

Döring, Thomas; Zimmermann, Horst

Article

Is post-growth a desirable basis for spatial sciences and planning? A critical view from a green growth perspective

Raumforschung und Raumordnung / Spatial Research and Planning

Provided in Cooperation with:

Leibniz-Forschungsnetzwerk "R – Räumliches Wissen für Gesellschaft und Umwelt | Spatial Knowledge for Society and Environment"

Suggested Citation: Döring, Thomas; Zimmermann, Horst (2025) : Is post-growth a desirable basis for spatial sciences and planning? A critical view from a green growth perspective, Raumforschung und Raumordnung / Spatial Research and Planning, ISSN 1869-4179, oekom verlag, München, Vol. 83, Iss. 3, pp. 190-204,
<https://doi.org/10.14512/rur.3011>

This Version is available at:

<https://hdl.handle.net/10419/321971>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

Is post-growth a desirable basis for spatial sciences and planning? A critical view from a green growth perspective

Thomas Döring, Horst Zimmermann

Received: 27 September 2024 ■ Accepted: 22 April 2025 ■ Published online: 22 May 2025

Abstract

In the recent past, a growing number of voices within the spatial sciences have called for a departure from traditional economic considerations related to the current market and growth paradigm. Instead, they favour a post-growth economy approach. This can convey the impression that there is an immediate need for action in spatial development policy and planning in terms of providing a stronger post-growth orientation, which has not yet quite managed to establish itself across the board. Against this background and based on the existing trade-off between economic growth and environmental protection, this paper takes a critical look at the post-growth approach by contrasting it with the possibility of green growth. It concludes by considering some implications of this comparative analysis for the spatial sciences and spatial planning.

Keywords: Post-Growth ■ Green Growth ■ Spatial Planning ■ Spatial Development

Horst Zimmermann ist leider während der Veröffentlichung dieses Beitrags verstorben. Der korrespondierende Autor und die Schriftleitung möchten die Gelegenheit nutzen, ein herzliches Dankeschön für die gute Zusammenarbeit auszudrücken.

✉ **Prof. Dr. Thomas Döring**, Fachbereich Gesellschaftswissenschaften, Hochschule Darmstadt, Haardtring 100, 64295 Darmstadt, Germany
Thomas.doering@h-da.de

Prof. Dr. Horst Zimmermann, Königsberger Straße 17, 35043 Marburg, Germany
horstzimmermann1@freenet.de

 © 2025 by the author(s); licensee oekom. This Open Access article is published under a Creative Commons Attribution 4.0 International Licence (CC BY).

Ist Postwachstum eine wünschenswerte Grundlage für Raumwissenschaften und Raumplanung? Eine kritische Betrachtung aus Sicht eines grünen Wachstums

Zusammenfassung

In der jüngeren Vergangenheit mehren sich die Stimmen innerhalb der Raum- und Planungswissenschaften, die eine Abkehr von traditionellen ökonomischen Überlegungen im Sinne eines vorrangigen Denkens in Form des gängigen Markt- und Wachstumsparadigmas zugunsten des Ansatzes einer Postwachstumsökonomie fordern. Man könnte dabei den Eindruck gewinnen, dass ein unmittelbarer Handlungsbedarf für die Raumentwicklungspolitik und -planung im Sinne einer verstärkten Postwachstumsorientierung besteht, der bislang nur noch nicht auf breiter Front zum Durchbruch gekommen ist. Vor diesem Hintergrund und ausgehend vom bestehenden Trade-off zwischen Wirtschaftswachstum und Umweltschutz wird im vorliegenden Beitrag der Post-Growth Ansatz einer kritischen Betrachtung unterzogen. Dabei wird diesem die Möglichkeit eines grünen Wachstums gegenübergestellt. Den Abschluss bilden einige knappe Überlegungen, welche Implikationen sich aus dieser vergleichenden Betrachtung für die Raumwissenschaften und Raumplanung ergeben.

Schlüsselwörter: Postwachstum ■ Grünes Wachstum ■ Raumplanung ■ Raumentwicklung

1 Introduction

In the recent past, a growing number of voices within spatial sciences and planning have called for a departure from traditional economic considerations related to the current market and growth paradigm in favour of a post-growth economy approach. The central idea of post-growth “is to

replace the goal of increasing GDP with the goal of improving human wellbeing within planetary boundaries” (Kallis/Hickel/O’Neill et al. 2025: e62). Research on post-growth can be seen as part of sustainability science, which is influenced by ecological economics. It emphasizes reducing the growth dependencies “that tie social welfare to increasing GDP in the current economy” (Kallis/Hickel/O’Neill et al. 2025: e62). In this sense, post-growth is not identical to degrowth, even though the two approaches overlap considerably and some publications even equate the two approaches (see, for example, Islar/Koch/Raphael et al. 2024). Others, in turn, note that especially in the last few years the division between degrowth and post-growth “has become a bit blurred” (Savin/van den Bergh 2024: 1) in order to point out that many authors writing on degrowth opt for using the catch-term post-growth, possibly to avoid resistance against the strong connotations of degrowth.

Degrowth is characterized by three broad policy goals (Cosme/Santos/O’Neill 2017): (i) reduce the environmental impact of human activities, (ii) redistribute income and wealth within and between countries and (iii) promote the transition from a materialistic to a convivial, participatory society (Fitzpatrick/Parrique/Cosme 2022). Following Hickel (2021: 1106), degrowth “is a planned reduction of energy and resource throughput designed to bring the economy back into balance with the living world in a way that reduces inequality and improves human well-being”. If the focus here is on the post-growth approach, it is because degrowth is too broad and therefore confusing an approach. It combines critiques of capitalism, colonialism, patriarchy, productivism and utilitarianism (Fitzpatrick/Parrique/Cosme 2022). Compared to this, post-growth is less multifaceted and therefore clearer in its orientation. Post-growth “is somewhat more open than ‘degrowth’ because it does not activate the growth frame as much, and all the complex this stirs up, but focuses on a future beyond economic growth” (Schmelzer/Vetter/Vansintjan 2022: 29).

The starting point for considering post-growth issues is, on the one hand, that the spatial sciences dealt early on not only with the absolute limits to growth (e.g. with regard to ecological sustainability), but also with the spatial differentiation of resource problems with regard to settlement development, economic production, biodiversity and landscape change (Bridge 2009). It has also been pointed out that spatial planning has always been concerned with the scarcity of land, of habitats and of resources, and aims to channel or limit land consumption, which is interpreted as a fundamental affinity with the post-growth approach (Schmelzer/Vetter 2019). On the other hand, post-growth is understood as a necessary emancipatory critique of the conventional promise of economic growth, which is primarily based on the following points (Kenis/Lievens 2016):

- Despite all efficiency efforts, it has not yet been possible to decouple economic growth from resource consumption, either globally or at the level of nation states, which is, however, seen as absolutely necessary for the realization of sustainable development. At best, a relative decoupling can be identified, but very often material and energy consumption continues to grow in absolute terms (Giljum/Lutter 2015; Jackson 2016; Hickel/Kallis 2020).
- So-called “rebound effects” are considered to be partly responsible for this development. They characterize the phenomenon that material and financial savings associated with efficiency gains lead to additional purchases or activities that are considered counterproductive from a resource-ecological perspective (Paech 2010).
- Finally, and closely related to the last point of criticism mentioned, post-growth advocates are increasingly sceptical of “smart technologies”, as they are favoured in particular in the context of a concept of “green growth”. According to the argument, high-tech approaches to solving growth problems (e.g. in vehicle or building technology) always require new materials and energy, which in many cases overcompensate for the intended savings in environmental consumption or even lead to new environmental and resource problems (Kerschner/Wächter/Nierling et al. 2018).

In view of this, doubts are expressed about politically preferred technologies and about market-based solutions to the existing trade-off between economic growth and environmental protection. Contrary to a one-sided focus on the growth-oriented efficiency approach of traditional economics, the idea of sufficiency is considered the guiding principle for a transformation geared towards sustainability (Schneidewind/Zahrnt 2014). This is linked to a fundamental questioning of the purpose and orientation of the economic system in order to overcome existing material growth constraints in favour of a search for “prosperity without growth” (Jackson 2016; Kallis 2018). A broader understanding of “economy” is called for, which includes forms of social and “solidary” economy as well as other private (e.g. home care) and communitarian activities (e.g. neighbourhood help, bartering rings). Such activities should be recognized as a source of social prosperity on a par with GDP-relevant economic practices (Seidl/Zahrnt 2019).

