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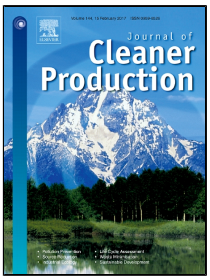


Assessing the degrowth discourse: a review and analysis of academic degrowth policy proposals

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**Highlights**

- We present a review of a selection of peer-reviewed degrowth articles.
- We identify inconsistencies between the degrowth discourse and proposals for action.
- Identified degrowth proposals are mainly national top-down approaches not local bottom-up ones.
- Proposals aim for sustainable scale and fair distribution over efficient allocation.
- Proposals should be analysed in combination to arrive at a degrowth policy mix.

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**Abstract:**

Debates around ecological and social limits to economic growth and new ways to deal with resource scarcity without compromising human wellbeing have re-emerged in the last few years, especially with the increasing calls for a degrowth approach. In this paper, a framework is developed to support a systematic analysis of degrowth in the selected academic literature. This article attempts to present a clearer notion of what degrowth academic literature has been exploring, by identifying, organizing and analysing a set of proposals for action retrieved from a selection of articles. The framework is applied to classify these proposals according to their alignment to ecological economics policy objectives (sustainable scale, fair distribution, and efficient allocation), type of approach (top-down versus bottom-up), and geographical focus (local, national, or international). A total of 128 peer-reviewed articles focused on degrowth were reviewed, and 54 that include proposals for action were analysed. The proposals identified align with three broad goals: (1) Reduce the environmental impact of human activities; (2) Redistribute income and wealth both within and between countries; and (3) Promote the transition from a materialistic to a convivial and participatory society. The findings indicate that the majority of degrowth proposals are national top-down approaches, focusing on government as a major driver of change, rather than local bottom-up approaches, as advocated by many degrowth proponents. The most emphasised aspects in the degrowth literature are related to social equity, closely followed by environmental sustainability. Topics such as population growth and the implications of degrowth for developing nations are largely neglected, and represent an important area for future research. Moreover, there is a need for a deeper analysis of how degrowth proposals would act in combination.

**Keywords:** degrowth; policy; top-down; bottom-up; sustainable scale; fair distribution.

## 1. Introduction

Many authors (e.g. Barnett and Morse, 1963; Jevons, 1865; Malthus, 1798) have discussed the idea that human activity will eventually confront limits associated with the availability of natural resources; however, it was not until 1972 that this debate turned global, with the publication of *The Limits to Growth* (Meadows et al., 1972). The authors of this report warned that there are limits, not only on the extraction of natural resources, but also on the capacity of ecosystems to absorb pollution from the processes of land and material transformation.

More recent research suggests that many physical limits will eventually arise if people continue to pursue the same development path—from population, to arable land, extraction of some metals and minerals, fresh water available per capita, and climate stability, to name a few (Heinberg, 2010). The work of Rockström et al. (2009) discusses that the period of stability that Earth's environment experienced in the last millennia is endangered by human activities, and defined a safe operating space for humanity for which some boundaries should not be crossed. Four of these boundaries (related to climate change, loss of biosphere integrity, land-system change, and altered biogeochemical cycles) have already been transgressed (Steffen et al., 2015). Humans have become a global geophysical force, leading humanity into the Anthropocene, an age of uncertain global changes caused by anthropogenic activities (Steffen et al., 2007).

In parallel to the ecological debate on limits to growth, there has also been a debate about social limits to growth. While economic growth after the World War II was a key factor to reduce inequalities, this continuous path is now leading to an increase in inequality, as half of the wealth in the world is estimated to belong to a scarce 1% of the population (Oxfam, 2014; Piketty, 2014). Consequently, more inequality in societies tends to increase the importance of social status, leading to a decrease in social cohesion and sense of community (Pickett and Wilkinson, 2011). In addition to these consequences of unbounded economic growth, studies (see Jackson, 2009; Layard, 2006) have shown that happiness, arguably the ultimate goal of wealth accumulation, has not been increasing in wealthy nations in recent decades, despite very significant economic growth.

Given the failure of strategies to decouple economic activity from environmental impacts (Wiedmann et al., 2013), and the broken promise of increasing wellbeing with economic growth, sustainable

*degrowth* is increasingly being viewed as a solution to achieve sustainability at all its levels (D'Alisa et al., 2015a; Hueting, 2010; Martínez-Alier et al., 2010; Schneider et al., 2010).

The degrowth perspective is focused on enhancing human well-being, and reducing the importance of economic growth in attaining this goal (Bilancini and D'Alessandro, 2012). Degrowth can be considered a "provocative slogan" (Latouche, 2010); but it can also be interpreted as a more defined concept that already has many policy concerns behind it, such as work-sharing or new paradigms of local living (Kallis et al., 2012).

This article discusses where degrowth movement stands currently in the academic debate. In the context of the selected academic literature, the article aims to answer three essential questions: (i) What does the sustainable degrowth perspective mean in a policy-making context? (ii) How do its goals align with ecological economics policy objectives? (iii) What are the main types of approaches embedded in degrowth proposals?

To answer these questions, a total of 128 peer-reviewed articles were surveyed in the academic literature on degrowth. To facilitate the analysis, a framework was constructed to select policy-relevant articles, to understand the main goals of degrowth, and to determine how the proposals in the degrowth literature help to reach these goals. Following this categorisation, an analysis was done on the geographical focus of the proposals and the degree to which they contribute to three ecological economics policy objectives: sustainable scale, fair distribution, and efficient allocation. The proposals were also divided into bottom-up and top-down approaches. Following this step, it was possible to understand which areas are most explored in the literature and which need more research, as well as some of the more prominent challenges for academic research on degrowth.

The remainder of the article is organised as follows. Section 2 constructs the path between old and new concerns around the degrowth debate, the movement's origins, and also the divergence in its current conceptualisation. Section 3 discusses the link between degrowth and the three ecological economics policy objectives. Section 4 shows the methods used for the analysis of the degrowth debate. Section 5 presents and discusses the main results of the analysis, as well as ideas for future research. Finally, Section 6 concludes this analysis.

## 2. The evolution of the degrowth perspective: from the emergence of the idea to the debate of concrete proposals

There are alternative visions of how a post-growth society should be achieved. It is important to clarify from the beginning that degrowth is not a synonym for negative growth (economic recession) and it is not a goal in itself (Schneider et al., 2010). A degrowth path might include a period of negative growth, but only during the time needed for a transition to an economic system that does not collapse with economic contraction. Degrowth also goes beyond the a-growth perspective, in which political decisions should be agnostic to growth (van den Bergh and Kallis, 2012), what implies ignoring GDP as an indicator of social welfare due to the various problems associated with it (van den Bergh, 2009). This perspective is based on the fact that economic growth does not guarantee welfare and that it is very difficult to implement a sustainability transition in this context, since it often means sacrificing productivity (van den Bergh and Kallis, 2012). Another perspective is the steady-state economy (SSE), which claims that the economy should have a "constant stock of capital, maintained by a low rate of throughput that is within the regenerative and assimilative capacity of the ecosystem" (Daly, 2008, p. 3), having population also constant. Degrowth can be seen as a possible pathway to a SSE. This idea is proposed by Kerschner (2010) and defended by O'Neill (2012), who argue that the two concepts are complementary. This vision proposes degrowth as a way for the countries in the northern hemisphere to achieve a SSE, while countries in the south should follow a path of decelerating growth (or a new development pathway altogether).

