is itself chimeric, as economic indices face an inherent tradeoff between specificity and breadth. Therefore, policymakers and analysts should place less weight on individual metrics and instead rely on a "development dashboard," which incorporates multiple indices in conjunction with one another.

Background

To evaluate the effectiveness of the HDI, it is first necessary to understand the value and limitations of the index whose supremacy it was designed to challenge. GDP was developed by economist Simon Kuznets in the late 1930s to measure national income based on the limited data available at the time. The metric proved useful enough that post-war international financial institutions like the World Bank and the International Monetary Fund adopted it as "the standard tool for sizing up a country's economy." Today, it remains an important indicator that is often viewed as a proxy for overall economic health due to its correlation with general prosperity. GDP can also be manipulated to yield measurements like per-capita GDP and real GDP, which control for differences in population and price level to allow for more meaningful comparisons between countries or time periods.

Nevertheless, GDP has been frequently condemned for its failure to offer a comprehensive assessment of a country's level of development. Robert Kennedy quipped that it measures everything "except that which makes life worthwhile." GDP's creator, Kuznets, was also aware of the metric's limitations, emphasizing that it simply measures production and "should not be mistaken for a metric of social or even economic well-being." Unfortunately, this lesson was lost on the general public and policymakers alike, who tended to equate the metric with economic success, leading to a phenomenon economist Joseph Stiglitz dubbed "GDP fetishism." Stiglitz and other critics of GDP have aptly noted that simply producing more is meaningless if it doesn't enable people to live better lives. Moreover, focusing excessively on GDP can distort economic decision making. As Stiglitz notes, just as an obsession with body count led the U.S. military to undertake operations with little strategic value in Vietnam, an obsession with boosting GDP could lead policymakers to make decisions

³ "Human Development Index." The World Health Organization. https://www.who.int/data/nutrition/nlis/info/human-development-index

⁴ Dickinson, Elizabeth. "GDP: A Brief History." *Foreign Policy Magazine*, January 11, 2011. https://foreignpolicy.com/2011/01/03/gdp-a-brief-history/

⁵ Dickinson, Elizabeth. "GDP: A Brief History." *Foreign Policy Magazine*, January 11, 2011. https://foreignpolicy.com/2011/01/03/gdp-a-brief-history/

⁶ Callen, Tim. Gross Domestic Product: An Economy's All. *The International Monetary Fund*. https://www.imf.org/en/Publications/fandd/issues/Series/Back-to-Basics/gross-domestic-product-GDP

⁷ Kapoor, Amit and Bibek Debroy. "GDP Is Not a Measure of Human Well-Being." *The Harvard Business Review*, October 4, 2019. https://hbr.org/2019/10/gdp-is-not-a-measure-of-human-well-being

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⁹ https://www.project-syndicate.org/commentary/gdp-fetishism



against society's interests. ¹⁰ Production is not an inherent good. The production of armaments or cigarettes may boost GDP, but is that really beneficial? ¹¹

Such criticisms eventually spurred demand for a more comprehensive measurement that would accurately reflect aspects "more relevant to our own lives." The result was the HDI, developed by economist Mahbub ul Haq in collaboration with the United Nations Development Program in 1990. Unlike GDP, which focuses purely on a country's level of production, the HDI was designed to assess achievement in three central domains: standard of living, health, and education. Although the HDI has not surpassed GDP in terms of popularity, it has emerged as the dominant rival to it. Globally, the volume of Google searches for "HDI" is about half that of searches for "GDP," but the HDI is more widely used in some regions, including much of Europe and South America. It is also becoming increasingly common in academic citations. Proponents of the HDI have lauded it as the only measure to succeed in "challenging the hegemony of growth-centric thinking."

Discussion

This analysis will begin by assessing the extent to which the HDI measures achievement in each of the three dimensions it ostensibly measures, beginning with standard of living. It will then discuss significant omissions in the scope of the HDI, as well as concerns related to how the HDI is aggregated.

