

**Beyond GDP, GNI, and HDI: Evaluating the Genuine Progress Indicator (GPI) as a
Holistic Measure of Economic Progress**

***Research Question: Is the GPI a more comprehensive measure of economic progress than
traditional economic indicators?***

Abstract

This research paper evaluates whether the Genuine Progress Indicator (GPI) is a more holistic and robust measure of economic progress than traditional indicators like GDP, HDI, GNI, government budgets, and the money supply. To achieve this, the paper starts by analyzing the strengths and weaknesses of these conventional measures - highlighting their inability to account for environmental sustainability, social well-being, and income inequality. The latter half of the paper then explores how GPI could address these gaps and serve as a more accurate reflection of true societal progress, becoming a preferred tool for guiding economic policy in a time where there is an increasing focus on sustainable development and equitable growth.

***Key Words: Economic growth, Social improvement indicators, Economic progress,
Development, GDP, GNI, HDI, GPI***

Introduction

Economic development is a broad concept that focuses on multiple dimensions including the income of individuals in an economy as well as their quality of life. For countries, achieving economic development and progress is vital and may be done by focusing on economic growth, social improvements, and sustainability. As part of this, economic growth is defined as “an increase in the production of economic goods and services in one period of time compared with a previous period” (Potters, 2023). Usually, gross domestic product (GDP) and gross national income (GNI) provide a direct measure of economic growth. At the same time, money supply is an indirect measure as it influences growth by affecting inflation, interest rates, and overall economic activity.

On the other hand, measures such as the human development index (HDI) - defined by the UNPD (2024) as “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” - would be used to assess the social improvement of the country. Some measures, such as government budgets, are not direct measures of economic growth or social improvement but can influence both dimensions of economic progress - government spending on healthcare, education, and welfare can improve social conditions, while investments in infrastructure or industries can stimulate economic growth.

Whilst all these measures have been used for years, many of their limitations have come to the surface over time. There has, consequently, been a debate about creating and introducing a measure that overcomes these limitations and provides a more comprehensive view of a country's economic progress. This research paper, therefore, aims to analyze the strengths and weaknesses of the traditional measures before highlighting an alternative, the Genuine Progress Indicator (GPI), and evaluating its ability to provide a more accurate reflection of true economic progress. In doing so, the research question to be answered is, ***“Is the GPI a more comprehensive measure of economic progress than traditional economic indicators?”***

Economic Growth Indicators

Gross Domestic Product (GDP)

GDP has remained the most widely accepted measure of a country's economic progress for over half a century (Costanza et al., 2009). This is because it reflects the total value of all goods and services produced in a country during a specific period (Fernando, 2024). There are two forms of GDP in the economic world: Nominal and Real. While both fit the aforementioned definition of GDP, real GDP is adjusted for inflation, while nominal GDP isn't. This results in real GDP, providing a more accurate picture of a country's economic performance, which is almost always slightly lower than its equivalent nominal figure (Vipond, 2019).

Since the Industrial Revolution, a rising global income has been “accompanied by global poverty reduction, improved life expectancy, increased investment in technology development, and a high material standard of living in general” (Hall, 2021). This explains why GDP may commonly be used not only to measure economic growth but also to assess economic progress and development. Unfortunately, further research on several real economies shows that GDP is, in fact, not an efficient measure of economic progress. Taking the example of India, as per a report by S&P, "India is poised to be the fastest-growing major economy over the next three years and the third largest globally by 2030" (PTI, 2024). These predictions are based on the country's GDP, which has grown tremendously over the years. However, the GDP is greatly disconnected from reflecting the reality of the well-being of the people in the country. On the grounds of social indices such as education, health services, housing, and environment, India lags behind significantly (Venkatachalam, 2016).

Some of the limitations of GDP are overcome by GDP per capita. While GDP reflects the entire economy and its performance, GDP per capita considers both the economy and population and is calculated by dividing total GDP by a country's population. This figure is frequently cited when assessing economic progress and development because it is considered to reflect the state of the standard of living. This measure, too, can be ineffective for evaluating true economic progress

because it fails to factor in the income distribution in the economy, which leads to several social inequalities.

Gross National Income (GNI)

GNI represents the total income earned by a country's residents and businesses within a specific financial year, including any income earned abroad. It differs from GDP, which measures the total value of all goods and services produced within a country, regardless of who earns the income. GNI includes income residents earn from investments and work abroad while excluding income generated within the country by foreign nationals.