There have been a number of efforts to define what degrowth means, to find its different contexts, and also to track the historical roots of the movement (e.g. D'Alisa et al., 2015a; Demaria et al., 2013; Martínez-Alier et al., 2010). Recent publications on degrowth are still quite divergent in terms of defining what degrowth encompasses, what makes it very complex to grasp what degrowth entails currently. In part this may be because some advocates of degrowth do not find it relevant to have a precise definition, and prefer to focus on the purposes of the movement itself (e.g. Latouche, 2010). There are also different types of approaches, as some authors focus mainly on conceptual aspects of degrowth – for example by criticising the development model of wealthy nations (e.g. Latouche, 2010; Martínez-Alier, 2009; Martínez-Alier et al., 2010) – while others focus on specific measures and policies for the future (e.g. Asara et al., 2015; Schneider et al., 2010; Speth, 2012).

According to Martínez-Alier et al. (2010), the degrowth movement has three main pillars - theoretical, activist and political. For characterizing the theoretical pillar of degrowth it is important to differentiate between the French *décroissance* movement (see Fournier, 2008) and the sustainable degrowth literature, mostly explored in the ecological economics field of research (see Kallis, 2011). While the contemporary French *décroissance* movement has its historical origins in the critique of development, modernity and political ecology concerns, the sustainable degrowth movement is usually traced to the critique to economic growth and the notion of a necessary "declining" state of the economy argued by Georgescu-Roegen in his influential works (Georgescu-Roegen, 1995; Kerschner, 2010; Martínez-Alier et al., 2010). Among many other important works, influential sources of degrowth in terms of the critique of modernity, the calls for the abandonment of consumerism and for the importance of having autonomous individuals and societies, are the works of André Gorz (e.g. 1983), Ivan Illich (e.g. 1971) and Cornelius Castoriadis (e.g. 1998).

The other two pillars of degrowth, activist and political, are connected to social grassroots movements (e.g. Alexander, 2013) and to French political debates about degrowth (e.g. Baykan, 2007), respectively. These three pillars are not necessarily integrated in a common framework (Martínez-Alier et al., 2010), but there is an interaction between actors and ideas, especially in the degrowth international conferences, where academics, activists and practitioners share and debate ideas around the topics.

Degrowth may also be defined by the group of characteristics agreed by the participants at the "First International Conference on Economic De-growth for Ecological Sustainability and Social Equity", held in Paris in 2008[1]. At this conference, degrowth was defined as a "voluntary transition towards a just, participatory, and ecologically sustainable society", and seen as the process that the wealthiest countries should go through in order to achieve a "right-sizing" of both national economies and the global economy (Flipo and Schneider, 2008). This interpretation was further developed by Schneider et al. (2010), who claim that degrowth aspires to be a multi-dimensional concept with a variety of interpretations, open for public debate and proposals for practical solutions. The authors define degrowth as "an equitable downscaling of production and consumption that increases human well-

[1]For further information see the website of the conference: http://events.it-sudparis.eu/degrowthconference/en/.

being and enhances ecological conditions at the local and global level, in the short and long term" (Schneider et al., 2010, p. 512). They suggest that the process of transition and end-state for society should be sustainable in both environmental and social dimensions.

Kallis (2011, p. 874) discusses degrowth as a "multi-facet political project" and defines it from an ecological economics perspective as "a socially sustainable and equitable reduction (and eventually stabilisation) of society's throughput". He adds the importance of reducing our environmental impacts to a sustainable level where they can be stabilised. Kallis considers degrowth to be an "umbrella keyword" that provides a context for the linkage of policies and civil movements. A more recent conceptualisation includes the rejection of growth as a development paradigm and focuses on the key importance of democracy for shrinking production and consumption (D'Alisa et al., 2015a)

Degrowth claims that we should abandon the goal of growth for growth's sake, and thus the idea of society being an instrument of the productive mechanism (Latouche, 2009). Degrowth argues that industrialised societies should focus on happiness and relationships, instead of efficiency. For this, the feminist perspectives of degrowth claim that "re-centring the society around care would pave the way to degrowth" (D'Alisa et al., 2015b, p. 65), since it would contribute to a more just society in terms of well-being and work distribution. Overall, degrowth is a quest for building, in a voluntary way, a better society and creating a new "post-development" pattern that is socially just and within ecological limits (Martínez-Alier et al., 2010).

### 3. Degrowth and ecological economics policy objectives

This article analyses academic degrowth proposals from an ecological economics perspective, a field where degrowth research has been evolving in the last decades. Ecological economics is a transdisciplinary field of study whose fundamental premise is that the economic system is embedded within a social system, which is in turn embedded within an ecological system (the biosphere). Given this premise, ecological economics argues that many environmental problems are caused by the scale of economic activity exceeding ecosystem limits (Daly and Farley, 2011). This perspective is in contrast to mainstream (i.e. neoclassical) economics, which argues that environmental problems largely arise due to market failures (e.g. externalities). According to Røpke (2004, p. 300), in the ecological economics perspective, market failures are "pervasive and persistent, and as population and production grow, they become progressively more important". This happens since a "growth in

population and per-capita consumption lead to increasing absolute scarcity", while the internalization of externalities is limited to dealing with relative prices and thus, relative scarcity (Daly, 1991, p. 43).

This means that the objectives of policy-making in an ecological economics perspective are different from a neoclassical viewpoint. Daly (1992) defines three policy objectives for ecological economics, which have been widely applied in this research field (e.g. Deepak, 2010; Lawn, 2001; Stewen, 1998). The objectives are, by order of relative importance: (1) sustainable scale of resource use, (2) fair distribution of income and wealth, and (3) efficient allocation of resources.

A sustainable scale of the economy can be defined as a scale that does not require a physical volume of throughput that might put carrying capacity or ecosystem services at risk (Daly, 1992). Policy options that can address scale issues are usually associated with resource use, pollution, the size of the production system, or population size. To have a sustainable scale of economic activity, we need to maintain resource extraction within the regenerative capacity of ecosystems, and wastes within their absorptive capabilities—or, more generally, not cross planetary boundaries (Rockström et al., 2009).

A fair distribution is not easily defined, as there is no definition of what might be a just degrowth society nor what is a just legacy for future generations (Muraca, 2012). Sustainability is a normative concept in relation to the inter and intragenerational types of justice, and it gives the same weight to both (Tremmel, 2009). Degrowth is a debate with origins in the demand of justice between the Global North and Global South in a intragenerational context, but it also addresses the intergenerational justice level, by focusing for instance the need to respect planetary boundaries.

As Konow (2003) shows in his analysis of justice theories, a fair distribution can be interpreted in many ways and might even have conflicting principles. According to the author, there are two types of ways to define justice principles: as procedural justice (fair processes) and/or as distributive justice (fair outcomes). This means that a fair distribution can be considered in diverse ways: (i) when people have equal rights, liberties and opportunities (equality of outcomes); (ii) when it is possible to find a reasonable way of distributing the goods or wealth and/or the subjective values provided by it (welfarism/utilitarianism); (iii) when the context of decision-making is taken into account, since justice can be context-dependent (Konow, 2003). Usually a fairer distribution is considered in the political processes as being accomplished by having fair outcomes, and so it is pursued with the help of policy

instruments that redistribute income and wealth bearing a intragenerational notion of justice in mind, such as taxes and social payments (Daly, 1992).

An efficient allocation may be defined as the efficient division of the resource flow between alternative product uses in compliance with individual preferences (Daly, 1992), in order to maximise well-being per unit of resource use. Daly and Farley (2011) suggest that the best way to know whether resources are being allocated efficiently is to calculate the ratio between the services[2] gained by increasing human-made capital to the services lost by sacrificing natural capital.