Standard of Living

In the HDI, standard of living is measured by a logarithmic value of gross national income (GNI) per capita. ¹⁷ Like GDP per capita, GNI per capita captures the value of all goods and services produced per person, but by a country's citizens rather than within its geographical boundaries. The choice to use the logarithmic value is significant because of the diminishing returns to income. ¹⁸ An increase in GNI from \$8,000 to \$12,000 could mean the difference between poverty and an adequate standard of living. However, the same proportional increase from \$40,000 to \$60,000 is unlikely to have as much impact on a population's quality of life. By using a logarithmic value of GNI, the HDI is able to more accurately reflect these diminishing returns. Nevertheless, even the logarithmic value of GNI per capita remains an imperfect proxy for standard of living. One flaw is that

¹⁰ Stiglitz, Joseph. "GDP Is the Wrong Tool for Measuring What Matters." *Scientific American*, August 1, 2020. https://www.scientificamerican.com/article/gdp-is-the-wrong-tool-for-measuring-what-matters/s/

¹¹ Stiglitz, Joseph. "GDP Is the Wrong Tool for Measuring What Matters." *Scientific American*, August 1, 2020. https://www.scientificamerican.com/article/gdp-is-the-wrong-tool-for-measuring-what-matters/

¹² Gertner, Jon. "The Rise and Fall of the G.D.P." *The New York Times*, May 13, 2010.

https://www.nytimes.com/2010/05/16/magazine/16GDP-t.html? r=1&pagewanted=all

¹³ "What is 'Human Development Index.'" *The Economic Times*.

https://economictimes.indiatimes.com/definition/human-development-index

¹⁴ HDI and GDP, Interest over Time. Google Trends.

https://trends.google.com/trends/explore?date=all&q=HDI,GDP&hl=en

¹⁵ "THE HDI 2010: NEW CONTROVERSIES, OLD CRITIQUES." *The United Nations Development Programme*. January 1, 2011. https://hdr.undp.org/content/hdi-2010-new-controversies-old-critiques

¹⁶ "THE HDI 2010: NEW CONTROVERSIES, OLD CRITIQUES." *The United Nations Development Programme*. January 1, 2011. https://hdr.undp.org/content/hdi-2010-new-controversies-old-critiques

¹⁷ "Human Development Index (HDI)." *The United Nations Development Programme*.

https://hdr.undp.org/data-center/human-development-index#/indicies/HDI

¹⁸ "Human Development Index (HDI)." *The United Nations Development Programme*. https://hdr.undp.org/data-center/human-development-index#/indicies/HDI



it doesn't include unpaid work. For instance, if a person decides to clean his or her own house, that labor is not counted in GNI, even though it adds value. However, if a person decides to pay another person to clean his or her house, that labor will be counted. Many economists agree that unpaid work should theoretically be included in GNI. 19 Its contribution to the economy is likely massive, potentially representing close to four-tenths of total output.²⁰ The problem is that there's no reliable data, since most unpaid work takes place domestically and records of it are generally not kept. Another limitation of GNI is that measuring production in terms of the monetary value of all finished goods and services ignores changes in the quality of those goods and services. This is especially problematic in an age of rapid technological improvement. For example, a computer produced in 1990 cost more—and, consequently, contributed more to GNI—than a modern computer, despite being far less powerful.²¹ Thus, the utility of goods and services produced may be increasing, even if their monetary value—and, consequently, GNI—is decreasing. Finally and most significantly, GNI per capita merely measures the average national income, and does not reflect how that income is distributed. A country's per-capita GNI may appear to be high, but if that income is concentrated in the hands of a few elites while most of the population is living in squalor, it doesn't necessarily reflect development. This problem is not merely theoretical. Consider the case of Slovenia and Saudi Arabia. With per capita GNIs of 29,590 and 27,680 respectively, these countries would appear to enjoy similar standards of living.²² However, Slovenia has one of the most equal income distributions in the world, with a Gini index of 24. Meanwhile, Saudi Arabia ranks among the most unequal countries in terms of income distribution, with a Gini index of 45.9.23 This disparity, in conjunction with the fact that the value of income diminishes as an individual's income increases, suggests that Slovenians may enjoy a substantially higher standard of living than their counterparts in Saudi Arabia. In light of these issues, the HDI's use of GNI per capita as the sole metric of a country's standard of living may be regarded as deeply problematic.

