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**Research Report**

## Green 'agrowth' as a third option: Removing the GDP-growth constraint on human progress

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**Policy Paper no 19**

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**Green *Agrowth* as a Third Option:  
Removing the GDP-Growth Constraint on Human Progress**

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# **Green *Agrowth* as a Third Option: Removing the GDP-Growth Constraint on Human Progress**

## **Abstract**

The debate on growth versus the environment is usually summarized as optimists believing in limitless growth versus pessimists seeing environmental and resource limits to growth. This opposition defines the main strategies: namely, striving for green growth versus some anti-growth approach. In this paper I argue that we should not feel obliged to choose between these polarized opinions, as there is in fact a third option. I call this the “agrowth” strategy, and it offers a way out of the impasse that characterizes the growth-versus-environment debate. I will define this agrowth strategy, motivate its rationality, and examine its premises, implications, advantages, political feasibility and practical steps. I suggest that an agrowth strategy follows logically from accepting the shortcomings of GDP (per capita) as an indicator of social welfare. It will be graphically shown that both anti-growth and pro-growth goals represent avoidable, unnecessary constraints on our search for human betterment, which lead to lower realizations of social welfare than are in fact feasible. I will further discuss the idea of green agrowth, notably in the context of avoiding dangerous climate change. Finally, a pragmatic approach to selecting alternative macro indicators is proposed.

**Keywords:** climate change, degrowth, GDP paradox, green growth, growth debate, macro indicators

**JEL codes:** E6, I13, O4, Q54

## 1. The enduring growth debate

The debate on growth versus the environment has a long history. It is usually summarized as occurring mainly between optimists believing in limitless growth and pessimists seeing environmental and natural resource limits to growth. Although a more subtle classification of viewpoints is possible<sup>1</sup>, this opposition defines best the main policies and strategies found: namely, striving for green growth by decoupling income and production from environmental pressure versus an anti-growth approach taking the form of stopping growth (zero-growth) for the sake of the environment.

Recently, as another sprout of the anti-growth approach, a so-called “degrowth” strategy was proposed. It expresses an activist position that we must downscale the economy to meet environmental goals (Schneider et al., 2010). The pro-growth and anti-growth positions represent the two polarized opinions about the growth strategy to be followed by modern society. In this chapter I will argue that we should not feel obliged to choose between them, as there is in fact a third option, which I call the *agrowth* strategy (first proposed in van den Bergh, 2011). It suggests a way out of the impasse that characterizes the growth-versus-environment debate.

I will define this agrowth strategy, motivate its rationality, and examine its premises, implications, advantages, political feasibility and practical steps.

## 2. GDP as an information failure

If we talk about economic growth, we effectively focus on changes in GDP, and implicitly or explicitly assume that GDP captures social welfare, and thus that GDP growth signals progress. The treatment of GDP information in both science and public media is often meddled, in the sense that no clear distinction is made between GDP, GDP per capita and GDP per hour worked. But whatever specific indicator is used, there is broad agreement that it must increase over time. The majority of journalists and politicians, regardless of their political affiliation, express themselves uncritically about GDP, and do not make a sharp distinction between “(social) welfare” and “GDP (growth)”. Nevertheless, a committed group of economists recognize the shortcomings of the GDP and use it with care: early contributions are Kuznets (1941), Galbraith (1958) and Samuelson (1961); influential criticisms are Mishan (1967), Nordhaus and Tobin (1972), Hueting (1974), Hirsch (1976), Sen (1976), Scitovsky (1976), Daly (1977), Tinbergen and Hueting (1992) and Arrow et al. (1995); recent contributions are Frank (2004), Kahneman et al. (2004), Victor (2008), Jackson (2009), van den Bergh (2009) and Witt (2013). Note that this list includes seven Nobel laureates, which indicates that the criticism of GDP does not just come from marginalized or heterodox corners.

At a theoretical level, one has to recognize that both micro- and macroeconomic theories tend to explicitly formulate societal goals in terms of social welfare. In microeconomics, moreover, income co-determines together with prices the budget constraint, rather than being identical to, or a proxy of, utility. In macroeconomics, optimal growth theory is dominated by models that employ notions of (intertemporal) social welfare rather than a GDP (income) type of criterion. As opposed, many applied macroeconomics (policy) studies limit themselves to GDP, implicitly assuming it is a good proxy of social welfare. In a famous article, Weitzman (1976) tried to formally show that GDP is a good approximation of social welfare. Ironically, he merely clarified the very strict and unrealistic conditions under which this is true.

Empirical research on subjective well-being (happiness) suggests that in most Western (OECD) countries the increase in prosperity or happiness stagnated somewhere in the period between 1950 and 1970 or even turned into a negative trend, despite a steady growth in GDP (Layard, 2005). This is supported by empirical studies of alternative indicators of social welfare, such as the ISEW (“Index of sustainable economic welfare”) (Daly and Cobb, 1989). These show that in most OECD countries, wealth has stagnated despite the fact that GDP (per capita) has continued to rise. Subjective well-being and psychological research studies further have found that individuals quickly adapt or become accustomed to new conditions,

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<sup>1</sup> For example, van den Bergh and de Mooij (1999) identify five perspectives: a moralist denying the relevance of further growth for social welfare, a pessimist seeing natural resource and environmental limits to growth, a technocrat believing in markets and technological progress to relieve any limits, a sceptic judging growth and environmental destruction as both inevitable, and an optimist considering growth as a necessary condition for solving environmental problems.

including to income rises, and as a result do not see their welfare increase as much as they expected ex ante (Frey and Stutzer, 2002).

