

## PROFEEDBACK POLICY BRIEF

# BEYOND GDP METHODOLOGY

**Prepared by**

Gábor Balás  
Gábor Jakab  
András Varró

COST Association AISBL

Avenue du Boulevard – Bolwerklaan 21 | 1210 Brussels, Belgium

T +32 (0)2 533 3800 | [office@cost.eu](mailto:office@cost.eu) | [www.cost.eu](http://www.cost.eu)

## Introduction

Gross Domestic Product (GDP) has been the primary tool for measuring economic performance and development since its invention in the 1930s. While GDP provides a quantitative measure of a nation's output, many argue that it fails to adequately capture broader aspects of well-being, sustainability, and human development. Critics contend that the limitations of GDP, particularly in the context of environmental degradation, social inequality, and quality of life, necessitate a rethinking of how progress is measured.

GDP was originally developed by Simon Kuznets in response to the Great Depression, offering a way to measure a nation's economic output. Kuznets himself acknowledged the limitations of GDP, cautioning that economic growth does not equate to societal welfare. Despite these early warnings, GDP became entrenched as the dominant metric of economic success throughout the 20th century, in the aftermath of World War II and during the postwar economic boom (Stiglitz, Sen, & Fitoussi, 2010).

Introduced by the United Nations in 2015, the Sustainable Development Goals (SDGs) provide a comprehensive framework for addressing global sustainability challenges. Comprising 17 goals and 169 targets, the SDGs cover a broad range of issues, including poverty eradication, gender equality, and climate action (United Nations, 2015). While the SDGs are not a direct alternative to GDP, they represent a global effort to move beyond traditional economic measures by focusing on environmental, social, and governance factors that contribute to long-term sustainability.

As the evaluation of the impact of the development programs on GDP is a frequently asked question of program evaluation and it is used for policy decisions it is important to rethink the use of GDP in the concept of development.

## Search for Alternatives to GDP

The concept of "Beyond GDP" addresses the limitations of Gross Domestic Product as a comprehensive measure of a nation's progress and well-being. GDP, which calculates the total monetary value of goods and services produced within a country's borders in a given time period (typically in a year), has been a standard economic indicator since its introduction in the mid 20th century.

### *Missing factors in GDP measurement*

Over time, several scholars and policymakers have critiqued GDP for its narrow focus on economic output without considering other critical aspects of societal well-being. GDP, for example, does not account for income inequality, environmental degradation, or the total value of non-market activities like unpaid household labor and volunteering. As Kuznets argued, "the welfare of a nation can scarcely be inferred from a measure of national income" (Kuznets, 1934).

- **Environmental Degradation:** One of the major critiques of GDP is its inability to account for the environmental costs of economic activity. Economic growth often comes at the expense of natural resources, pollution, and ecological degradation, but GDP treats all production as positive. For example, the GDP of a country may increase as a result of deforestation or pollution-intensive industries, but this growth may have detrimental long-term effects on the environment (Costanza et al., 2014) and thus on the long-term GDP growth as well.

- **Social Inequality:** GDP measures aggregate economic output but does not reveal how wealth is distributed within a society. A country may have a high GDP per capita, but if income is concentrated in the hands of a small elite, the majority of the population may experience poverty and a lack of access to essential services (Stiglitz et al., 2010). This has led to concerns that GDP-based policies can mask underlying inequalities and result in skewed policy priorities. Over the long term, increasing inequality contributes to heightened social tensions, the management of which imposes additional costs on the benefits derived from economic activity. These costs, in turn, undermine sustainable economic growth by eroding its potential over time.

**Non-Market Contributions:** GDP does not capture the total value of unpaid work, such as household labor, caregiving, and volunteer work, which are essential to societal functioning. Feminist economists, in particular, have argued that GDP undervalues the contributions of women by excluding these forms of non-market labor from

economic calculations (Waring, 1988), thus the largest is the share of informal economy in a country the GDP will more significantly underestimate the domestic income of the country.