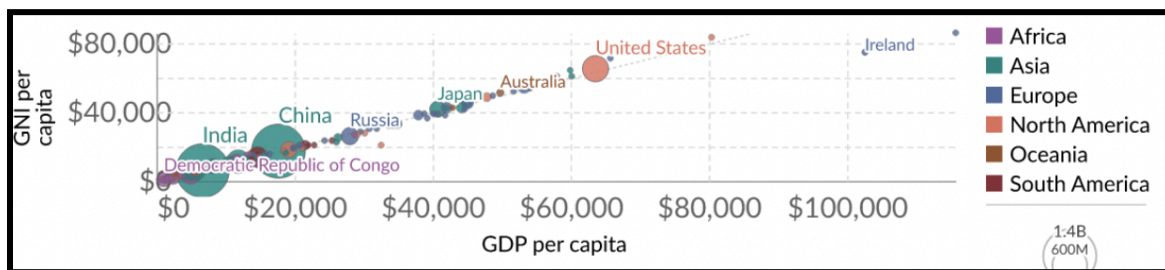


Figure 1: GNI per capita vs GDP per capita

GDP and GNI are closely related. As seen in Figure 1, the line of best fit has a slope of 1, meaning GNI and GDP per capita have a strong correlation. That being said, the values can differ significantly depending on a country's economic structure. For example, Ireland's GDP per capita is far greater than its GNI per capita. This is due to substantial foreign direct investment and the presence of multinational corporations attracted by the country's low corporation tax of 12.5%. The wealth generated in Ireland is far greater than the wealth made by the Irish residents in a single year.

GNI has also been considered a good measure of economic development. This is because it is recognized as a "better indicator to account for the income available to the dwellers of a country since it captures the incomes related to the mobility of factors of production (wages earned by cross-border workers, repatriated profits and dividends, etc.), the so-called Net Primary Incomes (NPI), in the Systems of National Accounts" (Vaggi and Capelli, 2014). Higher GNI per capita,

therefore, generally correlates with better access to resources, services, and opportunities for the population, which are critical aspects of economic development. This, however, represents a shortcoming similar to that of GDP, wherein only income is accounted for in terms of economic development, with no insights into the quality of life being provided (Maverick, 2019).

Money Supply

Money supply, another indicator used to assess economic growth, is not as direct a measure as GNI or GDP. However, it represents the total value of money available in an economy at a specific point in time, which can significantly influence key economic factors and, consequently, overall growth. It contains four main elements: M0, M1, M2, and M3 (Finnegan, 2019). In this paper, M0 and M3 will be focused on.

M0	M3
The Sum of Currency in Circulation, Bankers' Deposits with the central bank, and 'Other' Deposits with the central bank	M0 plus Savings Deposits with the Banking System, Certificates of Deposits issued by Banks, Term Deposits of residents with the Banking System, and Call/Term borrowings from 'Non-depository' financial corporations by the Banking System.

Figure 2 (M0 and M3 definitions)