The GDP includes only activities and transactions that have a price and therefore ignores non-market activities or informal transactions between people. As a result, GDP growth sometimes reflects the transfer of existing informal activities to a formal market. This applies to both poor countries (e.g., food production shifting from self-sufficiency to commercial agriculture) and rich countries (child care shifting from the family to commercial organizations). This means that (many of) the benefits were already enjoyed before the transfer took place, despite the fact that the associated activities were not included in the GDP calculation. This illustrates that GDP information is best interpreted as market costs of our activities, not their welfare benefits.

An important subcategory of unpriced effects relates to use of natural resources and environmental services. The negative welfare effects of environmental pollution, terrestrial and marine ecosystem degradation, and depletion of fish stocks or non-renewable natural resources (fossil fuels, ores) all stay outside the GDP calculation. By only measuring direct income while not accounting for changes in “natural capital” we count ourselves richer than we actually are.

A persistent and widespread criticism is that the GDP per capita indicator focuses on average income and ignores the distribution of income. This is a relevant criticism given that in many countries average income growth largely is due to increasing incomes of the relatively or even extremely rich (Piketty, 2014). Moreover, the GDP indicator not only neglects the equity meaning of this issue, but also the social welfare implications of marginal utility of income (or money) being higher for poor than for rich people. Distribution is further worthwhile to be considered in social welfare assessment as welfare depends on comparisons with others. This manifests itself in the pursuit of consumption of conspicuous goods and associated rivalry for status. Now status is absolutely scarce: if someone has much status it, others lack it. As a result of this, growth in average income beyond basic needs, even when equally distributed, will not increase the welfare of everyone. This is what economists call a “zero-sum game”.

For those who still find it difficult to accept that GDP is not a good measure of social welfare, consider the following thought experiment (van den Bergh, 2009). Extrapolating a rate of 2% average annual GDP growth into the long run future means that after 1000 years the GDP will be  $(1.02)^{1000} \approx 400$  million times higher than currently. As an equivalent increase of welfare is clearly impossible, sooner or later a decoupling of GDP and social welfare must occur.

All the foregoing arguments together, and additional ones in Table 1, imply that the GDP indicator cannot be relied upon to capture social welfare in general, i.e. under all circumstance, in all countries, and in all periods of time. The use of GDP as a progress indicator therefore represents a serious form of “information failure”, which is likely to steer the economy in the wrong direction.

If we, nevertheless, use GDP per capita growth as the main gauge of economic development and associated policies we will use an *implicit social welfare function* with very odd weights. To see this, it should be realized that GDP per capita is perfectly correlated with average income, positively with employment, less clearly correlated (and possibly negatively) with equity, and negatively correlated with most environmental pressure (currently, without strict environmental and climate policies) as well as with leisure time. In view of this, a focus on GDP growth will imply a weight function as shown in Table 2.

Effectively, the set of weights in the table means that income has priority over the other four components, and employment over all components except income. In other words, we are sacrificing equity, environment/climate and leisure in favor of employment and especially average income.

