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BEYOND GDP AND GNI FOR A HOLISTIC VIEW OF NATIONAL WELLBEING

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ABSTRACT

Gross Domestic Product (GDP) and Gross National Income (GNI) were designed to serve as a scorecard for economic growth by measuring the monetary value of all local goods and services produced within a given period. Today they are also used by the development assistance architecture as proxies to measure a nation's overall wellbeing and, in some cases, eligibility for external funding.

In this review, we assess the academic and grey literature to identify potential alternatives to GDP and GNI that aim to incorporate broader definitions of wellbeing. Two are particularly noteworthy for their real-world implementation: Aotearoa New Zealand's Living Standards Framework (LSF), which incorporates a holistic understanding of wellbeing for national budgeting that is locally relevant and adjustable according to government priorities, and the Oxford Poverty and Human Development Initiative's Multidimensional Poverty Index (MPI) which includes a customizable dashboard approach which sets it apart from the "one-size-fits-all" models of GDP and GNI.

KEYWORDS Gross Domestic Product; Gross National Income; Living Standards Framework; Multidimensional Poverty Index; Social Wellbeing; Economic Growth; Human Development.

INTRODUCTION

From its inception in the 1930s, Gross Domestic Product (GDP) was designed to serve as a scorecard for economic growth by measuring the monetary value of all local goods and services produced within a given period. Nearly 90 years after Simon Kuznets first proposed the concept of GDP, partially because of its use within the multilateral financing architecture by the Bretton Woods institutes in the immediate aftermath of World War II, the metric is interpreted instead as a report card for a nation's overall wellbeing[1].

A derivative of GDP which calculates both the domestic and foreign income of a country's residents, Gross National Income (GNI) has similarly seen an evolution in its use, including determining eligibility and need for external health funding. Gavi, the Vaccine Alliance; the Global Fund to Fight AIDS, Tuberculosis and Malaria; UNAIDS; UNDP; UNFPA; UNICEF; UNITAID; and WHO rely on GNI to determine the allocation and classify countries[2]. In 2015, these agencies co-commissioned a report which identified the shortcomings of using GNI to determine aid

allocation without due consideration of health needs. While the organizations concluded that the current GNI-centered approach is not fit for purpose and proposed several changes to existing indicators, they continue to use GNI and GDP to determine eligibility[3].

A growing number of criticisms regarding the use of GDP and its derivatives[4] – both to measure economic growth and to stand in for social wellbeing – has led to proposed reforms and alternatives that range from additional indicators to account for environmental impact to using entirely new indices to emphasize health and wellbeing.

With the 2030 deadline for the Sustainable Development Goals (SDGs) growing closer and progress significantly hampered by the COVID-19 pandemic, there is a sense of urgency to review how global health aid is allocated and how the process might be optimized. In this paper, we provide an overview of the range of proposals suggested to improve or expand the existing GDP formula ("GDP+"). For each proposed approach, we provide additional detail on origins, logic, and implementation experiences where available.

METHODS

We reviewed academic and grey literature through searches run on JSTOR, EBSCO, Scopus, Google, and Google Scholar. This combination of search engines returned different results, including peer-reviewed literature, commentaries, institutional reports, and news items.

The key term “GDP” was combined with modifiers “+”, “reform”, and “alternative” to create a sub-total of three searches per engine/database and 12 searches overall. The first five pages of each search were screened by title/headline, source, and abstract/introduction for relevance; only sources focused on proposals to expand, or reform GDP advanced to full-text screening. Of the 54 resources subjected to full-text screening, 35 articles were deemed relevant to this review as they discussed GDP alternatives and reforms, often with some element of implementation or uptake. Papers which criticized existing indicators without offering alternatives, did not outline concrete alternatives, or were found to be otherwise irrelevant were excluded from the final set of documents. Findings from this initial search were also used in a snowball fashion to identify additional relevant sources.

In terms of limitations, this search relied predominantly on grey literature that might be incomplete; a qualitative component, including interviews with those proposing, designing, and implementing these suggestions, would be a valuable resource to complement these findings. Additionally, the review was limited to English-language websites and publications; given the interest that China and other non-Anglophone countries have demonstrated in GDP reforms, it is highly likely that relevant information can be found in non-English sources.