Looking at the current state of research in the field of spatial sciences and planning, however, post-growth considerations do not appear to be self-enforcing. Proponents of this approach criticize the lack of “fundamental questioning of the purpose and desirability of continuous growth” (Schulz/Lange/Hülz et al. 2022: 19). Examples of this include recent research on shrinking cities or demographic change in rural areas, in which – from a post-growth economics perspective – the opportunities of change are far too

rarely addressed in comparison to the problems and possibilities of returning to growth paths. In other traditional subject areas of planning and spatial sciences, the pursuit of post-growth considerations is considered to be underdeveloped (Savini/Ferreira/von Schönfeld 2022; Schmelzer/Vetter/Vansintjan 2022; Savini 2025). One example is the area of land ownership and land policy. Current debates on rising real estate prices, rents and scarce living space show a number of intersections with the post-growth debate and its reform proposals for the housing market (e.g. in the form of more cooperatives and other non-profit housing developers). However, no sufficient links have yet been established between the fields. Comparable claims are made for the area of urban development in times of privatization and commercialization, where, in addition to consideration of social and design aspects, reference is made to ways to enable and promote alternative housing arrangements that offer space for post-growth lifestyles (Nelson/Schneider 2019; Fitzpatrick/Parrique/Cosme 2022). These arrangements encompass, for example, temporary use of living space, collective forms of housing and retrofitting programs to significantly lower the ecological footprint of dwellings. Such endeavours should also include new forms of urban production (e.g. urban agriculture or communal office use in the form of “co-working spaces” or “maker spaces”). And with a view to the transport sector, to name another example, greater consideration of sufficiency in mobility behaviour and the resulting spatial planning requirements is called for. The aim here is, among other things, to expand infrastructure for walking and cycling as well as to reduce the amount of space required for transport (Brunnengräber/Haas 2020; ARL 2021).

In general, it can be stated with Savini, Ferreira and von Schönfeld (2022: 5) that, “if it is to contribute effectively to a system that pursues prosperity within ecological limits in a socially fair way, planning must be emancipated from the imperative for economic growth. [...] Given urban areas’ significant role in shaping economic conditions, planning research and practices also need to contribute to establishing a new economic logic, which goes beyond growth imperatives. [...] This logic needs to provide a realistic but utopian vision of urban prosperity, based on the principles of post-growth urbanization”.

In view of this general statement as well as the spatial planning topics and examples mentioned above, the impression may be conveyed that there is an immediate need for action in spatial development policy and planning in terms of providing a stronger post-growth orientation, which has simply not yet managed to establish itself across the board. In any case, the abandonment of any form of overall economic growth, at least in high-income countries such as Germany, is considered imperative in order to achieve an ecologically sustainable economy in the future. The post-

growth movement proposes a radical response: if growth is the problem, then less growth (or even no growth or negative growth) is the solution (Susskind 2024). In contrast, alternative growth concepts are not considered in more detail, which means that post-growth functions as the sole, unquestioned target for sustainable economic development.

However, according to the authors of this paper, this involves taking the second step before the first. From our perspective, there is a lack of critical reflection on the post-growth approach itself in comparison with alternative growth concepts (above all the concept of “green growth”) for it to function as a future guiding concept for spatial and planning sciences. This deficit is exacerbated by the fact that in the areas mentioned above (land ownership, housing market, urban development, mobility etc.), criticism of the status quo often leads to criticism of the existing market-based economic order. However, this seems to be an inadmissible mix of arguments: criticism of the traditional growth paradigm is muddled with criticism of the market system. For example, Savini, Ferreira and von Schönfeld (2022: 7) state that post-growth authors “are united by a common motivation: that of critically debating alternative ways of organizing socio-economic relations, beyond the ruthless principles of growth oriented economic thinking. These principles include individual responsibility and freedom enterprise, efficiency and competition, market-based designs and market expansion”. This mix of growth and market criticism is inadmissible insofar as neither economic growth nor (and above all) the associated (environmental) problems are limited solely to a market-based economic order. Beyond its target to avoid overstepping ecological planetary boundaries, which is quite capable of achieving consensus, the post-growth approach seems to be subject to a certain amount of short-circuiting with regard to its system-critical considerations.

To avoid this short-circuiting, the core of the trade-off between economic growth and environmental protection is worked out first (Section 2.1), in order to then take a comparative look at competing problem-solving proposals – that is green growth on the one hand (Section 2.2) and the post-growth approach on the other (Section 2.3). To this end, both approaches are presented with their respective key statements and the economic policy measures to be derived from them, before they are subjected to critical evaluation (Section 3). The paper concludes by considering the implications of this comparative analysis for spatial and planning sciences (Section 4). In doing so, this paper largely adopts black-and-white argumentation to highlight differences between the objectives and thinking behind post-growth and green growth – differences that clearly exist, although both approaches conclude that we cannot continue on our current growth path, given the scale of environmental damage.

2 Growth or no growth for an ecologically sound economy

2.1 What is the problem with economic growth to date?

Economic growth is one of the key political objectives in almost every country in the world. In today's high-income countries in particular, sustained economic growth in the past has generated prosperity in a variety of forms: increased life expectancy and quality, improved healthcare and education systems, sufficient food, and many smaller and larger amenities through goods and services for better organization of professional work and leisure activities at home. The increase in material prosperity is – as a rule – also linked to positive intangible consequences such as generally available education, democracy or equal rights. The same applies to emerging and developing countries, albeit at a (still) lower level than is the case in high-income countries. Beyond these positive effects, the prevailing model of continuous economic growth faces increasing criticism, primarily due to its negative ecological effects. In recent decades, the first report to the Club of Rome in particular led to a broader social discussion about the “limits to growth” on a planet with finite natural resources (Meadows/Meadows/Randers et al. 1972; Randers 2012). The explosive nature of the trade-off between economic growth and environmental protection contained therein illustrates the intensity with which economic activity interferes with natural cycles, exceeding planetary boundaries and perhaps jeopardizing the existence of human civilization itself (Foley/Daily/Howarth et al. 2010; Richardson/Steffen/Lucht et al. 2023).

From an economic perspective, environmental damage is generally considered to be the result of the economic overuse of environmental goods. It is caused by production and consumption as well as by the absorption of pollutants in existing environmental media (air, water, soil). As long as environmental goods were abundant and thus their volume and assimilation capacity were very large, their economic use did not pose a problem. A problem only arises when environmental goods become scarce with regard to their competing uses (Beckerman 1992). This conflict of use is exacerbated by the logic of increasing economic growth. The reason for this lies in market competition, in the context of which consumers seek ever better ways of satisfying their needs, both quantitatively and qualitatively, and companies invest in the invention and manufacture of new products and the introduction of cost-saving production processes in order to gain a competitive edge. This inherent compulsion to expand is reinforced by the credit creation and interest system typical of market economies, whereby the profit

expectations of credit-financed investments can only be redeemed through increased economic growth (Binswanger 2013).

From an economic perspective, the growth-related overuse of environmental goods is characterized as an “externality problem”. As economic growth is associated with high energy intensity and the extensive consumption of natural resources, negative external (environmental) effects have so far been regarded as a typical side effect of a growth society. They result from a divergence between private and social marginal costs in the production or consumption of goods and services. In the absence of institutional rules that ensure that the social costs of environmental degradation are internalized, environmental damage is not included in the price and cost considerations of companies and private households. The lack of consideration of the costs of environmental damage can in turn be attributed to the fact that environmental goods have the typical characteristics of public goods. However, this goes hand in hand with the risk of overusing natural resources, as there is no (institutional) incentive for the careful use of environmental goods due to a lack of property rights (Nordhaus 1993). As economic growth exacerbates the problem of overuse, it is not surprising that either a different form of growth (“green growth”) or the renunciation of economic growth (post-growth) is seen as a possible solution to the problem.

2.2 Green growth as a solution to the trade-off

2.2.1 Basis considerations of this approach

The green growth approach can be understood as a collection of different theoretical concepts and political initiatives that are linked by the central idea that environmentally compatible growth is possible if economic development is constrained by ecological guard rails underpinned by environmental goals (World Bank 2012; Jacobs 2013; Husain/Mehmood/Khan et al. 2022). For the OECD (2011: 9), green growth means “fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies”. The aim of green growth is therefore to achieve a balanced relationship between economy and ecology, whereby the focus is not on individual fields of activity or certain areas of industry, but rather an attempt is made to reorient the economy as a whole. Growth, competition and innovation are seen as necessary objectives, which are, however, expanded to include the component of sustainable environmental protection (Livermore 2014; Renault/Schwietring 2016).

