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## Analysis

## Environment versus growth – A criticism of “degrowth” and a plea for “a-growth”

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## ABSTRACT

In recent debates on environmental problems and policies, the strategy of “degrowth” has appeared as an alternative to the paradigm of economic growth. This new notion is critically evaluated by considering five common interpretations of it. One conclusion is that these multiple interpretations make it an ambiguous and rather confusing concept. Another is that degrowth may not be an effective, let alone an efficient strategy to reduce environmental pressure. It is subsequently argued that “a-growth,” i.e. being indifferent about growth, is a more logical social aim to substitute for the current goal of economic growth, given that GDP (per capita) is a very imperfect indicator of social welfare. In addition, focusing ex ante on public policy is considered to be a strategy which ultimately is more likely to obtain the necessary democratic–political support than an ex ante, explicit degrowth strategy. In line with this, a policy package is proposed which consists of six elements, some of which relate to concerns raised by degrowth supporters.

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Confidence is what you have before you understand the problem  
(Woody Allen)

## 1. Introduction

The debate on growth versus environment is old and one would expect that everything has been said about it. Recently, however, a new notion, namely “degrowth,” has been suggested as a possible alternative to the paradigm of economic growth (Schneider et al., 2010; Martínez-Alier et al., 2010). It is not immediately evident, though, that this represents a useful addition to the vocabulary of environmental and social sciences.

This article aims to evaluate degrowth interpretations and strategies from two main angles, namely environmental effectiveness and social–political feasibility. Addressing the first criterion raises the question whether degrowth strategies, if implemented, can be expected to contribute to a significant reduction of environmental pressure, taking

into account, among others, unintended rebound effects. The second criterion relates to the question whether degrowth strategies are likely to obtain the necessary social and democratic–political support. In addition, a third criterion, namely economic efficiency or cost-effectiveness of degrowth strategies, will receive some attention.

If the intention is to debate degrowth in the context of solutions to pressing environmental problems of our time, one should be sure to have a common understanding of it. My experience in discussing and reading about degrowth, however, is that it is defined and interpreted in multiple ways. This evidently does not contribute to a transparent exchange of ideas. I have come across five main interpretations of degrowth, which I propose to refer to as:

1. GDP degrowth
2. Consumption degrowth
3. Work-time degrowth
4. Radical degrowth
5. Physical degrowth

In Section 2, these five interpretations will be discussed and evaluated. In addition, a few other notions of degrowth, namely *market degrowth*, *selective or differential degrowth*, *degrowth in rich countries*, and *population degrowth*, will be briefly mentioned along the way.

Next, Section 3 will argue in favor of an alternative strategic focus, namely ignoring GDP information which implies a “GDP a-growth”

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strategy, i.e. being indifferent or neutral about economic growth. Section 4 compares the degrowth strategy with traditional environmental policy in terms of political feasibility, i.e. the likelihood of gaining democratic-social support and making environmentally necessary socio-economic changes probable. Section 5 briefly summarizes the arguments, resulting in a systematic evaluation and comparison of the six resulting views or strategies on the basis of the mentioned performance criteria. The discussion culminates in Section 6 in the proposal of a policy package consisting of six elements. Section 7 concludes.

## 2. Five Types of Degrowth

### 2.1. GDP Degrowth

The first interpretation of degrowth is striving for negative GDP growth or a reduction in GDP (Gross Domestic Product).<sup>1</sup> This is the most logical interpretation and useful one in the sense that it is likely to be understood as such by most economists, politicians and the general public. The reason is that it sounds as the opposite of (economic) growth, which in common use and the media is not a term denoting some vague development pattern but synonymous with GDP growth. According to this interpretation of degrowth, the current economic-financial crisis associated with less GDP growth or even a reduction in GDP is then seen by some as good for the environment (Martínez-Alier et al., 2010). But this conclusion is difficult to draw in general. The direct, short-term effect of reduced GDP growth may be, for example, fewer CO<sub>2</sub> emissions as aggregate production falls. However, the long term effect is uncertain, as GDP degrowth may depress investments in cleaner technologies, renewable energy and related research, which can lead to an increase in future CO<sub>2</sub> emissions. Even the short-term effect is uncertain, as production during a period of crisis may well shift to cheaper, dirtier techniques. Moreover, as is illustrated by recent events, both governments and firms are likely to pay less attention to environmental considerations and policies during a period of crisis.

GDP degrowth means a blunt instrument of environmental policy which reverses the causality between policy and growth as it is normally understood. Instead of putting good policy first and then seeing whether degrowth is a consequence, the degrowth strategy is to set the aim of degrowth first and then hope that the environment will come out well. However, this cannot guarantee a very focused, effective and efficient approach to reduce environmental pressure. Worse even, degrowth might turn out to be dirty. In fact, degrowth can be the result of producing less efficiently, i.e. having less output with more inputs, including more resources, energy, pollution and waste. In other words, degrowth is not a sufficient condition for reducing environmental pressure. Smaller is not always more beautiful – although I certainly would not go as far as Wilfred Beckerman in saying that “Small is stupid” in general, or that “large” (growth) is necessary for environmental improvement (Beckerman, 1995).<sup>2</sup>

I fear that the focus of the degrowth strategy on the scale or size of the economy (measured in GDP) is neglecting the important role of the composition of both consumption and production, which can considerably change in response to stringent environmental regula-

tion (and to a lesser extent the more complicated contribution of technological change). To put it a bit simplistically, we want especially the dirty or dirtiest sectors to “degrow” if they do not succeed in adopting sufficiently clean technologies or realizing a substitution away from dirty inputs. Simultaneously, cleaner production, such as of electricity from renewable energy, may grow, which in turn would add to GDP growth. This illustrates that the relation between environmental quality and economic growth is more complex than degrowth (as well as growth) advocates suggest. Of course, no one can hope to predict and plan for all this differential or selective growth and degrowth of dirty and cleaner activities in the economy. A subtle type of regulation and information provision will be needed, which surely will have to make use of some type of price regulation.

My general proposal later will be to implement specific environmental policies along with adequate complementary policies and strategies, as discussed in detail in Section 6. Whether the resulting policy package will then give rise to GDP growth or degrowth should be irrelevant, as GDP (per capita) is not a good proxy of social welfare (discussed in Section 3). I agree though with Huetting (2010), who argues that effective environmental regulation is likely to result in GDP degrowth, or at least during an initial period of transition, simply because a large part of economic growth is realized in sectors which generate much pollution. Especially the reduction of CO<sub>2</sub> and other greenhouse gas emissions will turn out to be difficult because of the core role played by fossil fuels in modern economies. Serious climate policy may therefore hamper growth (though to a lesser extent well-being – see van den Bergh, 2010b, Section 5.4). But we should not reverse the causality as in the GDP degrowth strategy because then it is unclear whether improved environmental quality will actually materialize or whether it will be realized against reasonable (or minimal) social costs.

