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Bridging beyond GDP and degrowth: Identifying measurements that are fit for future

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ABSTRACT

This paper evaluates the incorporation of degrowth criteria into existing beyond GDP measurements and explores how this can guide coherent theorisation and framing from a degrowth perspective. While primarily descriptive in mapping the extent to which existing measurements reflect degrowth criteria, the paper also offers prescriptive insights for future indicator development. GDP, long a benchmark for economic progress, has been consistently criticized for neglecting ecological and social externalities. Due to the performative nature of the economics discipline, its theories and methods, such neglects can misguide policies and decision making around economic, environmental, and societal challenges. This article starts with a synthesis of the critiques on GDP, degrowth scholarship and disciplinary critiques on economic growth, identifies degrowth criteria and subsequently executes an extensive international literature review. We utilize the Search, Appraisal, Synthesis and Analysis framework to classify 58 beyond GDP measurements, stemming from 94 studies and map their contributions in a Venn diagram. We find that many measurements integrate some degrowth criteria (e.g. HDI, OECD's Better Life Initiative), or related components, however a comprehensive integration is lacking. Furthermore, the findings show substantial gaps in the measurement of strong sustainability and biophysical boundaries, social justice and democracy. Only two measurement frameworks—Just Transition Score, and variants of the Safe and Just Space measurement—systematically integrate degrowth criteria; however, they still exhibit theoretical and methodological gaps. We recommend the development of new clear and robust measurements based on broad agreement on coherent conceptual foundations; operational degrowth criteria, and methodological consistency.

1. Introduction

Gross Domestic Product (GDP) is the world's main macro-level economic measurement, praised but also criticized (Fleurbaey and Blanchet, 2013; Landefeld et al., 2008; Stiglitz et al., 2009; Van den Bergh, 2009). It is reflexive of a long-lasting dominant economic growth paradigm and narrative globally. Particularly degrowth scholars have rejected this paradigm for its role in exacerbating social and ecological crises (Kallis et al., 2018; Schmelzer et al., 2022; Schneider et al., 2010). Although, multiple alternative international beyond GDP macro-measurements (IBGDPs) exist (Hoekstra, 2019; Jansen et al., 2024), many do not incorporate biophysical boundaries or social justice criteria, or only partially (O'Neill, 2015; O'Neill et al., 2018). Given the performative nature of the economics discipline, meaning that economics describes the social world, but also influences and reproduces it by its theories and methods, there is increasing need for more comprehensive measurement of the economy in broader terms that allows for complex trade-off analysis and robust modelling (Costanza et al., 2014a, 2014b; Jackson, 2016; Parrique, 2019; Wiedmann et al., 2020).

Since its introduction in the 1930s (Kuznets, 1934), GDP has been the subject of extensive scholarly reflection. It was lauded as a comprehensive macro-level indicator of economic productivity, emerging at a time when few comparable measures existed. (Mankiw, 2009; Stiglitz et al., 2009). It was referred to as “the great invention” (Landefeld, 2000;

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Masood, 2016; Samuelson and Nordhaus, 1998, p. 390) due to its global institutionalization in the post-war period (Schmelzer, 2016; Vanoli, 2005). It has informed cross-country and temporal comparisons of economic performance and served as key input to economic policy (Coyle, 2015; Lepenies, 2016), including through the System of National Accounting (Hoekstra, 2019).

However, GDP also became the dominant proxy measure of societal progress (Van den Bergh, 2009; Fioramonti, 2013). Growth of GDP evolved into a unifying goal from which other benefits would ostensibly 'trickle down' to the impoverished, and enable expenditures in the social and environmental domains (Schmelzer, 2016; Macekura, 2020). However, GDP's shortcomings to effectively measure developments in these domains were voiced early on (Kuznets, 1934; Rijpma et al., 2024) and intensified after the 2008 Great Recession (Fleurbaey and Blanchet, 2013) when the pursuit of the everlasting growth paradigm in the context of minimum government regulation broke down, as clearly outlined in the Stiglitz-Sen-Fitoussi report (Stiglitz et al., 2009). From this report, together with syntheses from Van den Bergh (2009), Schmelzer (2023), and others, we summarise the following critical points of GDP measurement:

First, GDP disregards environmental externalities, pollution, resource depletion, and biodiversity loss (Costanza, 2014a, 2014b; Dasgupta, 2021; Otero et al., 2020). In fact, there is a strong coupling between GDP growth rates and environmental harms (Haberl et al., 2020; Hickel and Kallis, 2019; Parrique et al., 2019; Vogel and Hickel, 2023; Vázquez et al., 2023; Ward et al., 2016; Wiedmann et al., 2020). Second, it is a poor indicator of both social and economic welfare (Feldstein, 2017; Jackson, 2016; Kubiszewski et al., 2013) and neglects income distribution and its consequences (Wilkinson and Pickett, 2010; Piketty, 2014). Third, GDP is a weak indicator of subjective well-being. Beyond a certain threshold, GDP's positive correlation with certain indicators of happiness diminishes, or even reverses (Easterlin, 1974; Easterlin, 2010; Easterlin and O'Connor, 2022; Helliwell et al., 2024; Knight and Rosa, 2011; Kubiszewski et al., 2013). Small-scale, low-income societies often report high life satisfaction, further challenging GDP's relevance in that domain (Galbraith et al., 2024). Other determinants of well-being, e.g. health, social relations, or the quality of basic needs are not included (Max-Neef, 1995; Michaelson et al., 2009). Fourth, GDP overlooks the informal economy, including the value of unpaid care work, predominantly performed by women (Marçal, 2016; Waring, 1988). Similarly, volunteer work remains unaccounted for (Eibich et al., 2022; Salamon et al., 2011). Fifth, GDP growth can be achieved by externalizing ecological costs and labour exploitation to other countries, particularly those serving as suppliers of raw materials and manufactured goods (Giannetti et al., 2015). As such, GDP is viewed as reinforcing neomercantilist tendencies, encouraging nations to pursue similar growth trajectories (Macekura, 2020). Sixth, GDP's primacy is said to reflect the goals of global expanding commodification (Felice, 2016; Fioramonti, 2024) and a way to organise society on the assumption that only markets create value (Fioramonti, 2013).

Multiple alternative IBGDPs have been proposed to complement, recalculate and/or replace GDP (Bleys, 2012; Cobb and Rixford, 1998; Fleurbaey and Blanchet, 2013; Giannetti et al., 2015; Hoekstra, 2019; Stiglitz et al., 2009), and in turn, have been criticized (Masood, 2016; Kubiszewski et al., 2013; Malay, 2019; Requena-I-Mora and Brockington, 2021), due to their frequent reliance on comparable utilitarian and neoclassical frameworks (Beinhocker, 2020; Daly, 1977; Daly, 1996; Macekura, 2020). As a result, their capacity to drive economic transformation is seen to be limited (Giannetti et al., 2015; Malay, 2019; Wang and Chen, 2022).

In view of the global depletion of natural resources and natural sinks (Odum and Odum, 2001), population growth, growing inequality and societal polarisation, post- and degrowth scholars propose a paradigm shift towards a more regenerative and just economy. This shift raises a fundamental question about the future trajectory of the economy. Can it continue to operate within a growth-oriented framework, or should it explore alternative, non-growth-oriented pathways? If ecological decoupling and social coupling are achievable, a growth paradigm may remain viable. Conversely, if the opposite holds true, degrowth pathways may present a more appropriate alternative (O'Neill, 2015). Such a paradigm shift needs to be carried by integrated frameworks that allow the analysis of complex trade-offs across the economic, social and ecological domains (Pouw, 2020), and be evaluated by alternative economic performance measures. Together, these could catalyse a transition towards a new societal and economic model (Cassiers and Thiry, 2014). Currently, there is little research on the potential contribution of degrowth measurement to constitute such an alternative performance measure (O'Neill, 2015; Kreinin and Aigner, 2022). This research aims to fill in that gap.