Table 1. Shortcomings of GDP summarized

General	Specific
GDP use does not satisfy basic principles of good bookkeeping	<ul style="list-style-type: none"> <li>- GDP does not divide clearly between costs and benefits.</li> <li>- It does not correct for changes in stocks and supplies.</li> <li>- It does not account for external (or social=private+external) costs.</li> <li>- It is an estimate of the costs rather than benefits of market activities in a country.</li> </ul>
Using GDP (growth) as a proxy of social welfare (progress) is inconsistent with the general welfare focus in theoretical micro- and macroeconomics	<ul style="list-style-type: none"> <li>- Optimal growth theory employs social welfare rather than GDP/income type of criteria.</li> <li>- In microeconomics income is part of the budget constraint, not a proxy of utility.</li> <li>- If income is not a robust measure of welfare at the individual or micro-level, then aggregation of individual incomes in a GDP cannot result in a robust indicator of social welfare.</li> </ul>
GDP does not capture stylized facts of empirical research on subjective well-being (happiness)	<ul style="list-style-type: none"> <li>- Modern income growth increases material consumption at the cost of basic needs like serenity, clean air and direct access to nature; the latter are, however, not captured by GDP.</li> <li>- Between 1950 and 1970, the increase in welfare has stagnated or even reversed into a negative trend in most western countries, despite a steady pace of GDP growth.</li> <li>- Individuals may adapt or get used to changed circumstances, including a higher income; thus well-being may temporarily change in response but then return to its baseline level.</li> </ul>
GDP does not capture income inequality, relative income, and status-seeking in consumption	<ul style="list-style-type: none"> <li>- GDP per capita emphasizes average income and neglects the income distribution, even though this affects opportunities for personal development and well-being.</li> <li>- GDP does not capture that individuals or families with low incomes benefit relatively much from an income rise, because of diminishing marginal utility of income.</li> <li>- Welfare is relative or context dependent, characterized by comparing oneself with others, rivalry via "positional or status goods".</li> <li>- As GDP omits relative income aspects of welfare, it tends to overestimate welfare/ progress.</li> <li>- Rises in relative income and welfare come down to a zero-sum game: one individual loses what another one gains; GDP cannot account for this.</li> </ul>
GDP neglects the informal economy, its share in the economy, and its change	<ul style="list-style-type: none"> <li>- In general, GDP just covers activities and transactions that have a market price and neglects informal transactions between people that occur outside formal markets.</li> <li>- Actual GDP growth sometimes reflects a transfer of existing informal activities (unpaid labor) to the formal market; so the benefits were already enjoyed but the market costs were not yet part of GDP.</li> <li>- This holds for both developed and developing countries, and for such informal activities as subsistence agriculture, voluntary work, household work, and child care.</li> <li>- The GDP can, therefore, not serve as a measure to judge the welfare impact of fundamental changes that involve a transition from informal to a formal activities</li> </ul>
GDP does not capture environmental externalities, damage to ecosystems, and depletion of renewable and non-renewable natural resources	<ul style="list-style-type: none"> <li>- The presence of externalities means that market prices do not reflect total social (=private+external) costs, making them unreliable signals. GDP is though calculated using these prices.</li> <li>- If air, water, or a natural area are being polluted any damage does not enter GDP, but when pollution is being cleaned up this increases GDP.</li> <li>- Capital depreciation associated with environmental changes (fish stocks, forests, biodiversity) and depletion of resource supplies (fossil energy, metal ores) is missing from the GDP calculation. As a result, GDP suggests we are richer than we really are.</li> </ul>

Note: This table summarizes the survey in van den Bergh (2009).

Table 2 Implicit weights of social welfare components due to a focus on GDP per capita growth

<i>Implicit weights of welfare component</i>				
<i>Average income</i>	<i>Employment</i>	<i>Equity</i>	<i>Environment/Climate</i>	<i>Leisure</i>
very high (highest)	medium to high	low to very low	extremely low	extremely low



### 3. The GDP paradox

Many people with political influence unconsciously see the GDP as a good welfare measure. Politicians, journalist and economists get nervous when the GDP grows less than last month or last year. Information about GDP growth further has a large influence on the economy through choices by consumers, companies and financial institutions being affected by expectations and prediction about the GDP. This is paradoxical in view of the widely accepted critique of GDP as a welfare or progress indicator, as summarized in the previous section.

One possible response is that the magnitude of the impact of GDP information on the economy is modest to negligible<sup>2</sup> (van den Bergh, 2009). But why do national and international statistical organizations spend so much time and money then on calculating and predicting the GDP? And how does this view match with banks and financial markets responding so strongly to any information about the GDP? The confidence and behavior (investments, spending) of companies and consumers is also affected by expectations about GDP movements. Politicians panic when GDP growth is low. In this context, one should not underestimate the impact of a high GDP per capita on the international status of a country and its politicians. This is reinforced by international organizations like the OECD, the World Bank and the IMF, all of which attach huge importance to GDP growth. All in all, it is clear that one should not underestimate the impact of GDP information on the economy.

An important factor behind striving for growth is that it is widely thought that GDP growth is a necessary condition for full or maximum employment. But empirical evidence for this view is not strong, and indicates that the relationship between GDP and employment is not constant (Saget, 2000). Modern insights about long run equilibrium employment suggest it depends more on search time (jobs and employees), structural mismatches between education and work, the gap between gross and net income, and that between income and unemployment benefits (Pissarides, 2000). GDP growth moreover does not necessarily reduce unemployment if it involves considerable outsourcing (moving jobs to elsewhere) or creative destruction in the form of disruption of old economic activities (resulting in unemployment in specific sectors or job types). Last but not least, as the causality of growth and employment is easily confused (more employment can increase the GDP), their correlation is easily misinterpreted.

The relationship is even more complex, as continuous improvements in labor productivity occur due to technical progress, which potentially cause structural unemployment. Growth means a scale effect in terms of a higher volume of production, which compensates for the potential unemployment. This is made possible as a higher labor productivity translating into (not necessarily proportional) higher incomes, which in turn allow for more purchasing power that balances with the larger production capacity associated with productivity increases. This is in a nutshell the fundamental mechanism behind modern economic growth. Jackson and Victor (2011) have called it the *productivity trap*.

Now by shifting taxes from income to environmental externalities (materials use, CO<sub>2</sub> emissions), one could re-direct technological change from improving the productivity of labor to that of energy and materials. As a result, it would be easier to realize full employment and environmental goals, which would contribute to improving social welfare in two ways. In other words, the seemingly fundamental relationships between growth, employment and productivity can change over time through policies.