- Subjective Well-Being: Perhaps most importantly, GDP provides no insight into the subjective well-being or quality of life of individuals. A high GDP does not necessarily translate into high levels of happiness, health, or life satisfaction. This disconnect has prompted calls for a shift in focus toward indicators that capture broader dimensions of well-being, rather than relying solely on economic output (Diener & Seligman, 2004).

All of the above missing factors belongs to a capital (natural, social, human, institutional) of sustainable development, so in general GDP has limitation in measuring the amortization of some capital type which are important for the long-term growth.

### *Barriers to be lifted for GDP alternatives*

Critics such as Amartya Sen and Joseph Stiglitz have highlighted the inability of GDP to capture a broader range of indicators related to human well-being, such as health, education, and social equity. Their 2009 report, commissioned by the French government, emphasized that economic performance and societal progress should be assessed through a variety of measures that go beyond GDP. This has led to the rise of the Beyond GDP movement, which aims to develop alternative metrics that provide a more comprehensive understanding of societal well-being (Stiglitz, Sen, & Fitoussi, 2010).

Despite the increasing recognition of the limitations of GDP, implementing alternative metrics faces significant challenges. While the methodologies behind Beyond GDP metrics offer valuable insights, several challenges remain in their development and application:

- **Data Availability:** Many alternative indicators rely on data that is either difficult to obtain or unavailable in certain countries. For example, subjective measures of well-being, such as those used in GNH (Gross National Happiness) or SPI (Social Progress Index), require extensive survey data, which may be difficult to collect in developing countries. Additionally, environmental data, such as the cost of pollution or resource depletion (used in GPI), can be complex to quantify and standardize across countries (Costanza et al., 2014).
- **Subjectivity:** Some Beyond GDP metrics rely on subjective measures, such as happiness, well-being, or perceptions of quality of life. While these indicators provide valuable insights, they are inherently subjective and can vary widely based on cultural, social, and individual factors. This subjectivity can introduce variability and reduce the comparability of the results across different regions.

- **Integration into Policy:** One of the key challenges of Beyond GDP metrics is translating the insights they offer into actionable policy. Governments may face political pressure to prioritize short-term economic growth, making it difficult to adopt policies based on more complex, multidimensional measures of progress. While most of the measurement critics of GDP belongs to the underestimation of the change in value of the capitals that determine long-term growth prospects, it offers a perfect time horizon solution for short-term policy cycles. Additionally, GDP remains the dominant metric in global economic institutions like the International Monetary Fund (IMF) and World Bank, further entrenching its use in policymaking (Fioramonti, 2017), which is also a strong incentive to use it exclusively for policy purpose.
- There is also a cultural dimension to the challenge of moving beyond GDP. Many societies are deeply rooted in a growth-oriented economic paradigm that equates material wealth with progress and success. This consumerist mindset, particularly in developed countries, makes it difficult to shift toward alternative metrics that emphasize sustainability, well-being, and social equity over economic growth (Victor, 2010).
- Finally, there is the issue of policy implementation. Even when governments express interest in adopting Beyond GDP metrics, translating these indicators into actionable policy decisions remains a significant hurdle. Governments may face competing priorities, limited resources, and institutional resistance when attempting to implement policies that prioritize environmental sustainability and social well-being over economic growth (Jackson, 2009). Additionally, alternative metrics can be more difficult to communicate to the public, making it harder to build political and societal consensus around them.

### *The competitive advantages of GDP over the alternative*

For a Beyond GDP measurement system to be as successful as GDP in shaping policy discourse and guiding decisions, it must not only overcome GDP's measurement issues but also retain the advantages that have made GDP so influential. While we have thus far examined the shortcomings of GDP, it is equally important to consider the benefits that contribute to its success:

- A widely accepted theoretical framework (e.g., the Solow growth model)
- Simplicity and clarity in interpretation (as a measure of national income)
- A goal function that resonates with the political community's identity (representing the collective performance of 'our' community in comparison to others')
- A composite structure formed from numerous sub-indicators, which is
  - Easily influenced and interpreted in policy contexts, and
  - Supported by extensive, standardized international data collection.