This paper first maps and evaluates how existing IBGDPs incorporate degrowth criteria. On this basis, it then reflects on how these insights can inform future macroeconomic measurement frameworks that prioritize sustainability and wellbeing.

The remainder of this article is organised as follows. Section 2 defines the criteria associated with degrowth by synthesizing literature on degrowth and interdisciplinary critiques of economic growth. Section 3 outlines the methodology, which is based on a Systematic Literature Review (SLR). Section 4 presents the results, classifying and visualizing the identified measurements. Section 5 discusses the findings. Section 6 concludes and makes recommendations for further research.

Throughout this article the definition 'IBGDP' or 'measurement' is used, as beyond GDP alternatives can either be an indicator, an index, a composite index, a dashboard or a metric. The term 'measurement' refers to all these different contributions.

2. Identification of degrowth criteria by synthesizing degrowth academia and disciplinary critiques

This section synthesizes degrowth scholarship and interdisciplinary critiques of economic growth to derive four core criteria underpinning degrowth-oriented evaluation: (1) well-being for all, (2) biophysical boundaries, throughput and strong sustainability, (3) justice for all, and (4) democratic quality. These criteria are identified because they recur across ecological, justice-oriented, and political critiques and are foundational to degrowth scholarship.

2.1. *Degrowth scholarship*

Degrowth is both a movement and a maturing academic discourse encompassing multiple concepts and approaches (Buch-Hansen and Nesterova, 2021; D'Alisa et al., 2014; Demaria et al., 2013; Hickel, 2021a, 2021b; Kallis, 2011, 2018; Kallis et al., 2018; Martinez-Alier, 2009; Parrique, 2019; Schneider et al., 2010). Scholars emphasize an alternative economic vision to the mainstream (Demaria and Kothari, 2017; Demaria and Latouche, 2019; Kallis et al., 2012; Kothari et al., 2019), advocating for new institutional logics, reconfigured society–nature relations (Brand, 2022), and just consumption patterns. A vision of doing more with less is pursued through the reimagination and reconceptualization of the economy (Gorz, 1994; Latouche, 2009) beyond material accumulation and excess into new, more balanced ways of working, producing, trading, living, and relating to each other and nature (Schmelzer et al., 2022). There is much debate about the pathways and scenarios towards that vision, as well as the depth of the needed transformations (Alexander and Rutherford, 2020; Spash, 2024; Trainer, 2020). This multiplicity is both a strength, reflecting interdisciplinary engagement, and a weakness, as it has not yet produced a unified theoretical framework (Cosme et al., 2017). Schneider et al.'s (2010) definition, however, is widely used and offers some common ground: "a planned and equitable downscaling of production and consumption that increases human well-being and enhances ecological conditions at the local and global level, in the short and long term."

Many economists continue to question the feasibility of degrowth, most notably Krugman (2023), who argues that stringent environmental policies could entail trade-offs with living standards. This critique is relevant for measurement debates, as it reflects the persistent assumption that economic growth and societal welfare are inseparably linked. However, from a degrowth perspective, this trade-off is not inevitable but rather a product of how progress is measured, through indicators that prioritize production and consumption over ecological and distributive limits (Parrique, 2023). Consequently, the Krugman critique is relevant not as a rejection of degrowth in itself, but as a reminder of the performative role of indicators in shaping what societies consider economically and socially viable. By identifying criteria that explicitly integrate biophysical boundaries, justice, well-being, and democratic quality, we seek to move beyond such trade-off reasoning and towards measurements that reflect sustainability as a precondition for well-being. Other critiques claim that degrowth academia excessively focuses on subjective and non-system-wide perspectives (Savin and van den Bergh, 2024), much of which has been rebutted (Haddaway and Fitzpatrick, 2024; Parrique, 2024). It is not our aim to engage in those particular debates, but to identify criteria for assessing economic indicators from a broader degrowth perspective.

Building on Schmelzer et al. (2022), Parrique (2025) and others who have identified commonalities in degrowth scholarship, we identify four degrowth criteria that can serve as building blocks for a more coherent degrowth macro-measurement (Brand et al., 2021). We also draw on the breadth of critical literature of perpetual economic growth (Schmelzer, 2023). These latter critiques derive from different ontological and epistemic communities besides degrowth such as well-being economics, ecological economics, economic history, post-development, (eco-) Marxism, (eco-)feminism, philosophy and different communities of justice (Dirth et al., 2020). This section elaborates on each of these disciplinary critiques in summarised form.

2.2. Criterion one: Well-being for all

This criterion has a long history in the beyond GDP debate and extends beyond degrowth scholarship. It is a central topic in post-growth, doughnut and well-being economics, and related interdisciplinary fields (Fioramonti et al., 2022; Jackson, 2016; Kenter et al., 2025; Pouw, 2020; Raworth, 2017; Wellbeing Economic Alliance, 2022). These critiques stress the limited capacity of economic growth for improving societal and individual well-being.

Most degrowth scholars emphasize improving wellbeing “for all” (Demaria et al., 2013; Hickel, 2021b; Kallis, 2018; Nelson, 2025), or improving “the good life” (Research and Degrowth, 2010; 2025; Schmelzer et al., 2022). The improvement of well-being in conjunction with environmental objectives is seen as central to arguments for the implementation and prefiguration of degrowth ideas (Büchs and Koch, 2019), and often framed as “doing more with less” (Buch-Hansen and Nesterova, 2023; Gorz, 1994; Hickel, 2021a). Buch-Hansen (2025) argues that while well-being is a substantial component of degrowth, the well-being economy discourse and degrowth discourse remain partly in tension, as they adopt different positions on the role of economic growth.

Many critiques, from the degrowth scholarship and beyond, draw on the established concepts of Sen and Nussbaum's capabilities approach (Nussbaum and Sen, 1993; Nussbaum, 2000) or a variant of Max-Neef's needs and satisfiers model (Max-Neef, 1991). Although diverse well-being concepts exist, there is a growing consensus of the assessment of well-being: objective, subjective and relational (Fanning et al., 2022; Fanning and Raworth, 2025; Lutz et al., 2021; O'Neill et al., 2018; Pouw, 2020). These dimensions also align with central tenets of degrowth scholarship (Büchs and Koch, 2019; Buch-Hansen and Nesterova, 2023).

2.3. Criterion two: Biophysical boundaries, throughput and strong sustainability

The ecological economics critique to economic growth is among the most prominent in contemporary discourse and forms a foundational element of degrowth scholarship (Daly, 1996; Kallis et al., 2018; Latouche, 2009; Schmelzer, 2023). Alongside Boulding (1966), Georgescu-Roegen (1971, p. 279) was among the earliest scholars to theorize that perpetual economic growth is fundamentally limited by our physical world, specifically the second law of thermodynamics: “The economic process is entropic, it neither creates nor consumes matter or energy, but only transforms low into high entropy,” effectively converting resources into waste (Rammelt, 2024; Murphy, 2021; Murphy, 2022). All economic activity depends on matter and energy (Csereklyei and Stern, 2015; Hagens, 2020; King, 2021) and faces insurmountable biophysical boundaries (Daly, 1977; Martinez-Alier, 1990; Murphy, 2022; Murphy et al., 2021; Nelson, 2003; Odum and Odum, 2001; Schneider and Sagan, 2005).

As economic throughput approaches these limits, “uneconomic growth” occurs (Daly, 1996, p. 7). This insight was presented in the Club of Rome's report on *Limits to Growth* (Meadows et al., 1972), and corroborated by recent studies (Ansell and Cayzer, 2018; Herrington, 2021a, 2021b; Meadows et al., 2004; Turner, 2012). The planetary boundaries, doughnut economics and earth system boundaries frameworks represent a contemporary evolution of this paradigm (Gupta et al., 2024; Raworth, 2017; Richardson et al., 2023; Rockström et al., 2009; Victor, 2022). Daly's (1977, 1996) reduction of throughput towards an “optimal scale” is in degrowth conceptualisations often referred to as a downscaling of production and consumption within the biophysical boundaries (Parrique, 2025).