RESULTS

Literature criticizing the limits and misapplications of GDP date back to at least 1959.[5] Moreover, since then, there have been attempts to update the indicator through an additive approach ("GDP+"). For some, the "+" in GDP+ signifies an addition of social or environmental indicators to the existing framework[6]; for others, the new additions lie in capturing additional economic indicators.[7] Others take more literally the mandate to go "beyond GDP" to expand beyond economic growth indicators to holistic and interconnected indicators of wellbeing and health[8] or have tried to substitute the measure entirely through the use of "alternative GDP" approaches.

Below we describe proposals for each approach identified through our academic and grey literature review.

GROSS DOMESTIC PRODUCT+
ADDITIVE APPROACHES

We identified nine proposals to expand or improve GDP. Some, such as Green GDP and the Inclusive Development Index (IDI), suggest adding new indicators. A majority of these proposals, such as the Universal Vulnerability Index (UVI), GDP 2.0, Genuine Progress Indicator (GPI), Genuine Savings Indicator (GSI), and the Human Development Index (HDI), propose changes to how GDP is calculated. Finally, the Inclusive Wealth Approach (IWA) and Living Standards Framework (LSF) introduce the possibility of reconceptualizing wealth, resilience, and wellbeing.

COMMONWEALTH UNIVERSAL VULNERABILITY INDEX (UVI)[9] (THE COMMONWEALTH)

Given the widespread utility among international financial institutions, such as the World Bank and the International Monetary Fund of GDP, in assessing the viability of financial aid, the Universal Vulnerability Index (UVI) seeks to make GDP more inclusive and nuanced for small states seeking aid by taking into account vulnerability and resilience in calculating GDP/GNI-based eligibility. Economic vulnerability to exogenous and endogenous shocks, for example, is calculated through historical probability, size of the potential shock, and structural exposure to such shocks. Proposed in 2021 by the Commonwealth Secretariat in collaboration with the Foundation for Studies and Research on International Development, the measure is considered timely as small states seek aid to rebuild post-COVID. However, as of yet, there is no known instance of the measure being implemented to complement or replace GDP.

GROSS DOMESTIC PRODUCT 2.0
(THE WASHINGTON CENTER FOR EQUITABLE GROWTH)[10]

Proposed by the Washington Center for Equitable Growth in 2018, GDP 2.0 seeks to improve the existing GDP framework by disaggregating growth indicators to highlight the inequitable distribution of growth typically masked by the sole aggregate number reported as GDP growth. In a United States context, the disaggregation would require access to tax data held by the Statistics of Income division of the Internal Revenue Service10 but would nonetheless represent a relatively low-effort GDP+ measure as it draws upon available data without necessitating data collection for new indicators. The United States Bureau of Economic Analysis has integrated this approach into its National Accounts due to congressional interest in measuring actual income growth.[11]

GENUINE PROGRESS INDICATOR[12]
(REDEFINING PROGRESS)

First conceptualized as the Index of Sustainable Economic Welfare in 1995, the GPI was introduced as a measure of income sustainability, essentially supplementing GDP calculations with an analysis of whether growth "is a result of living off the interest of community capital or spending it down."1 The framework "accounts for income inequality, costs of crime, environmental degradation, loss of leisure, volunteering and housework" and has since been implemented successfully at the state level in Maryland and Vermont, USA. In Maryland, GPI was implemented as an "adjustment" rather than an alternative to GDP. Government officials quantify its success by discursive and normative rather than policymaking impact, attributing Vermont's implementation of GPI to Maryland's initial attempt[13].

GENUINE SAVINGS INDICATOR
(WORLD BANK)

Presented by the World Bank as a sustainability indicator in 2000, the GSI (also referred to as Adjusted Net Savings) calculates "the true level of saving in a country after depreciation of produced capital; investments in human capital (as measured by education expenditures); depletion of minerals, energy, and forests; and damages from local and global air pollutants are taken into account". However, GSI remains underpinned by national income accounts and has thus been described as a "correction" rather than a replacement for GDP.