Currently, none of the existing Beyond GDP concepts possess all five attributes simultaneously, preventing them from fully replacing GDP in policy discussions and decision-making processes.

## **A possible solution for a new growth measurement system to replace GDP**

While social and environmental changes in the world make it increasingly urgent to focus on sustainable growth rather than GDP as a measure of economic development, attempts so far show that the development of such a consensual and successful new measure will happen much more slowly than is urgently needed.

It seems that the two most difficult issues to address in searching for an alternative to GDP are the lack of a general theoretical framework for development and the lack of a broad and uniform data collection on which such an indicator could be based.

We believe that an indicator system can be built in the short term which, while responding to the critics of GDP in all other areas but these two can compete with GDP and in the long term help to resolve these two factors as well, so that in time it can be manifested in a single indicator as an alternative to GDP.

Therefore, we propose the introduction of a system of indicators which, -on the one hand, helps policy makers to focus on the conditions for sustainable development in the long term rather than on the conditions for short-term growth, and

- on the other hand, helps to visualise and communicate the policy objective of sustainable development through a few simple and easy-to-understand indicators,
- thirdly, it is suitable for comparing national development performance,
- fourthly, it fully covers the factors identified by the GDP sustainability critics and
- finally, its data requirements are already suitable for measurement in many countries, making it suitable for integration into a single, well-understood composite indicator in the longer term.

Such a system should therefore be built up of a small number of indicators, which together cover the above objectives and support at least one objective each.

We propose to build a system of three indicators in which

- The main indicator is an adjusted GDP, where the adjustment is only indicative for the deviation from a sustainable growth path in a given year, but does not measure an alternative development index, the adjustment should be based on widely available data
- The two other composite indicators (policy indicators) measure the two main possible explanations for this divergence: the shift in sustainability and welfare.

-Thus, the first “sGDP” indicator is broadly suitable for warning and international comparison, while the other two indicators can provide a policy focus for a country's government to make the necessary corrections.

-The policy indicators should at least be built up from data available for a larger set of countries, but this may be narrower than the main indicator, as its function is not to compare countries' performance but to orient policy.

What benefits are expected from such a system?

- Such a system would jointly cover the policy use needs and
- At least for its main indicator, it offers a solution that is suitable for international comparison, i.e. it does not face data problems across a wide range of countries,
- In its two policy indicators, it provides guidance to countries on where to look for the source of the problem, while encouraging them to start collecting data systematically in areas where data are not available.
- The incentives for data collection for policy indicators will empower scientist for theoretical discussion on development and thus enable the UN, over time, to develop a single, universally measurable GDP alternative.

Obviously, the above solution only makes sense if, at least for the main indicator, an indicator suitable for a very wide range of countries can already be established now and if, for the two sub-indicators, a well comparable set of countries already exists with which to test and further develop these indicators.

In the following sections, we illustrate the feasibility of introducing such a system through a case study, utilizing research conducted for the Blue Planet Foundation of Hungary. Our aim is to demonstrate that it is indeed possible to design a system with the aforementioned attributes, while addressing GDP's limitations in measuring sustainability.

It is essential to note that, just as the GDP concept and its measurement initially applied to a few countries before gaining broader international applicability—and only gradually becoming measurable on a global scale with the development of an international data system—the system we propose also faces initial data limitations. However, the current framework is already applicable to all European countries and also some other OECD countries, and with broader methodological acceptance and the establishment of a robust data collection infrastructure, it could eventually be expanded to cover global needs.

## Case study for a possible solution of Beyond GDP measurement

Recognizing the aforementioned limitation of traditional GDP measurement, Hungary's foremost research institutions, in collaboration with the Hungarian Academy of Sciences and the Blue Planet Climate Protection Foundation, have initiated the development of a novel methodology that:

- is capable of longitudinally assessing the key dimensions of sustainable transitions;
- utilizes a sophisticated methodological framework and a comprehensive system of indicators to provide robust guidance for policymakers.

The developed methodology synthesizes the professional indicators of three prominent research centers in Hungary, involving the experts who designed those methodologies. The three significant professional studies, addressing the topic of 'beyond GDP,' are as follows.