Central to the ecological economics critique is the idea of coupling of global economic growth with resource and energy use, and biodiversity loss (Brockway et al., 2021; Burke et al., 2015; Charlier and Fizaine, 2023; Haberl et al., 2020; Hickel and Kallis, 2019; Otero et al., 2020; Smil, 2017, 2019; Vázquez et al., 2023; Vogel and Hickel, 2023; Ward et al., 2016; Wiedmann et al., 2015; Wiedmann et al., 2020), with systemic lock-in effects entrenching this interdependence (Unruh, 2000; Maréchal, 2010; Rosa et al., 2017). The evidence for coupling underpins biophysical boundary critiques (Meadows et al., 1972; Latouche, 2009; Schneider et al., 2010). Yet, standard economic theory remains largely disconnected from these knowns (Ayres, 1998; Beinhocker, 2007; Capra and Luisi, 2014; Daly, 1977; Higgs, 2014), overlooking complex economic-environment interactions (Beinhocker, 2020), presuming that humans are independent of nature, or worse, ontologically flattening nature into a commodity suitable for production (Sullivan, 2017).

The ecological economics critique stood at the basis of strong sustainability theory (Ayres et al., 2001), a concept that views the economy as a subsystem of society, in itself a subsystem of our biosphere (Polanyi, 1944: Beckert, 2009; Daly and Cobb, 1989). The ecological economics critique is often seen as a broader critique of capitalism, as capitalism needs (everlasting) expansion to perform well (Saito, 2017, 2024; Spash, 2020a; Spash and Asara, 2017; Brand et al., 2021).

2.4. Criterion three: Justice for all

Justice for all is arguably the most emphasized criterion in degrowth literature (Cosme et al., 2017). Key degrowth publications emphasize justice in various forms (Ariès, 2005; Demaria and Latouche, 2019; Demaria et al., 2013; Hickel, 2021a, 2021b; Kallis, 2018; Latouche, 2009; Schneider et al., 2010; Research and Degrowth, 2010, 2025). The foundations for these critiques can be found in many epistemic communities involved in academic and policy contexts. Synthesizing economic growth justice critiques is complex. The following overview is comprehensive, but not meant to include all arguments in the field.

2.5. Intragenerational justice critique

The dominant economic narrative suggests that economic growth is essential for poverty alleviation (Daly, 1996; Roemer and Gugerty, 1997; Sachs, 2005; Solow, 1956) and for reducing financial inequality within and between countries. However, scholars like Piketty (2014) and Mahbub ul Haq (in Macekura, 2020) show that economic growth seems to lead to increasing financial inequality in recent decades. Beyond financial inequality, wealthier individuals and nations disproportionately consume global resources, driving unequal access to essentials like energy, food, and water (Hornborg, 1998; Dorninger et al., 2021) and catalysing labour exploitation on one hand (Hickel et al., 2024) and an “imperial mode of living” on the other (Brand and Wissen, 2017). These inequalities would not withstand Rawls' non-utilitarian theory of justice, where social primary goods are argued to be ideally distributed prima facie equally among the population (Rawls, 1971). Another intragenerational critique comes from Sen's capabilities to function and could be called distributive capabilities justice (Sen, 1999; Muraca, 2012). Capabilities and entitlements are seen to form the basis for the Decent Living Standards (Rao and Min, 2018), a justice framework for basic human well-being. Distributional equality from an ecological perspective is often called “ecological inclusiveness”, the maintenance of biodiversity by fair sharing of ecological resources (Gupta and Pouw, 2017).

2.6. Intergenerational justice critique

Achieving sustainable prosperity for future generations hinges on the preservation of resources and the environment relative to population growth (Boulding, 1966; Daly, 1996; Jackson, 2016). This intergenerational critique grounded in the above ecological economics critique emphasizes the need to downscale present-day matter and energy throughput. As essential resources and sinks are depleted, the opportunities available to future generations diminish (Georgescu-Roegen, 1971; Odum and Odum, 2001). The historical appropriation of material resources and responsibility for the overuse of global commons, such as oceans and the climate system by wealthy nations form a central part of this critique and proposed to be evaluated in terms of fairness and justice (Gignac and Matthews, 2015; Hickel, 2020a; Jenkins et al., 2016).

2.7. Environmental justice critique

Related to the above-mentioned unjust access to resources, the environmental justice critique tends to focus more on the impacts of people's everyday lives. A growing economy is coupled with increased metabolism that causes more conflicts on resource extraction, within and between nations, predominantly in poor ones (Bullard, 2000; Martinez-Alier, 2002; Martínez-Alier, 2012; Martinez-Alier, 2021). Moreover, the latter are far less responsible for the climate crisis, but bear the most consequences and require compensation according to some (Fanning and Hickel, 2023; IPCC, 2022). The environmental justice critique also rejects anthropocentrism and human exceptionalism, to emphasize the rights of non-human species through interspecies justice, and refusing the existence of nature solely for instrumental or mechanistic ends of human-centred ontology (Taylor, 1986; Srinivasan and Kasturirangan, 2016; Gupta et al., 2024; Head et al., 2015).

2.8. Post-development, post-capitalist justice critique

The theoretical foundation of the growth paradigm is frequently attributed to Rostow's (1959) “stages of economic development”, which posits that economic growth inevitably enhances living standards (Higgs, 2014) – a position grounded in the utilitarian philosophical traditions. However, post-development scholars argue that Rostow's stages and similar arguments served to impose control over the Global South, presenting it as “underdeveloped” and in need of external intervention (Escobar, 2006; Kothari et al., 2019; Scheidel et al., 2020), e.g., through the Washington Consensus (Williamson, 1990). Decolonial critiques contend that this Western-centric, imperialist development framework undermines local and ecological practices (Amin, 1988; Escobar, 1995), disproportionately harming women and the most marginalised (Shiva, 1988).

Moreover, Esteva (1992) emphasizes the cultural and epistemological dimensions of development, advocating for the recognition of cultural diversity, ecological balance and indigenous knowledge as alternatives to the dominant (sustainable) development paradigm (Talenti, 2024). The domination by the capitalist core perpetuates exploitation of the periphery, reducing people and nature in the Global South to resources and labour suppliers, thus reinforcing pre-existing inequalities and unequal power dynamics (Escobar, 1995; Sachs, 1992). Post-colonial critiques argue that coloniality persists in modern forms, e.g. slave labour and resource grabbing (Bales, 1999; Hickel, 2017).

Post-development thinking arises from Marxist and post-capitalist critiques of Western *productivism*, the belief that prosperity stems from continuous economic growth, i.e., capitalist accumulation, via productivity, technological advancement, and industrial expansion (Macekura, 2020). This “growthmanship” (Clark, 1961) drives virtually every sector of productivity governance and economic expansion (Cavalletti and Corsi, 2018; Fioramonti, 2013; Lepenies, 2016; Schmelzer, 2016) and the consequent impacts on the health of ecological systems and well-being of people in the Global South (Illich, 1973; Max-Neef, 1991; Schmelzer, 2023; Schumacher, 1973),

Marxists scholars state that directing the entirety of the economic surplus to the expansion of production leads to a capitalist regime of accumulation (Harvey, 2014; Saito, 2017) or “treadmill of production” (Schnaiberg, 1980). This regime or treadmill is dependent on consumerism and on upholding the productivism ideology (Higgs, 2014). The modern champions of this system presume that ecological and social crises can be resolved through accelerated growth, requiring perpetual increases in total factor productivity and resource-intensive technologies (see Latouche, 2009; Jackson, 2016).