Policy arenas are often dominated by the "cult of efficiency" (Stein, 2002). By contrast, from an ecological economics perspective, the criterion of efficiency cannot be seen as sufficient on its own, it has to be contextualized in the biophysical and social limits realm (Jollands, 2006). In the context of environmental policy, the pursuit of efficient allocation, and even fair distribution, is being translated into the commodification of nature in new ways, in order to reflect dominant political and economic views (Gómez-Baggethun and Ruiz-Pérez, 2011). In this article, the three ecological economics policy objectives are used to understand how some degrowth proposals are capturing or proposing a deeper socio-ecological understanding (Spash, 2013).

## 4. Analytical framework for discussing the degrowth debate

The focus of the developed literature review is on peer-reviewed articles, as a consequence of the need to limit the scope of the research. Although the performed analysis is already ambitious, covering a wide range of proposals by degrowth authors on policy instruments, measures and goals, and producing interesting insights, the authors acknowledge the relevance for this debate of several other contributions from other sources that did not pass the adopted filter. This aspect is discussed in more detail below in the paper.

The research method used to categorise and analyse the academic degrowth proposals is *Grounded Theory* (GT). GT is an approach that allows the researcher to inductively construct theory about a certain issue in a systematic manner (Strauss and Corbin, 1990). The use of GT in this research facilitated the integration of complex and interconnected degrowth dimensions. This allowed having a

[2] Service is defined in this context as a "physical flux of satisfaction, which is derived from manmade capital as well as from ecosystem services provided directly by natural capital" (Daly and Farley, 2011, p. 475)

novel approach on explaining the overall degrowth vision for action, grounded on the systematic review and categorization of academic degrowth proposals. Also, this is an exploratory research, and thus there was the necessity to have a flexible approach to allow the creation of new theoretical work in the field.

There are four general approaches to analysing qualitative data using GT (Glaser and Strauss, 1999): (i) converting qualitative data into a quantitative form, so that the hypothesis can be tested in a provisional way; (ii) generating theoretical notions, redesigning and redefine them along the process of reviewing data; (iii) the constant comparative method, in which the process consists on explicitly coding data and analysing it at the same time, so that theory can be created in a more systematic process; (iv) the analytic induction method, which combines the first two approaches to get a more limited and precise universal theory for the selected set of data. Independently of the type of approach chosen, the GT method is supported by the background knowledge and assumptions of the researcher performing it.

This research can be divided into three different stages. The first stage includes steps 1 and 2, in which the sampling process of the articles to review was performed. The second stage includes steps 3 and 4 and the main findings of the analysis (section 5.1). The GT approach taken was the constant comparative method. The approach was used at this stage to articulate and organise the collected data (degrowth academic proposals). The process of coding the proposals that lead to the final categories was iterative, and it had four stages: (a) classifying the data into categories (topics) derived from the data itself, from the authors' readings and/or previous experience; (b) integrating the categories created and their properties; (c) delimiting the theory by organizing data in different manners, integrating categories or developing new ones; and (d) writing the theory, which was then used to the second stage of the analysis, where more theory was developed.

The third stage comprises step 5 and the discussion of results (section 5.2). The GT approach taken at this stage was again the constant comparative method. This approach was crucial to achieve the goals of this article, since it helped to first systematise the findings, by allocating the group of degrowth proposals retrieved from the literature into the chosen categories, and afterwards to discuss those findings, as this GT approach facilitated an understanding of the context where a certain proposal appears and how it is presented. The two stages of the analysis fit the purposes of this

research since they helped to analyse the relative importance of the group of degrowth proposals analysed in terms of their appearance in the literature, and contributes to a better understanding of their importance to the overall degrowth discourse in academic peer-reviewed literature.

### 4.1. Step 1: Identification of degrowth-focused articles

To start the process, a search was performed for articles that satisfied the following criteria:

- Published in peer-reviewed academic journals;
- Cite the words “degrowth”, “de-growth” or “décroissance”;
- Written in English; and
- Published in the period 2007-2014.

A group of 128 articles were identified that satisfy these criteria. 114 articles were found via the Web of Science database and 14 articles in other sources (e.g. Google Scholar). Books were not considered in the analysis, as the goal of this research was to assess the peer-reviewed academic literature, although the authors recognise the importance of books to the degrowth discourse.

Articles that did not have degrowth as their main focus were then excluded, even if they cited it. A total of 38 articles were removed from the initial set, and the sample was reduced to 90 articles. The distribution of the selected group by journal is presented in Table 1.

### 4.2. Step 2: Screening articles for policy proposals

Continuing the process, the group of 90 articles was analysed with the help of QSR International’s NVivo 10 qualitative data analysis software (QSR International, 2015). The articles were filtered using the following three keywords: *policy*, *instruments*, and *measures* (plus some stemmed words, for instance “policies”). The filtering process was done with the help of the selected keywords, but the context analysis (i.e. reading the paragraphs where the keywords appeared) was determinant to perform the selection of articles.

From the group of 90 articles identified in Step 1, there were 54 articles that included the keywords in a context that was relevant to the analysis. Articles with both original proposals and cited proposals were included in this group, as it was considered that citations were an endorsement of a given proposal. The list of the 54 articles may be found in Table A.1 (in Appendix A).

**Table 1** Number of articles selected in Step 1, by journal**.**

| Journal | Nº of articles |
|---|---|
| Journal of Cleaner Production | 23 |
| Ecological Economics | 19 |
| Futures | 12 |
| Environmental Values | 8 |
| Capitalism Nature Socialism | 7 |
| Sustainability | 6 |
| Environmental Politics | 2 |
| Journal of Sustainable Tourism | 2 |
| Annals of the Association Of American Geographers | 1 |
| Development and Change | 1 |
| Environment and Planning C-Government and Policy | 1 |
| Environment Development and Sustainability | 1 |
| Global Environmental Change-Human and Policy Dimensions | 1 |
| Journal of Economic Issues | 1 |
| Journal of Environmental Protection | 1 |
| Journal of Industrial Ecology | 1 |
| Monthly Review - An Independent Socialist Magazine | 1 |
| Trends in Genetics | 1 |
| Urban Studies | 1 |
| **Total** | **90** |

### 4.3. Step 3: Identification and categorisation of broad degrowth goals and topics

In this step, the analysis proceeds to the second stage, in which the data started to be collected and coded. To facilitate the coding of degrowth proposals, the process started with the creation of general categories. Using the group of articles selected in Step 1, and using the constant comparative approach, similar ideas retrieved from the articles were aggregated and key degrowth topics were identified in an iterative process. In the end, the degrowth topics were organised into three groups, which corresponded to the authors' interpretation of the broad degrowth goals, drawing on the Paris Declaration (Research & Degrowth, 2010). These goals are the following: (1) Reduce environmental impacts; (2) Redistribute income and wealth both within and between countries; and (3) Promote the transition from a materialistic to a convivial and participatory society.

### 4.4. Step 4: Categorisation of degrowth proposals according to main goals and topics

To code the degrowth proposals included in the 54 articles, an iterative coding exercise was performed. To facilitate the change of categories that occurred due to the constant comparative analysis process, QSR International's NVivo 10 (QSR International, 2015) was again used. The usefulness of this software when following a GT approach has been demonstrated by other studies in the field of sustainability science (e.g. Garza-Reyes, 2015; Lozano and Huisingh, 2011).