GREEN GROSS DOMESTIC PRODUCT(S)
(VARIOUS ACTORS AND ATTEMPTS)

Perhaps one of the earliest attempts to integrate both the value of environmental resources and the cost of environmental degradation into GDP calculations, the call for Green GDP has been taken up by varying actors over the years with equally variable amounts of success. One of the most notable instances was China's 2004 attempt to implement Green GDP, an effort which Rauch and Chi[14] claim was partially inspired by the U.N. and petered out in 2009 due to several barriers, such as poor governance, accounting challenges, and environmental valuation challenges. Today, variations of Green GDP can be found in the OECD's Green Growth Indicators and China's nascent Gross Ecosystem Product, which complements GDP by calculating the value of inputs from natural resources.

HUMAN DEVELOPMENT INDEX
(UNDP)

A composite index introduced by the U.N. in 1990 and long hailed as an alternative to GDP, the HDI nonetheless incorporates GDP into its calculations on longevity (life expectancy at birth), education (mean and expected years of schooling), and decent living standards (GNI per capita).

The Gender Development Index (GDI)[15] has been described as a gender-sensitive adjustment to the HDI, which disaggregates three components by gender in a similar formula: health (life expectancy at birth), education (expected and mean years of schooling), and command over economic resources (estimated earned income).

INCLUSIVE DEVELOPMENT INDEX
(WORLD ECONOMIC FORUM)

In 2018, the World Economic Forum positioned the IDI as a set of 11 dimensions of economic progress in addition to GDP, sorted into three pillars: growth and development; inclusion; and intergenerational equity - sustainable stewardship of natural and financial resources. The IDI sought to "inform and enable sustained and inclusive economic progress" through an annual assessment of 103 countries, but it appears to have published only a single report in 2018.

INCLUSIVE WEALTH APPROACH
(BENNETT INSTITUTE FOR PUBLIC POLICY, UNIVERSITY OF CAMBRIDGE)

Proposed in 2019 as a two-stage approach which begins by amending rather than contesting the current GDP formula, the Bennett Institute for Public Policy positions its IWA (also referred to as the Wealth Economy Approach) as a practical tool for policymaking which conceptualizes wealth as resilience by way of a buffer. It advocates an "interconnected capitals" mindset, which posits that investment in one of six components of wealth - natural, human, institutional, social, physical, and knowledge – influences returns on all other investments and that the strengthening of individual and all components can generate not just growth but resilience in this post-pandemic landscape[16]. While the IWA lacks implementors, it points to similar thinking underlying the U.N.'s Inclusive Wealth Report and the World Bank's Changing Wealth of Nations as proof of concept.

LIVING STANDARDS FRAMEWORK
(AOTEAROA, NEW ZEALAND)

Introduced by the government of Aotearoa, New Zealand, in 2011, the LSF serves as a rare example of a GDP+ approach implemented at the national level with demonstrated policymaking impact, with the framework based on holistic approaches to wellbeing defined by Māori and Pacific Island perspectives[17]. A three-level approach measures individual and collective wellbeing; institutions and governance; and wealth with analytical prompts centred on distribution, resilience, productivity, and sustainability.

BEYOND GDP
ALTERNATIVE POSSIBILITIES

We identified five indices which seek to replace GDP entirely and aim to break from the "growth is good" paradigm and acknowledge the limits of growth and the importance of wellbeing beyond economic success. These GDP alternatives, which include the Better Life Index (BLI), the Canadian Index of Wellbeing (CIW), the Living Planet Index (LPI), the Multidimensional Poverty Index (MPI), and the Sustainable National Income (SNI), were selected for inclusion in this review as examples of indices which are entirely independent of GDP and actively use by regional, national, or international bodies.

BETTER LIFE INDEX
(OECD)

Introduced by the Organization for Economic Cooperation and Development in 2011, the BLI looks beyond economic statistics to instead assess wellbeing across 11 topics which include: housing; income; jobs; community; education; environment; civic engagement; health; life satisfaction; safety; and work-life balance Notably, the index also allows for a comparison of gender differences.

CANADIAN INDEX OF WELLBEING
(UNIVERSITY OF WATERLOO)

Launched in 2011 by the University of Waterloo, the CIW is based on 64 indicators across eight domains of wellbeing: community vitality, democratic engagement, education, environment, healthy populations, leisure and culture, living standards, and time use. Despite being

implemented at the provincial level in Ontario and Saskatchewan[18], the federal government of Canada has thus far failed to integrate either the CIW or any alternative measures of wellbeing into its decision-making.