2.9. (Eco-)Feminist justice critique

Eco-feminist scholars state that women, nature, and colonies are treated as integral resources appropriated by the global system of economic growth, often to be utilized as efficiently and inexpensively as possible (Boserup, 1970; Mies, 1986; Shiva, 1988). The (re)production of life, or subsistence production, performed by unwaged-, slave-, and colonized labour, mostly women, forms the essential foundation upon which “capitalist productive labour” is built and subsequently exploited (Mies, 1986, p. 48).

This system of appropriation is upheld by mechanistic worldviews of women as natural reproducers, and of resources as entities open to enclosure (Federici, 2009). Capitalist political economy designates reproductive labour as “non-labour,” stripping it of economic value despite its fundamental role in sustaining society and a healthy workforce (Barca, 2010). Consequently, the devaluation of reproductive work, ecology and labour, highlights the capitalist contradiction to undermine activities that are invisible and yet essential to capital accumulation, and therefore to eventually cannibalise itself (Fraser, 2022). Ecofeminist Salleh (2009) urges for liberation from productivism and consumerism, highlighting the exploitation of gendered and racialized labour systems, which are sustained by these cultural consumption norms.

This eco-feminist critique overlaps with the ecological economics critique: non-human reproduction ability is inherently anti-entropic (or negentropic), at least locally (Ball, 2023; Georgescu-Roegen, 1971; Schrödinger, 1944; Smil, 2017), and restores balance to our entropic biophysical economic system and, thus, economic productivity is inseparable from natural “reproductivity” (Capra and Luisi, 2014; Daly, 1968).

Research in the latter five justice fields has led to the development of Planetary or Earth System Justice frameworks, which consider multiple social and environmental justice dimensions on a global scale. This framework argues that justice concerns are intricately connected, and recognizes the spatial and temporal distribution of current injustices in the world economy (Biermann and Kalfagianni, 2020). For example, this integration is found in the “3 I's” framework used in Earth System Justice literature (Alcott, 2008; Gupta et al., 2024).

2.10. *Philosophical and anarchist justice critiques*

Philosophers and ethics scholars critique the unchecked accumulation of wealth that overlaps with many aforementioned critiques. Limitarianism supports the view that setting limits on wealth (Pizzigati, 2018) or resource consumption is essential to respect planetary boundaries and ensure intergenerational equity, i.a. freeing up resources for the Global South and to protect democracy (Robeyns, 2016, 2022, 2024). In line with this critique, Jonsson and Wennerlind (2023) favour material growth only up to a certain universal income threshold. The concept of sufficiency also relates to limitarianism: the ecological impact of the rich should be lower so that others can increase their impact to achieve global ecological and social justice (Alcott, 2008; Jungell-Michelsson and Heikkurinen, 2022; Plomteux, 2024). This is occasionally called ‘minimalism’. Note that all of the above concepts are related to notions of overconsumption and its consequences (Millward-Hopkins and Fisch-Romito, 2025).

Another philosophical justice critique is anarchistic and critiques the role accumulation plays in centralisation of hierarchy, state control and authoritarianism, leading to less freedom and autonomy (Bakunin, 1916; De Cleyre, 1895; Gorz Schnaiberg, 1980). Recent work in this field focuses on intersectionality of degrowth and anarchistic frameworks in the form of e.g. direct democracy, economic democracy, decentralizing production, and organising self-sufficient communities, sometimes referred to as *post-statist* (Barlow et al., 2022; Toro, 2021; Dunlap, 2021). The last development in justice critiques, and a combination of sufficient and anarchist/autonomy critiques, is the relation of self-limitation and autonomy, where freedom as autonomy begins with the self-imposition of limits to make space for others to simply be (Alcoff and Alcoff, 2015; Brand et al., 2021). This is autonomy as collective self-limitation (Gorz, 1980; Muraca, 2013).

2.11. *Criterion four: Democratic quality*

Degrowth was originally placed at the junction of ecological and cultural critiques to economic growth and development, but has evolved to encompass also concerns on e.g. democracy (Demaria et al., 2013; Fotopoulos, 2010; Fournier, 2008). Scholars call degrowth a democratic process of transformation, i.e. of redesigning institutions and infrastructures (Schmelzer et al., 2022), through new forms of democratic institutions (Kallis et al., 2018), or the exploration for real democracy (Asara et al., 2013; Deriu, 2012; Romano, 2012). Various forms of democracy are debated within the field (Weiss and Cattaneo, 2017), such as: liberal, direct, participatory, economic and Habermasian deliberative (D'Alisa and Kallis, 2020; Ferreras, 2023; Fotopoulos, 2010; Ott, 2012; Kreinin and Aigner, 2022). This principle also touches the anarchist traditions within degrowth, rejecting the role of the state through e.g. autonomisation, localization, grassroots institutional innovation or ecological democratization (Gorz, 1980; Eckersley, 2019).

These four criteria serve as the analytical lens for systematically classifying the global literature on IBGDPs in Section 4 and form the conceptual bridge between the critical literature and the empirical mapping.

3. Methodology

Our systematic literature review (SLR) follows the general research design and methodology of the PRISMA protocol (Moher et al., 2009) and SALSA, Search, Appraisal, Synthesis and Analysis, methodology (Grant and Booth, 2009) and draws methodological inspiration from Ryberg et al. (2020), Zhou and Wang (2016), Siksnelyte-Butkiene et al. (2021), Fritz and Koch (2014), and Custodio et al. (2023). It examines the extent to which the four degrowth criteria 2 are incorporated into IBGDPs. Table 1 shows the SALSA steps taken.

3.1. *Systematic search strategy*

The first step of the SALSA framework involves defining appropriate search strings based on terminology identified in the existing literature. As this study addresses an emerging field, Scopus was selected as the database following the approaches of Abson et al. (2014), Rathgens et al. (2020), and Engler et al. (2024). The following search terms were applied (see Table 2): “beyond GDP”, “degrowth”, and “measurement”, operationalized as “indicator”, “index”, or “dashboard.” Although this paper employs the term measurement, it is too general to be effectively used alone in Scopus searches.

Beyond-GDP measurement variants are sometimes ambiguously called ‘ecological macroeconomics’ (Hardt and O'Neill, 2017) and is utilized, despite often referring to specific modelling approaches. Doughnut economics is often employed as a post-growth concretisation, which, in turn, is increasingly used as an umbrella term for degrowth (Kallis et al., 2025; Fanning et al., 2022; Fanning and Raworth, 2025; Raworth, 2017; Schlesier et al., 2024) and defined as ‘Safe and Just Space’ (O'Neill et al., 2018), or ‘Safe Operating Space’ (Ryberg et al., 2020). The term ‘strong sustainability’ was added to align with degrowth criterion 2, while well-being, frequently employed in the literature (Fioramonti et al., 2022; Jansen et al., 2024), was included in accordance with criterion 1. Finally, the term ‘progress’ was used to capture broader measurement approaches found in the literature (e.g. Schepelmann et al., 2010), building on Daly and Cobb's Index of Sustainable Economic Welfare (1989).

4. Classification & results

The systematic search identified 463 papers (May 6th, 2024). After title screening based on inclusion and exclusion criteria (see Table 3), 316 studies were excluded due to their meso- or micro-level focus. In the second round, abstract screening led to the further exclusion of 53 studies, primarily because they applied (new) measurements at the multinational (but not multi-continental) or national level (e.g., Green Growth (Ates and Derinkuyu, 2021), or New Zealand's LSF Dashboard (Grimes, 2020)) or focused on indicator use for policy, leaving 94 papers for content analysis. Among these, some researchers developed new measurements, while others synthesized existing approaches. To systematically extract relevant indicators, two separate lists were created: ‘measurements mentioned in paper’ and ‘measurements proposed.’ Content analysis led to the exclusion of 32 publications due to methodological or historical focus or misalignment with inclusion criteria. The remaining 62 studies underwent in-depth analysis, after which additional exclusions were made due to limited geographical scope

Table 1
Steps of Salsa Methodology.