Based on the knowledge gathered in the screening of all articles, keywords were attributed to each of the three broad degrowth goals, to facilitate the process of delimiting the theory being created. These

are presented in Table 2. Each keyword may be linked to a topic, although in the table keywords are presented in groups, since many link to multiple topics. Apart from the keywords referred to in Table 2, many stemmed words were included to improve the analysis (e.g. frugality/frugal, cohousing/co-housing, democracy/democratic, cap/caps). The keywords were only used to identify the proposals along the group of 54 articles, since here also a context analysis was determinant to the identification of proposals. The proposals identified were then coded into a topic, and re-coded into another one if further on the iterative process it made more sense to be aggregated to another proposal, or even to change between the broad degrowth goals (see Table 2).

At the end of this step, the first stage of the GT process was concluded by constructing, in a systematic way (as described in the beginning of Section 4), various dimensions and goals from the raw degrowth proposals in the selected literature. This process allowed us to integrate degrowth issues and brought up new links between the data, which are explored in the next stage.

**Table 2** Identification of degrowth main goals, topics, and keywords used in the GT process.

| Broad degrowth goals | Topics identified | Keywords |
|---|---|---|
| Goal 1: Reduce the environmental impact of human activities | consumption impacts; ecological conservation; infrastructures; pollutant emissions; production impacts; resource use; trade impacts | advertising, bans, caps, carbon, conservation, consumption, ecosystem, emissions, energy, funds, government, impact, industry, intermediaries, investment, material, pollution, production, provision, regulatory, resources, strategies, subsidies, taxes, trade |
| Goal 2: Redistribute income and wealth both within and between countries | access to goods and services; equity; global governance; socioeconomic opportunities | access, bank, basic income, business, caps, citizen income, commons, company, cooperative, corporation, currency, debt, decentralisation, developing countries, developing, distribution, employment, environmental costs, equity, exchange, externalities, firm, full employment, household work, income, inequality, institutions, international assistance, international capital movement, job guarantee, job sharing, job, monopoly, non-monetary, organisation, poverty, progressive taxation, public goods, public investment, public services, redistribution, redistributive taxation, salary, social costs, social security, solidarity, taxes, unemployment, valuing, voluntary work, wage, work sharing, work |
| Goal 3: Promote the transition from a materialistic to a convivial and participatory society | community building, education, and value change; democracy and participation; free time; voluntary simplicity and downshifting | cohousing, community, conviviality, culture, democracy, downshifting, education, free, frugality, government, holidays, house-sharing, informal, institution, labour, leisure, lifestyle, participation, productivity, sharing, simplicity, squat, sufficiency, tradition, transition, unpaid, unremunerated, values, voluntary, working hours, working week |

### 4.5. Step 5: Categorisation of degrowth proposals according to their geographical focus, type of approach, and relation to ecological economics policy objectives

At this stage, the results from the first stage of the analysis (presented in section 5.1.) were used to perform another analysis, following again the constant comparative approach. The proposals identified were categorised in a number of ways: (i) by number of citations (identifying, in particular, those with 8 citations or more); (ii) by geographical focus, distinguishing between international (I), national (N), and local/regional (L) scales; (iii) by type of approach, distinguishing between top-down (TD) and bottom-up (BU) approaches; and (iv) by how the proposals relate to the three ecological economics policy objectives: sustainable scale (SS), fair distribution (FD), and efficient allocation (EA).

Placing proposals into categories is a subjective process, but in each case an attempt was made to connect the proposal to the category (or categories) considered to be most appropriate. Since individual proposals can have multiple interpretations, they have been placed into all categories where they fit (e.g. if a proposal aims to achieve both sustainable scale and efficient allocation, it is placed in both categories). The criteria used for the categorisations are presented in Table 3.

**Table 3** Criteria for categorising degrowth proposals relative to their geographical focus, type of approach, and ecological economics policy objective.

| Analysis | Category | Criteria | Reference |
|---|---|---|---|
| Geographical focus | International (I), National (N), or Local (L) | Geographical scale necessary for the implementation of the strategy | - |
| Type of approach | Top-down (TD) | Strategies pursued by the highest level of a system (usually expert-led) | Cairns Jr, 2003 |
| | Bottom-up (BU) | Strategies that are designed for components or local contexts (usually community-led) | |
| Ecological economics policy objectives | Sustainable scale (SS) | Strategies that address the physical volume of throughput that might put the carrying capacity of an ecosystem at risk (e.g. resource use, pollutant emissions) | Daly, 1992; Daly and Farley, 2011; Konow, 2003; Muraca, 2012; Tremmel, 2009 |
| | Fair distribution (FD) | Strategies that address the supply of goods among people, division of environmental costs, and environmental justice (e.g. wealth management, social payments, public participation) | |
| | Efficient allocation (EA) | Strategies that address an efficient division of the resource flow between alternative product uses in compliance with individual preferences, in order to maximise well-being per unit of resource use (e.g. energy efficiency, redirecting investments to ecological conservation) | |

## 5. From degrowth theory to policy: main findings and discussion

In this section, the main findings of the analysis of degrowth proposals are presented, followed by a discussion of the implications of these findings. After that, the limitations of the analysis are discussed and the avenues opened for further research.

### 5.1. Main findings from the analysis of degrowth proposals

The second stage of the analysis is completed with the description of the main findings, presented in this subsection. The majority of the degrowth proposals analysed have a national focus of implementation, followed by local, and then international (see Figure 1). Around three quarters of these proposals present a top-down or mixed approach (see Figure 1).

The analysis of the ecological economics policy objectives – sustainable scale, fair distribution and efficient allocation – reveals that the analysed proposals mainly address issues of sustainable scale, followed closely by fair distribution. Efficient allocation has much less emphasis. Some of the analysed proposals (15%) address both sustainable scale and one of the other two policy objectives (see Figure 1).

The degrowth proposals identified in this research are organised into three tables, according to their broad degrowth goal (Tables 4, 5, and 6). These tables reflect — not only the categorisation of individual proposals by different goals — but also by different topics. They also summarise the results of the analysis of the individual proposals.

The results of the analysis for Goal 1 (Reduce environmental impacts) are presented in Table 4. The proposals that are most commonly put forward to achieve this goal are (from most- to least-cited): reduce material consumption; reduce energy consumption; encourage or create incentives for local production and consumption; and promote changes in consumption patterns. Overall, the most emphasised topic under this goal (from those in Table 2) is *resource use*.