Another argument against a GDP degrowth strategy is that it submits to the growth paradigm in the sense that it continues giving much importance to the notion and indicator of GDP.

Note finally that – in an accounting sense – GDP degrowth will go along with GDP/capita degrowth if population size does not fall (much). However, it may also result from population degrowth, or involve a combination of the two.

### 2.2. Consumption Degrowth

The second interpretation of degrowth means striving for a reduction in the amount of consumption, however measured. Such a strategy is then hoped to translate into less resource use and less pollution (Princen, 2005; Alcott, 2008). This is, however, not sure to be an effective approach to environmental regulation, while it is certain to be a very inefficient one. Equally problematic is that the measurement of consumption degrowth is ambiguous. One can focus on physical/quantity or monetary/value indicators, but neither are guaranteed to be a good proxy of environmental impact. A simplistic indicator like the total weight (kilogrammes) of consumption may seem an adequate approach at first sight, but it would immediately exclude the consumption of services, even though these may indirectly cause much environmental pressure. In view of such measurement-indicator problems, a consumption degrowth strategy runs a serious risk of remaining a vague, conceptual approach which cannot be empirically implemented in any unambiguous way. As a result, it is entirely unclear which individual limit on consumption for each consumer would be reasonable and necessary for reaching environmental sustainability.

Supporters of this strategy have the hope that frugality (voluntary restraint or simplicity) will drive consumption down. As identified in the literature on environmental psychology, some people are indeed able to apply voluntary restrictions to their consumption behavior which are environmentally motivated (Gottbauer and van den Bergh, forthcoming). The question is of course how environmentally effective this is, and in particular whether one can safely assume

<sup>1</sup> One might also call this “market degrowth” as GDP is an aggregate measure of all transactions in formal markets. Alternatively, the term “market degrowth” could denote the idea of a shift away from formal markets to informal interactions and local transactions between humans (more in line with radical degrowth – see Section 2.4).

<sup>2</sup> The literature on Environmental Kuznets curves is sometimes suggested to offer evidence for the latter view that economic growth is needed for environmental conservation. However, it shows that along a path of rising GDP/capita only certain, mainly health-risk causing environmental problems have been solved (water quality, local air pollution), while others have been replaced in space or time (e.g., exporting or dumping waste), partly resolved (acid rain) or unresolved (enhanced global warming) (Stern, 2004).

this to work for a significant proportion of all consumers. Only looking at shopping malls, television, roads and airports should make one very skeptical about this. One can anyway wonder whether it is realistic or even fair to ask from the median consumer that s/he gives up the luxuries of modern life, to in some way go back in time. It is unlikely that hunter-gatherers or Henri David Thoreau (“Walden”) can serve as a role model for them.

The other extreme is (equal) individual quota on consumption, perhaps for a range of heavily environmentally damaging goods and services (notably gasoline), to realize consumption degrowth in an equitable manner. However, this resembles too much a communist society which will undoubtedly be difficult to obtain political support for.

A problem with focusing directly on consumption degrowth is that it may activate a rebound mechanism. Especially a voluntary reduction of consumption of certain types of goods and services may well lead to an increase in other types of consumption since disposable income will remain the same. Alternatively, it may lead to savings, which in turn implies more money being available for others to borrow and spend (van den Bergh, forthcoming). Generally, people are boundedly rational and lack the necessary information to make decisions that will effectively reduce environmental pressure. Against this background, I think there is much to say in favor of the traditional policy perspective that product and service prices need to reflect much better environmental and climate externalities, which will then force people to change their behavior as well as control or minimize rebound effects (van den Bergh, forthcoming). Without such pricing of environmental externalities associated with all (indirect) production and consumption, it would be virtually impossible for consumers to know or judge which consumption goods and services are relatively much or little polluting. This illustrates the essential informative role of environmental regulation through prices (taxes, levies or tradable permits).

The focus on the size of total consumption underrates the importance of shifting from dirty to cleaner consumption. Stringent environmental (price) regulation will considerably alter the composition of consumption. The relevance of changing the composition of both production and consumption was translated into the notion of “selective growth,” popular in the Netherlands during the 1970s after the Club of Rome’s publication on the limits to growth. In line with this, a logical and more desirable aim than general (consumption) degrowth would be “selective degrowth.” Of course, in the process the scale of consumption is likely to be affected as well. But whether consumption degrowth will be the outcome should not really matter and certainly not be set as an *ex ante* goal, also because of the before mentioned measurement problem associated with it.

Thinking about (over)consumption, nevertheless, suggests one problem that requires policy action. This concerns commercial advertisement, which does not always contribute to welfare – in fact much of it really represents a social cost (Norton et al., 1998). Regulation of such advertisement is likely to affect welfare in a positive way and possibly can alter the composition of consumption in an environmentally favorable way, even though one cannot expect too much environmental effectiveness from such an approach (in isolation). Nevertheless, this deserves more study. Unfortunately, the social cost of advertising is a neglected topic in the social and environmental sciences (an exception is Becker and Murphy, 1993, who however make the odd assumption that preferences are fixed).

### 2.3. Work-time Degrowth

Increased labor productivity due to improved education, skills, labor division (specialization) and technological progress has mainly been used to produce (and consume) more goods and services instead of gradually and structurally making a change to shorter working weeks, more holidays and earlier retirement. The latter would mean not only (as a direct effect) less production and lower wages, and

therefore less consumption, but arguably also less work stress and more happiness due to more leisure and time for family and friends (Gorz, 1994; Latouche, 2009). Of course, it is less certain which net impact the combination of productivity increases and less working hours would have on consumption and related environmental pressure.

In fact, just like many governments advise their citizens not to smoke cigarettes, not to drink too much alcohol, not to drive too fast, not to have unsafe sex, and not to eat unhealthy or too much food, they might warn against working too much. This strategy might even hope for more support now in times of crisis characterized by high rates of unemployment. Ironically, many economists and politicians currently express the view that we have to work longer hours, and several countries now face proposals for postponing the age of retirement. Although there are clear arguments in favor of this view (maintaining adequate pension systems in the face of ageing populations), valid arguments against it, such as relating to happiness, work stress and time for family and friends, have received only little attention.

More generally, while the debate on a reduction in average working hours has lingered for quite some time now, it has had a quite modest impact on policy in most countries. On the other hand, there is much diversity to be observed between countries in terms of average working hours, women participation in labor markets, and use of part-time labor contracts. A study by the OECD (2006) made adjustments in GDP by valuing leisure at average income (GDP) per worked hour, which resulted in a ranking of countries that differed considerably from that according to GDP per capita. In this ranking, The Netherlands scored best of all OECD countries. Two factors contribute to this: the inactive part of the working force is relatively large here, while part-time working is very common. On the other end of the spectrum is a country like the USA with a very high average income but also a very long working week (i.e. a high average number of working hours).

