

# Beyond GDP: Tracking and Evaluating National Contributions to Social and Environmental Sustainability

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**Background:** The Gross Domestic Product (GDP) emerged as a convenient measure of national economic activity during the Great Depression. It was subsequently adopted by international development economists to track developing countries' progress so that, despite its severe deficiencies, it became 'locked in' by habit, convenience, and policy makers' preferences.

**Purpose:** This article conceives of GDP as a social intervention fit for evaluation. It shows that the GDP has had a pervasive and pernicious influence on policy making. Since past strategies aimed at dethroning the GDP have failed, it proposes new, evaluator-driven approaches designed to undermine the GDP's dominance in the global market economy.

**Setting:** The Stiglitz report commissioned in the wake of the 2008 financial crisis launched a 'Beyond GDP' movement. Since then, public alarm about the GDP growth addiction has escalated: the drawbacks of GDP as a free-market policy tool have become self-evident as the rich get richer, the ranks of the poor swell and the future of the planet hangs in the balance.

**Keywords:** *Beyond GDP; climate change; evaluator-directed evaluation; Gross Domestic Product; indicators; Sustainable Development Goals*

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**Research Design:** Not applicable.

**Data Collection and Analysis:** For the twenty largest economies in the world, the article estimates climate change discounts to the GDP based on official CO2 emissions statistics and a social cost of carbon estimate derived from a 2015 survey of eminent climatologists. It also draws on composite indexes generated by four reputable social research organizations to rank countries for their contributions to the 5 Ps of the Sustainable Development Goals (SDGs): people, planet, prosperity, peace, and partnership.

**Findings:** Pending the results of on-going efforts to upgrade worldwide statistics focused on the 169 SDG targets, the proposed GDP discounts help track progress towards the SDGs. But monitoring is not enough. In a policy world dominated by vested interests, the new 'Beyond GDP' indicators should be combined with principled, evaluator-directed evaluations.

## Introduction

Evaluation is about estimating the merit, worth, and significance of social interventions. Evaluators identify relevant questions; select assessment methods; render evaluative judgments; draw lessons of experience; and facilitate their application. Evaluated interventions (i.e., evaluands) take many forms—policies, programs, projects, but also indexes and indicators: they too shape social behaviour.

This article conceives of the Gross Domestic Product (GDP) as an intervention subject to evaluation. No other index has had a greater influence on national policy formulation. It is entirely appropriate to subject it to evaluation:

- How was GDP developed?
- Is it a valid measure of national well-being?
- Whose interests does it serve?
- What social impacts does it induce?
- How may its deleterious effects be minimized?
- Can alternative indexes be put to work in the public interest?

As shown below, applying evaluative thinking and logic to the design and use of GDP discloses its shortcomings and its unintended effects. It also evinces new ways of conceptualizing and tracking human well-being and respect for nature. To be sure, it cannot overcome the inherent limitations of indexes and indicators, but it minimizes their pernicious impacts. This has long been the goal espoused by the ‘Beyond GDP’ movement that was spawned by the landmark ‘Stiglitz report’ commissioned in the wake of the 2008 financial crisis by France’s President.

The report elicited unanimous support among eminent economists. Yet, it did not overcome GDP’s dominance as the most popular metric among policy makers. This is confirmed by the deliberations of the Spring Meeting of the World Bank and the

International Monetary Fund that brings together the movers and shakers of the global economy—central bankers, finance ministers, corporate executives, civil society leaders, and academics.

In 2021, it addressed the economic shock caused by Covid-19 and the uncertainties associated with new virus mutations, rising debt levels, and financial fragility. As in prior years, the hosts’ major preoccupation was GDP growth. Thus, the influential World Bank Global Economic Prospects report<sup>1</sup> which set the tone for the meeting gave short shrift to social and environmental issues. It focused almost exclusively on modelling GDP growth scenarios, and it examined the prospects of a robust economic recovery with little heed for its climate change consequences.

Once again, along with familiar calls for developing countries to adopt market-friendly policies, the GDP metric dominated the conversation. How then did GDP achieve such a dominant position in public policy deliberations? What explains its hold on public opinion? What are its limitations as an indicator of human well-being? Has the “Beyond GDP” movement adopted a winning strategy? Given data constraints, how can progress towards the Sustainable Development Goals be tracked? Finally, what is the role of evaluation in the assessment of national contributions to social and environmental sustainability?

### What Explains GDP’s Success?

The severe limitations of the GDP measure were fully acknowledged by its celebrated inventor, Nobel laureate Simon Kuznets. He stressed from the very outset that “distinctions must be kept in mind between the quantity and quality of growth, between its costs and return, and between the short and the long term”<sup>2</sup>. Nevertheless, his creation achieved instant notoriety since the need to recover from the Great Depression underway at the time, called for a reliable measure of national

<sup>1</sup> <https://www.worldbank.org/en/publication/global-economic-prospects>.

<sup>2</sup> [https://ec.europa.eu/environment/beyond\\_gdp/key\\_quotes\\_en.html#:~:text=Simon%20Kuznets%3A%20%22Distinctions%20must%20be,short%20and%20the%20long%20term.&text=Simon%20Kuzn](https://ec.europa.eu/environment/beyond_gdp/key_quotes_en.html#:~:text=Simon%20Kuznets%3A%20%22Distinctions%20must%20be,short%20and%20the%20long%20term.&text=Simon%20Kuzn)

ets%2C%20the%20creator%20of,a%20measurement%20of%20national%20income%22. “The welfare of a nation can scarcely be inferred from a measurement of national income”. “National Income, 1929–1932”. 73rd US Congress, 2d session, 1934. Senate document no. 124, page 7.

economic activity. While eminent economists joined Kuznets in deploring its patent deficiencies as a marker of national wellbeing, it quickly became the economic indicator most closely watched by politicians, decision makers, and investors.

Worldwide adoption of the GDP index was accelerated by the international development movement launched by the victorious allies following World War II. At a time of optimism and belief in government, economic growth was adopted as the acid test of success for an international development enterprise that came to “encompass almost all facets of the good society, everyman’s road to utopia<sup>3</sup>”. Decision makers once again embraced GDP as the principal measure of policy performance. They also chose to promote trade liberalization, free capital movements, and foreign direct investment. This allowed them to create a corporate friendly environment unencumbered by national borders.

Thus, the market society triumphed, and GDP became a serviceable measure of economic progress within and across borders. Facilitated by the new communications and information technologies, a massive shift of labour-intensive work and technical knowhow towards the periphery ensued. Propelled forward by multinational companies, the development enterprise pushed the emerging market economies forward. As engines of the global economy, their GDP grew faster than that of developed countries. Their social indicators (absolute poverty, education, human rights, human security, etc.) improved as well.

These remarkable and unprecedented trends helped to validate the GDP as a policy performance measure. But correlation is not causation. The development equation has many variables. Improvement in livelihoods is driven by a bundle of policy actions, including those that increase access to public services, promote broad-based scientific and technological advances, and address market

failures. While economic growth is patently beneficial, its indirect, secondary, and unintended consequences can be severely detrimental in policy contexts that ignore social equity and environmental protection.