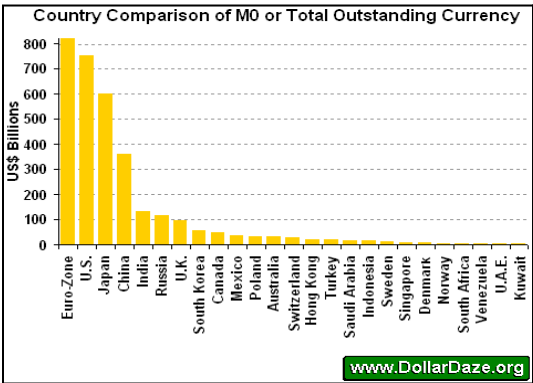


Figure 3

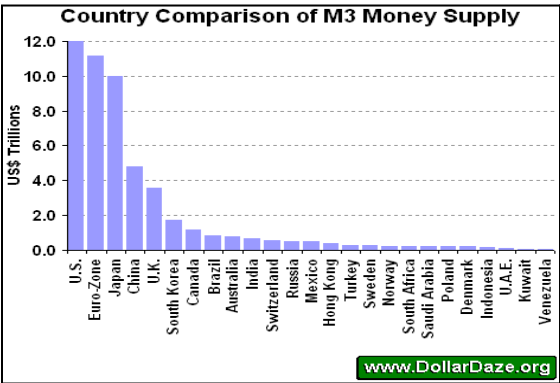


Figure 4

Figures 3 and 4 show that first-world countries like the Eurozone, the US, and Japan have significantly large differences between their M0 and M3 values. This implies that the money supply is not in liquid forms, like cash and central bank reserves. Instead, it is in broader financial assets like bonds and equities. This suggests a preference for longer-term investments rather than quick money. Additionally, it might indicate that other forms of deposits have a strong influence on the overall money supply. This shows that there is substantial intermediation from banks and other financial institutions. In less economically developed countries, this difference is not substantial as the central bank holds the majority of deposits, and liquidity levels are high.

Money supply can be useful as an economic indicator as it reflects the availability of currency, affecting spending and investment. Changes in this metric indicate shifts in economic activity and influence inflation, interest rates, and financial stability, making it a crucial gauge of overall economic performance. A country can study differences between its M0, 1, 2, and 3 values to deeply analyze areas of improvement. However, money supply, too, has some disadvantages as an indicator of economic progress. Like GDP and GNI, money supply alone does not capture qualitative aspects of economic development such as health, education, and social welfare. Furthermore, excessive money supply expansion can lead to inflation if it outpaces economic growth. Inflation can erode the purchasing power of a currency, distorting the real value of economic progress. Higher money supply, therefore, does not always correlate with improved living standards.

Social Improvement Indicators

The Human Development Index (HDI)

As mentioned in the introduction, HDI is a summary composite index that measures the average achievement of a particular nation in three basic aspects of human development. These aspects are popularly known as (1) Life expectancy. (2) Literacy (3) Standard of living. The graph in Figure 5 shows an R^2 value of approximately 0.92, indicating a strong positive correlation between GDP per capita and HDI. However, this relationship is not absolute, as the line of best

fit reveals several outliers. Some countries with higher GDP do not necessarily have correspondingly high HDI, suggesting that income alone does not directly translate to improved education and life expectancy. Therefore, in comparison to GDP and GNI, economic growth indicators that have been indirectly linked with economic development, HDI is used “to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone” (Chappelow, 2020).