Steps	Main tasks and methods
Search	Search Scopus on predefined search strings.
Appraisal	Defining inclusion and exclusion criteria. Select studies, based on PRISMA Statement (Moher et al., 2009).
Synthesis	Construct classification based on degrowth criteria.
Analysis	Results, summarisation of results, discussion and conclusion.

Table 2
- Search Strings and Terms.

Database	Searching string and terms	No. of articles	Date of acquisition
Scopus	"Beyond GDP" AND "indicator" OR "Index" OR "Dashboard" "Degrowth" AND "Indicator" OR "Index" OR "Dashboard" "Post-growth" AND "Indicator" OR "Index" OR "Dashboard" "Safe and just space" AND "Indicator" OR "Index" OR "Dashboard" "Safe operating space" AND "Indicator" OR "Index" OR "Dashboard" "Strong sustainability" AND "indicator" OR "Index" OR "Dashboard" "Wellbeing indicator" OR "Well-being index" OR "well-being dashboard" OR "Progress indicator" OR "Progress index" OR "Progress dashboard" OR "Ecological macroeconomics"	463	6th of May 2024

(TITLE-ABS-KEY (beyond GDP* OR degrowth* OR postgrowth* OR {safe and just space} OR {safe operating space} OR {strong sustainability}) AND TITLE-ABS-KEY (indicator OR index OR dashboard) OR TITLE-ABS-KEY ({ecological macroeconomics}) OR TITLE-ABS-KEY ({well-being indicator} OR {well-being index} OR {well-being dashboard} OR {progress indicator} OR {progress index} OR {progress dashboard}.

Table 3
Inclusion and Exclusion Criteria.

Inclusion and exclusion criteria type	Description
Period	As criticism started in the 1930s all years will be included. However, indicators and data must have been published relative recently (no earlier than 2009), following Stiglitz et al. (2009). Exceptions are made for often-cited measurements.
Content	Multi-country, multi-continent (Global South and North), multi-dimensional measurements, following Malay (2019.) Excluding one-country, *meso* or micro focus (e.g. urban indicators), following Bleys (2012). Excluding focus on policy implementation. Often-cited (uni-dimensional) measurements are included (e.g. Ecological Footprint or World Happiness Index).
Type of Literature	Peer reviewed articles via Scopus, adding grey literature from e.g. government institutions via Google Scholar.
Language	English. This is limited, but multi-dimensional, multi-continental measurement most-often is published in English.

(often only Europe or OECD, e.g., the Happy Income Index (Prinz and Bünger, 2011)). This resulted in 52 extracted measurements. To ensure completeness, the WISE database (Liu et al., 2024) was consulted, adding six eligible measurements (e.g., Transition Performance Index (European Commission, 2021) and Fondazione Eni Enrico Mattei Sustainability Index (FEEM) (Carraro et al., 2013)), yielding a total of 58 extracted measurements (see Fig. 1).

4.1. Classification framework

Many beyond GDP measurements classifications exist (Bleys, 2012; Costanza et al., 2014b; Fleurbaey and Blanchet, 2013; Giannetti et al., 2015; Hoekstra, 2019; Liu et al., 2024; Rum et al., 2024; Schepelmann et al., 2010; Walker and Jackson, 2019). This new classification framework consists of the four degrowth criteria, subdivided in possible indicators based on Section 2 (see Appendix A1 for a detailed mapping of indicators to each criterion). Giannetti et al.'s (2015) two-dimensional assessment is applied to determine whether GDP underpins the IBGDP, reinforcing the growth-focused utilitarian paradigm (Herrmann-Pillath, 2015). Measurements rooted in the systems they aim to critique must be distinguished from those whose conceptual and methodological foundations enable them to present a genuine alternative (Cassiers and Thiry, 2014).

A methodological dimension, inspired by Fleurbaey and Blanchet (2013), is applied: subjective, accounting/monetary, composite/scalar (non-monetary), dashboard, and conceptual (addition by authors) to enhance the classification epistemologically and methodologically. Walker and Jackson (2019) also used this categorisation as it reflects the tension in the measurement debate. The last added dimension is 'continuous versus discrete', following Bleys (2012).

4.2. Results of classification

All 58 identified IBGDPs were in-depth analysed and classified. From the analysis in Table 4 and Appendix 1 we derive percentage shares of criterion matching in the Venn diagram (See Fig. 2). This classification shows that a majority (93%) of the 58 IBGDPs cover objective well-being measures. Subjective and relational well-being is used in fewer indicators (29% and 19%).The classification shows that 45% of IBGDPs include sustainability in its weak form, while only 26% include strong sustainability. The utilization of biophysical boundaries can be found in 31%, mostly due to the utilization of Ecological Footprint (excluding territorial calculations). The classification shows 76% of measurements that include intragenerational justice, mainly utilising the Gini coefficient. Intergenerational justice measurement is often not included, and if, only historical through historical CO2 emissions, or fair consumption space. Excluding interspecies justice, there is no utilization of environmental justice. Post-development, philosophical and anarchist justice, are hardly used or mentioned. Only 28% of measurements include democratic indicators, most of them liberal variants. Five measurements are classified broadly measuring multiple criteria and sub-criteria (A1, #22, #33–35, #37 – A1 stands for *Appendix 1*; #22 stands for the measurement's number in column 1). However, these five represent just two theoretical concepts as the four top-down Safe and Just Space measurements (A1, #33–35, #37) all stem from the same conceptual source (A1, #33, O'Neill, 2015), but improved (A1, #34), updated with new data (A1, #35), or employing composite aggregation (A1, #37).

5. Discussion

In this section we discuss how the findings can inform more coherence and robustness in degrowth macro-measurement. Our analysis is descriptive in identifying patterns across existing IBGDPs, but also carries prescriptive value by highlighting conceptual and methodological directions for future measurement design. Although this discussion evaluates IBGDPs through the lens of degrowth criteria, it is important to recognize that each classified measurement serves a distinct purpose and should be acknowledged accordingly.

This prescriptive reflection aligns with recent European work to consolidate beyond-GDP measurement under a Sustainable Human Development paradigm. In particular, Biggeri et al. (2025) in the *Sustainable Performances, Evidence and Scenarios* (SPES) report argue that advancing beyond-GDP metrics requires building four interconnected forms of consensus: theoretical, technical, policy, and public. This provides a complementary structure for translating degrowth-oriented criteria into coherent measurement systems.

While many IBGDP frameworks seek to broaden economic measurement by integrating social and environmental dimensions, they do not necessarily embody a new epistemology of the economy (Thiry and Bauler, 2016; Spash, 2020b). In the sub-sections below, we review their innovations in relation to the four identified criteria.

