## Cross-Chapter Box 7. Degrowth, Green Growth, and other Beyond Growth concepts: the desirability and feasibility of (limiting) growth

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SDGs 1, 3, 5, 7, 8, 9, 11, 16

Context

Critiques on relentless economic growth have a long history. Active academic debates on steady-state economics (Daly, 1973), and attempts to model and illustrate the limits to growth (Meadows et al., 1972) are already more than half a century old. The debate is fierce and continuing, discussing the feasibility and desirability of different elements of growth (Meadows et al., 1992; Nordhaus et al., 1992). Here, the core question is what kind of economic structures are conducive to improving wellbeing while achieving ecological stability and sustainability (Hickel and Hallegatte, 2022). A strong consensus exists on the need to leave behind GDP as an indicator of social progress (Stiglitz et al., 2009; Costanza et al., 2014), but there are different frameworks to analyse what this means for policymaking and the organisation of economies around the world. It includes recognising that while more energy use is required to provide decent living standards for all that are currently deprived (Kikstra et al., 2021), there is a large potential for simultaneous reduction of energy demand which can bring multiple interacting benefits (Grubler et al., 2018; Creutzig et al., 2022). Moreover, moving beyond growth requires replacing the existing economic growth paradigm with alternative social imaginaries and narratives (Fournier, 2008; Latouche, 2009). Skepticism towards green-growth strategies are widespread among climate-policy researchers [(King et al., 2023)](https://www.zotero.org/google-docs/?gkgvHP), and resource and emissions decoupling in the past decade have been highly insufficient to be on track to meet climate targets, both global targets and targets for Austria (Haberl et al., 2020; Vogel and Hickel, 2023), across many biophysical pressures (CCBox 7 Figure 1A-D).

Beyond growth frameworks

Beyond growth frameworks see most current economic systems as unsustainable, and as unable to sufficiently increase human wellbeing within a socially just transition process when they do not address perverse growth incentives. Approaches to structural economic changes, tools, and preferred policy interventions differ between frameworks. Definitions as used here are in CCBox 7 Table 1. This box focuses on degrowth, a prominent growth-critical narrative (Kallis et al., 2018). Degrowth and green growth are contrasted as alternative climate mitigation strategies (CCBox 7 Figure 1E) in order to identify common and differing insights on what type of growth is feasible and desirable. A key distinguishing feature is the role of “avoid” and sufficiency strategies for climate mitigation, which are valorised much more heavily in degrowth.

CCBox 7 Table 1. Overview of relevant terms. [NOTE: Later, this table may be moved to the AAR2 glossary.]

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| Framework | Definition |
| Agrowth | An argument that sees GDP as an unreliable indicator for progress and argues that we should not focus on it. |
| Beyond growth | An umbrella term for terms and approaches that are critical of continued economic growth. |
| Decent Living Standards | “A set of *material* requirements that are essential for human flourishing.” (Rao and Min, 2018) |
| Degrowth | A research field and socio-political movement focusing on a targeted, redistributive and democratically planned downscaling of production and consumption, primarily in industrialised countries, as a way to achieve sustainability and wellbeing, while minimising key risks. |
| Doughnut economics | “A multi-criteria boundary tool to support economic planning by identifying environmental limits and social thresholds and is agnostic towards GDP growth”” (Raworth, 2017), as it does not see GDP as a good indicator for environmental or social progress. |
| Foundational economy | An approach to restructuring the economy to prioritise the provisioning of everyday universal basic needs like food, housing, health services and transport within planetary limits. |
| Green growth | A set of policies that aim to bring together and simultaneously stimulate sustainable development and economic growth. |
| Post-growth | A broad set of approaches that challenge the necessity, feasibility, and desirability of continuous economic growth, especially in advanced economies. |
| Steady-state economics | A concept focused on maintaining a sustainable non-growing economy, including a constant level of resource use, population, and capital stock, with a focus on social welfare not economic growth. |
| Sufficiency | “A set of measures and daily practices that avoid demand for energy, materials, land and water while delivering human well-being for all within planetary boundaries.” |
| Wellbeing economy | A set of measures that delivers on five core needs for ecological and human wellbeing: dignity, connection, nature, fairness, and participation [designed for people and the planet, not pursuing economic growth at all costs.] |

The desirability and feasibility of (de)growth in the context of climate change and broader sustainable development

*[NOTE: This assessment - for Austria where possible - is currently incomplete. The plan is to expand this critical assessment for the Second Order Draft; with an assessment of for instance the feasibility, desirability, and economic dynamic effects within and between countries. While the box at the moment still lacks a formal framework to assess ‘feasibility’ and ‘desirability’, or discussions on international justice and equity, it sets out a few conditions and concepts, provides an entry-point to assessing elements of growth in different sectors, and explores integrated modelling evidence. Detail on sectoral insights belongs mostly in the chapters, so in future versions of this Box the aim is to cross-reference to more detailed assessment in multiple chapters. For this first order draft, we summarise part of the literature in a few pages below, as an appendix to this box, which contains a general introduction to the degrowth literature too.]*