LIVING PLANET INDEX/ECOLOGICAL FOOTPRINT INDEX (WWF)

First introduced by the World Wildlife Fund in 1998, the LPI "is a measure of the state of the world's biological diversity based on population trends of vertebrate species from terrestrial, freshwater and marine habitats". With a focus on the extent and severity of biodiversity loss, the LPI is today calculated using the Ecological Footprint index, which accounts for movements of energy and matter through the human economy to calculate the resources (primarily productive land and water) required to sustain these movements,1 a formula which completely eschews the monetary valuation central to GDP tabulations.

MULTIDIMENSIONAL POVERTY INDEX (OXFORD POVERTY AND HUMAN DEVELOPMENT INITIATIVE)

The MPI was initially developed by the Oxford Poverty and Human Development Initiative (OPHI) for inclusion in the 2010 flagship UNDP Human Development Report and has been included in the HDR every year since; it has also been adopted by more than 50 governments which form the Multidimensional Poverty Peer Network.

The MPI differs from GDP in two significant ways: firstly, it seeks to complement traditional dimensions of development with the addition of health, education, and living standards like many GDP additives and alternatives listed here; secondly and more significantly, it calculates deprivation rather than development, focusing on acute

poverty rather than growth. Each of the three dimensions accounts equally for one-third of the overall score; health and education are further broken down into two sub-indicators each, while living standards have six, with all sub-indicators linked to one of seven SDGs. If a person is found to be deprived of a third or more of the ten sub-indicators, they are considered "MPI poor" at an individual level; MPI, therefore, allows for an understanding of not just who is poor but how they are poor, which can be compared both within and across countries and regions. Ultimately, the premise behind the MPI as a GDP alternative is identifying the most vulnerable people to allow for targeted policymaking and resource distribution.

SUSTAINABLE NATIONAL INCOME (THE NETHERLANDS)

Developed by the Netherlands in 1990 as a "general equilibrium model", the SNI "calculates the impact on national income of imposing sustainability constraints for the nine environmental themes for the Netherlands: climate change; depletion of the ozone layer; acidification; eutrophication; fine air-borne particles (PM10); volatile organic compounds; dispersion of heavy metals and polychlorinated biphenyls (PCBs) to water bodies; desiccation; and soil contamination.[19] However, it has been criticized for being too narrow in its environmental focus and too variable in its thematic results.

DISCUSSION

The nine GDP+ approaches summarized below (Exhibit 1) are highlighted for their "low effort" improvements (disaggregation of existing data as suggested by GDP 2.0), their add-on approaches (consideration of additional factors as seen in UVI, GSI, HDI, IDI, and IWA) or their real-world implementation experiences (at regional or national levels such as GPI, Green GDP, and LSF).

The review suggests a growing interest in GDP+ approaches in recent years, particularly those incorporating wellbeing and environmental considerations to complement GDP, such as GPI, Green GDP and LSF. These approaches have found more success in courting real-world implementation through incremental change compared to proposals to replace GDP entirely, albeit with varying degrees of influence and impact. Based on the literature, such incremental changes to the status quo are considered more likely to find a foothold in policymaking circles as they are additions to GDP rather than alternatives. Equity and sustainability are the key outcomes prized by contemporary GDP+ approaches, perhaps reflecting a growing rejection of the "growth at any cost" paradigm that has often been linked to traditional GDP discourse.

The five GDP alternatives summarized below (Exhibit 2) differ significantly from the GDP+ additions in Exhibit 1 as they seek to replace rather than reform GDP, often by prioritizing social (BLI, CIW, and MPI) and environmental (LPI and SNI) indicators. While attempts have been made to implement all five proposed alternatives, with the MPI alone citing uptake by over 50 governments, none have as yet surfaced as significant contenders to GDP and GNI in terms of health aid allocation by global health funders.

The use of GDP suggests a simplistic "growth is good"[20] paradigm. Most proposed expansions and replacements typically take one of two stances: a "green growth" push which integrates environmental considerations into calculations of growth, and a "de-growth" position which acknowledges growth limits and urges societies to look beyond economic growth for other measures of success and strength.

CONCLUSION

This review has presented two main alternatives to GDP, with one looking to expand GDP and the other looking to replace it entirely. Whether implicit or explicit, the extensive work on both approaches suggests a growing consensus that GDP is not fit to serve as a proxy for social wellbeing.