Finally, many economists worry that a lack of growth will lead to macroeconomic instability. However, when one considers the causes of historical crises, one can conclude that the especially excessive growth – allowed or stimulated by certain institutions (e.g., money creation by private banks) – implies a high risk of instability and crisis. So if one really would attach a high priority to economic stability and would aim at minimizing the likelihood of financial and economic crises, which undo a lot of the gains of earlier growth, then a logical structural strategy would be to weaken positive feedbacks in the economy rather than striving for recovery of growth. We will discuss this idea in Section 5.

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<sup>2</sup> If this is true, then one can hardly object to disregarding (ignoring) the GDP indicator.

#### 4. Agrowth to solve the information failure and resolve the paradox

The various shortcomings of GDP as a welfare or progress indicator documented in Section 2 suggest that we should ignore the GDP (per capita) indicator in public debates and policy-making, and focus instead on more direct indicators of employment, equity and the environment. Ignoring the GDP indicator means that we will be indifferent (neutral or “agnostic”) about the desirability or undesirability of GDP growth. This is expressed by the term *agrowth*. This idea was first proposed in van den Bergh (2011).

Agrowth reflects indifference in the sense that one realizes GDP growth is perhaps good in some periods or for some countries in a certain development stage, but that “growth no matter what” is not a wise aim. Such unconditional growth means an unnecessary and avoidable constraint on our search for human welfare and progress. This constraint will hinder good public decision-making on climate, health, labor and redistribution policies. Being against GDP or against “unconditional GDP growth”, as under the agrowth view, does not mean being against growth but being against growth fetishism. Nobel laureate Stiglitz (2009) has used similar wording, namely “GDP fetishism”.

The aim of agrowth, letting go of economic growth as a sufficient and even necessary condition for realizing welfare (and welfare growth), reflects a rational approach to public decision-making. It does not mean being against growth or in favor of zero-growth. It just eliminates the unnecessary constraint of unconditional GDP growth. As a result, our search for human progress would be less constrained and could arrive at better welfare outcomes. One should realize that unconditional GDP growth (growth fetishism) is a constraint, as the social or public policy goal is progress in terms of social welfare (however measured).

Anyone with a basic training in optimization theory – part of the educational baggage of economists – will see that adding a constraint to an optimization problem results in the objective function (in our case: social welfare) reaching a lower or at best equal optimal value, but never a higher one. So adding a constraint that economic growth must always be positive or at least 2% cannot contribute to a higher level of social welfare, and most likely will result in reducing social welfare. This counterintuitive effect on welfare is of course not the intention of economists and politicians who believe that striving for GDP growth is a useful social aim. But it indicates that they have misunderstood and misjudged the welfare consequences of their focus on growth per se.

This insight is illustrated in Figure 1, which compares the welfare impacts of the various a/de/zero/growth strategies. It plots on the horizontal axis aggregate income or *GDP* and on the vertical axis all other factors *O* contributing to or co-determining social welfare (as discussed in Section 2). We can see *GDP* as a measure of market goods and services, and *O* as an overall measure of informal activities, social interactions (resulting in relative welfare and rivalry), income inequality, and environmental externalities.  $PPF_t$  and  $SW_t$  denote the values of the production possibilities frontier and social welfare at time  $t$  ( $t=1,2$ ). The first plots combinations of *GDP* and *O* that the socio-economic system is able to produce at a certain moment. It can shift in north-eastern direction over time due to private and public capital investment (factories, machines and infrastructures) and technological progress. The  $SW_t$  curves denotes the combinations of *GDP* and *O* that are equally desirable (i.e. it is an indifference curve, attaining higher values when positioned more to the right). Combining the two types of curves identifies combinations that are both feasible and optimal, which are typically found where the two curves are tangent.

Now the agrowth strategy is illustrated in Figure 1 as accomplishing the social welfare optima at each point in time. The reason is that agrowth means no ex ante constraints (in terms of *GDP* or *O*, like growth or degrowth) on our search for a high level of social welfare. This is reflected by it reaching the optimal points *A* and *B* at times 1 and 2, associated with optimal social welfare values  $SW_1$  and  $SW_2$ , given the production possibilities frontiers  $PPF_1$  and  $PPF_2$ , respectively.

Both low and high growth constraints are shown as well. They do not accomplish the social welfare optima at each time, because they are constraint towards the GDP axis, leading to an overdose of *GDP* and a shortage of other factors contributing to social welfare. To illustrate this for time 2, note that here they reach the points  $B_{lg}$  and  $B_{hg}$ , associated with social welfare values  $SW_{2,lg}$  and  $SW_{2,hg}$ , respectively, which both are lower than  $SW_2$ . Moreover,  $SW_{2,hg}$  is lower than  $SW_{2,lg}$ , meaning that the deviation from optimal social welfare is larger the higher is the required growth rate (e.g., 3% versus 2%). This is a counter-intuitive result. Similar findings are obtained for time 1 but to keep the figure simple the welfare levels are not indicated here. Nevertheless, a close reading of the figure suggests that welfare losses of a deviation from the agrowth strategy may get worse over time in absolute terms, though not necessarily in relative terms.