Neo-liberal economists conveniently describe the unintended social and environmental costs of economic growth as inevitable side-effects. They systematically privilege the quantity of growth over its quality<sup>4</sup>. They wrongly attribute their market fundamentalist ideas to Adam Smith, even though he never subscribed to *laissez-faire* and advocated targeted state market interventions. They fail to recognize the nefarious role played by vested interests and monopolies. They propagate the ‘rising tide lifting all boats’ myth that has led to a rapid deterioration of the natural environment and left billions of poor people behind.

Such neo-liberal ideas have become highly influential. They help explain a stubborn loyalty to the GDP, a predilection akin to the myopic focus on quarterly earnings prevalent in the corporate world. The stubborn GDP addiction hinders long-term thinking and undermines strategic adaptation to evolving operating contexts. It induces decision makers to dismiss as unremarkable ‘externalities’ the grotesque social inequities and intense pressures on the natural environment that inevitably flow from their ill-fated policy choices.

Thus, the recent “Dasgupta Review” of the *Economics of Biodiversity* stresses that the GDP metric was not meant for the use to which it has been put in recent decades<sup>5</sup>. In the Preface to this landmark publication, David Attenborough aptly noted that “we are facing a global crisis. We are totally dependent upon the natural world. It supplies us with every oxygen-laden breath we take and every mouthful of food we eat. But we are currently damaging it so profoundly that many of its natural systems are now on the verge of breakdown.”

<sup>3</sup> H. W. Arndt, *Economic Development: The History of an Idea*. The University of Chicago University Press, Chicago, IL. – p.1

<sup>4</sup> V. Thomas, et.al. (2000). *The Quality of Growth*. Published for the World Bank. Oxford University Press. New York. NY

<sup>5</sup> P. Dasgupta (2021). *The Economics of Biodiversity: the Dasgupta Review*. HM Treasury. London. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/962785/The\\_Economics\\_of\\_Biodiversity\\_The\\_Dasgupta\\_Review\\_Full\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962785/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf)

## A Flawed Metric

To be sure, the GDP metric has its place as a measure of economic activity, but it leaves a lot to be desired as an indicator of human well-being and environmental sustainability. What is GDP? It is defined as private consumption, plus gross private investment, plus government spending, plus exports minus imports. A serviceable measure of money transactions within national economies, it was developed at a time when the world sought ways to revive economic activity in the wake of the Great Depression. If GDP still retains its allure today, it is in part because the same preoccupation still dominates national policy making.

Yet, in Robert Kennedy's words, GDP "measures everything, in short, except that which makes life worthwhile<sup>6</sup>". The United States has the highest GDP in the world (\$20 trillion). Its GDP per capita (\$56,000) is higher than that of Australia, Canada, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, and the United Kingdom but, compared to these countries, it has the lowest life expectancy, the highest suicide rate, the highest chronic disease burden, and an obesity rate that is twice as high. Its incarceration rate (an astonishing 655 inmates per 100,000 of population) ranks well ahead of all industrialized nations<sup>7</sup>.

GDP does not take account of capital depreciation. It includes goods and services that are harmful (e.g., armaments, addictive opioids, gambling), or useless (e.g., advertising, financial speculation, astrological advice) while excluding essential ones (e.g., child rearing, housework, caregiving), as well as the benefits of value of biodiversity, clean air, equality of opportunity, job security, or

access to public services. It does not take account of productivity gains and losses.<sup>8</sup> Nor does it recognize the free services generated by a booming digital economy, or the considerable value to society of a growing volunteer movement<sup>9</sup>.

## From Petty to Stiglitz

Nobel laureate Sir Richard Stone is widely viewed as the father of national accounting<sup>10</sup>, but the historical roots of the GDP are much deeper: early estimates of national production were produced by William Petty in 1665 and Francois Quesnay in 1758. But these were limited statistical endeavours, and the systematic pursuit of a generally accepted system of national accounts only started in earnest in the twentieth century. By 1929, national income had been estimated for twenty countries.

A robust debate about measurement involving Hicks, Nordhaus, Tobin, and Kuznets followed. These scholarly controversies put forward diverse perspectives on the impact of economic growth and consumption on human welfare, well-being, and environmental protection. Three distinct concepts of national accounts (Gross Domestic Product, Gross National Expenditure, and Gross National Income) vied for attention. It took an International Commission, established by Nicholas Sarkozy, then French President in 2008 to solidify a consensus among economists.

The Commission included Nobel laureates Joseph Stiglitz and Amartya Sen, and the eminent French economist and sociologist Jean-Paul Fitoussi. They were tasked to improve the measurement of national economic performance and social progress in

<sup>6</sup> <https://www.jfklibrary.org/learn/about-jfk/the-kennedy-family/robert-f-kennedy/robert-f-kennedy-speeches/remarks-at-the-university-of-kansas-march-18-1968>

<sup>7</sup> While by May 2021, the United States had experienced 580,000 deaths from Covid-19 (177 per capita), New Zealand with a substantially lower GDP per capita (\$42,000) had only witnessed 26 deaths from the pandemic (0.5 per capita).

<sup>8</sup> Net national income compiled by the United Nations, the OECD and the World Bank addresses this problem.

<sup>9</sup> Analysis by the United Nations Volunteers (UNV) programme has identified more than 1 billion volunteers around the world. <https://unv-swvr2018.org/>.

<sup>10</sup> The first official estimates of British national income and expenditures were made according to Stone's method in 1941. <https://www.britannica.com/biography/Richard-Stone>

the wake of a global financial crisis caused by unbridled and irresponsible financial operations that emerged following the ill-fated banking deregulation decisions that unleashed free-wheeling capitalism under President Bill Clinton's tenure.

The Stiglitz Commission took stock of the vast literature devoted to the measurement of sustainable development, including free-standing indices, composite indices, large dashboards of indicators and GDP adjusted metrics.

Its Report<sup>11</sup> struck a chord. It stressed that the GDP does not deserve its privileged status in government decision making. But it also acknowledged, that no single alternative measure can fully and accurately capture the complexity of modern economies, the diversity of public aspirations, and the interdependence of economic, social, and environmental policy variables.

On balance, the Stiglitz Report argued that, just as physicians have access to a variety of tests before they reach a diagnostic, economic policy makers should be offered a choice of measures. Specifically, the Commission recommended the adoption of national statistical *dashboards* while acknowledging that large collections of indicators suffer from severe limitations: heterogeneity, absence of causal links, ambivalent relevance of individual indicators, etc. This balanced posture elicited broad-based support among international organizations, civil society organizations and the worldwide statistical establishment. Henceforth, diverse suites of indicators, often unwieldy and theory-free, would be regularly unveiled to help break over-reliance on the parsimonious GDP metric.

In France, official statistics were expanded to include leisure, access to health insurance

and other social services. New Zealand embedded measures of well-being in its budgetary processes. Bhutan adopted Gross National Happiness as the primary measure of its policy performance instead of GDP<sup>12</sup>. In parallel, a bewildering variety of league tables sprouted under the aegis of multilateral institutions, civil society organizations and think tanks: the OECD lists 500 well-being and sustainability indicator initiatives<sup>13</sup>.

### **The Curse of Path Dependence**

Thus, the Stiglitz Report changed the conversation about GDP. It also induced efforts to bring together economic and environmental information culminating in the United Nations Statistical Commission adoption of a comprehensive System of Environmental Economic Accounting<sup>14</sup>. But neither national dashboards nor international league tables were able to displace the GDP as the lode star of economic policy. Thirteen years on, the GDP measure, while considered 'broken' by most leading economists, still reigns over the international landscape.