While many international health organizations continue to rely on GNI and GDP to define health aid eligibility, they also recognize the extent to which these measures are unfit for purpose, particularly as they fail to reflect the growing burden of disease and poverty in middle-income countries (MICs).[21] These indicators also fail to account for a range of threats - from climate change and losses in biodiversity to mental health and a focus on growth.

Another concern about current indices is the masking of inequality within and across countries through a single number. GDP and GNI render invisible the disparities caused by gender, race, ethnicity, religion, (dis)ability, geography, socioeconomic status, and more. In the case of calculating health aid eligibility and need, the use of these indices risks not only overlooking but widening the chasms between those who benefit from the growth in GDP and GNI and those who bear the costs of achieving that growth.

We identified 14 proposals[22] to either reimagine or replace GDP. However, despite over seven decades of criticism[23], recognition of limitations, and alternative options, GDP remains the yardstick to assess economic growth and social wellbeing.

On a practical level, many speculate that the contained and

straightforward nature of GDP makes it challenging to propose more complex and resource-intensive alternatives. Some propose that the overwhelming number of options has stymied unified support for a single, strong contender for GDP[24]; others caution that the goal of what we want from a new measure remains ill-defined (e.g., wellbeing, human health, environmental preservation.

Joseph Stiglitz warned that "GDP should be dethroned"[25]. He also cautioned that there could be no one-size-fits-all solution. The same limitations faced by GDP as an aggregate number which erases nuance and masks disparity, apply to nearly all of its would-be contenders – except for a dashboard approach. A dashboard approach, he argues, would enable governments to visualize individual and collective desired futures and work backwards intentionally to create these futures. Custom and changeable indicators would simultaneously allow for priority setting and comprehensive understanding, with room to "include metrics for health, sustainability and any other values that the people of a nation aspired to, as well as for inequality, insecurity and other harms that they sought to diminish".

Reflecting on the concerns raised about the alternatives identified in this review, we highlight one additive and one substitute as viable alternatives to GDP: The first is Aotearoa New Zealand's LSF and the second is the MPI. While many add-ons and alternatives similarly address the concerns outlined in the previous section, these two have been implemented and are relevant to assessing and addressing health needs.

Regarding reforming GDP and GNI, the LSF holds promise as a more holistic approach to national budgeting, prioritizing wellbeing. The freedom for each country to set its key priorities, analytical prompts, and levels of intervention makes it a far more flexible option than its peers. It encourages long-term use as countries can update these

factors as agendas shift. For our purposes of identifying more robust ways of calculating health aid eligibility, widespread adoption of the LSF could allow for easier identification of applicants' health needs, capacities, and challenges.

In terms of replacing GDP and GNI entirely, the MPI is an alternative for calculating health aid eligibility and needs amongst multilateral organizations. The ability of its indicators to calculate poverty and need at an individual level rooted in on-the-ground experiences addresses the main concern with GDP and GNI, which is the masking of the fact that the majority of the world's poverty and disease burden now resides within MICs. Its direct linkages to the SDGs, including SDG11 with its mandate on sustainable cities and communities, is a step in the right direction in understanding health and wellbeing holistically. Finally, returning to the calculation of individual experiences, the MPI is well-suited to exposing inequities and disparities within countries and communities, in line with the SDG's aim to leave no one behind.

With its customizable dashboard approach, the MPI also addresses many of the criticisms of GDP. As evidenced by the fact that more than 50 countries have adopted and adapted the MPI for local and regional usage, the MPI has cleared one of the primary hurdles identified by many experts in the challenge to replace GDP: political support and capital. It also appears to be able to satisfy the other conditions24: (1) harmonization – a universal framework; (2) policy tools – tangible and relevant actions for policymakers; and (3) societal narratives – dispelling the "all growth is good" mindset to mainstream a replacement narrative which supports the use of the challenger.

Finally, while neither the LSF nor the MPI prominently features "green" indicators in their default configurations, their customizable natures easily allow for countries to adopt and adapt as required; MPI's links to the SDGs, in particular, make for a solid argument to more heavily feature a sustainability angle.