Figure 1 further shows qualitatively what an “anti- or degrowth strategy” means for social welfare. Being a kind of constraint on our search for social welfare, it is found to also result in a lower social welfare. We consider two types of degrowth (see also the next section). The first (1) requires GDP to decline, so can be seen as a negative growth constraint. It leads to point  $B_{d1}$  with social welfare  $SW_{2,d1}$ , which is lower than  $SW_2$ . The second degrowth type (2) focuses more  $O$  than  $GDP$ , implying a growth or minimum level constraint associated with  $O$ .<sup>3</sup> It can be interpreted in different ways, such as increasing the informal economy relative to the market economy (e.g., associated with anti-market or even “anti-capitalism”; see the discussion in the next section). This leads to point  $B_{d2}$  with a social welfare value  $SW_{2,d2}$  also below  $SW_2$  at time 2, due to having too little  $GDP$  and “consuming too many other things ( $O$ )”. But this strategy performs better in terms of social welfare than degrowth of type 1 (as  $SW_{2,d2} > SW_{2,d1}$ ). A third degrowth strategy (not shown) might be to decrease  $GDP$  while not increasing  $O$ , which clearly lowers welfare even more than the degrowth strategies shown.

Social welfare effects of a zero-growth strategy (i.e. always or unconditional zero growth) are also shown. It means a constraint to keep  $GDP$  at the starting level, hence the vertical arrow to indicate the resulting direction of development. It leads to point  $B_z$  with social welfare  $SW_{2,z}$  which is in between  $SW_{2,d2}$  and  $SW_{2,d1}$ .

To illustrate the implications of the different strategies for the level of  $GDP$ , the associated values  $Y_i$  ( $i = d1, d2, z, A, lg, hg$ ) are shown on the horizontal axis for period 1 (to do this for period 2 would make the figure messy, but the order of respective  $Y$ 's on the axis is the same. This result is, however, just a snapshot. As already indicated, an agrowth strategy can over time realize a variation of  $GDP$  growth rates, or even negative rates, which cannot be captured in this rather static figure (despite the fact that it already depicts two time periods). Finally, although the arrows indicating the direction of development under each strategy are depicted as straight lines (resulting from connect ( $O, GDP$ ) points at two times), they are likely to have a nonlinear shape in the case of three or more time periods (or continuous time).

Now it is fair to say that Figure 1 has its shortcomings. One is that the shape of the social welfare indifference curves reflects that substitution between  $GDP$  and  $O$  is possible while maintaining a certain social welfare level. An alternative assumption is an orthogonal curve, reflecting perfect complementarity of  $GDP$  and  $O$ . This would not alter the qualitative nature of the insights presented so far. But it would make the welfare losses of growth and degrowth constraints larger. It further would lead to the result that  $GDP$  growth without simultaneous  $O$  growth (so both larger formal market and informal sectors) could not increase social welfare. This might be seen as unrealistic as a general case, but as a fair representation of the situation beyond the threshold income where further income growth does not contribute to welfare.

Another shortcoming of Figure 1 is that the production possibilities frontiers are independent of the growth strategy. However, one can imagine that under a higher growth strategy environmental externalities would be larger, so that the production frontier would move more inward. This suggests that the social welfare losses of the growth constraint as shown in Figure 1 are an underestimation. Note, by the way, that an outward shift of the  $PPF$  as shown in the figure (from time 1 to 2) should not be interpreted as growth (in  $GDP$  terms). In the figure growth is represented solely by an increase of the  $GDP$  value on the horizontal axis. Under degrowth 1 and zero-growth strategies an increase in non-market activity  $O$  results whereas  $GDP$  decreases or remains constant – so here there is no growth here even though one moves to a “higher”  $PPF$ . In other words, the outward moving  $PPF$  does not generally imply  $GDP$  growth, but only under development strategies involving a movement in (north/south-)eastern direction.

Finally, one might criticize the figure to be limited for representing a conventional “neoclassical-economic” choice problem. However, one should realize that the analogy of the figure is not with utility maximization under a budget constraint (which would assume relative prices for the  $O$  and  $GDP$  alternatives). Instead, the figure involves a production possibilities frontier, which does not include prices in any way. Related to this, the conceptual meaning is not trading-off market and non-market goods/services explicitly (e.g., by a government) as in optimal static choices, i.e. at a certain point in time. Rather, the interpretation is steering the economy in a particular direction that will then lead to a distinct combination of market ( $GDP$ ) and non-market activities ( $O$ ) in the future. This dynamic, development type of interpretation is indicated by the depiction of social welfare curves at different points in time as well as by the arrows representing the six (development) strategies. Altogether, the graph can be seen as adequately

<sup>3</sup> But as the figure shows it does not preclude an increase in  $GDP$ , and it may – despite its focus on  $O$  – not realize an as high  $O$  level as under degrowth type 1.

conceptualizing core differences between development (growth) strategies without making any seriously limiting assumptions.