Network theory helps explain why: a decisive move away from the GDP is a tough challenge, since doing so is costly and deprives decision makers from the economies of scale associated with GDP's widespread use around the world. Just as QWERTY is still in universal use even though it is less efficient than other keyboard arrangements, the GDP metric is hard to dislodge.

Given the large costs incurred to measure GDP, the switching expenditures associated with learning a new set of metrics, and the understandable urge to reap the considerable 'network benefits' of a widely used measure, the GDP indicator has become securely 'locked

<sup>11</sup> A. Sen, J. P. Fitoussi, & J. Stiglitz. (2010). *Mismeasuring Our Lives: Why GDP Doesn't Add Up*. The New Press. Copy at <http://www.tinyurl.com/y63bg5dj>.

<sup>12</sup> While the Gross National Happiness (GNH) phrase was first coined by the King of Bhutan in 1972, the first GNH survey in Bhutan was carried out in 2008. In 2019, Bhutan was ranked 95<sup>th</sup> out of 156 countries in the World Happiness Report, a publication of the Sustainable Development Solutions Network triggered by the Bhutanese Resolution passed by the United Nations General

Assembly in June 2011, that invited national governments to "give more importance to happiness and well-being in determining how to achieve and measure social and economic development".

<sup>13</sup> There may be thousands of indicator initiatives focused on countries, themes, and sectors. In 2011, the Compendium of Sustainable Development Indicators compiled by the International Institute for Development listed 900 entries.

<sup>14</sup> <https://seea.un.org/content/about-seea>

in' by cost-benefit considerations, the force of habit, and the loyalty of its users. In a policy force field where market economics has assumed enormous influence, a vast infrastructure involving powerful international institutions has been constructed to estimate, disseminate, and interpret GDP data.

Thus, given its pervasive worldwide adoption by policy makers, the GDP metric was mobilized to position individual nations on the ladder of global influence, including voting shares in the international financial institutions, adherence to the G7 and G20 clubs, membership in the Organization for Economic Cooperation and Development, etc. It also upstaged statistical dashboards since the GDP has the singular advantage of simplicity: tailor-made, complex lists of indicators are no match for a single standard measure, universally used across borders.

Nor can a ramshackle cottage industry of composite indicators compete against a highly disciplined macroeconomic and statistical establishment coalition. No single winner has emerged from the chaotic market of ideas spawned by a fragmented and disputatious 'Beyond GDP' movement: disciplinary rivalry has undermined trust in the medley of complex international league tables, each focusing on one or more dimensions of economic, social, and/or environmental performance. So, is the 'Beyond GDP' movement doomed? Not necessarily: the past is not always prologue. Public opinion is evolving.

### **A Turning Point?**

The growing public alarm about the dire consequences of the growth addiction may yet induce a decisive move away from the GDP barometer of national economic performance. The public is now better informed about the limits of free market policies that have led to

severe wealth and income disparities and to the proliferation of global supply chains that conceal the location of ecological damage embedded in consumer products. It is now better understood that the increasingly integrated and digitalized global economy helps explain the disproportionate capture of income and wealth by the rich and powerful and that globalization has allowed rich countries to export the environmental damage of their high consumption levels<sup>15</sup>.

In Paul Krugman's words: "The purpose of the economy is not to maximize GDP; it is to make our lives better<sup>16</sup>". The global pandemic, as all major crises, has evinced crucial lessons for society (e.g., greater reliance on telemedicine, avoiding air travel, etc.) that reduce GDP but improve economic efficiency and reduce environmental pressures. Furthermore, given that the fruits of innovation and growth have not been equitably shared, and that the warning signs of a planet at risk are multiplying, the New Public Management ideas that have long shaped policy around the world are in retreat<sup>17</sup>.

Thus, the spectacular disasters caused by climate change, and the grinding poverty of large portions of the population while wealthy individuals are capturing a disproportionate share of the benefits associated with economic growth are fracturing the neo-liberal policy consensus that had identified GDP growth as the major objective of national economic policy. Some economists are even warning that the acceleration of inequality trends in recent years may set back growth itself<sup>18</sup>.

Social transformation towards just and sustainable growth is now widely supported by citizens everywhere as increased inequality becomes the norm, and rising temperatures lead to a domino effect of accelerated and irreversible impacts on the natural environment. According to Lorenzo

<sup>15</sup> As a result, the developing world currently displays the highest growth in greenhouse gas emissions. While emissions declined by 6-7% in developed countries from 2000 to 2018, they rose by 43% from 2000 to 2013 in developing countries.

<sup>16</sup> P. Krugman (2021). *Working out: Alexander Hamilton and post-Covid America*. Paul Krugman's Newsletter, New York Times. July 3<sup>rd</sup> 2021.

<sup>17</sup> C. Ventriss (2000) *New Public Management: An examination of its influence on contemporary affairs and its impact on shaping the intellectual agenda of the field*. Administrative Theory & Praxis. Taylor and Francis. Vol 22, No 3. pp 500-518

<sup>18</sup> A. Berg & J. D. Ostry (2011) "Inequality and Unsustainable Growth: Two Sides of the Same Coin?" IMF Staff Discussion Note 11/08. Washington DC: International Monetary Fund.

Fioramonti, a South African economist, the Sustainable Development Goals universally endorsed in 2016 mark a turning point: they demand a wholesale restructuring of the global economy. The world after GDP will be utterly different following the radical transformations of democracy and international relations that he recommends<sup>19</sup>. Reducing ecological footprints and inequalities will require a fundamental redesign of financial markets, trade relations, and international institutions.

Time for doing so is short. Extreme and unprecedented weather anomalies suggest that early climate change models, while dire, were too optimistic<sup>20</sup>. They did not account for the severity of extreme weather events of a heating planet. Off-scale floods, droughts, fires, and heat waves are changing public opinion. A recent European Commission survey disclosed that 93% of EU citizens see climate change as a serious problem to be addressed by governments. The adverse physical health effects of climate change are now recognized as significant, while climate anxiety is precipitating new psychological conditions and worsening mental illnesses, especially among young people<sup>21</sup>.

More than 80% in each EU member state agree that greenhouse gas emissions should be reduced to make the EU economy climate-neutral by 2050<sup>22</sup>. Similarly, the United States has reached a tipping point in public attitudes, with reform advocates rapidly gaining strength and the fossil fuel industry starting to 'feel the heat'. In 2020, two thirds of Americans stated that their government should do more on climate with wide bipartisan backing for carbon capture tax credits and extensive tree-planting efforts<sup>23</sup>.

On the other side the world, policy has begun to shift as well. Unlike its predecessors, China's 14th Five-Year Plan (2021-2025) contains no concrete target for GDP growth. Its focus is innovation, systemic resilience, human security, environmental protection. The new plan contains 20 main indicators covering a wide range of areas. Among them, targets for food security and energy efficiency are included for the first time. Other indicators address life expectancy, years of schooling, old age pensions, forest cover, climate change, etc. in line with the CCP overarching mission to improve the quality of economic growth and its implications for people's livelihood and the protection of nature.