- sGDP from the Hungarian National Bank
- Sustainable Performance Framework Index (SPFI) from HÉTFA Research Institute
- Harmonic Development Index (H2DI) from Makronóm Institute

## Methodology for Integrated Measurement of Sustainability Transition

The methodology of the index primarily focused on developing a triple measurement system capable of assessing all dimensions of the sustainability transition. Consequently, two composite indices were created: a sustainability composite index and a well-being composite index. These two composite indices are based on the elementary indicators of the HÉTFA's SPFI and Makronóm's H2DI indices. Nearly 80 indicators were categorized, resulting in the development of a distinct sustainability index and a well-being index.

Both composite indices assess the sustainability transition across four dimensions:

- economic dimension
- social dimension
- human dimension
- environmental dimension

The development of the sustainability and well-being composite indicators relied on numerous metrics sourced from various international databases. These sources encompass reliable datasets from different specialized fields, providing a robust and credible foundation for the indicators. The set of 80 indicators behind the composite indexes are presented in the annex.

At the top of the two composite indices, they place the sGDP indicator of the Hungarian National Bank (HNB) within this triple system. The sGDP indicator of HNB



was constructed in a way to use the existing standard macroeconomic data, selecting a limited number of variables and utilizing longer timeseries with a wider set of countries. The advantage of the methodology is that they obtained results that are comparable in time and space for all 27 countries of the European Union and most of the non-EU member states of the OECD.

The sGDP indicator can illustrate deviations from equilibrium across its five dimensions. The results are presented in international comparison, in fixed price PPS in euro (comparative prices, 2023 base), in terms of GDP per capita between 2000 and 2023. The approach includes a small number of indicators, but in calculating cyclical movements and deviations from equilibrium, they took into account a number of types of underlying data and information. The calculation draws on international practices (for example in estimating the output gap and the credit gap) but applied to the sustainability issue.

### **Use of the Integrated Measurement System of Sustainability Transition**

The proposed triple-measurement methodology can be integrated into the policy-making process as follows. The sGDP, due to its simplicity and its foundation in primarily macroeconomic indicators, is well-suited to highlight which policy areas may be experiencing issues, thereby serving as a signaling system. When policymakers observe that growth driven by economic, social, or natural capital diverges from desired levels, an examination of the proposed composite indicators can provide a more precise understanding of the specific areas where regression is occurring, thereby clarifying the sources of observed imbalances.

One of the main advantage of this methodology is that while sGDP is universal, the composite indicators are modular. This means that individual member states can select an indicator set they deem appropriate based on their level of development or geographical circumstances (e.g., sea-level rise, exposure to natural hazards). Modularity is further enhanced by the fact that all elementary indicators within each dimension are weighted equally, and the dimensions themselves are also weighted equally when constructing the composite index. In addition to this, less developed economies can focus on foundational issues such as infrastructure and education – due to the modularity of the composite indices –, while advanced economies can emphasize on innovation, mental well-being and cultural stability.

### **Testing the methodology**

The research examined whether the proposed triple-measurement methodology is genuinely suitable for highlighting policy areas in need of development. For the

purpose of testing this methodology has been calculated for five countries of the OECD and its applicability has been tested. The case of Hungary is briefly presented in the box as an illustration of these calculations.

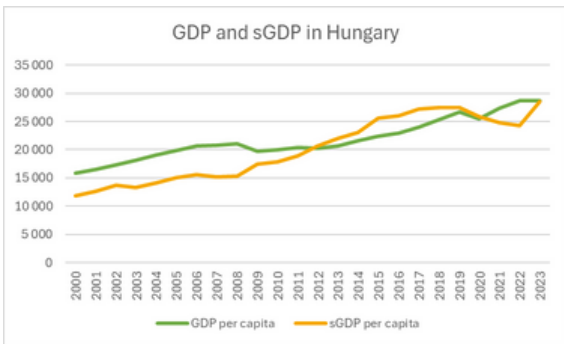
The results of the testing showed that

- the methodology is suitable for quantifying and assessing the sustainability transition of EU countries and many non-EU OECD countries,
- the combined assessment of the three indicators allows relevant policy conclusions to be drawn,
- the sub-indicators behind the composite indicators are able to capture all 17 SDGs and quantify their trend over time within countries, but are not yet able to compare across countries in relation to the SDGs, but
- this measurement system could be a good starting point for further methodological discussions and for identifying internationally consistent data collection tasks and thus
- an important step towards the development of a new single beyond GDP indicator in the long term.