The attractiveness of interpreting and striving for degrowth in terms of less work hours (a shorter working week or year) is threefold. First, working hours is a very concrete, one-dimensional aim and its reduction is easily interpretable (as opposed to consumption degrowth, as argued in Section 2.2). Second, in rich countries there are certain direct welfare benefits associated with working less beyond a sufficiently high, threshold income per capita (as shown by happiness research; van den Bergh, 2009). Third, work-time degrowth will reduce both the push (production capacity) and pull (spending power) factors of consumption growth, so that it represents a more effective strategy to reduce consumption and associated environmental pressure than directly trying to reduce the quantity of consumption (degrowth type 2). In fact, degrowth of working hours will reduce income and thus spending power which in turn will limit consumption rebound effects as discussed in Section 2.2.

Nevertheless, even though a shorter working week may reduce consumption effectively, it will not serve as a very effective, efficient and directed tool for reducing environmental pressure associated with consumption. Among others, it does not guarantee more reduction of “dirty” than of “cleaner” consumption, and it may lead to substitution of labor by machines with an uncertain impact on pollution and resource use. In addition, it is not certain that working less will make everyone really happier. Indeed, many people derive a sense of fulfillment from work. For these reasons, a centralized regulation of work-time does not make sense. However, a moral suasion strategy by governments aimed at changing work-time norms as well as stimulating people to make a deliberate choice about working hours rather than following the existing norms would seem useful.

### 2.4. Radical Degrowth

Perhaps for the majority of degrowth proponents the notion of degrowth denotes a radical change of (or many radical changes in) the

economy. This may involve changes in values, ethics, preferences, financial systems, markets (versus informal exchange), work and labor, the role of money, or even profit-making and ownership (Latouche, 2009; Schneider et al., 2010). Such an approach comprises degrowth notions 2 and 3, but it is broader. Fournier (2008) has called it “escaping from the [capitalist] economy.”

The main problem I see here that this is such a grand, imprecise idea which lacks a good, thorough analysis that it will be impossible to obtain political support for it in a democratic system. More importantly, it is void of a good view on systemic solutions and instrumentation, making it unclear how to upscale radical changes in lifestyles and grassroots initiatives by small subsets of the population (“niches”) to society as a whole. Alternative lifestyles, i.e. outside the cultural norm, have always existed but have never been adopted by the large majority of people. So why would this now suddenly be different? This does, of course, not mean such lifestyles need not exist or do not deserve respect. They may influence slow change in dominant lifestyles, but cannot be expected to be copied by the masses.

Writings on this issue tend to be normative and idealistic rather than analytical and realistic. They seem to be motivated more by political ideology about justice and equity than about solving urgent and threatening environmental problems (an “ecological imperative”). As a result, they do not necessarily offer an effective approach to combat environmental problems. One can certainly be positive about the underlying humanistic ideals of equality, solidarity, citizenship, locality and “good life.” However, a drastic change in the economy upfront seems an overly risky experiment and a diffuse, undirected strategy that is not sure to meet the desired environmental aims. Moreover, it may well result in unintended social and economic chaos and instability. The main historical, large-scale experiments aimed at moving away from market capitalism which we can learn from, namely central planning by communist states as in the former USSR, Eastern Europe and China, certainly do not offer a good record in terms of clean production and environmental regulation – quite the opposite. Here, a lack of market mechanisms and other incentives seems to have given rise to excessive waste and inefficiency, also in relation to environmentally relevant categories of inputs and outputs.

Thinking about radical changes should moreover incorporate received insights about human behavior and its diversity as found in modern psychology and behavioral economics. These are already slowly changing mainstream economics and associated ideas about public policy (Gsoottbauer and van den Bergh, forthcoming). Given the urgency of environmental and notably climate change problems it makes sense to think carefully about the effectiveness of strategies in the short and medium term, which should involve taking into account behavioral features and limits of human individuals and organizations. Striving for radical degrowth seems risky in this sense as it does not well integrate received insights about human behavior. Instead, a less risky and more effective strategy is adding new institutions to our economies – to begin with an effective international climate agreement. What we need most of all is a hard environmental constraint on our economy (complemented by price regulation and possibly other types of regulation, like of commercial advertising and taxing status goods with serious environmental repercussions) and then let consumers, producers and investors adapt to it. Possibly, this will go along with fundamental, radical changes in our economy and institutions, but it does not seem necessary to require these and have a blueprint of them upfront.

## 2.5. Physical Degrowth

Implicit in most writings on degrowth as a strategy to relieve environmental pressure is the idea of physical degrowth (Martínez-Alier et al., 2010). This can be defined as a reduction of the physical size of the economy, notably in terms of resource use and polluting

emission. Such degrowth is then aimed to lead to an environmentally sustainable economy or steady-state economy in Herman Daly’s words. This interpretation is really old wine in new bottles. Writings on limits to growth since the 1960s and on sustainable development during the 1980s and 1990s had the same aim. Also environmental regulation as proposed by economists since the 1970s was motivated by, and meant to, keeping the economy within safe environmental limits. Not surprisingly, then, few people will be against such physical degrowth, just like almost everyone is in favor of sustainable development. This should make one suspicious about the policy relevance and informative content of these notions.<sup>3</sup>

Moreover, one should be careful with the precise definition of physical degrowth. We certainly do not want to focus on reducing some simplified, aggregate measure of total tons of materials and substances in the economy (whether stocks or flows). Not everyone agrees with this – witness the popular notions of factor X ( $X = 4, 10$ , etc.), MIPS, ecological rucksack and TMR promoted by the Wuppertal Institute. Counting total material flows is a nice pastime activity, but we should instead be concerned with environmentally relevant substances/materials and assign these appropriate weights in any aggregation process. All in all, it is not clear what aggregate physical quantity should exactly degrow – there is a measurement or indicator problem here.

The important question is whether labeling the mentioned old ideas as physical degrowth delivers any new insights about environmental policy. And before that comes the question what is wrong with the existing ideas about such policies. I have not yet seen good answers to these questions in the small literature on degrowth. This does not mean that standard environmental policy theory is perfect. Some shortcomings of it are evident. First, some instruments like regulation of advertisement and the advice to work fewer hours have not received much, let alone systematic, attention. Second, more thinking is needed about how social–political feasibility and acceptance can be improved, which may involve revising or adapting certain policy formulations, or creating clever policy packages. Third, policies should reckon with bounded rationality (e.g., habits, myopia) and other-regarding preferences (e.g., imitation, reputation concerns, comparison and status-seeking). However these three shortcomings do not in any specific way undermine the environmental policy goal of controlling the physical–environmental dimensions of the economy. In line with this, it is unlikely that the use of the terminology “physical degrowth” will help to obtain any new, relevant policy insights. It does in any case not respond specifically to any of the three noted shortcoming of current policy approaches. In fact, it lacks any particular and original policy angle.