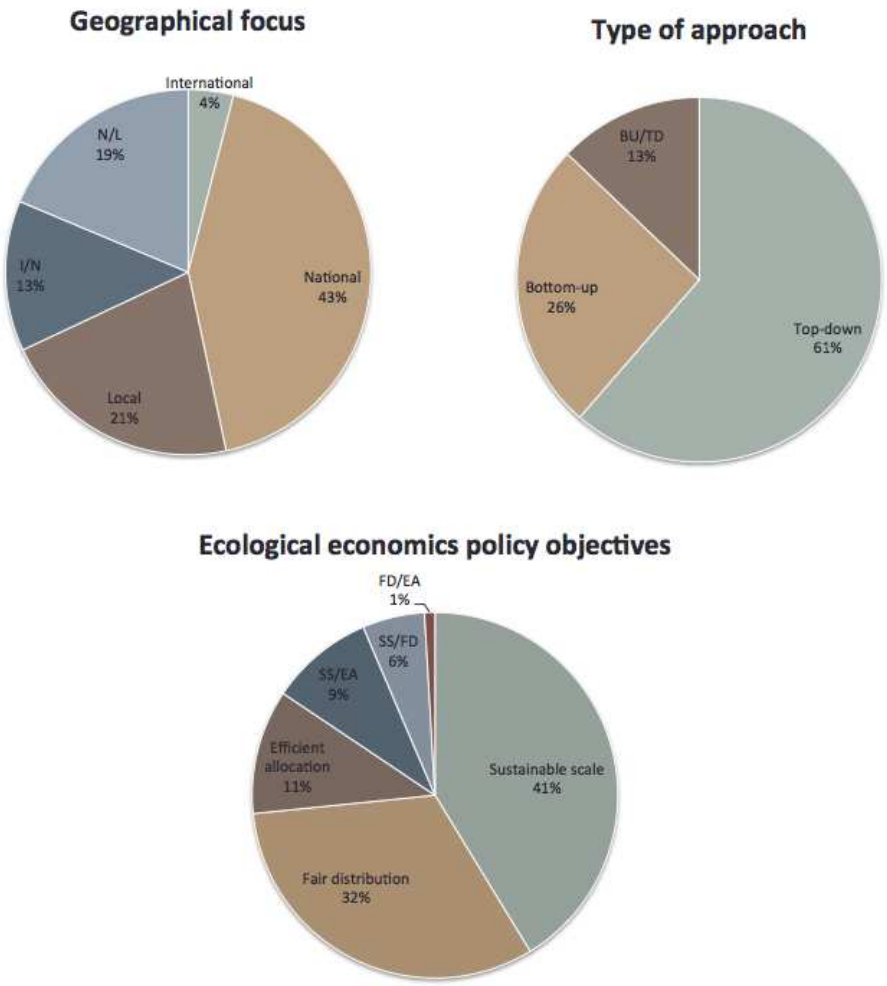


**Figure 1** Results for the analysis of geographical focus, type of approach, and ecological economics policy objectives (Note: I = International, N = National, L = Local, TD = top-down, BU = bottom-up, SS = sustainable scale, FD = fair distribution, EA = efficient allocation).

The results for Goal 2 (Redistribute income and wealth both within and between countries) are presented in Table 5. The proposals that are most commonly put forward to achieve this goal are (from most- to least-cited): promote community currencies, non-monetary exchange systems and alternative credit institutions; promote a fair distribution of resources through redistributive policies of income and capital assets; promote work-sharing; create a citizen's income; create salary caps; encourage the reform of corporation charters and new ownership patterns; improve social security and invest in public goods; and implement redistributive taxation schemes. Overall, the most emphasised topic under this goal (from those in Table 2) is *access to goods and services*. As shown in Figure 2, the goal with the most citations in total is Goal 2. Proposals related to redistribution are

cited more often than those related to environmental impact. Interestingly, the number of articles that discuss each goal is about the same (around 40 in each case, out of the 54 analysed).

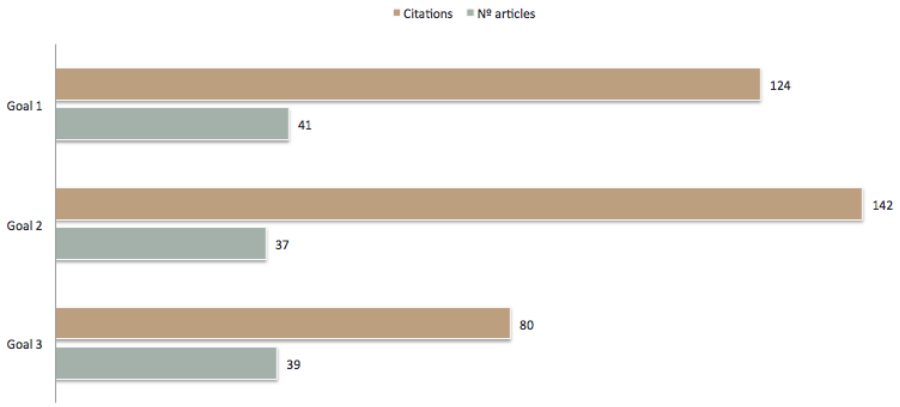


**Figure 2** Number of total citations and articles per goal.

The results for Goal 3 (Promote the transition from a materialistic to a convivial and participatory society) are presented in Table 6. The most commonly put forward proposals to achieve this goal are (from most- to least-cited): promote downshifted lifestyles; reduce working hours; and explore the value of unpaid and informal activity. Overall, the most emphasised topic under this goal (from those in Table 2) is *voluntary simplicity and downshifting*.

**Table 4** Analysis of degrowth proposals for Goal 1: Reduce the environmental impact of human activities.

| Topic | Degrowth proposal | Sources | Geo focus | Type of approach | EE policy objectives |
|---|---|---|---|---|---|
| Consumption | Promote changes in consumption patterns | 9, 10, 12, 35, 39, 44, 45, 54 | N/L | BU | SS/EA |
| | Tax consumption | 15, 26, 52 | N | TD | SS |
| | Limit/regulate advertising | 10, 13, 26, 38, 48, 52, 53 | N | TD | SS |
| | Decrease the number of appliances and volume of goods used or consumed per household | 3, 20, 27, 34, 48 | L | BU | SS |
| Ecological conservation | Promote the restoration of ecosystems | 17 | L | TD/BU | SS |
| | Finance funds and projects for the conservation of biodiversity | 14, 17, 18 | N/L | TD/BU | SS/EA |
| | Promote the use of local sources of water (rainwater, greywater) to reduce dependence on large infrastructures and improve the quality of freshwater ecosystems | 37 | L | TD/BU | SS/EA |
| Infrastructure | Redirect investments away from infrastructure in fast and car-based models of transport to slow-mode ones | 31, 48, 54 | N | TD | SS/EA |
| | Create a moratorium on new infrastructure (e.g. nuclear plants, highways, dams) | 13, 14 | N | TD | SS |
| Pollution | Put caps on CO2 emissions, tradable or non-tradable | 5, 13, 14, 27 | I/N | TD | SS |
| | Tax environmental externalities | 13, 28 | N/L | TD | SS |
| | Certify organic farming including CO2 emission reduction goals | 47 | N | TD | SS |
| | Reduce waste generation | 29 | N/L | TD/BU | SS |
| Production | Reduce production (large-scale, resource intensive) | 4, 10, 13 | N | TD | SS |
| | Promote organic farming/sustainable agriculture | 20, 28, 39, 47, 52 | N/L | TD/BU | SS |
| | Introduce simpler technologies | 48 | N/L | TD | SS/EA |
| | Create regulatory bans for very harmful activities/technologies (e.g. nuclear energy) | 13, 38 | I/N | TD | SS |
| | Make more green investments | 20, 33 | N | TD | EA |
| | Promote eco-efficiency | 2, 53 | N | TD | SS/EA |
| Resource use | Put caps on resource use and extraction (tradable or non-tradable) | 5, 14, 20, 27, 48, 53, 54 | I/N | TD | SS |
| | Tax the extraction of resources at origin | 10 | N | TD | SS |
| | Reduce energy consumption | 8, 10, 15, 31, 35, 38, 40, 47, 49, 51, 54 | N/L | TD/BU | SS |
| | Reduce material consumption | 6, 8, 10, 13, 16, 17, 29, 35, 38, 40, 45, 54 | N/L | TD/BU | SS |
| | Create a moratorium on resource use and extraction | 13, 53 | I/N | TD | SS |
| | Make commitments to leave resources in the ground | 13, 48 | I/N | TD | SS |
| | Tax resource use | 17, 20, 27, 46, 47, 53 | N | TD | SS/EA |
| | Promote the use of local sources of rainwater and greywater | 37 | L | TD/BU | SS |
| | Remove harmful subsidies for resource extraction | 53 | N | TD | SS |
| | Invest in more renewable energy | 13, 15, 28, 31, 52, 54 | N | TD | SS/EA |
| | Promote the compact city form of urban planning | 54 | N/L | TD | SS/EA |
| Trade | Promote strong social and environmental provisions in trade agreements | 38, 53 | I | TD | SS/FD |
| | Limit trade distances and volume | 6, 53 | I | TD | SS |
| | Create incentives for local production and consumption | 12, 15, 28, 31, 35, 36, 39, 41, 47, 48, 54 | L | TD/BU | SS/FD |
| | Reduce the number of scientific conferences | 1 | I/N | TD | SS/EA |
| | Regulate the tourism industry | 12 | N/L | TD | SS |
| | Promote voluntarily reductions in commerce and trade | 44 | N/L | TD/BU | SS |

Note: L = local, N = national, I = international, TD = top-down, BU = bottom-up, SS = sustainable scale, FD = fair distribution, EA = efficient allocation.