### *Box. The sustainability transition of Hungary*

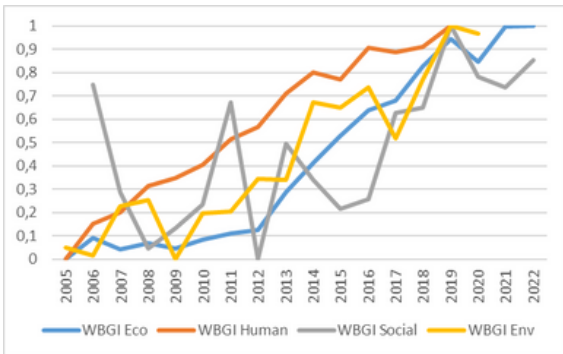
Based on the indicators of the triple-measurement methodology, the per capita sGDP (sustainable GDP) in Hungary surpassed the GDP level during the 2010s, but dropped below it in 2021. Economic growth prior to the 2008 financial crisis was only achievable at the cost of significant imbalances. In the mid-2000s, sGDP lagged behind actual GDP by an average of approximately 25%. This situation changed markedly due to the impact of the 2008 crisis and the financial reforms introduced in the 2010s. Between 2017 and 2019, the growth of sGDP slowed, and from 2020 onwards—partly due to crises affecting the economy—it began to decline. While statistical GDP rebounded quickly after the COVID-19 crisis, sGDP did not.

A breakdown of Hungary's sGDP adjustments reveals that, in the period preceding the financial crisis, the Hungarian economy was characterized by excessive indebtedness, reflected in credit imbalances. The domestic level of sustainable GDP peaked between 2015 and 2017, partly due to the gradually improving economic conditions. The growth in sGDP was primarily driven by improvements in financing capacity and lending processes. From 2017, the level of Hungary's sGDP declined, and since 2021, it has fallen below the statistical GDP. The surplus in financing capacity has disappeared, while the COVID-19 pandemic was followed by significant economic contraction. On the positive side, social inequality contributed favorably to sGDP, which can be attributed to near-full employment and a strong labor market.



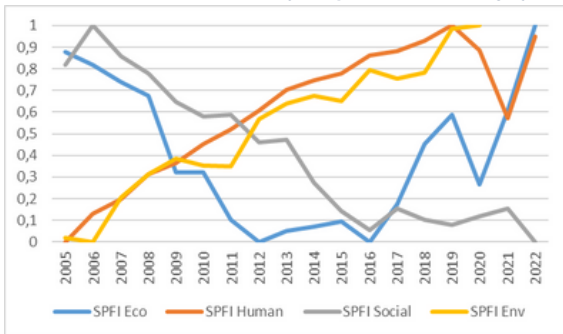
An analysis of GDP and sGDP indicators reveals clear evidence of the two most significant economic crises of the past decades. Consequently, we employed these composite indicators to examine the specific sectors where the most substantial declines were observed following the 2008 global financial crisis and the COVID-19 pandemic.

#### 1. Figure: Dimensions of the Well-being index in Hungary



Fundamentally, all dimensions of the well-being composite index are on a growth trajectory; however, for example, the impact of the COVID-19 pandemic can be illustrated by the dimensions of the composite index. The sub-indicators of the economic dimension generally follow an upward trend, but the rising unemployment rate caused by the pandemic led to a decline in 2020-2021. The greatest fluctuation is observed in the social dimension, driven by changes in trust levels and the lack of budget transparency.