Several degrowth proponents tend to connect interpretations 1 and 5 in the sense that they assume that *physical degrowth* automatically follows from *GDP degrowth* (Schneider et al., 2010; Martínez-Alier et al., 2010). They seem to be motivated by a degrowth strategy as they are pessimistic about the effectiveness and social–political feasibility of environmental policies, and thus about any decoupling of GDP and physical (material-energy) trends (Jackson, 2009). The past decades are indeed characterized by a very high correlation between the physical scale of the economy and the level of GDP, but this is partly because of weak or lacking environmental

<sup>3</sup> A notable difference between recent writings on degrowth and Herman Daly’s conception of the steady-state (Daly, 1991) is that the first do not mention “population degrowth,” i.e. strategies to reduce (or stabilize) the size of the human (world) population. Nevertheless, it is evident, even trivial, that the human population is an important factor behind anthropogenic environmental pressure, as is reflected by the famous  $I = PAT$  equation. Some 70 studies, employing a range of methods, have tried to assess a limit to world population. On the basis of these, van den Bergh and Rietveld (2004) “meta-predict” the limit to be 7.7 billion people. Given the difficulties we face in realizing necessary cuts in GHG emissions, an explicit population strategy deserves attention. Kerschner (2010) discusses other aspects of the relation between degrowth and Daly’s notion of a steady-state economy.

regulation. Such a context does not well reflect future scenarios which will inevitably, sooner or later, be characterized by stringent environmental regulation. The lack of stringent policies in the past means we have too little experience to judge the possible effects of stringent environmental regulation. In other words, we cannot know for sure the feasible range of behavioral, structural (composition of production and consumption) and technological changes in response to environmental regulation. Instead of being pessimistic or optimistic it makes more sense to be agnostic (and perhaps hopeful) about these impacts, and focus on maximally effective regulatory policies rather than a degrowth strategy as a substitute for these.<sup>4</sup>

It is anyway unlikely that a direct physical degrowth strategy will solve our problems. Even if we would manage to “scale the economy down” to 50%, something that seems really impossible from a social-political perspective, we still only would have reduced the size of the environmental problems by half. But this is by far insufficient for most environmental problems. To illustrate, to stabilize CO<sub>2</sub> concentrations at about 450 ppmv by 2050, global emissions would have to decline by more than 50% by 2050, and in industrialized countries even by possibly 80% (Jackson, 2009). One cannot expect or hope for degrowth to such an extent. Behavioral changes guided by tough environmental regulation (notably rising energy prices) and additional measures (as outlined in Section 6) are needed to realize such ambitious reductions in carbon dioxide emissions. Degrowth may be part of the outcome but any direct planning of it would be completely arbitrary. Should we then have to aim for 10, 50 or 80% degrowth? Nobody knows. Let instead environmental regulation with clear, environmentally motivated aims do its job and just await what it implies for the combination of behavioral, structural, technological and scale (de/growth) changes. Of course, if physical degrowth just means degrowth of CO<sub>2</sub> emissions, then the concept does not offer anything new – this is already the starting point of the entire mitigation policy debate. Labeling it as degrowth will not contribute in any way to concrete solutions or political acceptance of needed policies and strategies.

Good, effective environmental policies should by definition lead to physical degrowth of the latter kind, namely simply in terms of a reduction in resource use and pollutive emissions (without knowing and having to know beforehand what this would mean for other aspects of the “physical scale of the economy”). In this sense, traditional environmental policy thinking, notably as proposed by mainstream environmental economics, is not necessarily inconsistent with physical degrowth.

In theory, tradable permits are ideal policy instrument to operationalize physical degrowth as it puts a hard environmentally relevant limit on the economy. Not surprisingly, Herman Daly proposed this instrument for “population degrowth,” i.e. limiting population size to reach his steady-state economy. Of course, this is not to deny that it is associated with practical implementation problems, notably regarding the initial distribution of permits.

### 3. A-growth Instead of Degrowth

Here I will propose my own view, which can be summarized as opposing the GDP indicator rather than GDP growth. This is a subtle and essential difference, which is unfortunately not well recognized by either growth proponents or opponents. By implication, one has to be indifferent or neutral about economic growth.

As is well documented, using the GDP indicator as a measure of welfare or progress suffers from a number of problems (van den Bergh, 2009). The use and calculation of the GDP indicator is inconsistent with

good bookkeeping, namely dividing clearly between costs and benefits. GDP is really an estimate of the costs, not the benefits, of all formal, market-related activities in an economy. Economic theory does not offer any support for GDP as a measure of social welfare: both micro- and macroeconomic theories propose models in which social welfare is not identical to a GDP type of criterion. In fact, Weitzman (1976) has shown that GDP is only a good approximation of social welfare under very stringent, unrealistic conditions. According to happiness or subjective well-being studies, somewhere in between 1950 and 1970 the increase in mean welfare stagnated or even reversed into a negative trend in most rich countries, despite a steady pace of GDP growth (e.g., Layard, 2005). This pattern has been confirmed by corrections of GDP like Daly and Cobb's (1989) Index of Sustainable Economic Welfare. In this context the ‘threshold hypothesis’ has been formulated, which says that beyond a threshold income level the cost of growth exceed its benefits (Daly, 1991). Subjective well-being studies further find that relative income and various income-independent factors influence individual welfare or happiness, making it unlikely that the aggregation of individual absolute incomes to create a GDP will deliver a robust indicator of social welfare. Since status is a very scarce good, increases in relative income come down to a zero-sum game: what one individual gains, others lose – with no sure rise of social welfare. A third relevant insight of happiness research is that individuals tend to partly or wholly adapt or get used to changed circumstances, in both income and other factors (e.g., health). Since people do not realize this adaptation, they keep striving for ‘more’ income and consumption – making it possible for GDP to rise while welfare remains constant. In addition, GDP per capita as an indicator of welfare emphasizes average income and neglects income distribution. This is even plainly inconsistent with empirically established diminishing marginal utility of income, which is widely accepted in economics. Furthermore, GDP with its focus on market transactions excludes informal transactions between people. In line with this, GDP growth in both developed and developing countries often results from a transfer of informal activities to a formal market, in which case benefits were already enjoyed but in the absence of any market costs. An important subcategory of unpriced effects relates to use of natural resources and the environment. This involves negative external effects, goods and services delivered by nature, and capital depreciation associated with environmental change (fish stocks, forests) and depletion of energy and other resource supplies. All these shortcomings together imply that GDP cannot be relied upon to capture our welfare.

If one accepts that GDP (growth) is not a robust, reliable indicator of social welfare (progress) than the only solution is to ignore it and as a result be completely indifferent about GDP growth. GDP growth is good in some periods or for some countries, but unconditional growth is not a wise aim. GDP growth is not generally necessary or sufficient for progress. Neither is GDP degrowth necessary or sufficient for sustainability. Correlations between GDP and welfare or between GDP and environmental impact are not constant and fixed over time. One can therefore not exclude the possibility of “dirty GDP degrowth” or a degrowth which hardly reduces environmental impact.