Many proposals have attempted to quantify what could be considered “enough” and “too much”. Proposed minimum requirement thresholds for human flourishing have been based on theories of the human needs (Sen, 1990; Max-Neef, 1991; Lamb and Steinberger, 2017), which “avoid serious harm and are universalisable, objective, empirically grounded, nonsubstitutable and satiable” (Gough, 2015). For one example, the Decent Living Standards (Rao and Min, 2018), estimated energy needed for meeting basic needs around the world is less than half of current global energy use (*medium confidence*) (Millward-Hopkins et al., 2020; Kikstra et al., 2021). Total levels that are consistent with decent living standards for all are higher due to inequality (Millward-Hopkins, 2022) but can be lowered with improvements in service provisioning systems. Minimum material requirements have been estimated at between 3 and 13 tonne/cap/year (Vélez-Henao and Pauliuk, 2023), which is many times lower than current material footprint flows in Austria (UNEP IRP, 2023).

Ceilings on activity are more often linked to large-scale environmental thresholds and risks such as the planetary boundaries, tipping points, and climate impacts more broadly. Maximum activity levels are then most often linked to carbon budgets corresponding to global warming levels, through estimates of carbon intensities of certain activities, and through the concepts of consumption and production corridors (Di Giulio and Fuchs, 2014; Bärnthaler and Gough, 2023). Additionally, ethical arguments have been made for upper limits based on preferences and perceptions of fair levels of inequality in income (Osberg and Smeeding, 2006), and a recent survey distinguished the ‘rich’ from the ‘super-rich’ in the Netherlands at between 1 and 3 million euros (Robeyns et al., 2021).

Whether it is desirable and feasible for climate mitigation strategies to downscale a certain activity depends strongly on the sector and country, noting different levels of development, inequality, and needs. Less necessary, and ecologically destructive sectors, may include short-distance flights (Dobruszkes et al., 2022) and other inefficient and harmful mobility (Muller et al., 2011; Cattaneo et al., 2022), housing-as-asset (zu Ermgassen et al., 2022), fast fashion (Niinimäki et al., 2020), affluent energy overconsumption (Büchs et al., 2023), and animal source foods (Kozicka et al., 2023). On such a policy level, many of these proposals are supported by both degrowth and green growth analyses, even though the approaches to identify and embed them differ.

While advocates for degrowth strategies typically call for a clear break with economic doctrine, there are elements of agreement with conclusions from standard economic analyses. A full accounting of the external costs of energy calls for rapidly shrinking fossil-based energy production (Muller et al., 2011). Induced technical change explicitly calls for a shift away from “dirty” and toward “clean” sectors (Acemoglu et al., 2012), with demand curtailment playing a significant role. IEA (2020), for example, points to how, by 2050, 50% of global steel demand would be met by reuse and recycling, under decarbonization pathway in line with 1.5C.

Challenges to green growth strategies have been more extensively researched than challenges to degrowth. For instance, efficiency improvements can induce increased demand, partially offsetting environmental gains (“rebound effects”, Gillingham et al., 2016; Moshiri and Aliyev, 2017; Raimund, 2023). Much less is known about how strong challenges to achieving a degrowth pathway could be, with limited evidence available about the effects of systematically targeted downscaling on employment and productivity, on international competitiveness and financial stability in the cases of unilateral or cooperative implementation, or on the financial ability to fund the energy transition, or the extent to which the energy transition to renewable energies induces productivity gains and resulting economic growth (Arkolakis and Walsh, 2023).

From a macro-perspective, to achieve sustainability, economic activity needs to be sufficiently decoupled from emissions as well as from material, energy, water, and land resources. For climate mitigation, emissions intensity (of economic activity and energy consumption) needs to decline faster with higher economic growth and the same emission reduction target, which may be an indicator of a higher macroeconomic challenge. At the same time, to stabilise at any temperature, CO2 emissions need to go to zero, ultimately requiring full decoupling. Even if a degrowth scenario achieves absolute decoupling from economic growth in both GHG emissions and final energy, this does not necessarily mean that the year-on-year change in emissions intensity or final energy intensity is different from a green growth scenario (CCBox 7 Figure 1F). At the same time, higher energy demand in a green growth scenario requires a larger energy supply system, which requires more metals such as copper (illustrated by the scenario highlighted in CCBox 7 Figure 1F) and can thus come with higher environmental pressures beyond emissions, potentially leading to lower feasibility of decoupling from all environmental pressures (*low confidence*). Economic growth is also related to biodiversity loss through greater resource consumption and higher emissions (Otero et al., 2020), while the combination of degrowth and efficiency gains can lead to simultaneous emissions and health benefits (Bodirsky et al., 2022).