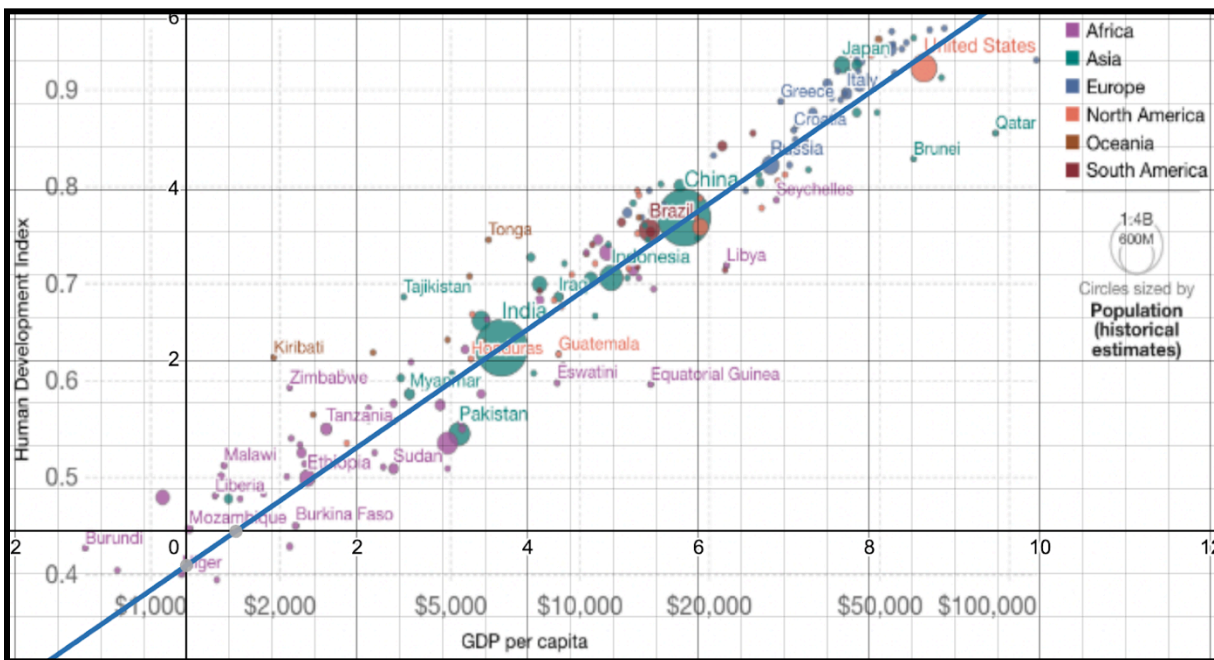


Figure 5 (created using Desmos based on data from UNDP and World Bank, 2024)

The above is why HDI has grown in popularity, and many more countries are incorporating it to track economic progress. In 2023, for instance, India announced that it would develop an HDI for 75 vulnerable tribal groups to assess the country's progress as a whole (Bureau, 2023). This campaign underscores the positive recognition among countries that the HDI offers a more comprehensive representation of development beyond mere monetary factors.

The HDI is not without its limitations. While it incorporates three key indicators of economic progress—life expectancy, education, and GNI per capita—some argue that the weight assigned to these factors is not appropriate. For instance, GNI per capita may be more indicative of the standard of living than literacy or life expectancy. Additionally, the model is oversimplified;

condensing various dimensions into a single index may not fully capture the complexities and nuances inherent in each development dimension.

Genuine Progress Indicator (GPI): A More Comprehensive Indicator of Economic Progress?

The indicators discussed above have inherent limitations as measures of economic development because they often overlook critical factors such as social welfare and income inequality and can be overly simplistic. Another common drawback of these measures is their failure to represent the real economy adequately. “The real economy includes our natural capital assets – all of the gifts from nature that we do not have to produce – and the immensely valuable, but non-marketed, ecosystem services those assets provide. These services include climate control, water supply, storm protection, pollination, and recreation” (Costanza, 2014). This oversight is problematic because it suggests that economic development assessments often neglect sustainability. Such a perspective frames investments in sustainable practices as hindrances to economic growth rather than recognizing them as essential for protecting the foundational assets that support the entire human enterprise.

Many have turned to the Genuine Progress Indicator (GPI) to overcome these limitations as a more comprehensive measure of economic development.

GPI is calculated using the following formula →

$$\text{Cadj} + G + W - D - S - E - N$$

Where:

Cadj = the personal consumption with income distribution adjustments

G = capital growth

W = unconventional contributions to welfare

D = defensive private spending

S = activities that negatively impact social capital

E = costs associated with the deterioration of the environment

N = activities that negatively impact natural capital

A country's GPI considers the economic, environmental, and social factors. The economic factors may include variables such as income inequality and personal expenditures. For the environmental aspect, considerations like climate change and ozone depletion may be included. Lastly, the social dimension can encompass factors such as crime rates and family breakdown, among others. This, however, highlights the current limitations of GPI. Firstly, there is no set structure or decided factors that should be considered for each aspect. So, the calculation may vary depending on the entity creating or using the GPI. For instance, the version used by Hawaii's Department of Business, Economic Development, and Tourism differs from that shown on the Gross National Happiness USA website. This subjectivity of variables also raises another limitation: the inability to make country-based comparisons using GPI.

Some states in the United States, including Hawaii, Maryland, and Vermont, are currently reporting the GPI. Other countries, however, are still researching it.

Conclusion

Economic progress is a broad concept entailing economic growth, social improvements, and sustainability - the latter being a factor that has become increasingly important today. Unfortunately, most of the measures used to assess economic progress have either been developed primarily for economic growth, such as GPI and GNI, or then have been developed to consider key indicators while ignoring the complexities and nuances of each - as seen in the case of HDI.

The GPI is different from these indicators in that it truly is a multi-dimensional composite indicator capable of estimating the quantity and distribution of net benefits of the embedded economic system on the larger social and environmental systems. So, if the question concerns whether GPI is a more comprehensive indicator, then the answer is a definite yes. However, there are still concerns surrounding the GPI. The subjectivity stemming from a lack of standardization, statistical analytical rigor, and extent of data collection all limit the application of this measure.