As such, green growth is closely related to the concepts of “green economy”, “green industry” or “low-carbon de-

velopment” (UN-DESA 2012; Hinterberger/Giljum/Omann et al. 2013). The concept of green growth assumes that economic growth and development can continue while associated negative impacts on the environment are reduced. In this sense, green growth represents an economic paradigm shift, which in its core focuses on switching from efforts to increase labour productivity to substantially improved resource efficiency. Here, the transition to a sustainable energy system is seen as a key driver of green growth (Ge/Zhi 2016). But the concept is not just limited to this one area. Moreover, Hinterberger/Giljum/Omann et al. (2013: 21), as proponents of the concept, note that “if growth is understood as a means to enhance our well-being, it should not only be environmentally sustainable [...] but also socially and economically viable [...]”.

The green growth approach arose from a critique of traditional neoclassical growth theory. This assumes extensive substitutability of input factors (here: the substitution of natural resources with capital) in order to strive for the optimal consumption of “environmental goods”. Such consumption, however, exceeds ecological limits and jeopardizes the earth’s future capacity to support life (Daly 1996). This understanding of the substitutability of natural resources is not shared by the green growth approach; instead, a complementarity of production factors is assumed. Attempts are made to resolve the trade-off between economic growth and environmental protection by achieving an absolute decoupling of economic activities from the consumption of natural resources. As the aim is to reduce the consumption of natural resources in an absolute sense, a relative decoupling, which would merely involve a reduced increase in environmental destruction, is not sufficient on its own (Behrens/Giljum/Kovanda et al. 2007; Bowen/Hepburn 2012). Absolute decoupling can be described as follows: “An economy will experience green growth if the rate of growth of GDP is less than the rate of decline in intensity [of negative environmental impacts]” (Victor 2010: 241). In other words, the goal of green growth is the adequate preservation of the natural capital at our disposal.

2.2.2 Relevance of technological and social innovations

From the perspective of the green growth approach, efficiency gains through technological innovations play a key role in reducing negative environmental impacts and moving towards absolute decoupling. These efficiency gains should lead to a lower input of natural resources both in the production of goods and services and in their consumption (Demary/Schaefer 2023; Petersen 2023). The result would be a reduction in the intensity of consumption of natural resources or the intensity of pollutants per unit of real GDP. The efficiency gains are all the more profitable if the technological innovations take place in “green markets of the

future” and thus serve not only to save resources or avoid pollutants, but also to expand renewable energies and develop sustainable products. The German Federal Environmental Agency identifies six areas of these green future markets with an expected total volume of 5.9 trillion euros in 2025.¹ In detail, these green future markets are: (1) energy efficiency, (2) sustainable water management, (3) environmentally friendly generation, storage and distribution of energy, (4) raw material and material efficiency, (5) mobility and (6) the circular economy.

The progress of technological innovations of this kind depends to a large extent on the structure of market dynamics. A focus on maintaining existing systems and a low degree of market flexibility restricts the innovation dynamics of companies, while a high degree of market-related competition and a willingness to implement new systems promote innovations favouring greater sustainability and resource efficiency (Holtemöller 2023). In addition to technological innovations, the green growth approach also requires socio-economic innovations for an absolute decoupling. Unlike technological innovations, this type of innovation strives for socio-cultural change that creates the necessary conditions for the (green) transformation of the economy and society. Firstly, socio-economic innovations and the associated behavioural changes should ensure that existing behavioural routines and development paths are abandoned in order to open up new opportunities for action (Raworth 2018; Schneidewind 2018). One example of this is a change in mobility behaviour: a reduction in motorized private transport and instead increased use of public transport. However, the need to overcome social inertia and initiate cultural change is an enormous task. This is evident not only in the transport sector, but also, for example, in the issue of landscape water management, where the necessity to keep water in the landscape is confronted with a 200-year-old counterculture that wants water to flow out of the landscape as quickly as possible.

Secondly, staying within the planetary boundaries requires more than just technological innovation. The biodiversity crisis, for example, cannot be solved by efficiency-focused technical measures alone (Dasgupta 2021). Comprehensive measures (far beyond pure efficiency measures) are also necessary in this case. These broader means include, in particular, the socio-cultural innovations already mentioned. Against this background, Hinterberger/Giljum/Omann et al. (2013: 13) conclude that green growth “goes beyond sheer technical progress and involves structural

¹ <https://www.umweltbundesamt.de/themen/wirtschaft-konsum/wirtschaft-umwelt/gruene-zukunftsmärkte-umweltschutzwirtschaft> (16.04.2025).

change and transition towards less capital and resource intensive activities, especially in the earlier industrialized and therefore highly resource consuming parts of the world". Innovations and changes of this type require an institutional framework comprising appropriate state investments, incentives and regulations in order to be able to implement a double transformation – technological and socio-economic.

2.2.3 Necessary change in the government framework

The government is assigned a key role in the transformation process towards green growth. This includes setting fiscal and regulatory incentives to promote technological innovations in the area of green future markets. Such incentives include the introduction of a climate levy and the simultaneous reduction of climate-damaging subsidies, as well as legal requirements for minimum levels of secondary raw materials in the packaging industry or in the building and construction sector (Black/Parry/Vernon-Lin 2023; Holtemöller 2023; Petersen 2023). These fiscal and legal measures are not only intended to accelerate the transformation process towards green growth. Rather, they are also necessary to ensure sufficient planning security for companies and private households in order to reduce uncertainties regarding desired changes in investment and consumption behaviour and to create a sense of reduced risk.

However, increased public investment is also among the changes considered necessary, for example to expand renewable energy infrastructure or for more research and development in environmentally friendly production and the recycling of substances and materials. It is also emphasized that such measures should be implemented as quickly as possible in order to keep the costs caused by environmental damage as low as possible. Overall, a policy that is consistently geared towards environmental protection and the simultaneous implementation of the aforementioned measures is seen as a mandatory prerequisite for achieving the absolute decoupling of economic growth and environmental consumption. Furthermore, a change in the formal institutional framework in favour of the use of environmentally friendly technologies should be accompanied by change in the informal institutions – the “shared mental models” (Denzau/North 1994) – in order to be sufficiently effective. A green growth dynamic cannot be generated by appropriate incentives alone; it also requires a narrative that is widely accepted and leads to the necessary changes in behaviour and attitudes. This is not always taken into account by green growth advocates.

2.3 Post-growth as a solution to the trade-off

2.3.1 Basis considerations of the approach

There are many different approaches to shaping a post-growth society, including social reformist, capitalism-critical or sufficiency-oriented approaches. What they have in common is that they fundamentally question the very possibility of environmentally sustainable economic growth (Martinez-Alier/Pascual/Vivien et al. 2010; D’Alisa/Demaria/Kallis 2014). The post-growth approach thus fundamentally contradicts the idea of green growth and of any prosperity model based upon it. Instead, the relationship between economic growth and environmental protection is interpreted as one of irresolvable conflict. The idea is that it is impossible to reduce global energy and resource consumption to the level required to achieve sustainable development, even if the existing potential for increasing efficiency in production and logistics is fully exploited.

This belief is justified by the argument that decoupling economic activities from the consumption of natural resources requires not only greater technical efficiency, but also improved recycling systems and, above all, a fundamental change in consumer behaviour. Otherwise, in a growth economy, any progress made in saving materials and energy and in the “greening” of value chains is at constant risk of being eroded by increases in demand or by switches to other non-sustainable resource uses. It is therefore unsurprising that from this perspective it is considered impossible to decouple economic growth from resource consumption either now or in the future. Instead, it is argued, effective protection of the natural environment requires a radical departure from the development path geared towards economic expansion. In order to ensure this, all dependencies on and constraints related to growth must be eliminated. Such dependencies and constraints include (1) the innovation orientation of modern market economies, (2) the existing money and interest system, (3) high profit expectations, (4) a system of external supply based on the global division of labour and (5) a culture that aspires to unconditionally increasing material self-fulfilment (Paech 2013 with reference to Daly 1996; Daly 2010). Only the renunciation of these elements of the existing growth economy would create the conditions for building an ecologically sustainable economy.