Health

To assess health, the HDI takes into consideration life expectancy at birth.²⁴ This may be the most obvious metric of health, but it can be misleading. Between 2000 and 2019, global life expectancy increased from 66.8

¹⁹ Ward, Kadie. "Time to Care: Recognising the Truth Behind the Economy of Unpaid Care." *The Forum Network*, September 10, 2022. https://www.oecd-forum.org/posts/redefining-reality-the-truth-behind-the-unpaid-care-economy

²⁰ Ward, Kadie. "Time to Care: Recognising the Truth Behind the Economy of Unpaid Care." *The Forum Network*, September 10, 2022. https://www.oecd-forum.org/posts/redefining-reality-the-truth-behind-the-unpaid-care-economy

²¹ "Cost of a Computer Every Year Since 1970." *The Chicago Tribune*, September 20, 2021. https://www.chicagotribune.com/featured/sns-ws-computer-cost-every-year-20210920-xhm2sdukozbfti6gvz3si47nki-photogallery.html

²² "GNI per capita – Saudi Arabia, OECD Members." The World Bank.

https://data.worldbank.org/indicator/NY.GNP.PCAP.CD? locations = SA-OE

²³ "Gini Index coefficient." The CIA World Factbook. https://www.cia.gov/the-world-factbook/field/gini-index-coefficient-distribution-of-family-income/country-comparison/

²⁴ "Human Development Index (HDI)." *The United Nations Development Programme*. https://hdr.undp.org/data-center/human-development-index#/indicies/HDI



to 73.4 years, a difference of nearly 10%. ²⁵ However, healthy life expectancy—the number of years an individual can be expected to live in full health—has not increased at the same pace. ²⁶ In other words, people may be living longer than ever, but that does not necessarily indicate better health. Another problem with using life expectancy at birth as the sole metric of a country's health is that, like GNI per capita, it does not reflect distribution. A recent study of 11 high-income countries found that some, like the United States, have significant geographic health disparities in a number of indicators, while others, such as Canada and the Netherlands, had no such disparities. ²⁷ Relative to other developed countries, the United States also has more significant socioeconomic health disparities, with wealthier individuals living considerably longer than their poor counterparts. ²⁸ Such discrepancies are important to acknowledge in providing a comprehensive assessment of a country's health, yet by focusing purely on life expectancy at birth, the HDI ignores them.

Education

To evaluate a country's level of education, the HDI measures the mean years of schooling for adults, as well as the expected years of schooling for children.²⁹ Theoretically, this allows it to determine not only the education of its current population, but how well it is educating future generations. However, neither of these measurements is necessarily indicative of the quality of education. For instance, the average child in Finland attends one fewer year of school than the average child in the United States,³⁰ yet Finland routinely performs better on global standardized tests, indicating that the child in Finland may actually be receiving a better education.³¹ Another problem is that, as with the metrics used for standard of living and health, neither mean years of schooling nor expected years of schooling takes into consideration inequalities in education. Consider the case of the United States, where disparities in educational attainment between rich and poor students have grown substantially in recent decades.³² Nine in ten students in well-off families will attend college, in contrast to only one in

²⁵ "Life expectancy and healthy life expectancy." The World Health Organization. https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-life-expectancy-and-healthy-life-expectancy

²⁶ "Life expectancy and healthy life expectancy." The World Health Organization. https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-life-expectancy-and-healthy-life-expectancy

²⁷ MacKinnon, Neil et al. "Mapping Health Disparities in 11 High-Income Nations." *Jama Network*. July 7, 2023. https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2807053