In this new operating environment, degrowth<sup>24</sup> and no-growth<sup>25</sup> doctrines have gained ground, but they are unlikely to capture broad based public support. They are soundly rejected by developing country citizens who unsurprisingly aspire to their share of the prosperity that rich country populations have already secured through technical change and exploitation of the periphery. More promising as a rallying cry for progressive change is *green growth*<sup>26</sup>. It is grounded on the proposition that the economy *can* be decoupled from unsustainable growth provided it is buttressed by policies that help increase efficiency in natural resource use, rapid shifts in energy production towards renewables, and a rising share of services in the national economy.

Such policy transformations would be facilitated by social research and evaluation initiatives that apply a holistic lens to the assessment of public interventions whether initiated by governments or private corporations. True Cost Accounting (TCA) is emblematic of human centred and

<sup>19</sup> L. Fioramonti (2017) *The World After GDP: Politics, Business and Society in the Post Growth Era*. March. John Wiley & Sons. Hoboken, NJ

<sup>20</sup> According to Dr. K. Anderson from the Tyndall Centre for Climate Change at the University of Manchester, they assume "low emission growth rates; early emission peaks; annual reduction rates limited to between 2 and 4%; untested geoengineering; and a high penetration of nuclear power alongside untested 'carbon capture and storage' technologies" <https://www.theguardian.com/environment/2011/feb/24/models-climate-policy-optimistic>.

<sup>21</sup> <https://www.thelancet.com/action/showPdf?pii=S2542-5196%2820%2930223-0>

<sup>22</sup> [https://ec.europa.eu/clima/citizens/support\\_en](https://ec.europa.eu/clima/citizens/support_en)

<sup>23</sup> <https://www.pewresearch.org/fact-tank/2020/04/16/u-s-concern-about-climate-change-is-rising-but-mainly-among-democrats/>

<sup>24</sup> F. Demaria, G. D'Alisa, & G. Kallis. (2015). *DEGROWTH: A Vocabulary for a New Era* (E-BOOK). Routledge.

<sup>25</sup> <https://www.sciencedaily.com/releases/2017/11/171110113941.htm>

<sup>26</sup> R. Fouquet, Ed., (2019) *Handbook on Green Growth*. Edward Elgar Publishing Ltd.

environmentally sensitive approaches to the appraisal of production systems and public policy solutions<sup>27</sup>. To guide the choice of performance indicators, the search for quality data, and the selection of valuation methods, TCA uses conceptual frameworks that are responsive to stakeholders' priorities and fit for purpose, drawing on frameworks developed by international accountants, civil society organizations, and inter-governmental entities<sup>28</sup>.

Along similar lines, on January 26, 2021, sixty corporate members of the World Economic Forum International Business Council committed to track their companies' contributions to the Sustainable Development Goals based on 'Stakeholder Capitalism Metrics' comprising 21 core and 34 expanded metrics drawn from existing voluntary standards, in line with the recommendations of a report prepared by a panel of experts assembled by the world's four largest accounting firms and the Bank of America with the explicit intent to reform corporate reporting on performance against environmental, social, and governance indicators<sup>29</sup>.

### The 'Beyond GDP' Strategy Debate

This said, large dashboards of indicators are too complex and unwieldy to achieve decisive traction in public opinion. Indeed, according to the Stiglitz Report, the GDP, as a communication instrument, achieved its remarkable success because of the 'powerful attraction of a single headline figure allowing simple comparisons of socio-economic performance over time or across countries<sup>30</sup>.

Inspired by this principle, environmental economist Rutger Hoekstra has put forward a

strategy for overcoming the GDP hegemony<sup>31</sup>. It is grounded in two propositions:

- the proliferation of indicators should be halted for the GDP behemoth to be successfully confronted.
- a coherent community for well-being and sustainability should be created by the year 2030 to construct a compelling alternative grounded in a coherent set of theories and methodologies.

These views are neither self-evident nor widely held. The evidence so far is that the 'Beyond GDP' community is unlikely to coalesce around a single national performance indicator. In diverse operating contexts, social and environmental sustainability measurements are bound to take a variety of forms. Nor is the GDP worldwide monolith likely to be vanquished by aping its features. Equally, waiting till 2030 to challenge the GDP monopoly is not defensible: evaluation, a well-established epistemic community, is adequately equipped to take on the GDP behemoth.

Evaluation is the "new kid on the block" of the knowledge occupation domain: the social sciences have been around for centuries whereas evaluation only emerged in the 1950's. But it has become a mature and distinctive discipline. Deliberately value driven, it is producing knowledge to inform public policy in diverse operating contexts. It is all at once an indigenous, trans-national, and multi-disciplinary movement. As such, it can be mobilized forthwith to initiate action against the conventional forces of the GDP establishment.

Specifically, the emerging transformational evaluation model is uniquely positioned to deploy a winning 'Beyond GDP'

<sup>27</sup> B. Gemmill-Herren, L. E. Baker, & P. A. Daniels, Eds. (2021). *True Cost Accounting for Food: Balancing the Scale*, Routledge.

<sup>28</sup> PwC's Total Impact Measurement and Management framework; KPMG's True Value framework; EY's Total Value framework; Natural Capital Coalition's Natural Capital Protocol; WBCSD's Social and Human Capital Protocol; the Roundtable for Product Social Metrics' Product Social Impact Assessment, the Impact Institute' Framework for Impact Assessments, the TEEBAAgriFood framework, etc.

<sup>29</sup> World Economic Forum (2020) *Measuring Stakeholder Capitalism: Towards Common Metrics and Consistent Reporting of Sustainable Value Creation*. White Paper. September. [http://www3.weforum.org/docs/WEF\\_IBC\\_Measuring\\_Stakeholder\\_Capitalism\\_Report\\_2020.pdf](http://www3.weforum.org/docs/WEF_IBC_Measuring_Stakeholder_Capitalism_Report_2020.pdf)

<sup>30</sup> op. cit. p., 63.

<sup>31</sup> R. Hoekstra (2019) *Replacing GDP by 2030: Towards a Common Language for Well-being and Sustainability Community*. Cambridge University Press, Cambridge, United Kingdom



strategy<sup>32</sup>. The approach outlined below would emulate the martial arts by using the GDP's own weight and strength as a weapon, a hallowed judo principle. Rather than vainly persisting in the fruitless search for an ideal dashboard of multiple indicators, users would be offered a choice among a range of indices that adjust the GDP metric in ways that reflect varied perspectives and policy preferences in a variety of contexts.

### A New 'Beyond GDP' Strategy

The new strategy would face reality: the GDP measure contains useful information, but it is insufficient, and it can be readily adjusted to account for its limitations. It is self-evident that the GDP fails to take into consideration such markers of global welfare as health and education outcomes, gender equity, economic and social justice, human security, let alone the depreciation of the planet's stock of natural resources associated with current production patterns.

Introducing valid corrections to the GDP rather than ditching altogether may yet undermine its status as the 'one-number-fits-all' barometer of national performance. This evaluative option is briefly listed in the Stiglitz report under the 'GDP adjusted metric' designation but it was set aside in favour of dashboards that received widespread support since now as then they appeal to policy advisers and management consultants enthralled with the deployment of key performance indicators (KPIs).

Evaluators know better: they reject indicator fetishism. They know that theory free indicators do more harm than good. They use indicators but only in the context of coherent evaluation models and approaches. Thus, the new "Beyond GDP" approach illustrated below relies on judicious adjustments of the GDP index to measure diverse facets of sustainable development and it recommends the use of

adjusted GDP figures within the context of competent, and multi-faceted meta-evaluation reports focused on comparative tracking and comprehensive, multidisciplinary assessment of national economic, social, and environmental performance.