Integrated modelling approaches that adequately reflect the dynamics of a global degrowth transition across sectors in coherent global integrated frameworks with high regional detail do not yet exist, but many partial studies have provided explorations and preliminary quantifications. Exploratory modelling on the country-level indicates that a reduction of emissions can be combined with both a reduction in consumption and an increase in social prosperity (D’Alessandro et al., 2020), while lowering the challenges of upscaling renewables and carbon prices fast enough to meet ambitious climate targets (Kikstra et al., 2023; CCBox 7 Figure 1F). Global studies are few, and range from simplified energy-emissions modelling to illustrate the space for new process-based mitigation pathways to be developed (Keyßer and Lenzen, 2021), to first versions of process-based modelling of the conflict between economic growth, climate policy and the sustainability of resources, with a green growth scenario failing to meet climate goals whereas a post-growth scenario did meet emissions objectives (Nieto et al., 2020). For food and land systems, a modelling study showed the possibility of achieving a steady-state, net zero greenhouse gas food system that improves nutritional outcomes (Bodirsky et al., 2022). A few studies have also looked at post-growth modelling using stock-flow consistent models (Victor, 2012; Jackson and Victor, 2020; Sers, 2022). While these models tend to remain conceptual rather than empirically calibrated, one recent working paper described the possibility of finding higher inflation in ‘the North’ and somewhat reduced economic growth in the South due to reduced international trade if ‘the North’ would unilaterally move to degrowth while ‘the South’ continues to focus on economic development (Leoni et al., 2023).

Ein Bild, das Text, Diagramm, Plan, Reihe enthält.

Automatisch generierte Beschreibung  
CCBox 7 Figure 1: A: Trends in A: biophysical pressures for Austria, B: trends in social provisioning for Austria, C: share of thresholds crossed in 2015 across all countries with Austria highlighted. D: country-level trends related to decoupling concerns of the same flows from panels A-C, relative to 1995. All data comes from panel A-D is from Fanning et al. (2022), with the exception of GDP which was retrieved from the World Bank (last updated: 25 July 2023). E: theoretical representation of a degrowth logic for climate change mitigation compared to common mitigation modelling approaches (Li et al., 2023). F: a modelling example comparing the need for upscaling renewables under a 1.5C consistent target for Australia (Kikstra et al., 2023). Code and data to reproduce this figure are available at [**https://github.com/jkikstra/aar2-degrowth-box/releases/tag/v0.1-fod**](https://github.com/jkikstra/aar2-degrowth-box/releases/tag/v0.1-fod)**.** NOTE: due to time constraints, panel F only shows results from one study for one country. The author team intends to collect and report more data in this panel in future report versions. This can include data from multiple other studies (e.g., D’Alessandro et al., 2020; Nieto et al., 2020), or more information on for instance feasibility concerns or linkages to basic needs.

Key elements

[NOTE: For this version of the Degrowth box, in addition to the other text sections. However, there is significant overlap, and we welcome feedback on what format is seen as more useful.]

In short, the degrowth approach:

* places emphasis on empirical evidence on the difficulties of decoupling GDP-growth from growth of emissions, energy, and material footprints and is concerned about the speed and scale needed to achieve climate targets without the reliance on speculative levels of negative-emission technology deployment;
* problematises the limited number of available mitigation strategies due to growth imperatives and concerns for rebound effects without concurrent sufficiency-based policies;
* links emission and resource-use reductions in the spheres of consumption and production;
* aims at guaranteeing and potentially expanding necessary forms of consumption/production, for instance through collective forms of service provisioning, while downscaling less necessary and ecologically destructive forms of production/consumption, for instance through sufficiency and avoid strategies;
* raises a key question for democratic deliberation and democratic planning: what do we – as society – need more of and what do we need less of to live a good life within planetary boundaries;
* takes an eudaimonic approach to wellbeing and welfare, assuming universal objective basic needs or decent living standards whose fulfilment “for all” is prioritised over growth to satisfy wants or preferences, if the two conflict;
* centres on national and international justice implications, problematising the disproportionate share of the Earth’s resources that richer countries appropriate both in terms of common resources such as carbon emissions into the atmosphere, and through processes of unequal exchange (e.g., Dorninger et al., 2021);
* intends to move our socio-economic-ecological system from scarcity to (radical) abundance by re-connecting humans to each other, land, nature, and a culture of care, while de-commodifying and de-colonizing the socio-economic system.

For climate mitigation, compared to green growth, degrowth approaches:

* may reduce geophysical and technological feasibility concerns, and therewith enable faster emissions reductions, due to a reduced speed and scale of upscaling renewables for the same emissions reduction target compared to a green growth approach (*low confidence*);
* reduce environmental pressures beyond climate change due to reduced resource needs (*high confidence*);
* come with a stronger focus on improving eudaimonic human wellbeing and less focus on preferences;
* may come with higher sociopolitical feasibility concerns due to rapid economic, sociocultural, and economic breaks with past trends (*low confidence*).