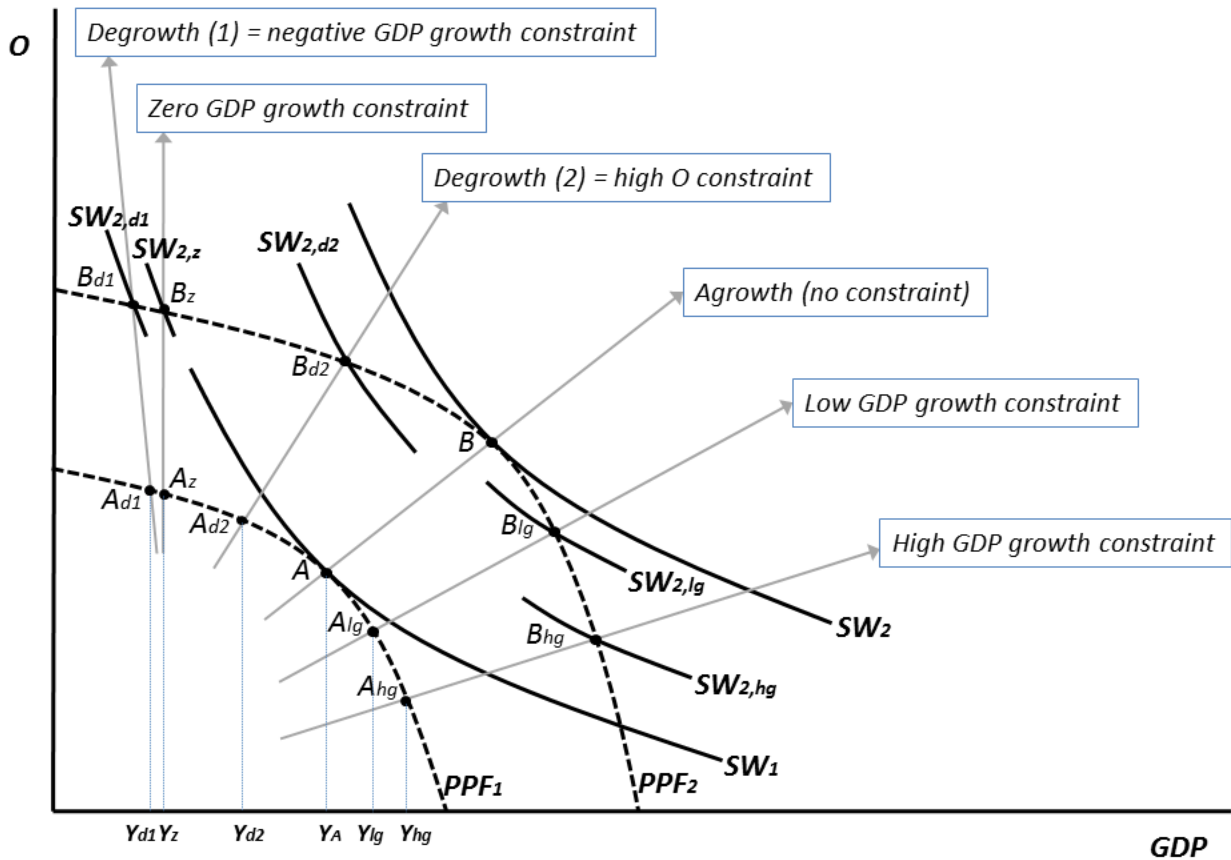


Figure 1. Social welfare implications of an agrowth strategy compared with those of growth, degrowth and zero growth strategies

Notes: This shows the counter-productive effect of a constraint of minimal (low or high) GDP growth in terms of social welfare over time; similar counterproductive effects of zero-growth and two degrowth strategies are illustrated as well; only agrowth, which involves no constraint on social welfare search, is able to reach the high level of social welfare in each period. The arrows representing the growth, degrowth and zero-growth strategies can be seen as due to constraints (not separately shown) that coincide with these arrows.

What does an agrowth strategy exactly imply for growth? Following this strategy, one could have periods of high growth followed by periods with low growth or even a decline in GDP terms, while maintaining progress in welfare terms. We would in some periods be willing – without even realizing as we would ignore GDP information – to give up some (potential) GDP growth for a better environment, less unemployment, more income equality, more leisure, better health care, and more public services, namely if this would work out well in terms of net individual well-being and social welfare. No longer would one give priority to average income over welfare, or assume growth would be necessary or sufficient for progress. In other periods, desirable economic change might well be consistent with growth, but nobody should really care or know as GDP would be disregarded. As shown in Figure 1, agrowth is the most desirable strategy for realizing progress as it can attain the highest social welfare.