### Discounting the GDP for Climate Change

Annex 1 displays the size and the carbon emissions of the world's twenty largest economies, a sample that includes eleven of the world's most populated countries, and accounts for 77 percent of the world's GDP. Together, they are responsible for 79 percent of the world's cumulative CO<sub>2</sub> emissions from 1750 to 2019. The future of the planet largely rests on the policies adopted by these twenty countries: they rank among the most powerful in the world.

Carbon dioxide emissions remain in the atmosphere for centuries and their accumulation is responsible for the existential climate change predicament now faced by humanity. The countries mostly responsible for this destructive legacy should be held to account. From this perspective, the United States, the United Kingdom, Germany, Canada, and Russia emerge as the worst performers, in per capita terms<sup>33</sup>. The GDP metric can be adjusted to account for this inconvenient truth.

To be sure, some governments have begun to set a price for carbon to inform their national fiscal policies. Specifically, their economists have estimated the social cost of carbon (SCC) within a \$50 to \$125 a ton range, depending on the discount rate, and the modelling assumptions they have adopted<sup>34</sup>. But these national estimates do not adequately account for externalities: the damage that individual countries cause to other countries.

Some countries, for example, Russia, emit a lot of greenhouse gases but suffer little (or in

<sup>32</sup> R. D. van den Berg, C. Magro, & M. H. Adrien, Eds. (2021). *Transformational Evaluation for the Global Crises of Our Times*. International Development Evaluation Association (IDEAS), Exeter, United Kingdom

<sup>33</sup> In absolute terms, the five worst polluters are the United States, China, Russia, Germany, and the United Kingdom.

<sup>34</sup> The Biden administration has set the official interim social cost figure at \$51 for every ton of carbon released into the atmosphere — well above the \$8 cost used under former President Donald Trump.

the short run may even benefit) from global warming while others—mostly poorer and in southern latitudes such as India—emit far less and yet are severely affected<sup>35</sup>. In general, wealthy countries while far from immune as recent extreme weather events have shown, are less affected from a heating planet than poor countries. To add insult to injury, having outsourced much of the polluting effects of their lifestyle to the periphery, rich countries are now threatening to impose tariffs on large CO<sub>2</sub> emitters in the developing world, such as China and India.

Climate justice is not well served by current official SCC estimates. A global SCC is needed instead since climate is a global public good. To be legitimate, the environmental discount proposed here monetises the cumulative impact of national carbon emissions on the global socioeconomic system, including changes in agricultural productivity, health impacts, damages due to sea level rises, etc. It reckons with the deleterious environmental effects of CO<sub>2</sub> emissions caused by centuries of GDP growth by deducting from the GDP the value of damages caused by cumulative CO<sub>2</sub> emissions.

Thus, the proposed GDP discount uses a global SCC estimate of \$350—an inflation adjusted estimate derived from a 2015 survey of eminent climatologists based on climate change models that simulate the aggregate impact of past emissions on human welfare throughout the world and for future generations<sup>36</sup>. The resulting discounted GDP estimates displayed in Annex 2 seek to address the global social cost of their historical emissions. They do so through deductions from the GDP measure that represent the annual ‘servicing’ costs that would settle each country’s ‘debt to nature’ in full by 2030, the Paris Agreement target year.

Servicing the environmental ‘debt’ incurred through cumulative carbon

emissions reduces the aggregate GDP of the twenty largest countries by 57%—from \$66.5 trillion to \$28.9 trillion. The United Kingdom, where the Industrial Revolution started, slips in rank from 6<sup>th</sup> place in the GDP league to 17<sup>th</sup> place in the discounted GDP hierarchy. By contrast, France (given its heavy reliance on nuclear power) moves up in rank from 7<sup>th</sup> place to 4<sup>th</sup> place.

On the other hand, given the service orientation of their economies, Switzerland and the Netherlands rank 1<sup>st</sup> and 3<sup>rd</sup> on the environmentally discounted GDP per capita list. As for Russia, climate change discounting pushes its GDP into the negative territory, down from 11<sup>th</sup> place to the very bottom of the league table. Saudi Arabia, also relegated to the negative territory, is ranked next to last.

Annex 2 also displays discounted growth rates for each of the countries in the 20-country sample. For each country, it deducts the global social cost of annual CO<sub>2</sub> emissions from the estimated 2019 GDP growth rate. Whereas the world’s GDP grew by 2.9% in 2019, the environmentally discounted global GDP shrank by 11.8%. The worst three performers on the discounted GDP growth scale are Russia, India, and Saudi Arabia. The best three performers are Switzerland, France, and the United Kingdom.

### **Adjusting GDP to Track Global Welfare**

A host of other adjustments to the GDP metric can be produced to rank the national performance of countries by tracking their contributions to each of the seventeen Sustainable Development Goals (SDGs). The United Nations global statistical framework lists 231 indicators<sup>37</sup>. Unfortunately, countries have been slow to collect the information required for defining these

<sup>35</sup> India pumps about 6% of global greenhouse gases and bears over 20% of the damages. <https://www.vox.com/2018/9/26/17897614/climate-change-social-cost-carbon>

<sup>36</sup> While national governments have generated carbon price estimates in the \$50-\$125 bracket, global SCC estimates reveal earlier, and higher impacts, and apply declining discount rates calibrated with ethical parameters, instead of a

constant discount rate informed by market rates. See: P. Howard & D. Sylvan (2015) *Expert Consensus on the Economics of Climate Change*. Institute for Policy Integrity, NY University School of Law. December. <https://www.edf.org/sites/default/files/expertconsensusreport.pdf>

<sup>37</sup><https://unstats.un.org/sdgs/indicators/indicator-list/>

indicators<sup>38</sup>. Even in the high-income economies of the Organization for Economic Cooperation and Development (OECD), the task has proved challenging.

Available data have so far only allowed assessment of whether OECD member countries have been moving forward toward target levels rather than away from them for 87 out of 169 SDG targets<sup>39</sup>. A huge statistical effort is required to fill the gaps based on criteria of relevance, ability to differentiate country performance and adequate statistical quality. Data coverage is weakest on some of the planet related goals.

Pending adequate statistical progress towards precise measures for all 169 SDG targets, the search for judicious monitoring indicators capable of informing country performance assessments around the world should not be held back.

As John Maynard Keynes is reputed to have said: “it is better to be roughly right, than precisely wrong<sup>40</sup>”, i.e., one should not succumb to the ever-present risk of paralysis by analysis.

Accordingly, the evaluative logic behind new ‘Beyond GDP’ indicators and a Global Welfare Product (GWP) is as follows: corrected GDP estimates would rank countries according to their commitment to the global welfare, as captured by each of the 4Ps that sum up the SDGs and aggregated into a GWP. By way of illustration, Table 1 below offers a glimpse of how a Global Welfare Product (GWP) metric might be designed and used to help undermine the GDP dominance. The resulting measures have been aggregated to estimate the Global Welfare Product (GWP) of individual countries included in the sample of the world’s largest economies (see Table 1):

1. people: end poverty and hunger in all their forms and dimensions
2. planet: protect the natural environment from degradation.

3. prosperity: ensure that all human beings can enjoy a prosperous and fulfilling life.
4. peace: foster just, inclusive, and peaceful societies.