**Table 5** Analysis of degrowth proposals for Goal 2: Redistribute income and wealth both within and between countries.

| Topic | Degrowth proposal | Sources | Geo focus | Type of approach | EE policy objectives |
|---|---|---|---|---|---|
| Access to goods and services | Create a basic/citizen's income | 8, 10, 11, 13, 14, 20, 27, 31, 32, 35, 43, 46, 51, 52 | N | TD | FD |
| | Promote community currencies, non-monetary exchange systems and alternative credit institutions | 10, 11, 13, 14, 18, 20, 25, 27, 28, 31, 32, 35, 36, 50, 51, 52, 54 | L | BU | FD |
| | Improve social security and investment in public goods to guarantee equal access to goods and services, and thereby protect people from poverty and exclusion | 10, 13, 14, 20, 26, 27, 33, 35, 37, 52 | N | TD | FD |
| | Decrease unemployment | 10, 26, 27 | N | TD | FD |
| | Turn banking into a public service | 10 | N | TD | FD |
| | Create a job guarantee | 20, 27, 30, 48 | N | TD | FD |
| | Promote the recognition and management of common goods | 17, 19, 26, 35, 52 | L | TD/BU | FD/EA |
| | Eliminate debt-based money | 53 | N | TD | SS/FD |
| Equity | Promote a fair redistribution of resources through redistributive policies of income and capital assets | 2, 10, 13, 15, 19, 20, 21, 25, 27, 28, 29, 31, 35, 38, 46, 53, 54 | N | TD | SS/FD |
| | Implement redistributive taxation schemes | 10, 13, 15, 25, 27, 31, 43, 54 | N | TD | FD |
| | Promote the shift of costs from labour to capital | 10, 19, 25, 43, 47 | N | TD | FD |
| | Encourage the breaking up of large corporations to avoid monopolies | 10 | N | TD | FD |
| | Encourage the reform of corporate charters and promote new ownership patterns | 10, 14, 15, 19, 20, 41, 43, 48, 51, 54 | N | TD | FD |
| | Encourage the breaking up and decentralisation of banks and financial institutions | 13, 25 | N | TD | FD |
| | Create salary caps | 13, 15, 20, 31, 32, 35, 38, 43, 48, 51, 54 | N | TD | FD |
| | Tax international capital movement | 13, 28 | I/N | TD | FD |
| | Tighten the control on tax havens | 13, 28 | I/N | TD | FD |
| Global governance | Put a price on environmental and social externalities | 13, 20, 21 | I/N | TD | FD |
| | Prepare for long-term non-growth after the period of growth for developing countries | 29 | I/N | TD | SS |
| | Establish common but differentiated responsibilities of developed and developing countries | 38 | I | TD | FD |
| Socioeconomic opportunities | Promote work-sharing and job-sharing | 8, 10, 11, 14, 20, 27, 31, 34, 38, 42, 43, 47, 48, 52, 53 | N | TD | FD |
| | Create more employment in key sectors | 13, 25, 32 | N | TD | FD |
| | Provide sufficient work opportunities | 17, 21, 27 | N | TD | FD |
| | Encourage small, local enterprises | 41, 54 | L | BU | SS/FD |

Note: L = local, N = national, I = international, TD = top-down, BU = bottom-up, SS = sustainable scale, FD = fair distribution, EA = efficient allocation.

**Table 6** Analysis of degrowth proposals for Goal 3: Promote the transition from a materialistic to a convivial and participatory society.

| Topic | Degrowth proposal | Sources | Geo focus | Type of approach | EE policy objectives |
|---|---|---|---|---|---|
| Community building, education and value change | Create funds to finance low economic cost, high welfare public investments | 13, 42 | N | TD | FD |
| | Promote a value change | 11, 23 | L | BU | SS |
| | Invest in the restoration and strengthening of local communities | 26, 50, 51, 54 | L | BU | SS |
| | Strengthen common possession regimes and customary institutions through their formal recognition by external actors | 28, 41, 52 | L | BU | FD |
| | Introduce and incentivise education on ecological/social limits and sustainability in various educational and training establishments | 17, 53 | N/L | TD/BU | SS |
| | Promote the preservation of ancient knowledge, language, and techniques | 17 | L | BU | SS |
| Democracy and participation | Decentralise and deepen democratic institutions | 10, 17, 22, 28, 37, 40, 54 | L | BU | FD |
| | Promote alternative political systems and capabilities to provide them | 3, 14, 35, 43, 54 | N/L | BU | FD |
| | Create caps on political and electoral spending to allow equal participation chances | 14 | N | TD | FD |
| | Promote regeneration of fundamental democratic institutions to incorporate degrowth-related spatial, temporal, and value dimensions | 14, 35 | N/L | TD/BU | FD |
| Free time | Promote shared living spaces (with shared chores) | 3, 7 | L | BU | SS/FD |
| | Reduce working hours | 2, 8, 10, 13, 14, 15, 16, 20, 23, 25, 27, 29, 31, 32, 34, 41, 45, 46, 47, 52, 53 | N | TD | FD |
| Voluntary simplicity and downshifting | Promote frugal, downshifted lifestyles | 3, 6, 7, 8, 10, 13, 14, 15, 31, 35, 36, 43, 45, 47, 48, 50, 52, 54 | L | BU | SS |
| | Explore the value of unpaid and informal activity | 7, 10, 23, 26, 34, 43, 48, 50 | L | BU | FD |
| | Devise new measures to track improvements in social welfare | 15, 31 | N | TD | FD |

Note: L = local, N = national, I = international, TD = top-down, BU = bottom-up, SS = sustainable scale, FD = fair distribution, EA = efficient allocation.

### 5.2. Discussion of the findings

The third stage of the analysis is concluded by the writing of the discussion of the findings, presented in this subsection. Degrowth concerns appeared from a grassroots social movement that arose as a critique of growth, and that has tried to raise awareness about alternative lifestyles that can be more sustainable. According to Kallis et al. (2015), degrowth calls for the decolonisation of public debate from the idiom of economism, and seeks to replace it with a society organised around sharing, simplicity, conviviality, care, and the commons.

The first message of the analysis is that—despite the grassroots origins of degrowth—the majority of degrowth proposals published in peer-reviewed journals follow a top-down approach and have a national geographical focus, both in terms of environmental and social protection. In spite of the potential controversy of the categorization of proposals into the top-down/bottom-up categories, due to the degree of fuzziness they present (see section 5.3), this analysis is a first step to understand how degrowth proposals are being explored in the selected academic literature.