In the now and near future, we can expect an all-encompassing indicator for sustainable economic welfare to become crucial when assessing countries' economic progress. While the GPI has potential, there is a greater need for a governing body to be created to oversee and coordinate its standards and revisions. Moreover, many countries, economists, and policymakers are too well versed in traditional metrics such as GDP and GNI, making them resistant to adopting any newer measures like GPI. While the establishment of international standards can address some of these challenges, it is equally important to invest in raising awareness about the limitations of current metrics and their failure to reflect today's pressing needs. We can begin to drive change through informed, rational decision-making by fostering a broader understanding of these shortcomings.

Bibliography

Bureau, E. (2023). *Government to develop human index of 75 vulnerable tribal groups*. [online] The Economic Times. Available at:
<https://economictimes.indiatimes.com/news/india/government-to-develop-human-index-of-75-vulnerable-tribal-groups/articleshow/101001062.cms?from=mdr>.

Chappelow, J. (2020). *Human Development Index - HDI*. [online] Investopedia. Available at:
<https://www.investopedia.com/terms/h/human-development-index-hdi.asp>.

Costanza, R. (2014). *Why GDP is not an accurate measure of economic growth*. [online] World Economic Forum. Available at:
<https://www.weforum.org/agenda/2014/12/why-gdp-is-not-an-accurate-measure-of-economic-growth/>.

Costanza, R., Hart, M., Posner, S. and Talberth, J. (2009). *Beyond GDP: The Need for New Measures of Progress*. [online] Boston University. Available at:
<https://www.bu.edu/pardee/files/documents/PP-004-GDP.pdf>.

Fernando, J. (2024). *Gross domestic product (GDP): Formula and how to use it*. [online] Investopedia. Available at: <https://www.investopedia.com/terms/g/gdp.asp>.

Finnegan, M. (2019). *Money Supply*. [online] www.richmondfed.org. Available at:
https://www.richmondfed.org/publications/research/econ_focus/2019/q1/jargon_alert.

Grittayaphong, P. (2023). *Beyond GDP: Three Other Ways to Measure Economic Health*. [online] www.stlouisfed.org. Available at:
<https://www.stlouisfed.org/open-vault/2023/apr/three-other-ways-to-measure-economic-health-beyond-gdp>.

Hall, M. (2021). *How Does GDP Affect the Standard of Living?* [online] Investopedia. Available at:
<https://www.investopedia.com/ask/answers/060115/how-does-gross-domestic-product-gdp-affect-standard-living.asp>.

Maverick, J.B. (2019). *Measuring economic conditions of countries with substantial foreign investment: Gross national income or gross domestic product?* [online] Investopedia. Available at:
<https://www.investopedia.com/ask/answers/062315/gross-national-income-gni-or-gross-domestic-product-gdp-better-measure-economic-condition-country.asp>.

Potters, C. (2023). *Economic Growth*. [online] Investopedia. Available at:
<https://www.investopedia.com/terms/e/economicgrowth.asp>.

PTI (2024). *India poised to be third largest global economy by 2030, rising population presents challenges, says S&P*. [online] The Economic Times. Available at:
<https://economictimes.indiatimes.com/news/economy/indicators/india-poised-to-be-third-largest-global-economy-by-2030-rising-population-presents-challenges-says-sp/articleshow/114309920.cms?from=mdr>.

UNDP (2024). *Human Development Index*. [online] United Nations Development Programme. Available at: <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI>.

UNDP and World Bank (2024). *Human Development Index vs. GDP per capita*. [online] Our World in Data. Available at:
<https://ourworldindata.org/grapher/human-development-index-vs-gdp-per-capita>.

Vaggi, G. and Capelli, C. (2014). *A Better Indicator for Standard of living: the Gross National Disposable Income*. [online] CEPR. Available at:
<https://cepr.org/voxeu/columns/better-indicator-standard-living-gross-national-disposable-income>.

Venkatachalam, K.S. (2016). *Why GDP Is a Bad Indicator for India's Economic Development*. [online] The Diplomat. Available at:
<https://thediplomat.com/2016/10/why-gdp-is-a-bad-indicator-for-indias-economic-development/>.

Vipond, T. (2019). *Nominal GDP vs. Real GDP*. [online] Corporate Finance Institute. Available at: <https://corporatefinanceinstitute.com/resources/economics/nominal-real-gdp/>.