## 2. Figure: Dimensions of the Sustainability composite index in Hungary



The dimensions of the sustainability composite present a completely different picture of the sustainability transition compared to the well-being composite. The U-shape in the economic dimension is driven by the cyclicity of the public debt and investment rates, which were influenced, among other factors, by the increased central government expenditures due to the COVID-19 pandemic. In the human dimension, the pandemic also caused a decline in the indicator. In developed countries, life expectancy at birth has been steadily increasing—accompanied by a decrease in avoidable and preventable deaths, as well as a reduction in infant mortality—trends that shape the movement of the dimension. This upward trend was disrupted by the COVID-19 pandemic due to excess mortality and the decline in life expectancy.

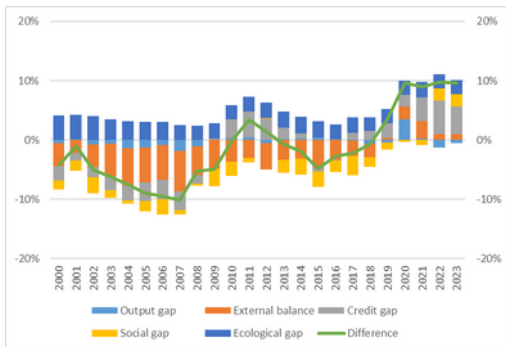
The values of the dimensions within the composite indicators range between 0 and 1, with the methodology ensuring that each dataset achieves both maximum and minimum values over time. Consequently, this allows us to draw conclusions

regarding the optimal timing of these dimension values without examining the underlying elementary indicators. When analyzing temporal trends, it becomes evident how each of the four capital dimensions—economic, social, human, and natural—evolves over time, indicating, for example, the periods over which specific capital types may experience erosion.

### An Example of Universal Usability: The sustainability transition of Australia

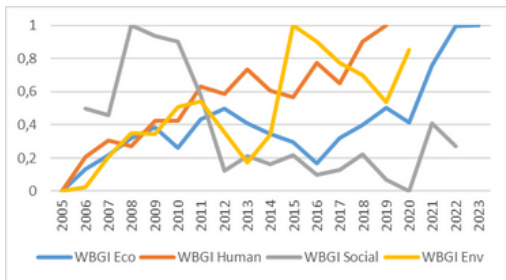
The findings indicate that, despite Australia's largely arid, uninhabited regions, its overall ecological gap remains positive, suggesting a net environmental advantage. Post-Great Financial Crisis (GFC), the pattern of sustainable GDP (sGDP) reveals an initial adjustment phase, followed by a swift return to negative growth, likely due to external financing pressures. While it's challenging to pinpoint a specific narrative without further context, an analysis of debt-related sub-indices could provide insights into this fluctuation. Interestingly, the consistently negative trend in social indicators saw a shift during the COVID-19 period. COVID-19 appears to have driven sGDP to a peak, and recent data show that credit reserves remain robust, which has contributed to sGDP's stability and relative strength in recent years. As anticipated, Australia presents a markedly different economic and sustainability profile compared to European countries.

#### 3. Figure: 5 dimensions of sGDP in Australia



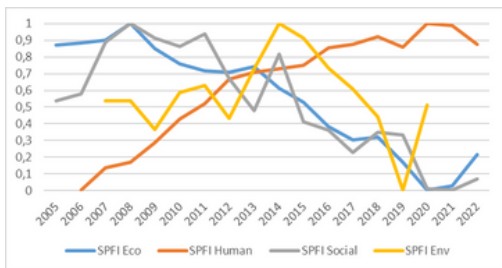
Concerning the economic dimension of the welfare composite, the trend is driven by GNI growth; however, post-2012 stagnation is attributed to a declining savings rate and sluggish employment expansion. In the human dimension, the gradual increase in suicide rates detracts from the trend, though it is somewhat offset by gains in life expectancy and a broader reach of internet usage. In Australia, social trust levels, as well as transparency, deteriorated significantly up until 2020. For the environmental dimension, the positive trend in welfare indicators is largely due to improvements in access to clean drinking water, which signifies progress in infrastructure and public health measures. However, this upward trend experienced a notable disruption in 2013 due to a recorded minimum in water stress levels, highlighting ongoing challenges related to water resource management and sustainability. This temporary setback underscores the sensitivity of environmental welfare indicators to shifts in resource availability and usage patterns, essential for sustaining long-term environmental welfare improvements.