The goal of unconditional GDP growth is a constraint on our search for progress: it frustrates good policies in many areas (climate, labor, health, public utilities). Some have called it the “neoliberal ideology/tyranny of growth” (Fournier, 2008) and “GDP fetishism” (Stiglitz, 2009). However, we should not fall in the trap of replacing this by GDP degrowth fetishism (i.e. the GDP degrowth strategy). Removing GDP information from the center of macroeconomic and political debates means effectively that one cannot judge whether we grow or not. This then eliminates any basis for a GDP growth (and GDP degrowth) paradigm.

It should be stressed that being against GDP or against unconditional GDP growth is not the same as being against growth. The reason is that once GDP information is no longer taken seriously (ignored as a

<sup>4</sup> Based on the distinction between scale (GDP) and intensity (impact per unit of GDP), Victor (2010) separates between three types of growth: “green growth” when intensity decreases faster than scale increases, “brown growth” when intensity decreases slower than scale increases, and “black” growth when both scale and intensity increase.

social goal) one cannot be otherwise than neutral or indifferent about GDP growth (and likewise about GDP degrowth). This indifference is a good reason to use the term “GDP a-growth.”<sup>5</sup>

Degrowth is a too imprecise and ambiguous term. The latter is immediately clear from the five interpretations of it presented in Section 2. Moreover, especially GDP, consumption and radical degrowth are likely to meet strong resistance from the mainstream (or they will just be ignored) and thus will run a serious risk of staying a marginal line of thought. Fine of course if some degrowth proponents are happy with a rearguard fight, but there is much to say in favor of trying to influence the mainstream. On the other hand, one might positively value a diversity of strategies, including less and more radical idea(1)s. Some of these may intend to shock, like the notion of “degrowth,” while others are more likely to exert some influence on the minds of mainstream economists and politicians. Where “a-growth” should be categorized is of course too early to say.

#### 4. On the Social–Political Feasibility of Degrowth, A-growth and Environmental Policy Strategies

Degrowth proponents generally seem to think that we cannot expect too much from public policies aimed at controlling environmental problems, for two reasons: because policies are ineffective, and because their political acceptance is very low (Schneider et al., 2010). The first is not convincing: to illustrate, we know from empirical research that people are sensitive to prices which means that price regulation of energy or CO<sub>2</sub> definitely would alter consumption (and production) patterns and in turn reduce pollutive emissions (e.g., Espey et al., 1997; Espey, 1998; Espey and Espey, 2004).

The second reason, relating to political acceptance, has two dimensions, namely a national and international one. Environmental agreements between countries at the international level are a prerequisite for the implementation of effective national policies, at least for global, transboundary environmental problems like climate change, acid rain and biodiversity loss. This is so because of two reasons: the necessity to create a level playing field (so as minimize economic costs or damage); and efficient regulation having to take into account the often uneven (internationally) spatial distribution of sensitive ecosystems (e.g., in the context of acid rain) and cost-effective options for abatement. Without a response to global climate change in the form of an effective international agreement we will be unable to stabilize GHG concentrations in the atmosphere at a reasonably safe level. Governments or citizens on their own are very limited. Unilateral extreme action will be either ineffective (if lax) or economically harmful (if stringent) as it deteriorates the international competitive position of a country.

Should we be pessimistic about the process of international environmental agreement making, notably in the area of climate policy? Yes and no. Yes, because climate change seems to outpace institutional change in terms of effective agreement formation. No, because we have made quite some progress in the last two decades on scientific research, information diffusion, citizen and political awareness, and creation of international networks (IPCC, UN frameworks). Some pessimists will point at the failure of the Kyoto Protocol in terms of both effectiveness and efficiency of reducing GHGs, but at the same time Kyoto can be judged as a large step for mankind and a stepping stone for a more effective subsequent agreement. Institutional changes like international agreements, certainly for such a tough problem like climate policy, take time and require a social and international learning process. Whether we like it or not, democratic support for climate policy needs to develop

<sup>5</sup> The term “a-growth”, but without the adjective “GDP,” was also proposed by degrowth supporter of the first hour Latouche (2010). He compared “a-growth” with the notion and term “atheism” (as opposed to theism). Nevertheless, his use of “a-growth” goes more in the direction of what I have called here “radical degrowth” (Section 2.4).

slowly, which requires information transfer from science to society, education, media involvement and a great deal of public and private debate about climate change. All in all, it is too early to say that agreements and policy do not work and that we need to turn to some degrowth strategy instead (whether focusing on GDP, consumption, work-time or radical degrowth). Anyway, the political acceptability of the latter is likely to be much lower than of environmental agreements and national policies. Worse, I fear that employing the term “degrowth” really comes down to preaching to the choir, rather than enlarging the group of citizens who are genuinely concerned about the environment and critical about pleas for unconditional economic growth (i.e. the growth paradigm).

One argument of degrowth supporters against the social–political acceptability of stringent environmental regulation is that both rich and poor individuals will oppose policies that are seen to threaten their income (Schneider et al., 2010). Apart from wondering whether this is entirely true, it raises the question whether a direct (GDP, consumption, work-time or radical) degrowth strategy could really count on more democratic support than well-formulated environmental policies? I doubt it, since a degrowth strategy will make the income losses for everyone only more visible and explicit. Drawing attention to income effects may not be a clever, effective strategy to obtain political support for one's ideas. Instead, convincing society about public policies and strategies on the basis of expected impacts on real welfare or happiness rather than on income would make more sense. Not only does real welfare represent a more adequate (social) evaluation criteria, but also it will convey a less pessimistic message. For example, even if a stringent climate policy may negatively affect (average) income growth this does not necessarily translate into a reduction of real welfare (van den Bergh, 2010b).

In line with this, I feel that to set in motion important systemic solutions, we need to more consistently and persistently argue against a systemic piece of misinformation, namely the GDP or aggregate income indicator and the associated preoccupation with unconditional economic or GDP growth. GDP affects decisions in many parts and at many levels of the economy and thus acts as a systemic barrier to good policies – in the realm of the environment, social security, labor markets, income inequality and poverty, health and leisure. The undisputed priority assigned to GDP in politics is again very well illustrated by the current media attention and public debate on the financial–economic crisis and necessary public responses. It reflects an extreme preoccupation with getting back as soon as possible on a fast GDP growth path, more so than limiting well-being impacts due to massive unemployment. We are reminded that GDP can compete for the unflattering title “largest information failure in the world” (van den Bergh, 2009). It has more impact than many economists and environmental scientists realize. If we would manage to get GDP information out of the centre of political attention we would remove an enormous hurdle to good environmental policies.

Unfortunately, rational arguments do not always convince. GDP support is dogmatic, not rational. It is fed by misinformation through education and media treatment of GDP. Many economists agree that GDP per capita is not a good measure of social welfare but are then still unwilling to set it aside. I have called this the GDP paradox. It can be explained by two beliefs or common responses from economists: first, they will argue that GDP does not have so much impact on reality; secondly, they will stress that despite its shortcomings as a welfare indicator, GDP information still serves a number of very useful purposes. I strongly disagree with both beliefs, as elaborately motivated elsewhere (van den Bergh, 2009). To counter the GDP dogma, rather than simply repeating the shortcomings of GDP as a proxy of social welfare, we need to systematically and repeatedly argue against these specific beliefs.