Annex 3 illustrates how the GDP can be corrected to generate metrics focused on human well-being, sustainability, social justice, and human security:

1. The Global Happiness Product (GHP) uses a composite index based on opinion surveys and data sets that capture public perceptions associated with feelings of well-being, mental health, social connections, and workplace climates, etc.
2. The Global Environment Product (GEP) is a composite index that captures performance with respect to greenhouse emissions, renewable energies, energy use, and climate policy.
3. The Global Justice Product (GJP) is UNDP’s inequality adjustment index that discounts countries’ achievements in health, education, and income by measures of inequality.
4. The Global Peace Product combines 23 indicators selected by a panel of experts that measure the safety, security, and peacefulness of individual countries (e.g., crime rates, incidence of terrorist acts, size of prison population, number of violent demonstrations, disharmony in relations with other countries, political stability, proportion of refugees and internally displaced peoples, etc.)

<sup>38</sup> Only 44% of the indicators have sufficient data for global and regional monitoring; Pietro Gennari and Dorian Kalamvrezos Navarro (2020). *Are we serious about achieving the SDGs? A Statistician’s perspective*. SDG Knowledge Hub, International Institute for Sustainable Development. <https://sdg.iisd.org/commentary/guest-articles/are-we-serious-about-achieving-the-sdgs-a-statisticians-perspective/>

<sup>39</sup> OECD (2019), *Measuring Distance to the SDG Targets 2019: An Assessment of Where OECD Countries Stand*, OECD Publishing, Paris, <https://doi.org/10.1787/a8caf3fa-en>.

<sup>40</sup> The original quote, traced back to Carveth Read (183-1931), a British philosopher and logician, reads: “it is better to be vaguely right than exactly wrong”.

**Table 1**  
Towards a Global Welfare Product (GWP) Metric

The 5 Ps	Goals	Outcomes	Sources	Adjusted GDP
People	1, 2, 3, 4, 5	Human well being	UN Sustainable Development Solutions (Life evaluation index)	Global Happiness Product (GHP)
Planet	6, 12, 13, 14, 17	Environmental Sustainability	German Watch eV. (Climate Change Performance Index)	Global Environment Product (GEP)
Prosperity	8, 9, 10, 11	Social justice	UNDP (Inequality adjustment factor of the Human Development Index)	Global Justice Product (GJP)
Peace	16	Human security	Vision of Humanity (Global Peace Index)	Global Peace Product (GPP)

The results are revealing. Tolstoy's Anna Karenina principle seems to apply to countries, as well as families: the four happiest countries on the list (Switzerland, the United States, Australia, and the Netherlands) are very much alike. They are liberal democracies, and the richest on the list<sup>41</sup>. By contrast, each of the four unhappiest countries (India, Indonesia, Turkey, and China) is unhappy in its own way, ranging from lower to upper middle-income country status and endowed with widely different cultural heritages and political systems.

Size does not seem to matter much. The five smallest economies on the list include the two highest ranked countries on the GWP scale (Switzerland and the Netherlands) as well two of among the lowest ranked countries (Indonesia and Turkey), while the five largest economies include the second happiest and second most equal country on the list (the United States) as well as two of the unhappiest and unequal countries (China and India). Nor

is national wealth closely associated with responsible environmental behaviour: the second and third richest countries on the list (the United States and Australia) rank 11<sup>th</sup> and 7<sup>th</sup> respectively on the GEP scale.

As far as human well-being is concerned, GDP per capita measures, and GHP per capita rankings are congruent: this is in line with social research evidence that has disclosed a close correlation between per capita incomes and happiness, up to a point since diminishing returns set in beyond a per capita income threshold of about \$75,000<sup>42</sup>. It also emerges that the most peaceful countries are also among the most equal: four of the five highest ranking countries on the GPP scale are also among the five best ranking countries on the GJP scale.

Thus, neither GDP nor GWP (nor its constituent indices) on their own provide unique policy insights. But taken together they are serviceable as monitoring indicators for diverse dimensions of national

<sup>41</sup> They also share a shameful heritage of slavery, colonial rule, and expropriation of indigenous resources.

<sup>42</sup> D. Kahneman & A. Deaton (2010) *High Income improves evaluation of life but not emotional well-*

*being*. Proceedings of the National Academy of Sciences. September. <https://doi.org/10.1073/pnas.1011492107>

performance, thus breaking the monopoly of GDP growth as a metric of human progress. By making the values of national policy goals explicit, and by helping to bridge monitoring and evaluation, they function as 'developmental evaluation' instruments<sup>43</sup>, and contribute to the quality and utility of national policy performance evaluations.

### **The Evaluation Imperative**

Monitoring helps but it is not evaluation. Tracking progress is not enough. In poorly regulated environments the politics of good intentions thrive, public relations posturing is widespread, and monitoring systems are frequently paraded as a substitute rather than a complement to the 'no holds barred' verifications required to make authority responsible. Governments and corporations are prone to deploy sophisticated indicators to convince the public that their policies are socially responsible and environment friendly while stoutly resisting objective assessments of their performance, carried out at arm's length.

Hence, voluntary corporate disclosure and reporting systems cannot be expected to withstand the influence of vested interests. The value of monitoring is frequently undermined by ambiguous, hard to pin down goals, inadequate specification of policy actions, and lack of attention to the distinctive responsibilities of individual public and private actors. Under voluntary compliance regimes, frequent adjustments in targets ('kicking the can down the road') is an effective public relations strategy that helps evade responsibility for results.

Nor does monitoring through indices or multiple indicators help identify the root causes of underperformance, let alone promote social and organizational learning. It

follows that improved monitoring needs to be complemented by rigorous evaluation to promote accountability for results, and especially so in dysfunctional operating environments. Specifically, principled evaluation should be deployed to help the civil society pressure governments and corporations to address the collective action dilemmas that plague a world closely integrated economically and highly fragmented politically.

We have only one planet. This should radically constrain policy tolerance to existential climate change risks where mistakes are not reversible. Yet, this is a policy domain that has proved especially vulnerable to greenwashing, opportunism, and mismanagement<sup>44</sup>. All collective action is subject to free riding. A relentless 'tragedy of the commons' has unfolded. Given the weakness of multilateral institutions, and the consequent global governance gap, national politicians have been prone to shirk responsibility for the global welfare, to ignore future generations, and to accommodate corporate interests<sup>45</sup>.

In particular, the energy companies' public relations strategy has focused on individual lifestyles and consumer habits, a narrative shrewdly calibrated to shift blame and attention away from their profit seeking behaviour. Without more active citizen participation and pressure, the false messages that have slowed down adoption of renewable energy solutions are likely to retain their hold on public policy and the special institutional arrangements that are essential for effective management of common resources, including the climate, may not see the light of day.

Evaluation is of course only part of the solution, but it would be a critical complement to civil society advocacy. Nobel laureate economist Elinor Ostrom's painstaking case studies have demonstrated that, beyond

<sup>43</sup> M. Q. Patton (2011). *Developmental Evaluation: Applying complexity concepts to enhance innovation and use*. New York, NY: Guilford Press.