2.3.2 Sufficiency, subsistence and regional economic activity as key objectives

In order to bring about this transformation from the existing economic and social system towards a post-growth economy, various building blocks and their implementation are considered important. One of these is what can be described as a “decluttering and deceleration” of the existing way of life. Thus, all components of the current lifestyle

that require a great deal of resources (time, money, space/area, natural resources) and – it is assumed – only provide a minimal benefit, should be reduced. The aim is to limit consumer needs to the possibilities of sustainable satisfaction. In addition to this sufficiency strategy, a balance should be struck between self-supply and external supply. Only supply structures functioning over small distances between producers and consumers are considered ecologically and socially stable (see, for example, Paech 2013). This should go along with the (re-)activation of personal competencies and manual skills, so that individuals can satisfy their own needs without exchanging goods on markets (Jackson 2016; Schmelzer 2017). This can be described as a subsistence strategy.

Furthermore, it is expected that an ecologically compatible and more crisis-resistant framework for economic activity can be achieved by increasingly serving needs through regional markets and thus shortening value chains (see on this point and on the following recommendations, for example, Paech 2013). In this context, the introduction of a regional currency with interest-free circulation is intended to both tie purchasing power to a particular region and thereby to decouple it from globalized transactions. However, even after more “sufficiency”, “subsistence” and “regionalization” have been pursued, certain consumption demands will still be tied to globalized value creation networks. Therefore, the consumption of resources required to satisfy them should also be reduced by extending the duration of use of products or intensifying their use (keyword: “material zero-sum games”).

2.3.3 Measures required for a transformation towards post-growth

According to representatives of the post-growth approach, this gradual transition to a post-growth economy is “based on two pillars: an individual strategy of sufficiency combined with a radical reduction in external supply in favour of regional and local economies, self-sufficiency and self-production” (Schmelzer 2017: 9; authors’ translation). The post-growth literature also refers to the need for political support for the entire transformation process through institutional reforms. One example of this is the proposal to introduce individual carbon budgets with tradable certificates based on a global total carbon footprint corresponding to the 2°C climate protection target (Paech 2013: 134). However, either it remains unclear how, beyond the climate problem, such a far-reaching internalization of environmental externalities can be achieved by means of corresponding changes in incentive structures, or reference is made to measures that are also called for in the context of green growth (e.g. the introduction of environmental taxes or the reduction of environmentally harmful subsidies). The focus for

resolving the trade-off between growth and environmental consumption is not primarily on the institutional level here, but rather on the individual level. Thus, the “most important agents of change” should be so-called prosumers, i.e. “people who not only consume less, but also work together, for example in repair workshops, to extend the life of existing products, develop forms of home production (urban gardening) and thus promote localization and de-commercialization” (Schmelzer 2017: 9; authors’ translation).

Leschke (2015: 11) therefore also speaks of an approach that relies heavily on “conviction and self-commitment” to resolve the conflict between growth and the environment. This statement also resonates with references to the necessity of introducing measures in the area of education policy. It is important to manage expectations, especially among young people, and to train them away from excessive consumption practices. Instead, crafting skills plus sustainability education encouraging reflection about lifestyle should be pursued in the early years of personal development and thus form the foundation for a functioning and accepted post-growth society that focuses on an ecological way of life within planetary boundaries. Or to put it another way: the aim is to use education to create consumption patterns that lead to the individual satisfaction of needs while simultaneously using fewer resources and less energy (Jackson 2016; Petschow/aus dem Moore/Pissarskoi et al. 2020).

Beyond this individual level, a number of other measures are also discussed, which are only briefly mentioned here. They include, for example, demands for an increased redistribution of income and wealth in order to ensure that all members of society have an adequate income (see Cosme/Santos/O’Neill 2017; Fitzpatrick/Parrique/Cosme 2022; Kallis/Hickel/O’Neill et al. 2025 with further references). This is especially important in a future where the economy is intended to stagnate or even shrink. Another example of a measure designed to secure employment in a shrinking post-growth economy is the “shifting” of workers to the employment-intensive service sector, which also has little potential for increasing labour productivity and thus for additional economic growth (Jackson 2016).

3 Critical evaluation of green growth versus post-growth

While green growth relies on innovation-based transformation in a society within planetary boundaries, representatives of the post-growth approach consider such a decoupling of economic growth and environmental consumption to be unrealistic. Instead, they advocate stagnation and shrinkage of economic output due to the central importance of (absolute) decoupling. To clarify this, it is necessary

to look at the empirical data. Before doing so, however, we would like to consider the suitability of GDP growth for measuring prosperity and well-being. The feasibility of a post-growth policy is also discussed. Finally, the question of how to deal with the existence of growth-dependent sectors of society is raised.

3.1 Economic growth and measuring well-being

Advocates of post-growth thinking tend to agree upon the necessity to abandon (or at least treat very sceptically) the mainstream use of aggregate indicators of wealth such as GDP in order to “replace it with a dashboard of indicators of social ecological health” (Fitzpatrick/Parrique/Cosme 2022: 7). Following Savini, Ferreira and von Schönfeld (2022), a fundamental claim is that measuring well-being and social wealth by means of GDP motivates policies that promote everything that such an indicator can quantify, and destroy everything that it cannot. As a result, a failure to convert altruistic social relations into commodified services, which can be effectively counted as contributions to GDP, is considered as a sign of underdevelopment. Similarly, restraining from the full exploitation of natural areas so as to produce environmental resources is perceived as inefficient. Lastly, not converting money itself into a financial product to be traded for profit in global markets is viewed as a missed opportunity (Savini/Ferreira/von Schönfeld 2022: 6). However, such criticism is not really new, nor would it be at odds with the green growth approach.

From an economic point of view, GDP only measures part of societal well-being, as welfare is not only determined by material well-being but also by the social situation and the existence of an intact environment. There are various possibilities for operationalizing the latter two components. Hence, the large number of methods for measuring prosperity and well-being is hardly surprising, and neither are the great definitional differences between them. As listed in Döring/Aigner-Walder (2022), well-known examples are the National Welfare Index, which includes, in contrast to GDP, data on private consumption, income distribution, ecological damage and public debt, and the Human Development Index, which considers, in addition to GDP, life expectancy at birth and school attendance (but no ecological data). Another example is the Weighted Index of Social Progress, which comprises economic, ecological and demographic indicators as well as measures on the status of women, the extent of “social chaos” and cultural diversity. Newer well-being indicators also consider environmental quality by including variables such as healthy life expectancy (Bloom/Fan/Kufenko et al. 2021). Finally, and based on the recommendations of the

so-called Stiglitz-Sen-Fitoussi Commission (Stiglitz/Sen/Fitoussi 2010), the prominent proposals for expanding GDP also include the set of indicators developed by the German Council of Economic Experts and the French Conseil d'Analyse Economique. It consists of different measures on economic performance and environmental and fiscal sustainability as well as objective data on quality of life and subjective assessments of well-being. With respect to the purposes of this paper, it is important to note that all of the aforementioned (alternative) methods of measuring economic and social well-being are compatible with both approaches – post-growth and green growth.

The main difference between the two approaches is that, unlike post-growth thinkers, green growth proponents continue to see GDP as an important (aggregate) indicator for assessing a country's state of economic and social development. Following Priewe (2022: 35), attempts to de-emphasize GDP and its growth “misjudge the role and impact of national accounting. GDP is an overall indicator for the market space for firms and their entrepreneurial strategies [...]”. Additionally, GDP growth is important for the government because it is “the key metric for the growth of tax revenues and for carrying public debt; for the valuation of financial assets, it is the main bridge to the real economy. For trade unions and workers, it is a prime determinant for employment, wages and poverty, apart from productivity. Although GDP is a poor indicator for collective well-being, at least in the high-income countries, it shows the aggregated economic performance, which has a strong bearing, at least indirectly, on some important dimensions of well-being” (Priewe 2022: 35). These dimensions, for example, are healthcare, education, mobility and social security. All these aspects are of central importance for understanding why the measurement of GDP growth is widely considered as indispensable for economic policy.