On the positive side, one can see increasing support for a more critical treatment of GDP information. The development of alternative indicators by the World Bank, the 2007 EU conference “Beyond GDP”

(were EU President Barroso supposedly made the remark about the GDP indicator: “We cannot face the challenges of the future with the tools of the past”), and the critical report about the GDP indicator to Sarkozy by Stiglitz, Sen and other well-known economists (“Commission on the Measurement of Economic Performance and Social Progress”) all point in this direction. More generally, there seems to be some revival of attention for the problematic relationship between economic growth and environmental conservation in academia and policy. On the other hand, one can easily become pessimistic and even cynical about many of the political statements made in the various reports and meetings over the last few years under the heading of “beyond GDP.” Most of these in effect try to save the GDP indicator, suggesting adaptations (which are not just imperfect but will never work, certainly not in the limited time we have to solve the problem of climate change) or complementary indicators (GDP as one of a set of indicators, which really is already the case – so what’s new?). Nobody dares suggesting to entirely remove GDP information from political debate and economic policy reports. Moreover, the responses of politicians and the media in the midst of the latest financial–economic crisis illustrate that GDP (per capita) is still widely regarded as the central indicator to judge the performance of modern economies. Also indicative is the recent OECD (cliché) terminology “green growth.” It would be easy to continue this list of illustrations.

### 5. A Tentative Comparison of the Six Strategies

In the previous sections I argued that GDP, consumption and radical degrowth (types 1, 2 and 4) are not so convincing in terms of either environmental relevance (environmental effectiveness) or realism (political feasibility), while physical degrowth (type 5) is not really new and therefore does not offer any new insights, and moreover does not present any concrete policy perspective. I was a little more positive about work-time degrowth (type 3) as it focuses the attention on a concrete indicator (working hours) that has some relevance from a welfare angle. However, as a separate strategy it was argued not to result in effective or efficient reduction of environmental pressure.

Table 1 summarizes the previous discussions in a tentative comparison based on my personal estimation of the performance of

the various degrowth types along four criteria, namely environmental effectiveness, social–political acceptability or feasibility, economic efficiency, and limiting the risk of (environmental or energy) rebound. Rebound is really part of effectiveness, but since it is a neglected and fundamental source of ineffectiveness of certain strategies I deem it useful to deal with it explicitly and separately.

The motivation of column 2 (environmental effectiveness, including rebound in column 5) received much attention in Sections 2 and 3. Column 3 (social and political feasibility) was discussed in detail in Section 4. Column 4 (economic efficiency) received some attention in Section 2 but will be given more motivation in the following discussions.

Physical degrowth scores best on environmental effectiveness, but of course it is void of policy relevance. Work-time degrowth may be one way to realize it although it is neither perfectly effective. As argued extensively in Section 2, degrowth types 1, 2 and 4 score particularly bad in terms of environmental effectiveness. This is partly due to rebound effects, which are likely to be smaller under work-time degrowth as then incomes and thus spending power are likewise lower. A-growth also has a relatively good environmental effectiveness, as it implies that the weight in growth–environment tradeoffs shifts to environment.

No degrowth type scores positive on social and political feasibility, although my estimation is that degrowth types 1, 2 and 4 perform especially bad here. Section 6 offers a number of arguments.

On the criterion of economic efficiency, GDP a-growth scores good because an information failure (GDP information) is removed (see Section 3). For consumption and physical degrowth the performance on efficiency depends on the way they are implemented, i.e. instrumentation. Degrowth types 1, 3 and 4 score negative here as they aim to reduce environmental pollution without any concern for the costs of strategies, notably disregarding the central message of standard environmental policy theory about equalization of the marginal costs of abatement between polluting activities.

With regard to the final criterion, rebound may be controlled by limiting income and thus purchasing power (GDP/capita and work-time degrowth) and of course by physical degrowth (assuming an effective limit). However, a more effective way is price policies or effective ceilings to emissions as these weaken the mechanisms behind rebound. Ceilings (to CO<sub>2</sub> emissions, for example) are the most effective “rebound policy,”

**Table 1**  
Comparison of degrowth and a-growth strategies.

Degrowth type	Environmental effectiveness	Social and political feasibility	Economic efficiency (welfare, costs)	Limiting rebound
1. GDP degrowth	– Income reduction not necessarily translates into less consumption of dirtiest goods	– – Voters do not like to hear that their income will drop for sure	– Growth sometimes good for welfare; environmental externalities not efficiently reduced	–/+ Better if takes the form of GDP/capita degrowth
2. Consumption degrowth	– Not all consumption equally bad for environment, large rebound effect	– – Voters do not like to hear that they for sure have to reduce overall consumption	? Depends on how implemented (instrumentation)	– No limit on income and no price regulation
3. Work-time degrowth	–/+ Rebound limited	– Little support in the current time frame (due to ageing population)	– No efficient reduction of environmental externalities	+ Associated reduction of income constrains rebound
4. Radical degrowth	– Radical changes do not guarantee less consumption of the dirtiest goods and services; unlikely for majority of people to adopt an alternative lifestyle	– – Most voters and politicians follow the norm and will strongly resist radical changes perceived to have uncertain impacts	– Social and economic costs likely to be huge, also given many uncertain impacts of, and social resistance against, radical change	– Lack of mechanisms to guarantee a limit to rebound
5. Physical degrowth	–/+ Physical measure possibly environmentally irrelevant	–/+ Depends on how implemented (instrumentation)	–/+ Depends how implemented (instrumentation)	+ If the overall aim can be implemented (price regulation or ceiling to emissions)
6. GDP a-growth	+ Removal of unconditional growth means increasing support for environmental regulation	–/+ Difficult to get political support but likely to be perceived as less radical than any of the degrowth types 1, 2 and 4	+ A large information failure (GDP information) removed	0/+ No direct connection, but more support for environmental regulation may lead to effective rebound control

Legend: ‘+’ denotes a positive and ‘–’ a negative judgement, all in relative terms, on a scale {–, –/, +, ++}.

while price regulation can reduce effects like additional energy use due to respending of monetary savings associated with initial energy savings (van den Bergh, forthcoming).