<sup>44</sup> The climate change crisis is akin to the overgrazing of public pastures, the overfishing that results from unregulated fisheries on the high seas, and runaway polluting production and consumption practices: climate is a common pool good. It is non-excludable (i.e., access to it cannot easily be controlled) and it is rivalrous, i.e., its

consumption by any individual agent is at the expense of other group members. This makes it especially prone to opportunism, free riding, and unsustainable production practices.

<sup>45</sup> The global reliance on fossil fuels has been sustained by well-funded misinformation campaigns and targeted political donations. See: M. E. Mann (2021), *The New Climate War: The Fight to Take Back the Planet*. Public Affairs. Hachette Books. New York, NY.

monitoring arrangements and conflict resolution mechanisms, effective management of common pool resources requires sanctions for participants who violate rules, i.e., good will is not enough, and accountability is critical<sup>46</sup>. The very same principle holds at the international level<sup>47</sup>. This is where, over and above its considerable learning benefits, the accountability and learning dimensions of evaluation practice come into their own.

Specifically, evaluator-directed evaluations can be targeted and deployed to help buttress compliance with international conventions and agreements. The Paris Agreement while it is legally binding lacks compliance mechanisms. It allows individual nations to set their own emissions goals, and it imposes no financial penalties on non-compliant signatory nations. To be sure, it is of crucial importance since it opens the door to targeted lawsuits, and encourages monitoring, verification, and public reporting. The United Nations Framework Convention on Climate Change (UNFCCC) has therefore instructed its Climate Technology Centre and Network (CTCN) to track progress every five years<sup>48</sup>.

Transparency provisions are useful but on their own they exhibit all the weaknesses of toothless monitoring as confirmed by experience with other international agreements<sup>49</sup>. When all is said and done, the responsibility for fixing climate change mostly rests on governments and corporations. Hence, public policies, regulatory frameworks, and corporate social responsibility claims should be systematically evaluated and kept under regular and independent scrutiny on

behalf of citizens of present and future generations.

The implications for evaluation are far reaching. A path breaking book penned by Michael Q. Patton shows the way<sup>50</sup>. It outlines overarching premises and principles that should guide evaluations of programs and policies that address ‘problems without passport’. Towards this end, the book highlights the ethical imperative of connecting humans with the natural world in sustainable ways.

Beyond project thinking, Blue Marble evaluation would tackle multiple interventions on many fronts by diverse actors and it would put forward the planet as the privileged unit of account. This would help overcome the micro-macro paradox that has constrained progress in the environmental protection sphere: in adverse policy environments, even highly successful projects have not proved transformational<sup>51</sup>. Equally, evaluators can be called upon to assess the upscaling potential of individual interventions and the force field within which they operate.

This imperative is now widely recognized within the evaluation community. Transformation has become a common theme of evaluation publications and conferences. Well beyond the much-needed methodological innovations currently emerging, principled evaluators will have to adapt their practice to the challenges posed by the inequality and environmental crises. Responding to the needs and demands of evaluation commissioners has its place, but evaluation consultancy is not enough. It suffers from limitations where the power of vested interests inhibits much

<sup>46</sup> E. Ostrom (1990) *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press, Cambridge. UK

<sup>47</sup> A. Espinola-Arredondo & F. Munoz-Garcia (2011). *Free riding in international environmental agreements: A signalling approach to non-enforceable treaties*. *Journal of Theoretical Politics*. Volume 23. Issue 1. 111-134

<sup>48</sup> [https://unfccc.int/ttclear/misc\\_/StaticFiles/gnwoerk\\_static/tn\\_meetings/fecf05347525429cb21cc66dd9dbc16d/6522dd9d1a2d497a8453a64c0a456172.pdf](https://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/tn_meetings/fecf05347525429cb21cc66dd9dbc16d/6522dd9d1a2d497a8453a64c0a456172.pdf)

<sup>49</sup> The European Union where trust and cooperation are much higher than in the United Nations have faced tough challenges in securing coherent climate policy monitoring, See: J. J.

Schoenefeld, M. Hildén, & A. J. Jordan (2018) *The challenges of monitoring national climate policy: learning lessons from the EU*, *Climate Policy*, 18:1, 118-128, DOI: 10.1080/14693062.2016.1248887

<sup>50</sup> M. Q. Patton (2020) *Blue Marble evaluation, Premises and Principles*. New York, NY. The Guilford Press.

<sup>51</sup> R. D. van den Berg & L. Cando-Noordhuizen (2017), *Action on climate change: what does it mean and where does it lead to?* In J.I. Uitto (eds). *Evaluating Climate Change for Sustainable Development* (Chapter 2). Springer. [https://link.springer.com/chapter/10.1007/978-3-319-43702-6\\_1](https://link.springer.com/chapter/10.1007/978-3-319-43702-6_1)

needed reform. Evaluators should therefore recognize the moral imperative of putting evaluation to work towards making political authorities and private corporations accountable for the far-reaching consequences of their decisions for the global welfare and the future of our planet.

Unfortunately, existing evaluation governance arrangements leave a lot to be desired. User-driven evaluation dominates evaluation practice. To be sure, embedding evaluation within organizations and responsiveness to managerial needs has enormous advantages where organizational and policy environments are aligned with the public interest, and where only minor course corrections are sufficient to re-align decision makers' behaviour towards achievement of socially and environmental relevant goals. In such auspicious operating environments, the 'weak ties' associated with user-directed evaluation are highly effective.

But where policy makers stubbornly resist the self-evident reforms required to serve the global public interest, reduce global inequality, and fight climate change, user directed evaluations are not effective—unless the users are civil society organizations devoted to the public interest. Whatever label is used to describe evaluations that are carried out at arm's length from vested interests, evaluators should assume full responsibility for the design and implementation of evaluations focused on socially and environmentally sustainable global development and they should increasingly

seek alliances with similarly minded civil society organizations and think tanks.

This shift in evaluation practice would help to minimize the tyranny of the neo-liberal state and the excesses of profit-driven corporations<sup>52</sup>. What then is to be done? Beyond its confirmed status as a legitimate and distinct discipline<sup>53</sup>, evaluators should pull themselves up by their bootstraps to play a more influential and effective role in society, i.e., evaluation transformation calls for professionalization.

What does this imply? The sociological literature is unambiguous: it defines professionalism as an institutional arrangement that allows members of an occupational group to make a living while controlling their own work<sup>54</sup>. If evaluation is to make a difference, this is what the current global inequality and environmental predicament requires. But how to navigate the treacherous waters of evaluation professionalization is another story<sup>55</sup>.

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<sup>52</sup> T. Parsons (1968) *Professions*. International Encyclopaedia of the Social Sciences. Vol 12 New York: The Free Press and Macmillan, pp. 536-547.

<sup>53</sup> E.J. Davidson (2005). *Marketing Evaluation as a Profession and a Discipline*. Editorial. Journal of Multi-Disciplinary Evaluation. January.

<sup>54</sup> E. Freidson (2001) *Professionalism: The Third Logic*. Cambridge: Polity Press.

<sup>55</sup> R.Picciotto (2011) The logic of evaluation professionalism. *Evaluation*. 17 (2). Sage. 165-180.