Any replacement for GDP will need to provide solutions to previously identified barriers, including data reliability, timeliness, scope and scale, and methodological standardization, among others. In addition to the MPI, several other alternatives might be capable of satisfying some, if not all, of these criteria; the SNI, for instance, exhibits methodological rigour and data reliability, but it has been noted that the indicators are too specific to its country context to allow for international standardization. CIW and SDI also exhibit scope and scale with large numbers of indicators, but at the potential cost of timeliness due to capacity challenges for collection.

With many of these alternatives, the question of trade-offs is important: how to balance comprehensive indicators, limited capacity, and universal relevance? This is one of several practical reasons that GDP remains the status quo. However, as this paper and many others have illustrated, the continued use of GDP and GNI involves trade-offs. Chief among them is a loss of complexity and nuance in favour of convenience and standardization. Both the experience of and recovery from the COVID-19 pandemic have driven home once again the reality that there is no one-size-fits-all solution and varying contexts must be sufficiently captured to inform decision-making for health funding, programming and policymaking. With 2030 fast-approaching and attention gradually shifting towards the post-SDGs era, the first step towards setting out a blueprint for success in the next set of development goals might well be abandoning rigid ideas of growth promoted by traditional conceptions of GDP to embrace more holistic and contextually variable concepts of wellbeing. We encourage global health funders investing in improving wellbeing to consider changing the paradigm by adopting a new approach.

EXHIBIT 1
ADDITIVE APPROACHES TO GDP+

Index	Year	Developer	Difference to GDP/GNI	Status of Implementation
Commonwealth Universal Vulnerability Index	2021	The Commonwealth (based in UK)	Incorporates vulnerability and resilience into calculations of aid eligibility.	No.
GDP 2.0	2018	The Washington Center for Equitable Growth (US)	Includes a distributional component in GDP calculation to account for inequitable distribution.	Partially – in 2020 there was some legislative action in the US which aligned with this approach.
Genuine Progress Indicator	1995	Redefining Progress (US)	Introduces an income sustainability element to determine the "costs" of growth.	Partially – at the state level in Maryland and Vermont.
Genuine Savings Indicator	2000	World Bank	Incorporates a sustainability element to determine actual growth/savings.	Yes – at the multilateral level by the World Bank.

Index	Year	Developer	Difference to GDP/GNI	Status of Implementation
Green GDP	2004	China(?)	Integrates the value of environmental resources and the cost of environmental degradation into GDP calculations.	Yes – at the national level in China.
Human Development Index	1990	UNDP	Incorporates GDP into calculations on development (life expectancy, education, standard of living) beyond economic growth. Gender Development Index is an adjustment to HDI disaggregating development indicators by sex.	Yes – at the multilateral level by the UN.
Inclusive Development Index	2018	World Economic Forum	Introduces 11 additional dimensions of economic progress alongside GDP.	Partially – a single report was produced in 2018.
Inclusive Wealth Approach	2019	Bennett Institute for Public Policy (UK)	Conceptualizes wealth as resilience and promotes an "interconnected capitals" mindset.	No.
Living Standards Framework	2011	Aotearoa New Zealand	Complements GDP by focusing national budgeting on well-being and five key priority areas.	Yes – at the national level in Aotearoa New Zealand.

EXHIBIT 2
ALTERNATIVE APPROACHES TO GDP+

Index	Year	Developer	Difference to GDP/GNI	Status of Implementation
Better Life Index	2011	OECD	Assesses wellbeing across eleven topics and allows for a comparison of gender differences.	Yes – at the multilateral level by OECD.
Canadian Index of Wellbeing	2011	University of Waterloo (CA)	Assesses eight domains of wellbeing.	Partially – at the provincial level in Ontario and Saskatchewan.
Living Planet Index	1998	World Wildlife Fund	Measures the world's biological diversity with a focus on biodiversity loss.	Partially – at the international level by WWF.
Multidimensional Poverty Index	2010	Oxford Poverty and Human Development Initiative (UK)	Calculates deprivation rather than development, with the addition of health, education, and living standards.	Yes – at the multilateral level by UNDP and more than 50 governments.
Sustainable National Income	1990	The Netherlands	Focuses on the impact environmental sustainability wields over national income.	Yes – at the national level in The Netherlands.

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Measuring What Really Matters - Beyond GDP and GNI for holistic view of national wellbeing

[January 2024]

e-ISBN: 978-92-808-8114-1

DOI: https://doi.org/10.37941/RR/2023/9