²⁸ Hero, Joachim et al. "The United States Leads Other Nations In Differences By Income In Perceptions Of Health And Health Care." *Health Affairs*. June 2017.

https://www.healthaffairs.org/doi/10.1377/hlthaff.2017.0006

²⁹ "Human Development Index (HDI)." *The United Nations Development Programme*. https://hdr.undp.org/data-center/human-development-index#/indicies/HDI

³⁰ "Average Years of Schooling." *World Economics*. https://www.worldeconomics.com/Indicator-Data/ESG/Social/Mean-Years-of-Schooling/

³¹ https://www.epi.org/publication/us-student-performance-testing/

³² Tavernise, Sabrina. "Education Gap Grows Between Rich and Poor, Studies Say." *The New York Times*. February 9, 2012. https://www.nytimes.com/2012/02/10/education/education-gap-grows-between-rich-and-poor-studies-show.html



five in low-income families.³³ Thus, the HDI's singular focus on mean years of schooling presents limitations when it comes to comprehensively assessing the level of education within a country.

Omissions

Now that we have evaluated the extent to which the HDI reflects the three domains it ostensibly aims to assess, we must also consider domains that it does not even attempt to measure. Among these omissions, one of the most significant is sustainability. Many activities that generate income for a country involve the require non-renewable resources or deplete resources that are theoretically renewable at rates so fast they are unable to be regenerated. This means that a country's economy may be largely dependent on practices that cannot be sustained indefinitely. In addition, such practices often degrade the natural environment, threatening both the health and prosperity of future generations. For example, Norway ranks first in HDI, but its economy is highly dependent on oil, a finite resource that emits greenhouse gasses when used, exacerbating climate change.³⁴ Indeed, it has been observed that countries with higher HDI scores also contribute more per capita to climate change and other types of ecological degradation.³⁵

Another important omission is the HDI's failure to account for human and civil rights. A country may be a high achiever when it comes to standard of living, health, and education, but should it truly be considered if those accomplishments come at the cost of basic human rights. Consider the case of China. According to the watchdog organization Human Rights Watch, the country has an abysmal human rights record. Among its many abuses are the detention of ethnic minorities in prison camps, the persecution and imprisonment of political targets, and the suppression of free speech through one of the world's most stringent censorship regimes. Yet China's HDI score is 0.788, which is considered high by global standards, and it continues to increase, even though human rights violations have only become more widespread in recent years.

9puBKXBvxP8NY68CJPqM6jHsrJqWQdv_7QOOY9t8aAjYjEALw_wcB

³³ Reber, Sarah and Ember Smith. "College enrollment gaps: How academic preparation influences opportunity." *Brookings*. January 23, 2023. https://www.brookings.edu/articles/college-enrollment-gaps-how-academic-preparation-influences-opportunity/

³⁴ Steffen, Michael. "Environmentally Enhanced Human Development Index." *D+C*, July 4, 2021. https://www.dandc.eu/en/article/response-dramatic-risks-undp-now-considers-environmental-aspects-modified-human-development

³⁵ Hickel, Jason. "The sustainable development index: Measuring the ecological efficiency of human development in the anthropocene." *Ecological Economics*. January, 2020. https://www.sciencedirect.com/science/article/abs/pii/S0921800919303386

^{36 &}quot;China: Events of 2023." Human Rights Watch. https://www.hrw.org/world-report/2024/country-chapters/china?gad_source=1&gclid=Cj0KCQjw3ZayBhDRARIsAPWzx8r3eijJebFQ27-9puBKXBvxP8NY68CJPqM6jHsrJqWQdv_7QOOY9t8aAjYjEALw_wcB

³⁷ "China: Events of 2023." *Human Rights Watch*. https://www.hrw.org/world-report/2024/country-chapters/china?gad_source=1&gclid=Cj0KCQjw3ZayBhDRARIsAPWzx8r3eijJebFQ27-9puBKXBvxP8NY68CJPqM6jHsrJqWQdv_7QOOY9t8aAjYjEALw_wcB