#### 4. Figure: Dimensions of the Well-being index in Australia



In analyzing the sustainability composite's economic dimension, it is evident that the trend is primarily driven by a deterioration in public debt levels and investment rates. Within the human dimension, positive trends are observed, as indicated by a decline in both avoidable deaths and infant mortality, reflecting a gradual upward trend in well-being. The social dimension shows improvements in regulatory quality over time, yet perceptions of corruption and government efficiency have gradually declined, indicating challenges in institutional quality. Finally, in the natural dimension, the lowest point was reached in 2019, largely due to elevated greenhouse gas emissions and suboptimal waste management practices during that period.

### 5. Figure: Dimensions of the Sustainability composite index in Australia



### Conclusion and recommendation

To surpass the limitations inherent in the GDP methodology—namely, its inadequate representation of social well-being, sustainability, and natural capital—a unified theory, an interpretative framework, and coordinated data collection methodology are essential.

While social and environmental changes in the world make it increasingly urgent to focus on the measurement of sustainable growth rather than GDP as a measure of economic development, attempts so far show that the development of such a consensual and successful new measure will happen much more slowly than is urgently needed.

It seems that the two most difficult issues to address in searching for an alternative to GDP are the lack of a generally accepted theoretical framework for development and the lack of a broad and uniform data collection on which such an indicator could be based on.

In our view, the reason for this failure is that previous researches have attempted to arrive in a single step at a complex indicator that can be used to measure policy performance and identify policy challenges in a similar way to GDP. In fact, it has taken almost three decades from the development of GDP to its general applicability, so it is preferable to take a step-by-step approach to GDP replacement and to start with only those steps that the current data infrastructure and theoretical consensus already allow. Building on these first steps, it will be possible to further develop international data collection systems and to conduct the necessary theoretical discussions in the light of the data, with a view to eventually arriving at a development indicator that can replace GDP.

We therefore propose, within the current theoretical and data constraints, to build a measurement system based on three indicators

- on the one hand, it indicates if GDP growth erodes long-term development conditions for short-term gains, in a similar way to the output gap measure that is already widely used
- on the other hand, two policy indicators to track the factors along which imbalances have arisen in the goals of well-being and sustainability, as these are the worst measures of GDP, and thus provide a guide for policy making.

If we start to operate such a system for more and more countries, we can not only standardise the necessary data collection methodologies, but also encourage data collection. And the long-term study of indicators will bring us closer to the development of a uniformly agreed theory of development, and then all the conditions will be in place to develop a new development indicator to replace GDP.

As we have shown in this short paper, such a three-part measurement system can already be set up for the EU and many other OECD countries, just as it was only possible to start measuring developed countries when GDP was introduced.