5.1. Well-being for all

Instead of challenging the productivism logic underlying the growth narrative, many IBGDPs maintain the assumption that increased

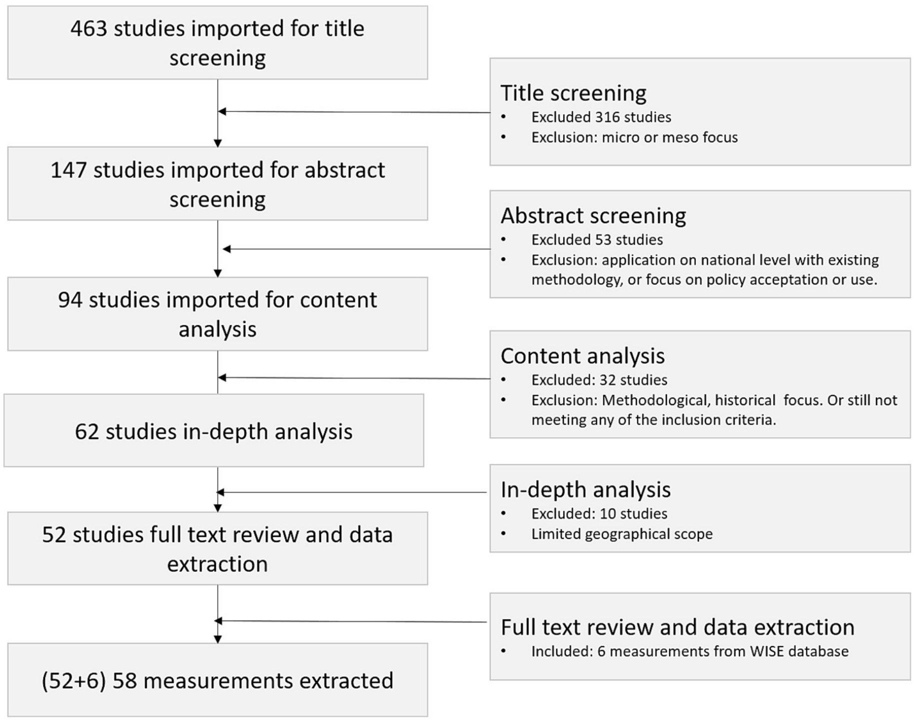

Fig. 1. - Screening, analysis and extraction process.

Table 4
Results of SLR and Classification.

Well-being for all	Biophysical boundaries	Justice for all	Democratic quality	Redefined
Objective: 93% (54/58) **Subjective:** 29% (17/58) **Relational** 19% (11/58)	**Utilization of biophysical boundaries of throughput** 31% (18/58) **Strong sustainability** 26% (15/58) **Weak sustainability** 45% (26/58) percentage **No inclusion of this criterion** 29% (17/58)	**Intragenerational justice** 76% (44/58) **Intergenerational justice** 31% (18/58) **Environmental justice** Interspecies: 28% (16/58) Other: 2% (1/58) **Post-development/post-capitalist** 2% (1/58) **(eco-)Feminist** 31% (18/58) **Philosophical** 3% (2/58)	**Liberal** 28% (16/58) percentage **Non-liberal** 2% (1/58)	47% (27/58)

consumption, i.e., GDP, correlates with greater prosperity and wellbeing (A1, #1–3, 5–7, 9–11, 13, 14, 23, 27, 29, 38, 40, 42, 44–46, 50, 51) (Assa, 2018; Cassiers and Thiry, 2014; Herrmann-Pillath, 2015; Requena-I-Mora and Brockington, 2021). However, the relationship between income and well-being is assumed to be curvilinear and potentially decreasing in high-consumption nations (Easterlin, 1974; Easterlin, 2010; Easterlin and O'Connor, 2020, 2022; Helliwell et al., 2024; Knight and Rosa, 2011; Kubiszewski et al., 2013). Other IBGDPs set relatively high GDP thresholds, after which the weighting of GDP decreases (A1, #1–3, 5–7, 38), thereby still promoting economic growth. Only one IBGDP employs a relatively low income threshold (PPP) (A1, #20).

Some IBGDPs (A1, #9–11) methodologically penalise low- or middle-income nations because of low-growth figures, despite having relatively high scores in objective well-being. This is what the World Bank refers to as the 'middle-income trap' (World Bank, 2024). Similarly, a low-income country experiencing falling life expectancy, e.g., due to a collapse in an already weak health-care system, could see its HDI improve with a small rate of economic growth (Ravallion, 2012).

It is impossible to talk about well-being as separate from healthy environments. IBGDPs overprioritize aforementioned utilitarian well-being and consequently disproportionately reward larger macro-economies (Ravallion, 2012; Cederlof, 2023), which are often the greatest polluters due to coupling (Togtokh, 2011; Hickel, 2020b). Well-being dimensions, life expectancy and education also exhibit a high correlation, or even coupling, with CO2 emissions or resources per capita (Bravo, 2014; UNDP, 2019; Hickel, 2020b; Kalimeris et al., 2020). Prioritization of well-being over sustainability (Cassiers and Thiry, 2014; Zhang and Zhu, 2022) will affect future well-being negatively through e.g. pollution, loss of intact landscapes and/or resource scarcity, a dynamic sometimes referred to 'troubling trade-offs' (Ravallion, 2012). This tendency also leads to inefficient resource use and over-consumption (Millward-Hopkins and Fisch-Romito, 2025), which some have characterized as "wasted GDP" (Tønnessen, 2023), referring to economic activity that fails to enhance genuine well-being, or as "unaimed opulence," a wasteful pursuit of growth (Dreze and Sen, 1989). This particular critique has roots in the consumer society literature (Baudrillard, 1970; Galbraith, 1958; Leach, 1993; Marcuse, 1964; Pecchi and Piga, 2010; Schumacher, 1973; Veblen, 1899) and has recently been extended in critiques of the creation of artificial desires

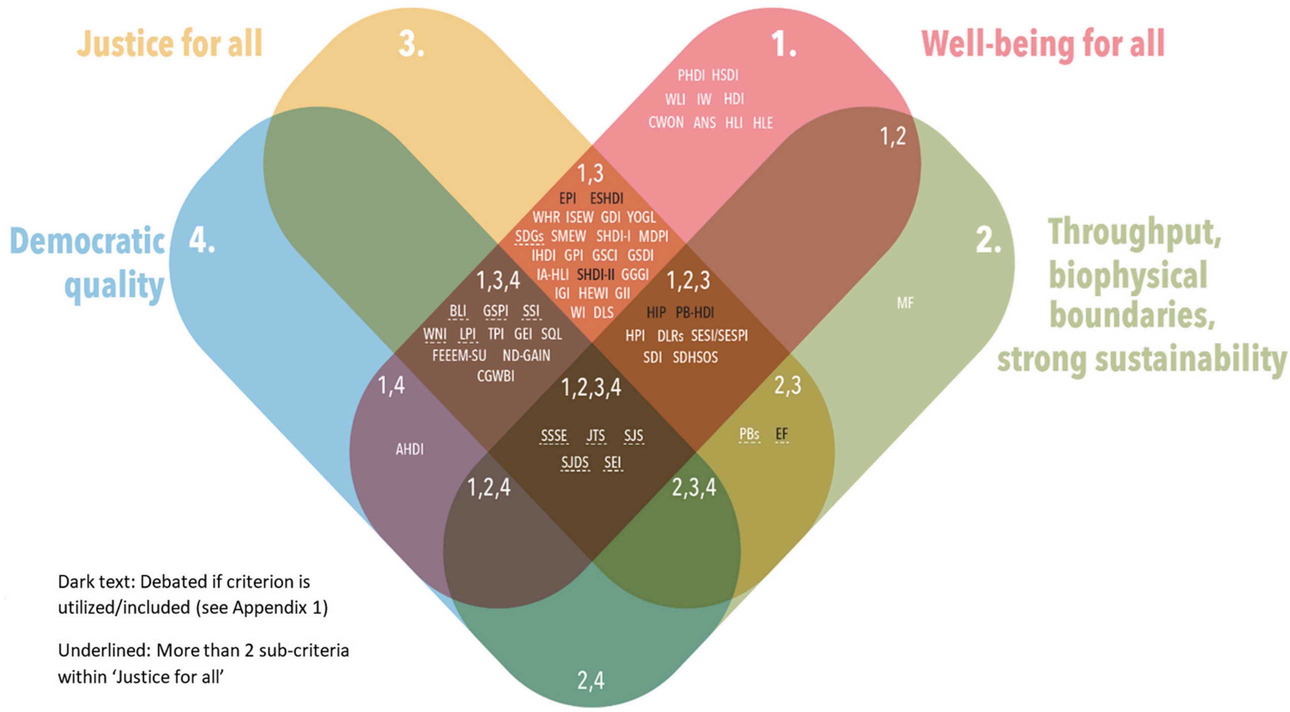

Fig. 2. - Venn diagram of classification based on degrowth criteria 1 to 4. Degrowth criteria 1 to 4 are mentioned in Appendix 1, column 4 to 7. This diagram is inspired by the WISE database (WISE Database – WISE Metrics (n.d.).