Many proposals require direct control by governments (e.g. caps, taxes, and regulations), which suggests the need for a high level of state intervention to pursue a degrowth transition. This contradicts the discourse of many degrowth proponents, which is usually focused on the need for a voluntary and democratic downshift, and thus an intrinsic pursuit of more public space so that civil society can be an active agent of change (e.g. Deriu, 2012; Kallis et al., 2015; Muraca, 2013; Ott, 2012). That said, it is important to note that some proposals classified as top-down may have the goal of indirectly driving bottom-up action. An example is the proposal to reduce working hours. Although many people might prefer to work fewer hours (Clark, 2010), this can only happen if institutions are reformed to give them this choice.

Despite the potential need for strong state intervention, for Kallis and Martínez-Alier (2010, p. 1573), "there is no choice between the environment and democracy; sustainable degrowth should be a democratic process of transition or nothing at all". It is crucial to continue the discussion of the relationship between democracy and degrowth, already initiated by authors such as Boillat et al. (2012), Deriu (2012), and Xue et al. (2012). Boillat et al. (2012) discuss the case of Cuba as an example for how a transition to a degrowth society could occur, claiming that a strong state and a non-capitalist system are key to achieving a degrowth path. The lack of democratic freedoms in Cuba remains contrary to the goals of degrowth, however. Deriu (2012), on the other hand, discusses the connection between degrowth and democracy, claiming that these two projects are not immediately and necessarily linked from the top. The author suggests that centralised planning power can be replaced with a "broader and articulated process of shared learning, self-education, reconstruction of social ties and collective transformation" (2012, p. 560) and that the degrowth movement is a great way to rediscover the epistemological and theoretical grounds of democracy.

Although a transition to a degrowth society is idealised as democratic and voluntary, history tells us that changes in the status quo are usually not free from violence, controversy and/or public contestation (e.g. Shiva, 2016). Economic globalisation is the reality in place, led by powerful transnational corporations, focused on increasing profit and maintaining power (Madeley, 2003). A change towards a more autonomous and convivial society will not bring advantages to the existing power structures, and so how to effectively deconstruct these structures is a debate that degrowth proponents should engage in.

The second important message of our analysis is that the degrowth academic literature is, if anything, more focused on social equity than on environmental sustainability. This finding may be seen by looking at the number of proposals aligned with Goal 2 (Redistribute income and wealth both within and between countries) and by the analysis of ecological economics policy objectives, which revealed that proposals addressing fair distribution are almost as prevalent as those addressing sustainable scale. This finding agrees with other recent work on defining degrowth (D'Alisa et al., 2015a), which suggests that the degrowth movement is not as focused on environmental sustainability as other sustainability approaches. This aspect of degrowth differentiates the movement from other perspectives that reject growth, such as steady-state economics (Daly, 1991), and even from ecological economics itself, due to the field's primary focus on ecological limits (Klitgaard and Krall, 2012).

The importance of social equity to degrowth may be another reason why many of the policies advocated are of a top-down and national nature. As the New Economics Foundation points out in a report calling for a new social settlement in the UK, "civil society has no inherent mechanisms for achieving equality. Not everyone can participate and benefit as easily as everyone else, because the conditions that make it possible are not equally distributed. This calls for action through the state. Indeed there is no other comparable vehicle that is capable of promoting equality across national populations" (Coote, 2015, p. 12). Fair distribution and sustainable scale are both macroeconomic goals, requiring national policy and a strong role for the state.

It is crucial to debate in degrowth how to achieve a pattern where there is public space to deliberation about what is justice at an intragenerational level, for what is necessary a renegotiation of established social values (Muraca, 2012). Having fair outcomes in a degrowth society can mean that there is no

specific conception of what is a good or decent way of life, but rather processes and/or mechanisms that promotes the "viability of a wide range of conceptions" (Page, 2007, p. 466), allowing individuals to contribute with their own notion of justice in a decision-making context. The degrowth debate is not so engaged in what can contribute to an intergenerational notion of justice, although the proposals that aim to address planetary boundaries indirectly can contribute to leaving a more positive legacy to future generations. Debate is also necessary in the field about what is a just legacy in a degrowth perspective, as Muraca (2012) points out.

A third message is that the objectives behind the proposals are sometimes unclear. For example, in the proposal to "improve social security and investment in public goods" (e.g. Borowy, 2013; Domènech et al., 2013; Kallis, 2011; Schneider et al., 2010) it is unclear which public goods the authors want to increase investment in. This issue can also be illustrated by the substantial overlap between some proposals, in part because of their range in specificity. For example, proposals to "reduce material use" and "reduce consumption" are very similar, yet subtly different. Material use is a fairly specific term with physical connotations, while consumption is a more abstract concept. Reducing consumption probably implies reducing material use, but it might also imply reducing other things, like spending.

The degrowth literature would benefit from authors adding more detail to the proposals endorsed, to avoid unclear messages and to limit the range of proposals. When constructing policy it is crucial to clearly define the objective of the proposal and which concrete environmental or social issue it aims to address. If this is not done, then there is the danger that degrowth proposals will remain ambiguous and confusing in the context of policy debates, an issue raised by van den Bergh (2011). The work of Videira et al. (2014) is a great effort to untangle this problem of the unclear objectives of some degrowth proposals by constructing a systemic approach to degrowth proposals using participatory systems thinking tools.

More generally, there is a need to look at degrowth proposals as components of a strategy, and not just individually. Here, it is argued that it is important to analyse the combination of proposals put forward to attain specific degrowth goals (the degrowth policy mix), and explore the interactions between proposals to determine which ones complement each other, which are potentially conflicting, and which may be redundant. Returning to the example of reducing working hours discussed above, it

is not enough to reform institutions to achieve this objective, there is also a need to encourage behavioural change towards less consumption (Dietz and O'Neill, 2013), so that a reduction in paid working time does not simply lead to greater consumption during leisure.

The fourth and final message is that there are some neglected issues that could be further addressed by degrowth authors, namely population growth and the implications of degrowth for developing countries. The exponential growth of population exerts great environmental and social pressure (Alcott, 2012). During the analysis, a search for proposals related to population growth was performed, since it is cited by some degrowth authors as a problem (e.g. Levallois, 2010; Schneider et al., 2010). However, the only concrete proposal found was to voluntarily control population (Videira et al., 2014), which was categorised as a proposal for voluntary downshifting. Martínez-Alier (2009) and Schneider et al. (2010) both argue that a degrowth transition would be helped if the human population would peak at around 8 billion, and then decline somewhat, while Kerschner (2010) argues that population must inevitably decrease or be stabilised if the economy is to degrow or be stabilised, respectively. Here, it is argued that compassionate and non-coercive proposals to stabilise population should be explored more actively by proponents of degrowth. Such proposals include achieving equal rights for women, providing education about family planning, ensuring access to contraceptives, and above all, promoting public debate about this controversial topic (Dietz and O'Neill, 2013).

Another important but neglected issue is what degrowth means for developing countries. The need to pursue sustainable degrowth is often justified in terms of freeing up ecological space to allow development in poorer countries (Martínez-Alier, 2009; Research & Degrowth, 2011; Schneider et al., 2010). However, little is said about what this development would entail. This issue is important since the Global South is where the majority of the world population lives, and as the middle class increases, consumption increases. This analysis identified only one article, by Xue et al. (2012), that deals explicitly with degrowth in a developing country context. The authors propose that developing countries such as China should build a long-term non-growth strategy to be pursued after the initial period of economic growth needed to raise quality of life has been completed. Although the degrowth literature should avoid creating hegemonic proposals for degrowth in the Global South, it should further explore the connection between degrowth goals and existing movements that follow similar ways of thinking. Examples of different types of development models include the South American

term *Buen Vivir* (Gudynas, 2015) and the African philosophy of *Ubuntu* (Ramose, 2015). Although these references provide a good starting point, more work is needed to build specific proposals for developing countries and open a more global debate on the issue.