## References:

- Acemoglu, D. (2011): Introduction to modern economic growth, Princeton University Press.
- Alkire, S., & Santos, M. E. (2010). Acute multidimensional poverty: A new index for developing countries. \*Oxford Poverty and Human Development Initiative (OPHI)\* Working Paper No. 38.
- Alshuwaikhat, H. M. (2005). Strategic environmental assessment can help solve environmental impact assessment failures in developing countries. *Environmental Impact Assessment Review*, 25(4), 307–317.
- Andrade, D.C. and Garcia, J.R. (2015): Estimating the Genuine Progress Indicator (GPI) for Brazil from 1970 to 2010. *Ecological Economics*, Vol. 118, 49-56.
- Baksay, G. - Matolcsy, Gy. – Virág, B. (2024): Sustainable GDP (ISBN: 978-615-5318-63-4)
- Barro and Sala-i-Martin (1995): Economic growth, McGraw Hill, New York.
- Bolcarova, P. and Kolosta, S. (2015): Assessment of sustainable development in the EU 27 using aggregated SD index. *Ecological Indicators*, Vol. 48, 699-705.
- Bond, A., Morrison-Saunders, A., & Howitt, R. (2013). Framework for comparing and evaluating sustainability assessment practice. Routledge, Taylor & Francis Group.
- Bond, A., Morrison-Saunders, A., & Pope, J. (2012). Sustainability assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1), 53-62.
- Borgert, T., Donovan, J. D., Topple, C., & Masli, E. K. (2019). Determining what is important for sustainability: scoping processes of sustainability assessments. *Impact Assessment and Project Appraisal*, 37(1), 33-47.
- Bóday P., & Szilágyi G. (2013). A környezeti számlák szerepe a fenntarthatóság mérésében. *Statistikai Szemle*, 91(8–9), 870–889.
- Brennan, A.J. (2008): Theoretical foundations of sustainable economic welfare indicators — ISEW and political economy of the disembedded system. *Ecological Economics*, Vol. 67 (1), 1–19.
- Brennan, A.J. (2013): A critique of the perceived solid conceptual foundations of ISEW & GPI — Irving Fisher's cognisance of human-health capital in 'net psychic income'. *Ecological Economics*, Vol. 88, 159-166.
- Costanza, R., Kubiszewski, I., Giovannini, E., et al. (2014). Development: Time to leave GDP behind. *Nature*, 505(7483), 283–285.
- Diener, E., & Seligman, M. E. P. (2004). Beyond money: Toward an economy of well-being. \*Psychological Science in the Public Interest\*, 5(1), 1–31.
- Fioramonti, L. (2017). The World After GDP: Politics, Business and Society in the Post-Growth Era. Polity.

- György L, Purczeld E, Mazzag B, Bató A, Vékás P. (2024). Harmonic Development Index: a novel approach to measure environmental, social, and economic development. Regional Statistics. (accepted for publication)
- Helliwell, J. F., Layard, R., & Sachs, J. (2012). \*World Happiness Report 2012\*. The Earth Institute, Columbia University.
- Hétfa Research Institute (2013): Az Előzetes Fenntarthatósági Vizsgálat (EFV) módszertana – A Nemzeti Fenntartható Fejlődés Keretstratégiában foglalt alapelvek és stratégiai célkitűzések érvényre juttatása a jogalkotásban
- Hétfa Research Institute (2022): INTEGRATED EX-ANTE SUSTAINABILITY IMPACT ASSESSMENT (ESIA) AND SUSTAINABLE PERFORMANCE FRAMEWORK INDEX (SPFI)
- Jackson, T. (2009): Prosperity without Growth: Economics for a Finite Planet
- Kubiszewski, I., Costanza, R., Franco, C., et al. (2013). Beyond GDP: Measuring and achieving global genuine progress. *Ecological Economics*, 93, 57–68.
- Kuznets, S. (1934). National income, 1929–1932. \*National Bureau of Economic Research (NBER)
- Porter, M. E., Stern, S., & Green, M. (2013). Social Progress Index 2013. Social Progress Imperative.
- Stiglitz, J. E., Sen, A., & Fitoussi, J.-P. (2010). *Mismeasuring Our Lives: Why GDP Doesn't Add Up*. The New Press.
- UN. (2015). \*Transforming our World: The 2030 Agenda for Sustainable Development\*. United Nations.
- UNDP. (1990). *Human Development Report 1990: Concept and Measurement of Human Development*. Oxford University Press.
- Ura, K., Alkire, S., Zangmo, T., & Wangdi, K. (2012). *An Extensive Analysis of GNH Index*. Center for Bhutan Studies.
- Victor, A. (2010): *Ecological economics and economic growth*
- Waring, M. (1988). \*If Women Counted: A New Feminist Economics\*. Harper & Row.

This publication is based upon work from COST Action CA20112 PROFEEDBACK, supported by COST (European Cooperation in Science and Technology). COST (European Cooperation in Science and Technology) is a funding agency for research and innovation networks. Our Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation. Visit [www.cost.eu](http://www.cost.eu)



Funded by  
the European Union