3.2 Empirical evidence regarding the status of absolute decoupling

Whether green growth is a viable transformation strategy depends largely on empirical evidence of a possible decoupling of growth and environmental consumption. While relative decoupling is already a widespread phenomenon, not least due to the efforts of companies to improve efficiency, there is also evidence for the existence of absolute decoupling. A meta-study of 179 investigations concludes that more than half of these analyses reveal evidence of absolute decoupling (Vadén/Lähde/Majava et al. 2020). This result is confirmed in a comparative evaluation of studies, which, however, also points out “that existing economic systems are still far away from green growth in terms of sufficient reductions of resource use or emissions” (Haberl/

Wiedenhofer/Virág et al. 2020). In addition, an investigation of high-income countries and their consumption-based greenhouse gas emissions found that there is already reliable evidence of absolute decoupling in 11 of the economies considered (Vogel/Hickel 2023). Finally, the Global Electricity Review 2024 provides empirical data showing that global greenhouse gas emissions have fallen continuously since 2007, which can also be seen as evidence of absolute decoupling (EMBER 2024).

Studies that provide empirical evidence for the so-called environmental Kuznets curve, which postulates a positive correlation between a growth-related increase in per capita income in countries and an absolute decline in environmental pollution, also come to similar conclusions. In the case of local environmental pollution (e.g. NO_x , SO_2), the majority of analyses show a decrease above a certain income level, which can be interpreted as confirmation of an absolute decoupling (Stern/Common/Barbier 1996; Munasinghe 1999; Yandle/Vijayaraghavan/Bhattarai 2002; Dinda 2004; Akbostanci/Türüt-Asik/Tunc 2009; He/Richard 2010; Apergis/Ozturk 2015). However, in some cases the studies show considerable variation between the level of the income thresholds from which the pollution decreases. In contrast, the empirical findings for globally effective environmental impacts (e.g. CO_2) are more inconsistent. There is either no evidence in the sense of the environmental Kuznets curve, or empirical confirmation only exists due to certain specifications of the study design. Recent (consumption-based) analyses of this type of environmental impact tend to indicate a relative, but not (yet) absolute decoupling (Steinkraus 2017; Achten/Leßmann/Steinkraus 2018). However, it is also pointed out that, from an empirical point of view, economic growth must be seen as a prerequisite for decreasing environmental consumption (ECO Austria 2024).

With regard to the validity of studies on absolute decoupling, it should be noted that the corresponding results are often due to specific political or economic circumstances and therefore do not yet provide positive evidence for a general decoupling trend (Vadén/Lähde/Majava et al. 2020). It should also be noted that some of the studies indicate that absolute decoupling is insufficient to remain within planetary boundaries or to avoid tipping points on a global scale with regard to the economies, sectors, natural resources and environmental goods for which this can be demonstrated. Accordingly, decoupling of the intensity and speed required to avoid overexploitation of the environment is not yet in place (Parrique/Barth/Briens 2019; Vogel/Hickel 2023). However, this finding is based on the fact that the current state of technological development has merely been extrapolated and no account has been taken of any possible innovative leaps in the avoidance technologies. This (notorious) underestimation of future technological progress can

be countered by the argument that the absence of absolute decoupling at present by no means precludes such decoupling in the near future. Indeed, Bowen and Hepburn (2012: 19) also state that “by definition, past evidence of the absence of absolute decoupling does not and cannot provide proof of the impossibility (or possibility) of any future structural shift to clean technology”. In view of this, it seems unresolved whether – as is often argued from a post-growth perspective (Kallis/Hickel/O’Neill et al. 2025) – there is reliable empirical evidence that the notion of absolute decoupling through green growth is no more than an unfulfillable hope.

3.3 Behavioural changes through increased education?

While the green growth approach aims to bring about the technological and social innovations required for a transformation mainly through (financial and legal) incentives, representatives of the post-growth approach focus not only on institutional reforms, but also on comprehensive education about the negative consequences of economic growth. This should bring about individual behavioural changes in favour of sustainable development. This applies in particular to sufficiency- and subsistence-oriented transformation strategies, such as those advocated by Jackson (2016) and Paech (2013). But it remains to be seen how conflicts and competition for the use of natural resources, which are an essential component of the trade-off between growth and environmental protection, can be defused through education and enlightenment alone. Particularly if the necessary transformation is accompanied by economic stagnation or even shrinkage and thus by consumption-related sacrifice or loss of income. These distributional issues resulting from the social and political costs of the transition to a post-growth economy are often underestimated (Lindner 2023).

Such a strategy of enlightenment and commitment in high-income countries appeals most likely to those sections of the population with a high level of education (usually coupled with high personal incomes). There are more people in this population group who have a positive attitude towards the environment and are probably more inclined to classify their lifestyle as resource conserving. Thus, they intend to keep their future consumption of natural resources low. However, it is worth noting that as the level of formal education and income increases, so too does an individual’s total resource consumption. Consumption levels are above average in the “social milieu segments with widely positive environmental attitudes” (Kleinhückelkotten/Neitzke/Moser 2016: 4; see also Pothén/Tovar Reaños 2018). Consequently, environmental attitude research speaks of a “knowledge-behaviour gap” caused by competing attitudes which

are relevant to action, or by habitual automated consumption patterns. This gap is regarded as an unfavourable parameter for a sufficiency strategy. Thus, environmental awareness competes with other values (such as comfort or prestige) and “corrupting” living conditions (prosperity, amenities) that induce behavioural routines closer to everyday life. Against this background, it is doubtful whether a strategy based primarily on education and self-awareness can be considered appropriate for resolving the conflict between growth and negative environmental impacts.

Ultimately, this criticism highlights two fundamental problems with the post-growth approach. The first concerns the identification of relevant policy measures, especially with regard to the field of environmental policy, which are often very similar to those advocated by a green growth perspective. Examples include carbon and resource taxes, cap-and-trade systems, environmental regulations and subsidizing ecologically desirable behaviour (Savin/van den Bergh 2024; Kallis/Hickel/O’Neill et al. 2025). The second problem is that “most proposals focus more on what a policy is supposed to achieve (objectives) rather than how it is supposed to achieve it (instruments)” (Fitzpatrick/Parrique/Cosme 2022: 10). This relates to the lack of attention given to the issues of “political support” and “political feasibility” in the post-growth literature (Savin/van den Bergh 2024). In the same way, Davidson and Gavris (2025) state that there are no precise recommendations on how to achieve the shift from a growth-oriented society to a post-growth-oriented society. Or, again, in the striking words of Fitzpatrick, Parrique and Cosme (2022: 9): “Ingredients do not make delicious meals, recipes do”. It is hardly controversial to say that the current post-growth agenda “is closer to a disparate list of ingredients than a neatly organized recipe” (Fitzpatrick/Parrique/Cosme 2022: 9).

3.4 Continued existence of growth-dependent areas of society

Growth-dependent areas can be identified as social systems and institutions that fulfil a socially desirable goal but can only adequately fulfil this goal with the help of economic growth (Seidl/Zahrnt 2012; Petschow/aus dem Moore/Pissarskoi et al. 2020). Such growth-dependent areas include social security systems, in particular pension and health insurance but also the tax and transfer system, and represent – in principle – a central obstacle to a society without economic growth, as propagated in the post-growth approach.

The factors that cause this dependency on growth are manifold (de la Maisonneuve/Oliveira Martins 2014) – with regard to social security systems, for example, demographic change, which is widespread in early industrialized coun-

tries, is highly relevant. Due to the shift in demographic structure towards an older population, it is becoming increasingly difficult for these societies to bear the constantly rising costs of the pension and healthcare system. The dependence of these systems on growth is not a naturally given but could be reduced through institutional reforms. With regard to state pension provision, for example, there are proposals to raise the statutory retirement age, introduce a supplementary funded pension or switch to a system with a state-guaranteed standard pension. In the area of health insurance, to name another example, the establishment of a citizens’ insurance scheme or the abolition of existing contribution assessment limits is also being recommended (Döring/Aigner-Walder 2022). However, even with such reforms, if the economy stagnates or even shrinks, there will still be negative repercussions on income and tax revenue and the associated issues of distributive justice within society. This is particularly true if the preservation or expansion of social security systems and other socially beneficial, growth-dependent areas (e.g. the labour market and employment, social equality and cohesion, financial markets and the credit system) are to remain a core component of social justice in the future.