Note, that degrowth type 5 (physical degrowth) and “GDP a-growth” differ in style from the others; they may be seen as sort of complementary, and are therefore not well comparable perhaps with the other strategies. In addition, degrowth type 4 (radical degrowth) is the most vague in content. Degrowth types 1 (GDP degrowth) and 3 (work-time degrowth), on the other hand, can be judged as being the most concrete as each aims to decrease the value of a very clear indicator, namely GDP and average work-time, respectively.<sup>6</sup>

Finally, the long-standing environment-versus-growth debate was summarized in a number of core perspectives by de Mooij and van den Bergh (2002). These were referred to as *moralist/immateralist, pessimist, opportunist, technocrat* and *optimist*, in response to three core questions: (i) is continued economic growth desirable, (ii) is continued growth feasible, and (iii) is growth controllable. One might say that degrowth supporters answer these questions generally as (i) no, (ii) no and (iii) yes, and therefore include both moralists and pessimists. I would instead suggest the correct answers to be as follows: (i) “depends on the country and period,” (ii) “depends on technological change and the content of growth,” and (iii) no.

## 6. An Effective Policy Package

Rather than aiming to degrow in one way or another, I would suggest to worry and think about effective environmental and complementary policies, in terms of both their design and social–political feasibility. I see the need for six complementary policies and institutional changes:

1. Global environmental problems cannot be tackled by voluntary action and grassroot initiatives (which certainly does not mean they should be hampered). An effective international agreement, first of all for climate change, is critical for any effective national environmental policies and strategies, notably price regulation (whether through taxes, levies or tradable permits), which at the same time will limit rebound effects (van den Bergh, forthcoming). Only with an effective climate agreement countries can implement safe climate policies which will not harm their competitive position. This will then contribute to the social–political acceptability of such policies in these countries. The policies will in turn change the composition of production and consumption towards cleaner products and services, as well as stimulate technological change (though insufficiently – see element 5 later). The main and unresolved problem is then how to get democratic–political support for an effective international climate agreement. An increasing number of studies is devoted to this, but the question is whether the many creative ideas in science find their way to society and politics.
2. Encourage a different work-time norm, create a flexible labor market that allows for part-time work contracts, and stimulate people to make deliberate choices about work-time. These measures derive from the idea that governments should be more open to translating labor productivity improvements into less work-time rather than always higher incomes and more consumption. A shorter average working week will contribute to limiting the rat race for income and consumption, and curb the continuous increase of purchasing power and (because rebound is then limited as well) associated environmental pressure. A less stringent work-time norm and more diversity of labor contracts in terms of work-time (per week or year) contributes to an improvement of welfare, which will further benefit from a reduction of (over)working stress and having more time available for leisure, friends and family. This all evidently links up with the concerns behind work-time degrowth. There is a role for the government to set a new standard here, as people are accustomed to work in a social context, to feel peer pressure and competition for salary and expertise (seen to be related to working long hours).
3. Regulate commercial advertisement more stringently than is done now is a third element. Notably advertisement of status goods is important, as it stimulates people unnecessarily to be dissatisfied with their current collection of products, to compare themselves with others and indirectly to strive for more income and consumption. Such type of advertisement has a huge social cost which unfortunately has not yet been translated in adequate public regulation (unlike virtually all other social costs). In line with this, a complementary policy of taxing status goods with serious environmental repercussions could be considered (Howarth, 1996). In view of the bounded rationality of humans (consumers), policies like direct control of advertisement are however needed in addition to such price regulation policies. These ideas link up with some of the concerns behind the consumption degrowth strategy, but they have to become more concrete in terms of the bounded rationality of individuals and effective policy connections. Moreover, the aim would not be to reduce consumption *ex ante*, but to reduce the environmental impact of consumption (even though less consumption is not excluded beforehand if that turns out to be necessary to satisfy environmental limits). Regulation of advertisement also links up with an older literature on preference change for sustainability (Norton et al., 1998).
4. Research on pro-environmental behavior suggests that individuals may, within boundaries, voluntarily reduce or limit certain types of environmentally relevant consumption. Communication and information provision which motivates such behaviors is an additional element of a policy package. This involves the diffusion of information regarding consumption and the environment in schools, media and books. Such efforts may have the greatest impact if they focus on social interaction, notably provide information that links the endorsed behavior to the relevant social reference group, family members or friends. In addition, examples and social rewards and punishment mechanism such as social approval/disapproval via the power of peer pressure can be used to reach environmentally desirable behaviors (Gsottbauer and van den Bergh, forthcoming). Interventions by means of regulatory (paternalistic) policies are more effective in inducing people to make socially desirable decisions and are legitimate if consumer preferences are inconsistent with long-run environmental sustainability. Nevertheless, while effective communication strategies can strengthen the desired effects of such regulation, they have so far been neglected as a serious environmental policy instrument.
5. In line with the a-growth strategy, a new element of policy would be to stimulate economists, politicians and the public media to ignore GDP, or at least give less importance to changes in GDP (per capita). The priority given to GDP growth is misplaced and not supported by economic science. Less value assigned to GDP will mean judging environmental and climate policies as less costly or more beneficial to our society (van den Bergh, 2010a). Environmental policies should be set such that we keep within safe environmental limits. Whether such policies will then give rise to GDP growth or degrowth should be irrelevant, as GDP (per capita) is not a good proxy of social welfare. The logical consequence of the a-growth goal is that we should relax about growth, and possibly be satisfied with slower growth (Victor, 2008).
6. Finally, “technology-specific policies” (like research subsidies and state procurement) are needed to influence the direction of research, theoretically ideally to correct for R&D spillovers, so that appropriability of innovation benefits is assured. Environmental regulation only

<sup>6</sup> GDP, consumption and possibly also work-time and radical degrowth types may be categorized under the heading “degrowth in rich countries.” This reflects the idea that (some) developing countries still need to grow out of poverty, for which “environmental space” is needed. This might then according to degrowth proponents be created by negative (GDP, consumption or work-time) growth in rich countries. More generally, this suggests a distinction between degrowth in all countries and degrowth only in (sufficiently) rich countries (irrespective of the adjective of “degrowth” – GDP, consumption or radical).



(element 1 earlier: e.g., carbon pricing) may lead to lock-in as currently cost-effective alternatives will be reinforced and learning potential is neglected. Technological specific policies help to unlock and can keep open or guide alternative technological scenarios.<sup>7</sup>

## 7. Conclusions and Discussion

Five main insights follow from the assessment of degrowth interpretations and strategies. First, the many meanings of degrowth suggest it is bound to remain an ambiguous concept which will create confusion rather than contribute to a clear and constructive debate about environmental policy. Second, most interpretations of degrowth are not meaningful in the context of environmental aims, i.e. they do not represent strategies which guarantee an effective reduction of environmental pressure or a transition to a sustainable economy. Third, degrowth is unlikely to receive much social and democratic-political support so that it will be an ineffective political strategy to reach environmental sustainability. Fourth, a-growth (as defined in Section 3) is a less ambiguous and – from the perspective of both environment and human well-being – a more sensible strategy to strive for. Five, the alternative to a degrowth strategy is simply a good policy package that includes environmental regulation and several other, complementary measures and institutional changes. Striving for political feasibility nationally and internationally is an important precondition for getting such a policy package implemented. The new aim of a-growth, and the associated removal of the GDP indicator from policy and political debate and decision-making, are likely to increase the social and political acceptance of this policy package.