An agrowth view will enhance the social-political acceptability of key public policies focusing on solving urgent and socially important problems that are sure to reduce social welfare. This is consistent with the suggestion by Kahneman et al. (2004) to focus the attention of public policy on minimizing unhappiness. Clear examples are avoiding dangerous climate change, minimizing structurally high unemployment, and reducing extreme inequality and poverty (including increasing GDP if it is clearly insufficient to meet basic human needs). Associated policies would be judged on concrete indicator targets for each of these problems. Whether they would work out well in terms of growth would no longer matter. By not observing GDP

movements, one would become truly indifferent about the GDP performance, as a good social welfare analyst should be. As a consequence, welfare-enhancing policy is given priority and not GDP growth-enhancing policy. Unlike the unconditional (dogmatic) positive, zero or negative growth required under growth and anti-growth strategies, agrowth allows for selective decline and selective growth of different sectors over time that is needed to enhance welfare, regardless of whether the sum of their changes amounts to growth or not.

A concrete policy implication related to climate change is illustrated in Section 6. But first the next section addresses another important advantage of an agrowth strategy.

## **5. Agrowth, positive macroeconomic feedback and crises**

Here I will argue that an agrowth strategy increases economic stability and reduces the likelihood of economic crises. The reason is that it weakens positive feedback in the economy that overheats it and contributes to damaging cycles and crises. As argued in Antal and van den Bergh (2013), the current economic system is self-amplifying due to a majority of connections between important economic system variables taking the form of positive feedbacks, while a minority takes the form of negative feedbacks. Here positive feedback means that (part of) an output of a system enters the same system as an input, which then reinforces the actual trend in the output. This is irrespective of whether the trend is a decline or a growth pattern. In other words, positive feedback can generate negative and positive spirals, leading directly to a crisis or to overheating the economy (and then possibly indirectly to a crisis), respectively.

As argued in Section 3, GDP information greatly influences decisions by consumers, producers and governments. Expectation and predictions about GDP growth affect consumer expenditures and savings, and firm expenditures and investments in capital and innovation (R&D). The effects of GDP can be characterized as being “pro-cyclical”, meaning that if it is widely believed that GDP has a significant influence on reality then through pessimistic (or optimistic) reactions to negative (positive) growth expectations these beliefs become self-fulfilling. Expectations, predictions and realizations of GDP thus set in motion positive feedback that is the cause of economic instability.

Positive feedback assures that as long as we are on the upward trend, there is optimism about GDP growth, investments and consumer behavior assure rising activity and jobs, and average income rises. If because of some exogenous or external factor, or a synergy of factors, growth temporarily falters, however, expectations are not met and pessimism about GDP growth starts to thrive. Such a pattern may also start with growth initially being too fast because of positive feedback, causing the economy to “overheat”, leading to bubbles in housing and stock markets, high inflation and subsequent economic instability. In both cases, the economy enters into a spiral of negative expectations, and decreasing investments and consumption. If the resulting stagnation is strong or continues for a while, a recession may result.

The two polar responses to this problem are Keynesian and new classical or monetarist. The first proposes to stimulate aggregate demand in recessions by increasing public spending or lowering taxes, even at the cost of increasing public debts. However, the effectiveness of this strategy is uncertain, as individuals and firms may show precautionary behavior in the form of saving on outlays so as to be more resilient in future times, resulting in a second-order effect of decreasing aggregate demand. The alternative response prefers austerity and debt reduction to restore confidence and ultimately reestablish pre-crisis investment and consumption trends. The effectiveness (and welfare implications) of this strategy are uncertain as well, given that it starts off with destroying much business activity and employment, and increasing income inequality, both of which tend to negatively affect expectations and welfare. The two strategies share the goal of restoring the upward economic spiral driven by positive feedback.

Instead, the agrowth strategy is able to deal more fundamentally with the problem of economic instability and cycles, namely by tackling one root factor<sup>4</sup>, namely the role of the GDP indicator in positive feedback mechanisms. By ignoring or removing the GDP, several positive feedbacks in the economy will be weakened or removed, resulting in a more stable economy. As a result, under an agrowth strategy the bandwidth of economic growth rates will be smaller. It will discourage extremely high growth rates while also reduce the likelihood of entering a trajectory of stagnation and recession.

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<sup>4</sup> Another important factor would be laissez-faire of the financial system.

In environmental terms all traditional macroeconomic strategies – whether Keynesian, new classical or monetarist – come down to hoping for green growth. Nevertheless, they differ in particular environmental features. The Keynesian public investment approach may increase environmental pressure if it is focused on non-environmental issues (e.g., road infrastructure), while reduce it if it involves a “green stimulus package”. Keynesian reduction of taxes will stimulate private consumption, with environmental impacts depending on whether the tax relieve is adapted to tackle environmentally damaging consumption harder. Finally, the austerity strategy will work out well environmentally if it reduces funding for traditional investments, but negatively if it cuts public environmental research or subsidy support of private environmental investments.

Antal and van den Bergh (2013) discuss a longer list of options to weaken positive and strengthen negative feedbacks so as to avoid crises and reduce the instability of the economy. Changing indicators is one option, in particular replacing the GDP by another indicator, like the Human Development Index, an income inequality measure (Gini index or median income), even an ISEW type of proxy of social welfare (see Section 9 on this).