In addition, it is estimated that high budgets are required to finance a socio-ecological transformation (WBGU 2011; GCEC 2014). Indeed, the issue of funding is not clearly addressed from the perspective of the de-growth approach, which focuses primarily on sufficiency and subsistence. In contrast, green growth suggests that technologically induced productivity increases may at least provide a basic source of funding for such a transformation process. However, recent econometric studies also show that the growth rates required to decarbonize the economy alone would have to be very high, 4.4 % p.a. for a 41 % reduction in emissions by 2040 (ECO Austria 2024: 32). According to this study, an annual growth rate of 7.4 % would be required to achieve climate neutrality by 2040. However, these unrealistically high growth rates are based on the assumption that no additional economic policy measures will be taken to reduce emissions or to achieve climate neutrality compared to the status quo. If, on the other hand, additional measures are taken (such as increased global cooperation, sustainable industrialization, rapid expansion of the European Emissions Trading Scheme, using CO₂ as a resource, using hydrogen as an energy carrier, the full electrification of society, providing more venture capital, etc.), the required annual growth rates could be significantly lower.

4 Conclusion

This evaluation of the two approaches – post-growth and green growth – has shown that it is not yet possible to make a final assessment of how realistic their assumptions and statements are. This requires knowledge of the relationship between resource consumption, ecological impact and economic development, which is not currently available in a reliable form. Consequently, the focus of consideration should not be on the question of whether growth must be avoided in the future in order to comply with planetary boundaries or whether growth should only take place on the basis of environmentally friendly innovations. Rather, the question of which of the two development paths is to be regarded as ecologically appropriate should be deliberately left open, as the current state of knowledge does not allow a clear statement to be made either theoretically or empirically.

Notwithstanding this assessment, one important point has not yet been mentioned and should be borne in mind. Following Susskind (2024: 47), post-growth thinking “builds on a misunderstanding of how economic growth really works. This mistake is reflected in the slogan ‘infinite growth is not possible on a finite planet’. But this is wrong – it is possible. The problem is that this way of thinking is rooted in an old fashioned view of economic activity: one that pictures the economy as a material world where what really matters are the things that can be seen and touched, such as farm equipment or factory machines. This material focus is a distraction. Growth does not come from using more and more finite resources, but from discovering more and more productive ways of using those finite resources. In other words, it comes not from the tangible world of objects, but from the intangible world of ideas. And the universe of those intangible ideas is unimaginably vast [...]. In other words, our finite planet is not the constraint that matters when thinking about the future of economic growth”. Green growth is compatible with this view, relying on technological and social innovation for a sustainable approach to planetary boundaries.

In view of the current state of knowledge and the criticism formulated above, it would be downright negligent if spatial sciences and planning were to focus more on post-growth considerations in the future. This is particularly true as it is unrealistic to expect that the majority of the population, and thus also of politicians, will be prepared to pursue such an approach (Savin/van den Bergh 2024). Instead, compatible changes should be sought within the existing economic system that are likely to ensure a high level of political approval within society. In view of this, the green growth approach must be considered the more suitable basis for a social transformation towards an ecologically compat-

ible economic system. It should therefore be the benchmark for spatial sciences and planning. This is especially the case with regard to planning procedures, which can only be carried out on a foundation of widely accepted social and societal norms and attitudes.

However, spatial and planning sciences should not commit themselves unilaterally to just one of the two approaches when it comes to identifying central fields of action for an environmentally compatible shaping of the economy and society. This is unproblematic where there is a common overlap between the measures recommended by both approaches. Such overlaps are particularly found in the areas of social innovation highlighted by the green growth approach and required to achieve the necessary socio-ecological transformation. There is also consensus between the two approaches when it comes to necessary changes in the consumption and behaviour patterns of private households, such as in the transport sector regarding sufficient mobility behaviour or with respect to the transformation of the energy sector.

However, it becomes clear that there are limits to the compatibility of the implications for spatial planning and development policy when a post-growth perspective claims that both conventional regional planning and traditional concepts for spatial/regional development with their established spectrum of growth-oriented success criteria represent an obstacle to transformative initiatives (ARL 2021). Particularly in view of the dependence on economic growth of central social fields and institutions and the enormous financing requirements of upcoming transformation processes, it would be fatal to forego growth-stimulating measures in spatial development policy now and in the future. Against this background, a strategy of economic shrinking is only justifiable for regions and sectors that are characterized by a low ecological compatibility of economic activity. In contrast, forms of economic growth that are in line with the goal of sustainable development should continue to be promoted by spatial/regional development policy.

Competing Interests The authors declare no competing interests.

Acknowledgements We would like to thank the two anonymous reviewers for their helpful comments.

Funding This work received no external funding.

References

- Achten, S.; Leßmann, C.; Steinkraus, A. (2018): Die Umwelt-Kuznets-Kurve und internationaler Handel. In: ifo Dresden berichtet 25, 1, 29–31.
- Akbostanci, E.; Türüt-Asik, S.; Tunc, G.I. (2009): The Re-

- lation between Income and Environment in Turkey: Is there an Environmental Kuznets Curve? In: *Energy Policy* 37, 3, 861–867. <https://doi.org/10.1016/j.enpol.2008.09.088>
- Apergis, N.; Ozturk, I. (2015): Testing Environmental Kuznets Curve Hypothesis in Asian Countries. In: *Ecological Indicators* 52, 16–22. <https://doi.org/10.1016/j.ecolind.2014.11.026>
- ARL – Akademie für Raumentwicklung in der Leibniz-Gemeinschaft (2021): Postwachstum und Raumentwicklung – Denkanstöße für Wissenschaft und Praxis. Hannover. = Positionspapier aus der ARL 122.
- Beckerman, W. (1992): *Economic Development and the Environment: Conflict or Complementarity?* Washington, DC. = World Bank Policy Research Working Paper 961.
- Behrens, A.; Giljum, S.; Kovanda, J.; Niza, S. (2007): The Material Basis of the Global Economy. Worldwide patterns of natural resource extraction and their implications for sustainable resource use policies. In: *Ecological Economics* 64, 2, 444–453. <https://doi.org/10.1016/j.ecolecon.2007.02.034>
- Binswanger, H.C. (2013): *The Growth Spiral. Money, Energy, and Imagination in the Dynamics of the Market Process.* Berlin. <https://doi.org/10.1007/978-3-642-31881-8>
- Black, S.; Parry, I.; Vernon-Lin, N. (2023): Fossil Fuel Subsidies Surged to Record US-D 7 Trillion. Washington, DC.
- Bloom, D.E.; Fan, V.Y.; Kufenko, V.; Ogbuonji, O.; Prettnier, K.; Yamey, G. (2021): Going beyond GDP with a parsimonious indicator: Inequality-adjusted healthy lifetime income. In: *Vienna Yearbook of Population Research* 19, 127–140. <https://doi.org/10.1553/populationyearbook2021.res1.1>
- Bowen, A.; Hepburn, C. (2012): *Prosperity with Growth: Economic Growth, Climate Change and Environmental Limits.* London. = Grantham Research Institute on Climate Change and the Environment Working Paper 93.
- Bridge, G. (2009): Material Worlds: Natural Resources, Resource Geography and the Material Economy. In: *Geography Compass* 3, 3, 1217–1244. <https://doi.org/10.1111/j.1749-8198.2009.00233.x>
- Brunnengräber, A.; Haas, T. (2020): Der Verkehr in der Transformation. In: Brunnengräber, A.; Haas, T. (Hrsg.): *Baustelle Elektromobilität. Sozialwissenschaftliche Perspektiven auf die Transformation der (Auto-)Mobilität.* Bielefeld, 13–33. <https://doi.org/10.14361/9783839451656-002>
- Cosme, I.; Santos, R.; O'Neill, D.W. (2017): Assessing the Degrowth Discourse: A Review and Analysis of Academic Degrowth Policy Proposals. In: *Journal of Cleaner Production* 149, 321–334. <https://doi.org/10.1016/j.jclepro.2017.02.016>
- D'Alisa, G.; Demaria, F.; Kallis, G. (2014), *Degrowth. A Vocabulary for a New Era.* London.
- Daly, H.E. (1996): *Beyond Growth. The Economics of Sustainable Development.* Boston.
- Daly, H.E. (2010): From a failed-growth economy to a steady-state economy. In: *Solutions* 1, 37–43.
- Dasgupta, P. (2021): *The Economics of Biodiversity – The Dasgupta Review.* London.
- Davidson, J.P.L.; Gavris, M. (2025): Towards a Degrowth Transition: Bringing Interests Back In. In: *New Political Economy* 30, 1, 48–61. <https://doi.org/10.1080/13563467.2024.2389506>
- de la Maisonneuve, C.; Oliveira Martins, J. (2014): The future of health and long-term care spending. In: *Economic Studies* 1, 61–96. https://doi.org/10.1787/eco_studies-v2014-1-en
- Demary, V.; Schaefer, T. (2023): Mit Digitalisierung zu klimaneutralem Wachstum und Wohlstand. In: *Wirtschaftsdienst* 103, 7, 450–453. <https://doi.org/10.2478/wd-2023-0132>
- Denzau, A.T.; North, D.C. (1994): Shared Mental Models – Ideologies and Institutions. In: *Kyklos* 47, 1, 3–31. <https://doi.org/10.1111/j.1467-6435.1994.tb02246.x>
- Dinda, S. (2004): Environmental Kuznets Curve Hypothesis: A Survey. In: *Ecological Economics* 49, 4, 431–455. <https://doi.org/10.1016/j.ecolecon.2004.02.011>
- Döring, T.; Aigner-Walder, B. (2022): The Limits to Growth – 50 Years Ago and Today. In: *Intereconomics* 57, 3, 187–191. <https://doi.org/10.1007/s10272-022-1046-5>
- ECO Austria – Institut für Wirtschaftsforschung (2024): *Wie viel Wachstum braucht es für die grüne Wende?* Wien.
- EMBER (2024): *Global Electricity Review 2024.* London.
- Fitzpatrick, N.; Parrique, T.; Cosme, I. (2022): Exploring Degrowth Policy Proposals: A Systematic Mapping with Thematic Synthesis. In: *Journal of Cleaner Production* 365, 132764. <https://doi.org/10.1016/j.jclepro.2022.132764>
- Foley, J.; Daily, G.C.; Howarth, R.; Vaccari, D.A.; Morris, A.C.; Lambin, E.F.; Doney, S.C.; Gleick, P.H.; Fahey, D.W. (2010): Boundaries for a Healthy Planet. In: *Scientific American* 302, 4, 54–57.
- GCEC – The Global Commission on the Economy and Climate (2014): *Better Growth, Better Climate. The New Climate Economy Report.* Washington, DC.
- Ge, Y.; Zhi, Q. (2016): Literature Review: The Green Economy, Clean Energy Policy and Employment. In: *Energy Procedia* 88, 257–264. <https://doi.org/10.1016/j.egypro.2016.06.159>
- Giljum, S.; Lutter, S. (2015): Globaler Ressourcenkonsum – Die Welt auf dem Weg in eine Green Economy? In: *Geographische Rundschau* 67, 5, 10–15.