(Leach, 1993; McKendrick et al., 1982; Schor, 1992, 2010; Illich, 1973; Max-Neef, 1991).

No classified IBGDPs establish boundaries on objective or subjective well-being (excluding income). This absence hinders the ability to balance the prioritization of well-being against ecological integrity and, consequently, the preservation of future well-being (Brand et al., 2021).

Some measurements recognize these complex relationships. For example, the Sustainable Human Development Index (A1, #54) identifies countries overperforming in well-being relative to their GDP size (e.g., Cuba, Kyrgyzstan, Georgia). Other frameworks like the "Environmental efficiency of well-being", not classified, emphasize maximizing well-being relative to environmental demands (Knight and Rosa, 2011). Similarly, the Just Transition Score (A1, #22) is designed as a measure of sustainability of social progress.

5.2. Biophysical boundaries, throughput, strong sustainability

Many classified IBGDPs employ weak sustainability (45%), assuming substitution possibility of capitals (e.g. human and natural) (Pearce and Atkinson, 1993), or recognize economic growth as a compensatory factor. This pattern illustrates the persistence of what Krugman (2023) framed as the trade-off between environmental constraints and living standards. Measurements that treat economic growth as a compensatory factor reproduce this assumption, while degrowth-aligned frameworks challenge it by redefining welfare in terms of sufficiency rather than expansion. Ecological economists regard weak forms of sustainability as insufficient to uphold robust and healthy environmental and earth systems in the long-term (Daly, 1990; Georgescu-Roegen, 1971; Herrmann-Pillath, 2015). From this perspective, compensation for a loss of nature through increased commodification, and consequently capital accumulation, is seen as an oxymoron. For example, the Environmental Performance Index (EPI) (A1, #17), utilizes few strong determinants of environmental performance (Athanasoglou et al., 2014; Saisana and Saltelli, 2010) as it disregards absolute biophysical boundaries and favours larger economies, explicitly acknowledging the Environmental Kuznets Curve (Grossman and Krueger, 1995). This paradoxically suggests that increasing throughput benefits environmental outcomes (Requena-I-Mora and Brockington, 2021).

Some indicators are methodologically based on the aggregate monetary accounting method (A1, #9–14, 31, 32, 44). This method, grounded in weak sustainability and utility, prices nature and social capital, assuming that everything can be valued in monetary terms (Costanza et al., 2014a, 2014b; Fleurbaey and Blanchet, 2013; Giovannini and Rondinella, 2018; Roman and Thiry, 2016; Walker and Jackson, 2019). This necessitates universal commensurability (Spash, 2020b) and leads to a strong loss of information (Neumayer, 1999). As evidenced by the wealth accounting methods (A1, # 9–11). These IBGDPs reward produced and intangible/human capital in high income countries relatively high, and natural capital relatively low (up to a factor of 50), which is problematic as these two mentioned capitals are resource intensive.

Many other IBGDPs include income, contradicting the empirical evidence of ecological impacts and coupling. For example, the SDGs (A1, #16) include GDP per capita in SDG8 (and in many other SDGs), failing to see its contradiction with environmental goals (Adelman, 2018; Eisenmenger et al., 2020; Swain, 2018). This problem has long been recognised by critics of sustainable development as reviewed in Section 2.

Many IBGDPs utilize territorial or producer-based emissions or resource calculations, excluding international data from production chains and consumption (Tukker et al., 2020; Wiedmann et al., 2015) (A1, #3, 15, 21, 29, 33, 38, 46, 49). Failing to assign production impacts to final consumption favours rich countries (Requena-I-Mora and Brockington, 2021) and hides ecological unequal exchange and the injustices related to ecological-distributional conflicts (Martinez-Alier and O'Connor, 1996; Givens et al., 2019). Measurements that include international emissions, footprints, or throughput are easier to relate to environmental conflicts (Requena-I-Mora and Brockington, 2021) (A1, #18–20,22, 34–37, 56,57). Moreover, Genuine Savings (ANS) underpins territorial calculations in poor countries, where citizens depend on local natural resources like firewood, resulting in disproportionately high scores for resource usage (A1, #11).

Some IBGDPs acknowledge biophysical boundaries and employ strong sustainability frameworks (A1, #4, 18–20, 22, 28, 30, 33–37), however the utilization of boundaries differs. Well-known strong sustainability measurements acknowledge boundaries, but have been built from a uni-dimensional perspective (A1, 30, 55–57). Besides, there is debate about whether the Ecological Footprint (EF), which is a sub-indicator in many other IBGDPs, really measures strong sustainability (Fiala, 2008; Requena-I-Mora and Brockington, 2021; Wiedmann and Barrett, 2010) as large, wealthy, not-densely populated countries can offset their emissions (A1, #56).

Biodiversity indicators are present (A1, #16, 21, 34–37), but often only from a within-country perspective (A1, #16, 21), although the utilization of EF could be seen as a biodiversity proxy. This reflects a wider concern that biodiversity has remained largely under-discussed in economics (Kreinin and Aigner, 2022). Energy usage with respect to biophysical boundaries is hardly been taken into account (A1, #33, 49), reflecting a paradigmatic gap rooted in Georgescu-Roegen's entropic framework (Herrmann-Pillath, 2015). Dimensions that measure the amount of production and consumption are never included but can be important to move beyond production-driven paradigms.

The classification of IBGDPs and their different paradigmatic foundations shows a big divergence of sustainability assessments, resulting in Vietnam being the best macro-performer (A1,#34), and simultaneously the worst (A1, #17).

Furthermore, top-down measurement approaches, (e.g. A1, #33–35, 37) often rely on existing socio-political structures shaped by global trade inequities, economic disparities, and consumer culture redundancies (Brand et al., 2021). These structures limit their capacity to envision or enable transformative futures (Keyßer and Lenzen, 2021). A combination of top-down and bottom-up approaches could be better suited to address these latter critiques (A1, #28, 47).

5.3. Justice for all

Broad justice concerns and measurement, including elements mentioned in Section 2, are not employed in any IBGDP. The intra-generational within-country income Gini-coefficient is often utilized (A1, #12–13, 15, 23, 32–38, 44, 46). This measurement suffers from well-known drawbacks in portraying actual income inequality levels (Piketty, 2014; Blesch et al., 2022), e.g., as it represents a relative measurement which can appear to improve while absolute income inequality worsens (Goda, 2016; Niño-Zarazúa et al., 2017). Besides, a nation's low Gini-coefficient does not necessarily reflect international equitable economic practices (Chancel et al., 2022). Some IBGDPs utilize poverty indicators (A1, #15, 16, 29, 33–34, 36–38,42,48) however many employ a relative low poverty threshold of around 2$ (PPP) (A1, #16, 34, 36–38, 42).

Intergenerational justice is hardly incorporated in any IBGDP, and if, only historical (historical CO2), per capita planetary boundaries (A1, #33–37), or fair consumption space (A1, #18, 49). Many IBGDPs claim to be motivated by intergenerational principles, however don't meet the degrowth criteria as described in Section 2.

Philosophical justice critiques such as limitarianism are hardly employed. Maximum wealth thresholds are not utilized, however maximum income thresholds are, but often too high (A1, #1–3, 5–7), except for the Sustainable Development Index (A1, #20). Maximum resource thresholds are used (A1, #4, 19, 20, 33–37, 55–56). Some multidimensional frameworks use gender inequality such as the SDGs (A1, #16) or the Sustainable Society Index (A1, #23). Needless to emphasize that unidimensional well-known gender related measurements, include gender justice (A1, #51–53).