## Annex 1: GDP, Population Size, and Global CO2 Emissions of the World's Twenty Largest Economies

Country	2019 GDP in \$b	2019 Population in million (Rank)	GDP per capita in \$000 (Rank)	Cum. CO2 Emissions in b. tons 2019 (Rank)	Annual CO2 Emissions in b. tons 2019 (Rank)
1. United States	21,428	329.0 (3)	65.3 (2)	410.2 (1)	5.28 (2)
2. China	14,343	1,420.0 (1)	10.3 (15)	220.0 (2)	10.17 (1)
3. Japan	5,082	126.9 (8)	40.2 (9)	64.6 (6)	1.11 (5)
4. Germany	3,846	83.5 (9)	46.3 (5)	92.0 (4)	0.70 (6)
5. India	2,875	1,366.4 (2)	2.1 (20)	51.9 (7)	2.60 (3)
6. UK	2,827	67.5 (11)	42.3 (7)	77.8 (5)	0.37 (15)
7. France	2,716	65.1 (12)	40.5 (8)	38.3 (8)	0.32 (17)
8. Italy	2,001	60.6 (13)	33.2(10)	24.4 (10)	0.34 (16)
9. Brazil	1,840	212.3 (5)	8.7 (18)	15.1 (14)	0.48(11)
10. Canada	1,736	37.4 (16)	46.2 (6)	33.1 (9)	0.58 (10)
11. Russia	1,700	143.9 (6)	11.6(14)	113.9 (3)	1.68 (4)
12. Korea	1,642	51.2 (14)	31.8(11)	17.1 (13)	0.61 (8)
13. Spain	1,394	46.7(15)	29.8(12)	14.6 (16)	0.25(18)
14. Australia	1,393	25.2 (18)	54.9 (3)	18.2 (12)	0.411(13)
15. Mexico	1,258	132.3 (7)	9.9 (16)	19.8 (11)	0.44 (12)
16. Indonesia	1,119	269.4(4)	4.1 (19)	13.5 (17)	0.62 (7)
17. Netherlnds	909	17.1 (19)	52.4 (4)	11.6 (18)	0.15(19)
18. S. Arabia	793	34.3 (17)	23.1(13)	14.9 (15)	0.582(9)
19. Turkey	754	83.4 (10)	9.0 (17)	10.5 (19)	0.405(14)
20. Switzerland	703	8.6 (20)	82.0 (1)	3.0 (20)	0.037 (20)
Total/Mean	66,532	3,350.8	/33	1,264.5	26.78
World	86,409	7,713.5	11,436	1,610.0	36.4



## Annex 2: Environmentally Discounted GDP and GDP Growth of the World's Twenty Largest Economies

Country	2019 GDP Disc. (\$b.)	2019 Disc. GDP \$b (Rank)	2019 Disc. GDP p/c \$000 (Rank)	2019 GDP growth % (Rank)	2019 Disc. GDP growth % (Rank)
1. USA	13,052	8,376 (1)	25.5 (4)	2.2 (5)	- 6.4
2. China	7,000	7,343 (2)	5.17 (14)	6.1 (1)	- 18.7
3. Japan	2,055	3,027 (3)	23.9 (5)	0.7 (16)	-12.4
4. Germany	2,972	919 (9)	11.0 (10)	0.6 (17)	-5.8
5. India	1,651	1,224 (7)	0.9 (18)	4.2 (3)	-27.5
6. UK	2,476	352 (17)	5.21 (13)	1.5 (11)	- 3.1
7. France	1,219	1,497 (4)	23.0 (6)	1.5 (10)	- 2.6
8. Italy	776	1,225 (6)	20.2 (8)	0.3 (18)	- 5.6
9. Brazil	481	1,359 (5)	6.4 (12)	1.1 (13)	- 8.0
10. Canada	1,053	683 (12)	18.3 (9)	1.7 (9)	- 10.0
11. Russia	3,624	-1,924 (20)	-13.4 (20)	1.3 (12)	- 33.3
12. Korea	544	1,098 (8)	21.4 (7)	2.0 (6)	-11.0
13. Spain	465	334 (18)	7.1 (11)	2.0 (7)	- 4.4
14. Australia	579	814 (10)	32.3 (2)	2.2 (4)	- 8.1
15. Mexico	630	628 (13)	4.7 (16)	-0.1 (20)	- 12.3
16. Indonesia	430	690 (11)	2.6 (17)	5.0 (2)	-16.8
17. Netherlands	369	540 (15)	31.6 (3)	1.7 (8)	- 4.2
18. S. Arabia	474	-319 (19)	-9.0 (19)	0.3 (19)	- 25.3
19. Turkey	334	420 (16)	5.0 (15)	0.9 (14)	- 17.9
20. Switzerland	96	608 (14)	70.6 (1)	0.9 (15)	- 0.9
Total		28,894			
World	5,1227			2.9	- 11.8

### Annex 3: Global Welfare Product of the World's Twenty Largest Economies<sup>56</sup>

Country	GDP p.c. (\$000)	GHP p.c. (\$000)	GEP p.c. (\$000)	GJP p.c. (\$000)	GPP p.c. (\$000)	GWP p.c. (\$000)
USA	65.3(2)	57.8(2)	12.2(11)	46.3(2)	29.0(7)	36.3(4)
China	10.3(15)	6.7(17)	5.0(15)	5.6(17)	4.9(14)	5.6(16)
Japan	40.2 (9)	30.4(9)	16.3 (8)	30.6(9)	31.4(6)	27.2(9)
Germany	46.3 (5)	41.4(8)	25.4(4)	36.2(5)	31.9(5)	33.7(5)
India	2.1 (20)	1.1(20)	1.3(20)	1.1(20)	0.9(20)	1.1(20)
UK	42.3 (7)	38.0(7)	27.6(3)	32.2(8)	24.9(8)	30.7(7)
France	40.5 (8)	35.4(8)	24.7(5)	33.5(7)	23.7(9)	29.3(8)
Italy	33.2(10)	26.5(10)	19.4(6)	23.6(10)	20.2(10)	22.4(10)
Brazil	8.7(18)	7.0 (16)	5.1(14)	3.8(18)	4.1(15)	5.0(17)
Canada	46.2 (6)	43.5 (5)	15.9 (9)	35.6 (6)	37.5(3)	33.1(6)
Russia	11.6 (14)	8.6 (14)	4.4(15)	8.1(14)	4.1(17)	6.3(14)
Korea	31.8 (11)	24.3 (12)	9.1(12)	23.4(11)	18.4(12)	18.8(12)
Spain	29.8 (12)	24.4 (11)	14.6(10)	21.8(12)	18.8(11)	19.9(11)
Australia	54.9 (3)	51.4 (3)	17.3(7)	42.6(4)	41.7(2)	38.3(3)
Mexico	9.9 (16)	8.1 (15)	5.4(13)	5.0(18)	3.9(16)	5.6(15)
Indonesia	4.1 (19)	2.8 (19)	2.0(18)	2.3(19)	2.5(19)	2.4(19)
Netherlands	52.4 (4)	51.2 (4)	28.8(2)	44.8(3)	37.2(4)	40.5(2)
S. Arabia	23.1 (13)	19.0 (13)	2.0(19)	15.0(13)	10.3(13)	11.6(13)
Turkey	9.0 (17)	6.3 (18)	3.6(16)	5.8(15)	3.2(18)	4.7(18)
Switzerland	82.0 (1)	78.7 (1)	53.4(1)	68.7(1)	63.4(1)	66.1(1)

<sup>56</sup> GHP: Global Happiness Product; GEP: Global Environment Product; GJP: Global Justice Product; GPP: Global Peace Product; GWP: Global Welfare Product.