- Haberl, H.; Wiedenhofer, D.; Virág, D.; Kalt, G.; Plank, B.; Brockway, P.; Fishman, T.; Hausknost, D.; Krausmann, F.; Leon-Gruchalski, B.; Mayer, A.; Pichler, M.; Schaffartzik, A.; Sousa, T.; Streeck, J.; Creutzig, F. (2020): A systematic review of the evidence on decoupling of GDP, resource use and GHG emissions, part II: synthesizing the insights. In: *Environmental Research Letters* 15, 065003. <https://doi.org/10.1088/1748-9326/ab842a>
- He, J.; Richard, P. (2010): Environmental Kuznets Curve for CO₂ in Canada. In: *Ecological Economics* 69, 5, 1083–1093. <https://doi.org/10.1016/j.ecolecon.2009.11.030>
- Henzelmann, T.; Büchele, R.; Andrae, P.; Wiedermann, A. (2018): *GreenTech made in Germany - Umwelttechnik-Atlas für Deutschland*, Berlin.
- Hickel, J. (2021): What Does Degrowth Mean? A Few Points of Clarification. In: *Globalizations* 18, 7, 1105–1111. <https://doi.org/10.1080/14747731.2020.1812222>
- Hickel, J.; Kallis, G. (2020): Is Green Growth Possible? In: *New Political Economy* 25, 4, 469–486. <https://doi.org/10.1080/13563467.2019.1598964>
- Hinterberger, F.; Giljum, S.; Omann, I.; Polsterer, N.; Stocker, A.; Burrell, L.; Campreggher, C.; Fuchs, D.; Hartwig, F. (2013): *Green Growth: From Labour to Resource Productivity*. Wien.
- Holtemöller, O. (2023): Markt, Umwelt und Wirtschaftswachstum – ein Trilemma? In: *Wirtschaftsdienst* 103, 7, 437–440. <https://doi.org/10.2478/wd-2023-0129>
- Hussain, Z.; Mehmood, B.; Khan, M.K.; Tsimisarakas, R.S.M. (2022): Green Growth, Green Technology, and Environmental Health: Evidence From High-GDP Countries. In: *Frontiers in Public Health* 9, 816697. <https://doi.org/10.3389/fpubh.2021.816697>
- Islar, M.; Koch, M.; Raphael, R.; Paulsson, A. (2024): Degrowth: A Path to Transformative Solutions for Socio-Ecological Sustainability. In: *Global Sustainability* 7, e20. <https://doi.org/10.1017/sus.2024.13>
- Jackson, T. (2016): *Prosperity without growth? Economics for a finite planet*. London.
- Jacobs, M. (2013): Green Growth. In: Falkner, R. (ed.): *The Handbook of Global Climate and Environmental Policy*. Oxford, 197–214. <https://doi.org/10.1002/9781118326213.ch12>
- Kallis, G. (2018): Degrowth. Newcastle upon Tyne.
- Kallis, G.; Hickel, J.; O'Neill, D.W.; Jackson, T.; Victor, P.A.; Raworth, K.; Schor, J.B.; Steinberger, J.K.; Ürges-Vorsatz, D. (2025): Post-Growth: The Science of Well-being within Planetary Boundaries. In: *Lancet Planetary Health* 9, 1, e62–e78. [https://doi.org/10.1016/s2542-5196\(24\)00310-3](https://doi.org/10.1016/s2542-5196(24)00310-3)
- Kenis, A.; Lievens, M. (2016): Greening the Economy or Economizing the Green Project? When Environmental Concerns Are Turned into a Means to Save the Market. In: *Review of Radical Political Economics* 48, 2, 217–234. <https://doi.org/10.1177/0486613415591803>
- Kerschner, C.; Wächter, P.; Nierling, L.; Ehlers, M.-H. (2018): Degrowth and Technology: Towards feasible, viable, appropriate and convivial imaginaries. In: *Journal of Cleaner Production* 197, 2, 1619–1636. <https://doi.org/10.1016/j.jclepro.2018.07.147>
- Kleinhüchelkotten, S.; Neitzke, H.-P.; Moser, S. (2016): Repräsentative Erhebung von Pro-Kopf-Verbräuchen natürlicher Ressourcen in Deutschland (nach Bevölkerungsgruppen). Dessau-Roßlau. = UBA-Texte 39/2016.
- Leschke, M. (2015): Alternativen zur Marktwirtschaft. Ein kritischer Blick auf die Ansätze von Niko Paech und Christian Felber aus Sicht der konstitutionellen Ökonomik. Bayreuth. = Beiträge zur Jahrestagung des Ausschusses für Wirtschaftssysteme und Institutionenökonomik im Verein für Socialpolitik: „Marktwirtschaft im Lichte möglicher Alternativen“.
- Lindner, F. (2023): Kein Wachstum ist auch keine Lösung. Eine Kritik an Degrowth- und Postwachstumsansätzen. In: *Wirtschaftsdienst* 103, 8, 564–569. <https://doi.org/10.2478/wd-2023-0157>
- Livermore, M.A. (2014): *The Meaning of Green Growth*. Charlottesville. = University of Virginia Law School, Public Law and Legal Theory Research Paper Series 2014-12.
- Martinez-Alier, J.; Pascual, U.; Vivien, F.-D.; Zaccai, E. (2010): Sustainable De-Growth: Mapping the context, criticisms and future prospects of an emergent paradigm. In: *Ecological Economics* 69, 9, 1741–1747. <https://doi.org/10.1016/j.ecolecon.2010.04.017>
- Meadows, D.H.; Meadows, D.L.; Randers, J.; Behrens III, W. (1972): *The Limits to Growth*. New York.
- Munasinghe, M. (1999): Is Environmental Degradation an Inevitable Consequence of Economic Growth: Tunneling Through the Environmental Kuznets Curve. In: *Ecological Economics* 29, 1, 89–109. [https://doi.org/10.1016/S0921-8009\(98\)00062-7](https://doi.org/10.1016/S0921-8009(98)00062-7)
- Nelson, A.; Schneider, F. (2019): *Housing for Degrowth. Principles, models, challenges and opportunities*. New York.
- Nordhaus, W.D. (1993): Reflections on the Economics of Climate Change. In: *Journal of Economics Perspectives* 7, 4, 11–25. <https://doi.org/10.1257/jep.7.4.11>
- OECD – Organization for Economic Co-operation and Development (2011): *Towards Green Growth*. Paris.
- Paech, N. (2010): Eine Alternative zum Entkopplungsmythos: Die Postwachstumsökonomie. In: *Humane Wirtschaft* 205, 5, 12–14.
- Paech, N. (2013): *Befreiung vom Überfluss. Auf dem Weg in die Postwachstumsökonomie*. München.