Indicators related to autonomy, an element of the specialised anarchist justice critique (see Section 2), are sometimes utilized (A1, #8, 42). Post-statist measurement is not employed.

As far as we can tell, not one measurement employs an unequal exchange indicator, which could be seen as an intra-generational injustice, and there is hardly any utilization of environmental justice (apart from interspecies), post-development, post-capitalist and neo(colonial) justice.

This aligns with previous research indicating a significant under-representation of metrics that simultaneously address inclusion and sustainability (Jansen et al., 2024). Such underrepresentation may result from limited theoretical and methodological innovation, inadequate prioritization, or insufficient data availability. However, it can also be interpreted as an epistemological critique, suggesting that broad social justice is not regarded as a foundational element within neoclassical economic frameworks (Bradford, 2012).

5.4. Democratic quality

Only a few measurements utilize democracy, or democracy-related indicators, e.g. civic engagement (A1, #15) (OECD, 2024), the World-wide Governance Indicators (A1, #23, 33–35, 37–42, 46, 49) (World bank, 2023), Democratic quality (A1, #34,-35, 37) (Helliwell et al., 2015), Global State of Democracy Indices (A1, #42) (Global State of Democracy Indices, n.d.) or The World Value Survey (A1, #41). All these measurements are subject to Section 2 critiques. Only two measurements (A1, 21–22) utilize non-liberal democracy indicators (Boese et al., 2022), such as deliberative or participatory. Sometimes the Global Peace index is included (A1, #19, 42), but is not representative of democracy measurement. Liberal democracy indices show a correlation with GDP and can be questioned about their transformative potential (Helliwell, 1994).

5.5. Overarching critiques

We conclude this section with overarching critiques concerning measurement methods and political biases of measurement. Two methodologies are most common: composite indicators (CIs) and dashboards. CIs can act as a story telling device (Walker and Jackson, 2019), but can be prone to substitutionally and information loss. While the SDI (A1, #20) is a robust indicator of strong sustainability, it is not as suitable as a measure of human development: Niger ranks above Norway, because of its aggregation methodology (Assa, 2021). Dashboards, are suited for decision-making, but often lack conceptual congruence and can be complicated for the general public, but also decision makers (A1, #15, 16, 55).

Many IBGDPs adopt a positivist epistemological approach, where datasets fail to accurately capture social realities due to e.g. ambiguous assumptions or flawed data collection processes (Jerven, 2013, 2016; Timcke, 2020). Additionally, country rankings prove to be problematic (Høyland et al., 2012), because of macro-level aggregation and arbitrary weighting (Becker et al., 2017). Furthermore, logarithmic visualizations show a strong correlation between economic and environmental performance, as seen in the EPI (Wendling et al., 2022). Yet, on a non-logarithmic scale, this relationship appears curvilinear, revealing that several lower- to middle-income countries display disproportionately low ecological impact-to-income ratios. Positivist epistemology presumes that conceptual elements can be neutral, and quantification imparts an appearance of objectivity and procedural neutrality (Timcke, 2020). For instance, GDP is seen by politicians and the public as an objective statistic (Assa, 2018). However, instead of acting as neutral regulators, political regimes shape institutional and legal frameworks (Brand et al., 2021), e.g. data-driven assessments often operate as tools of global authority, promoting reputational competition (Kelley and Simmons, 2020; Cassiers and Thiry, 2014). Ascribing or denying value is inherently tied to socio-economic arguments rooted in political perspectives (Christophers, 2011; Mazzucato, 2018). Key economic actors, including multilateral institutions, often design indicators that perpetuate existing power structures and lack transformative potential (Malay, 2019). Even sustainability measures are subject to political biases, as seen in ecological indicators like the EPI (Requena-I-Mora and

Brockington, 2021; Roman and Thiry, 2017). Jerven (2016) advocates for a "political ethnography of indicators" to reveal how data influences decisions, exposing underlying power dynamics. This overarching criticism aligns with broader critiques from heterodox economists as well as other scholars, who question the justification and validity of explicit and implicit assumptions in neoclassical economics (Lawson, 1997, 2019; Nelson, 2001; Schlefer, 2012).

6. Conclusion and recommendations

This paper has provided both a descriptive and a prescriptive contribution to the debate on measuring progress beyond GDP. Descriptively, it has mapped how existing international beyond-GDP (IBGDP) measurements reflect four degrowth criteria: well-being for all, biophysical boundaries, throughput and strong sustainability, justice for all, and democratic quality. By applying these criteria to 58 measurements, we revealed substantial fragmentation. While some frameworks such as the HDI, the OECD Better Life Initiative, and the Safe and Just Space variants incorporate elements of these principles, a systematic and coherent integration is still lacking. The analysis thus demonstrates that most existing frameworks remain anchored in growth-oriented paradigms, often reinforcing the perspective of trade-offs between social and ecological goals that degrowth scholarship seeks to overcome.

Prescriptively, the findings point towards the need for a new generation of macroeconomic measurements that operationalize sustainability, justice, and democracy as core conditions for human well-being. Developing such indicators requires theoretical consensus on degrowth principles, technical consistency in translating them into measurable components, and policy relevance to ensure institutional uptake. Inspired by ongoing European initiatives such as SPES and the wider Sustainable Human Development paradigm, future research should aim to bridge conceptual coherence with methodological rigour, enabling policy actors to monitor transition performance in line with planetary and social boundaries. In addition, future work should further clarify how composite indices and dashboard-style scoreboards can complement each other within such frameworks, allowing policymakers to monitor transition performance in a more integrated and communicable way (see also Biggeri et al., 2025).

Finally, while the paper aims to speak to post-growth and degrowth scholars, its findings are also relevant to other scholars, statisticians, and policy practitioners. Building robust, transparent, and democratically validated frameworks will require interdisciplinary collaboration across these communities. By integrating ecological limits, distributive justice, and participatory governance into measurement, we can contribute to guiding post-growth and degrowth transformations.

To advance the field, this study suggests that the development of degrowth-aligned macroeconomic measurements should be guided by a shared conceptual framework that satisfies several key conditions. First, the economy should be reconceptualized as an interdependent system encompassing human, monetary, biophysical, energy, and biodiversity dimensions within planetary boundaries, while recognizing the different historical responsibilities for overshooting those boundaries. Second, such frameworks should be underpinned by a normative and pluralistic vision of "progress" that places planetary stability, human well-being, justice, and autonomy above economic accumulation, while remaining sensitive to the enduring impacts of colonial legacies on the development of such a vision. Third, degrowth criteria should be translated into measurable, theoretically consistent, and empirically traceable sub-indicators. Fourth, conceptual and methodological coherence across criteria must be ensured to enhance comparability and analytical robustness. Fifth, methodological approaches should embrace systemic complexity and avoid over-reductionist quantification. Finally, hybrid approaches that connect top-down data with bottom-up, context-specific knowledge and participatory deliberation are needed to capture the plural realities of economic and social life.

To this end, we encourage collaboration across disciplinary and epistemic communities to co-develop and test novel international beyond-GDP frameworks that integrate these conditions. Future research could further examine how such measurements might be institutionalized within national and international policy architectures to support just and sustainable economic transitions.

Glossary

GDP	Gross Domestic Product
Beyond GDP	Initiatives that seek to develop more comprehensive metrics that reflect prosperity and wellbeing and environmental sustainability.
IBGDPs	International macro-economic Beyond GDP measurements
SPES	Sustainability, Performances, Evidence and Scenarios

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Felix van Hoften: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization. **Nicky Pouw:** Writing – review & editing, Supervision. **Crelis Rammelt:** Writing – review & editing, Supervision.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the authors used ChatGPT in order to check for spelling and restructure sentences for better readability. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

Declaration of competing interest

None.

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Appendix 1. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ecolecon.2026.108945.

Data availability

All the data is supplied under Appendix 1.

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