The main concern about degrowth as a primary or overarching goal to solve environmental problems is that it reflects a misinterpretation of the relevant causality. It suggests that degrowth, however interpreted, is a first step, necessary and perhaps sufficient, to reach environmental aims. Instead, one better would reverse the causality, and start with a safe environmental policy which then may or may not give rise to (some type of) degrowth. Even if one might support GDP, consumption or work-time degrowth for reasons of equity or happiness, they cannot be defended as appropriate strategies to reach environmental aims. The reason is that they function at best as blunt, ineffective and inefficient instruments of environmental regulation.

A degrowth strategy gives much weight to the scale of the economy or consumption, and underestimates or even neglects the role of composition and technical change.<sup>8</sup> In relation to consumption it also often reflects a belief in the effectiveness of voluntary, bottom-up solutions. One additional belief that I have often encountered in debates with degrowth proponents is that environmental policies do not work, or will not be implemented, and that we therefore have to find solutions outside the standard environmental policy framework. This view and judgement I cannot share. Without (standard) policies we certainly will not be able to solve the major global environmental problems. Their global and externality nature requires that we strike international agreements to create an international level playing field which allows countries to implement regulatory policies that create the necessary incentives to alter all behavior that contributes to the environmental problems. This is not

<sup>7</sup> On the other hand, in the absence of a carbon tax, subsidizing a renewable backstop such as solar or wind energy can stimulate early exhaustion of fossil fuels and aggravate global warming. This has been called the green paradox (van der Ploeg and Withagen, 2010). This suggests that a combination of environmental regulation and technology-specific policies is desirable.

<sup>8</sup> This is not to say that one should be categorically optimistic about technological change (Ehrlich et al., 1999). Empirical studies indicate that its contribution over the next 25 years, a critical period for solving enhanced global warming, should be expected to be smaller than the effect of emissions reduction through changing behavior of consumers and producers with regulatory instruments (leading to “economic restructuring”). In addition, technological innovation is costly, takes much time, and may go along with considerable rebound effects, notably in the case of improvements in the (energy) efficiency of general purpose technologies (van den Bergh, forthcoming).

enough, as suggested in the previous section on a wider policy package, but it represents the core of any effective solution.

The voluntary, bottom-up view behind many (notably radical) degrowth expressions in my opinion gives insufficient attention to modern insights of psychology and behavioral economics. These state that humans show bounded rationality, myopia, a large degree of self-interest (and a smaller role for altruism), and a propensity to compare, seek status and imitate (sensitivity to fashions). Add to this the interactions between large numbers of individuals, increasing returns to scale which lead to lock-in of undesirable behaviors and technologies, and (energy) rebound, and we end up with an altogether impressively complex and difficult to alter system (Gsoottbauer and van den Bergh, forthcoming). This should stimulate social scientists to think about systematic solutions and instruments as well as about very clever strategies to attain social-political acceptance for these. Just proposing voluntary grassroots initiatives is too easy and idealistic. It neglects the aforementioned complications. Of course, this does not mean a plea against grassroots initiatives but more attention for their upscaling and system-wide impacts and associated policies. Certainly something can be learned here too from studies in psychology and economics on how to elicit pro-environmental behavior.

One may argue, of course, that I should not worry too much about a degrowth strategy, as it is highly uncertain to receive widespread social and political support. I indeed fear that degrowth as a political strategy is unlikely to be taken seriously by economists and politicians, or even a significant group of citizens. Arguing in favor of degrowth runs a serious risk of preaching to the choir, i.e. convincing only already-believers. In Section 4 it was argued why the pessimism about the political feasibility of environmental policies as a motivation to support degrowth is unfounded. I am much more optimistic about the political feasibility of environmental (including climate) policies, but these things simply need time. We should be patient even though we are running out of time – which does not deny that we should do everything in our power to speed up the realization of climate agreements and environmental policies. For me this includes trying to convince the mainstream of shifting to an a-growth strategy, ignoring GDP, relaxing about growth rather than be unconditionally in favor or against growth. This may alter the balance in trading-off costs and benefits (in a broad sense) of climate policies (van den Bergh, 2010a).

Rather than embracing the aim of degrowth *ex ante*, we would do better to continue finding democratic support for effective environmental and complementary policies. I indicated the need for six complementary policies and institutional changes. The most important is to realize an effective international climate agreement at short notice. Only this can stimulate countries to implement sufficiently effective national environmental policies which encourage shifts away from dirty production and consumption through different choices by consumers and producers, and by technological change. The main complementary policies and institutional changes identified are: encourage people to work shorter hours; regulate commercial advertisement – notably of status goods; tax status goods with serious environmental repercussions; undertake communication and information provision to motivate changes in preferences, attitudes and voluntary action; stimulate economists, politicians and the public media to ignore GDP; and install technology-specific policies (like research subsidies). Perhaps this list is incomplete, but the main ingredients are there.

Can we judge degrowth as a sensible political strategy to attract media attention and mobilize social support? My impression is that its ambiguity and environmental ineffectiveness will not work in favor of it. Indeed, it is unlikely to find a warm welcome beyond a small circle of already-believers. Section 4 concluded that a degrowth strategy is less politically feasible than the combination of international environmental agreements and national environmental policies.

I should admit that I have some sympathy for the notion of “work-time degrowth” as it draws attention to a forgotten aspect of our well-being. Perhaps a more strategic term, which might hope for a better reception in society, is “leisure growth.” It does not make sense that we

structurally translate more productivity only into more consumption instead of also in more leisure. This suggests that the marginal utility of leisure is zero, which cannot be true. Nevertheless, it is evident that work-time degrowth is not the universal remedy for environmental problems. It needs to be part of a wider package of measures and strategies as outlined in the previous section. Moreover, diversity of work-time rather than a strict norm should be fostered, as some people clearly derive much satisfaction from work.

Another type of degrowth which I can appreciate somewhat is “selective or differential degrowth” as defined in Sections 2.1 and 2.2. It denotes that we do not need general degrowth but degrowth of dirty activities and consumption. It stresses that the composition of production and consumption needs to change drastically, while it does not deny that overall scale may alter in the process. However, such selective degrowth will automatically result from adequate environmental regulation, notably via correcting prices.

In closing, I should like to say that I would expect the idea of “(GDP) a-growth” to have a brighter political future than that of (GDP, consumption or radical) “degrowth.” The notion “a-growth” suggests agnosticism and by implication indifference about economic growth as commonly interpreted. This would automatically follow from ignoring information about GDP in the overall evaluation of economic change and development, for example, when GDP (per capita) would be removed from the core set of macroeconomic goal indicators. The aim of a-growth reflects instead a more rational approach to public decision-making. It eliminates the unnecessary constraint of unconditional GDP growth, which hampers our search for human progress. Following an a-growth strategy, we would in some periods be willing – without realizing even – to give up a part of potential GDP growth for a better environment, less unemployment and more leisure, namely if this would work out well in terms of individual well-being and social welfare.

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