³⁸ "China: Human development." The Global Economy. https://www.theglobaleconomy.com/China/human development/

³⁹ "China: Events of 2023." *Human Rights Watch*. https://www.hrw.org/world-report/2024/country-chapters/china?gad_source=1&gclid=Cj0KCQjw3ZayBhDRARIsAPWzx8r3eijJebFQ27-



Aggregation

Finally, it is important to note limitations in how the metrics used for assessing standard of living, health, and education are aggregated. To form the HDI, scores of all three dimensions are "aggregated into a composite index using geometric mean." The result is a single number between 0 and 1, with a higher number reflecting a higher level of development. While this makes the HDI relatively easy to interpret, some critics have argued that it is also a blunt way of looking at development. Standard of living, health, and education are all important parts of a country's development, but that doesn't make them equivalent. For instance, in 2021, the United States and South Korea had almost identical HDI scores of 0.921 and 0.925 respectively. Yet they achieved these scores through very different combinations—the U.S. had a GNI nearly double that of South Korea's, but lower health and education. Which country should be viewed as more developed? There is no simple objective answer to this question—it depends on how much we value each dimension. However, by reducing three dimensions into a simple composite score, the HDI obscures these important distinctions and prevents people from understanding a country's relative strengths and weaknesses.

Conclusion

In short, the HDI can be viewed as a mixed success. It undoubtedly provides a more comprehensive assessment of a country's level of development than does GDP, which was designed to merely measure production, and does not take into account many factors that are arguably as important to the well-being of a country. Nevertheless, as the preceding discussion has shown, the HDI fails to perfectly capture a country's level of achievement even in the three domains it ostensibly measures—standard of living, health, and education, while the exclusion of other domains such as sustainability presents further problems. Finally, by collapsing all metrics into a composite score, the HDI blurs distinctions between the performances of countries that may be important for policymakers and the public to acknowledge.

In light of the limitations of the HDI, some have called for the creation of a new index that would provide a truly accurate and holistic assessment of a country's level of development. However, it is unlikely that any single index would be able to fulfill this lofty goal. That's because, as the various criticisms of the HDI discussed in this paper reveal, there exists a fundamental tradeoff in designing economic indices. To provide a complete portrait of a country's level of development, an economic index should include as many relevant factors as possible. However, the more factors an index combines into a single value, the less useful that value becomes. Therefore, a more productive approach would be to rely on a development dashboard, which presents a wide range of metrics but does not aggregate them into a composite score. This is precisely the solution called for by Stiglitz, who argues that it would more effectively "convey essential diagnostics of its society and economy and help steer them." 43

What would this dashboard include? To begin, it would incorporate the same metrics used to calculate the HDI. However, it would also offer additional metrics to address the limitations and omissions discussed in this paper. For instance, in addition to merely presenting mean values, it should also include metrics that reflect

⁴⁰ "Human Development Index (HDI)." *The United Nations Development Programme*.

https://hdr.undp.org/data-center/human-development-index#/indicies/HDI

⁴¹ "Human Development Index (HDI) by Country 2023." World Population Review.

https://worldpopulationreview.com/country-rankings/hdi-by-country

⁴² "GNI per Capita by Country 2023." *World Population Review*. https://worldpopulationreview.com/country-rankings/gni-per-capita-by-country

⁴³ Stiglitz, Joseph. "GDP Is the Wrong Tool for Measuring What Matters." *Scientific American*, August 1, 2020. https://www.scientificamerican.com/article/gdp-is-the-wrong-tool-for-measuring-what-matters/



how they are distributed. It would further present metrics related to sustainability, such as per-capita carbon footprint, and human rights, such as the world press freedom index. Granted, the lack of a composite score would mean that it is no longer possible to rank countries in terms of overall development, yet perhaps that is for the best. Ultimately, the dashboard approach would encourage the public and policymakers alike to think more critically about the strengths and weaknesses of countries and their economies, leading to more informed decision-making that increases the welfare of society as a whole.

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