- Parrique, T.; Barth, J.; Briens, F.; Kerschner, C.; Kraus-Polk, A.; Kuokkanen, A.; Spangenberg, J.H. (2019): Decoupling Debunked. Evidence and arguments against green growth as a sole strategy for sustainability. Brussels.
- Petersen, T. (2023): Wachstum oder Schrumpfung? Eine Frage der Entkopplung. In: *Wirtschaftsdienst* 103, 7, 441–444. <https://doi.org/10.2478/wd-2023-0130>
- Petschow, U.; aus dem Moore, N.; Pissarskoi, E.; Bahn-Walkowiak, B.; Ott, H.E.; Hofmann, D.; Lange, S.; Korfhage, T.; Schoofs, A.; Wilts, H.; Best, B.; Benke, J.; Buhl, J.; Galinski, L.; Lucas, R.; Koop, C.; Werland, S.; Berg, H. (2020): Ansätze zur Ressourcenschonung im Kontext von Postwachstumskonzepten. Dessau-Roßlau. = UBA-Texte 98/2020.
- Pothen, F.; Tovar Reaños, M.A. (2018): The Distribution of Material Footprints in Germany. Mannheim. = ZEW Discussion Paper 18-022.
- Priewe, J. (2022): Growth in the Ecological Transition: Green, Zero or De-Growth? In: *European Journal of Economics and Economic Policies Intervention* 19, 1, 19–40. <https://doi.org/10.4337/ejeep.2022.01.04%0A>
- Randers, J. (2012): 2052 – A Global Forecast für the Next Forty Years. White River Junction.
- Raworth, K. (2018): Doughnut Economics. Seven Ways to Think Like a 21st Century Economist. London.
- Renault, J.-F.; Schwietring, T. (2016): Übergang in eine Green Economy: Notwendige strukturelle Veränderungen und Erfolgsbedingungen für deren tragfähige Umsetzung in Deutschland. Dessau-Roßlau. = Umwelt, Innovation, Beschäftigung 03/2016.
- Richardson, K.; Steffen, W.; Lucht, W.; Bendtsen, J.; Cornell, S.E.; Donges, J.F.; Drüke, M.; Fetzer, I.; Bala, G.; von Bloh, W.; Feulner, G.; Fiedler, S.; Gerten, D.; Gleeson, T.; Hofmann, M.; Huiskamp, W.; Kummu, M.; Mohan, C.; Nogues-Bravo, D.; Petri, S.; Porkka, M.; Rahmstorf, S.; Schaphoff, S.; Thonicke, K.; Tobian, A.; Virkki, V.; Wang-Erlandsson, L.; Weber, L.; Rockström, J. (2023): Earth beyond six of nine planetary boundaries. In: *Science Advances* 9, 37. <https://doi.org/10.1126/sciadv.adh2458>
- Savin, I.; van den Bergh, J. (2024): Reviewing Studies of Degrowth: Are Claims Matched by Data, Methods and Policy Analysis? In: *Ecological Economics* 226, 108324. <https://doi.org/10.1016/j.ecolecon.2024.108324>
- Savini, F. (2025): Strategic Planning for Degrowth: What, Who, How. In: *Planning Theory* 24, 2, 141–162. <https://doi.org/10.1177/14730952241258693>
- Savini, F.; Ferreira, A.; von Schönfeld, K.C. (2022): Uncoupling Planning and Economic Growth: Towards Post-Growth Urban Principles. In: Savini, F.; Ferreira, A.; von Schönfeld, K.C. (eds.): *Post-Growth Planning. Cities beyond the Market Economy*. New York, 3–18.
- Schmelzer, M. (2017): Jenseits des Wirtschaftswachstums? Einführung in die Begriffe und den Entstehungskontext der Postwachstumsbewegung. In: *Nachrichten der ARL* 47, 4, 8–10.
- Schmelzer, M.; Vetter, A. (2019): *Degrowth/Postwachstum zu Einführung*. Hamburg.
- Schmelzer, M.; Vetter, A.; Vansintjan, A. (2022): *The Future is Degrowth. A Guide to a World beyond Capitalism*. London.
- Schneidewind, U. (2018): *Die große Transformation. Eine Einführung in die Kunst gesellschaftlichen Wandels*. Frankfurt am Main.
- Schneidewind, U.; Zahrnt, A. (2014): *The Politics of Sufficiency. Making it easier to live the Good Life*. München.
- Schulz, C.; Lange, B.; Hülz, M.; Schmid, B. (2022): Post-Growth Geographies. In: Lange, B.; Hülz, M.; Schmid, B.; Schulz, C. (eds.): *Post-Growth Geographies. Spatial Relations of Diverse and Alternative Economies*. Bielefeld, 15–34. <https://doi.org/10.14361/9783839457337-003>
- Seidl, I.; Zahrnt, A. (eds.) (2012): *Postwachstums-gesellschaft. Konzepte für die Zukunft*. Marburg. = *Ökologie und Wirtschaftsforschung* 87.
- Seidl, I.; Zahrnt, A. (Hrsg.) (2019): *Tätigsein in der Postwachstumsgesellschaft*. Weimar bei Marburg.
- Steinkraus, A. (2017): Investigating the Effect of Carbon Leakage on the Environmental Kuznets Curve Using Luminosity Data. In: *Environment and Development Economics* 22, 6, 747–770. <https://doi.org/10.1017/S1355770X17000249>
- Stern, D.I.; Common, M.S.; Barbier, E.B. (1996): Economic Growth and Environmental Degradation. The Environmental Kuznets Curve and Sustainable Development. In: *World Development* 24, 7, 1151–1160. [https://doi.org/10.1016/0305-750X\(96\)00032-0](https://doi.org/10.1016/0305-750X(96)00032-0)
- Stiglitz, J.; Sen, A.; Fitoussi, J.P. (2010): *Mismeasuring Our Lives. Why GDP Doesn't Add Up*. New York.
- Susskind, D. (2024): We Must Change the Nature of Growth. In: *Finance Development* 61, 3, 44–48.
- UN-DESA – United Nations Department of Economic and Social Affairs (2012): *A Guidebook to the Green Economy. Issue 1: Green Economy, Green Growth, and Low-Carbon Development*. New York.
- Vadén, T.; Lähde, V.; Majava, A.; Järvensivu, P.; Toivanen, T.; Hakala, E.; Eronen, J.T. (2020): Decoupling for ecological sustainability. A categorization and review of research literature. In: *Environmental Science and Policy* 112, 236–244. <https://doi.org/10.1016/j.envsci.2020.06.016>
- Victor, P.A. (2010): *Ecological Economics and Economic*

- Growth. In: *Annals of the New York Academy of Sciences* 1185, 1, 237-245. <https://doi.org/10.1111/j.1749-6632.2009.05284.x>
- Vogel, J.; Hickel, J. (2023): Is green growth happening? An empirical analysis of achieved versus Paris-compliant CO₂-GDP decoupling in high-income countries. In: *The Lancet Planetary Health* 7, 9, e759-e769. [https://doi.org/10.1016/S2542-5196\(23\)00174-2](https://doi.org/10.1016/S2542-5196(23)00174-2)
- WBGU – Wissenschaftlicher Beirat der Bundesregierung
- Globale Umweltveränderungen (2011): *Welt im Wandel. Gesellschaftsvertrag für eine Große Transformation*. Berlin.
- World Bank (2012): *Inclusive Green Growth. The Pathway to Sustainable Development*. Washington, DC.
- Yandle, B.; Vijayaraghavan, M.; Bhattarai, M. (2002): *The Environmental Kuznets Curve. A Primer*. Bozeman. = PERC Research Study 02-1.