### 5.3. Limitations of the analysis and future research

This analysis has some limitations that are worth noting and discussing. First, it has only included English-language journal articles. In the context of the degrowth literature, this decision leaves out debates on the subject in other languages, particularly in French, Spanish and German. Although books were included in the broader discussion of degrowth, they were not included in the constant comparative analysis, as the goal of this research was to assess only a subset of degrowth proposals that are more connected with policy, and therefore only peer-reviewed academic literature was considered. This introduces a bias towards academic literature as it excludes non-academic sources of knowledge. The results reported here could be expanded in future by adding an analysis of articles in other languages, as well as books and conference proceedings about degrowth, since these include many proposals from grassroots movements that may or may not exist in peer-reviewed articles.

Second, the selection of the words *policy*, *instruments*, and *measures* has the potential to introduce a source of bias into the classification of the type of approach used in the proposals (i.e. top-down versus bottom-up). Since these terms are generally associated with top-down methods, they could lead to a selection bias in the form of top-down proposals. This limitation was addressed by performing a context analysis of the paragraphs in which these words were found, to ensure that the selection was not only relying on the chosen words.

Third, the use of qualitative research methods is not value-free, as it requires a necessary subjective categorisation process, based on the knowledge and experience of the researcher. This process was complicated by the fact that many degrowth proposals have a broad scope, and have the potential to generate diverse outcomes. An example is the proposal related to house-sharing, as this proposal has environmental benefits (e.g. reducing consumption) as well as social benefits (e.g. increasing free time by sharing tasks). The issue of scope was approached by selecting only the major impact that the proposal would have, according to the context where the author cited it. Some proposals are also rather vague, as in the case of the promotion of a frugal lifestyle. The implications of this proposal

depend on one's interpretation of the word "frugal". These more abstract proposals were still included in our analysis to be as inclusive as possible, but the uncertainty they introduce is a limitation.

Moreover, the categorisation into top-down and bottom-up proposals may be contested, since the concepts have a certain degree of fuzziness that has to be acknowledged. For instance, in the context of public decision-making, there is the possibility that a top-down proposal could be implemented because of strong public pressure, which introduces uncertainty into the categorisation process. More work needs to be done on how various proposals could best be implemented, namely by clarifying the objectives and expected outcomes of degrowth proposals.

To help reduce uncertainty in future research, it would be useful to analyse the degrowth policy proposals in collaboration with a group of stakeholders. Such a project would allow advocates of degrowth to: (i) understand the main points of weakness of the proposals; (ii) have more accountability in the categorisation; (iii) discuss concrete proposals for more subjective issues (e.g. promoting frugal lifestyles); and (iv) discuss potential concretisations of vague proposals.

Finally, future work on degrowth should aim to explore the seeming contradiction between the bottom-up discourse and top-down policy proposals. It is also important to address the issue of how to plan for degrowth in emerging economies, so that they can avoid at least some of the mistakes already made in developed countries.

## 6. Conclusion

This article aimed to answer three research questions: (i) What does the sustainable degrowth perspective mean in a policy-making context? (ii) How do degrowth goals align with ecological economics policy objectives? (iii) What are the main types of approaches embedded in degrowth proposals? To answer these questions, a group of 128 peer-reviewed articles that mention degrowth was analysed, which was then narrowed down to a group of 54 articles that make specific proposals for how to achieve degrowth. To our knowledge, this analysis represents the largest systematic review of the degrowth literature to date. This analysis is a contribution to understand degrowth in academic peer-reviewed articles by providing a new way of defining degrowth, through the review, organization and analysis of academic proposals for action. This article also opens avenues for future research on the field, that include continuing the discussion on democratic paths to degrowth and how to integrate degrowth proposals in order to find a balanced policy mix.

The main findings of this research are that: (1) although degrowth is often described as a bottom-up local process, the proposals are largely top-down with a national focus; (2) social equity is at least as important in the degrowth proposals as environmental sustainability; (3) there are some degrowth proposals that would benefit from additional clarification and specification; and (4) the implications of degrowth for developing nations, and the issue of population growth, are neglected in the degrowth discourse and should be explored further.

Different authors have attempted to describe degrowth from different starting points. Here, degrowth is described based on the proposals put forward for its implementation. In this context, degrowth may be understood as a process where material and energy consumption are reduced, and where incentives are created to encourage more local production. Exchange in a degrowth society would be facilitated by local currencies and non-monetary systems, with strong powers given to the state to redistribute income and wealth, and provide public services. People living in a degrowth society would work shorter hours in paid employment, share jobs in many cases, and lead more frugal lifestyles overall. Although economic activity would be more localised in a degrowth society, the state would have an important role both to limit material and energy use, and redistribute income and wealth.

If sustainable degrowth is to occur, however, then the relationship between bottom-up initiatives and top-down government action must be better understood. Also, there is a need to explore further how to foster democracy in the process of creating and implementing proposals. Degrowth proposals can complement each other, be conflicting, or even be redundant. It is therefore important to analyse which proposals may be translated into policy instruments, and in which sequence they should be implemented. The development of a degrowth policy mix is needed to encourage the beneficial interaction of complementary proposals and minimise the negative effects of those that may conflict.

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## Appendix A

**Table A.1** Numbered references of the articles selected in Step 2 and used in Tables 4, 5, and 6

| | | | | | |
|---|---|---|---|---|---|
| 1 | Philippe (2008) | 19 | Johanisova and Wolf (2012) | 37 | Domènech et al. (2013) |
| 2 | Huppes and Ishikawa (2009) | 20 | Kallis et al. (2012) | 38 | Garver (2013) |
| 3 | Cattaneo and Gavaldà (2010) | 21 | Klitgaard and Krall (2012) | 39 | Infante Amate and González de Molina (2013) |
| 4 | Hueting (2010) | 22 | Muraca (2012) | 40 | Jarvensivu (2013) |
| 5 | Kallis and Martínez-Alier (2010) | 23 | Nierling (2012) | 41 | Johanisova et al. (2013) |
| 6 | Latouche (2010) | 24 | Speth (2012) | 42 | Kallis et al. (2013) |
| 7 | Lietaert (2010) | 25 | Tokic (2012) | 43 | Kallis (2013) |
| 8 | Martínez-Alier et al. (2010) | 26 | Trainer (2012) | 44 | Karlsson (2013) |
| 9 | Matthey (2010) | 27 | van den Bergh and Kallis (2012) | 45 | Lorek and Fuchs (2013) |
| 10 | Schneider et al. (2010) | 28 | van Griethuysen (2012) | 46 | Mauerhofer (2013) |
| 11 | Berg and Hukkinen (2011) | 29 | Xue et al. (2012) | 47 | Nørgård (2013) |
| 12 | Hall (2011) | 30 | Alcott (2013) | 48 | Sekulova et al. (2013) |
| 13 | Kallis (2011) | 31 | Alexander (2013) | 49 | Sorman and Giampietro (2013) |
| 14 | Schneider et al. (2011) | 32 | Boonstra and Joose (2013) | 50 | Andreoni and Galmarini (2014) |
| 15 | Alexander (2012) | 33 | Borowy (2013) | 51 | Buch-Hansen (2014) |
| 16 | Bilancini and D'Alessandro (2012) | 34 | D'Alisa and Cattaneo (2013) | 52 | Kallis and March (2014) |
| 17 | Deriu (2012) | 35 | Demaria et al. (2013) | 53 | Videira et al. (2014) |
| 18 | Douthwaite (2012) | 36 | Dittmer (2013) | 54 | Xue (2014) |

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