Finally, the interaction of financial and housing markets (including mortgage funding) with construction activities plays an important role in both fostering growth and destabilizing the economy. In a situation of boom, house prices rise rapidly, generating windfall profits for house sellers. This is all made possible as buyers can relatively easily obtain mortgage loans based on overvalued house prices. The importance of this phenomenon for economic instability is clearly illustrated by the recent crisis, as it was (co-)triggered by speculation surrounding subprime mortgages in the USA. Stabilizing the economy will require controlling banks, notably in terms of mortgage rules and loan-based money creation (through higher required lending/reserve ratios). This in turn would not only reduce price fluctuations in housing markets but likely also lower the average rate of growth.

The previous arguments indicate that lower growth rates may follow from weakening positive feedback and having a more stable economy. This means an agrowth strategy makes sense – by ignoring growth effects it will make acceptance of such stabilizing strategies easier.

## **6. Climate policy opportunities under an agrowth strategy**

Climate change is arguably the most challenging environmental problem we face. To formulate it differently, its solution possibly presents the severest limitation to growth. Antal and van den Bergh (2014) calculate that if per capita GDP increases by 1.5% annually, to realize the (IPCC) 2 °C goal, emissions per unit of GDP (i.e. carbon intensity) have to decrease with 81% by 2050, which comes down to a 4.4 percent average annual improvement. Under zero per capita economic growth, still an impressive 67 percent intensity reduction – implying 2.9 % on average per year – will be needed. Note that these reduction rates should be net of all energy rebound (Sorrell, 2007) and carbon leakage effects (Felder and Rutherford, 1993).

In both long term and recent historical perspective, these goals must be judged as unprecedented and extremely ambitious. They will require very strong policies, notably involving carbon pricing, to direct behavior, production and technology (investments) away from high to low carbon options. If a carbon price is realized by implementing a carbon tax, this would generate so many tax revenues that a shift of taxes from labor to carbon would be almost inevitable (i.e. the carbon tax revenues would be used to reduce the labor taxes). It would in turn reduce labor productivity growth and thus income growth, while the impact on unemployment would be more moderate. In line with this, we would need to revise, notably lower, our expectations about income growth (for more discussion, see van den Bergh, 2010).

A climate strategy will further involve a large-scale transition from fossil fuels to renewable energy, which means a shift to resources with a lower energy concentration and productivity. This will very likely translate into a reduced productivity of the economy as a whole.

These represent two important reasons to believe that under serious climate policy the rate of economic growth will fall. By ignoring growth effects, an agrowth strategy will facilitate the acceptance of such, urgently needed, climate policy. Note that agrowth, no longer worrying about GDP changes, will not itself be the solution, but it will help to improve the social and political feasibility of solutions. It will remove false trade-offs between GDP growth and other goals by removing the constraint of (priority for) GDP growth.

## 7. Why green growth and degrowth strategies are undesirable and risky

In short, they both lack credible empirical support and make debatable assumptions, as I will clarify below. These limitations make either of them risky strategies in solving environmental and climate change problems.

### *The green growth strategy*

In line with the widespread belief that GDP growth is a sensible, even inevitable goal, the notion of *green growth* is strongly promoted (OECD, 2011; World Bank, 2012). Its promise of “win-win” is hard to resist. Green growth requires a decoupling of environmental pressures from aggregate output at a sufficiently rapid pace. The optimistic belief in green growth goes back many decades (Beckerman, 1976; Simon, 1981), as does the critique on it (Meadows et al., 1972).

There is a huge literature on exogenous and endogenous growth models with environmental or natural resource factors showing that under certain conditions green growth (or sustainable growth, the more common term in the 1990s) is possible. A recent study by Acemoglu et al. (2012) revisited this issue with a theoretical model. They conclude that if dirty and clean goods are complementary to some extent, rather than perfect substitutes, long run growth needs to come to a halt in order to avoid environmental catastrophe. Now this may be the reality, as cleaner services tend to add to rather than substitute for dirtier goods. The authors find that technological innovation is in this case insufficiently rapid to overcome the environmental damage of scale increases associated with income growth.

Generally, results obtained with theoretical growth-cum-environment model exercises are casted in such abstract terms that there is no way of providing a definite empirical test to check if they are satisfied in reality. Moreover, extreme uncertainty about the success and speed of innovation adds to the results being of little use. All in all, one cannot expect this theoretical literature to offer a final answer to the question “is green growth a realistic option”?

Empirical support for absolute decoupling and green growth has been studied in the literature on the environmental Kuznets curve (EKC). This captures the idea that environmental pressure increases up to a threshold value of average income (GDP per capita) and then decreases with further growth, resulting in an inverted U-shaped curve. Suggested explanations for this pattern are that consumers purchase cleaner products and services at higher incomes, and that voters then tend to give more support to strict environmental regulation, reflecting that environmental concern is a sort of luxury good. The EKC, however, has only been confirmed for a subset of environmental problems, notably short- rather than long-term, local rather than global, and partial rather than system-wide issues, while often there is a clear connection of the environmental issue with human health (Stern, 2004).

These stylized facts are not surprising, as absolute decoupling consistent with an EKC pattern is difficult to realize for important environmental indicators, such as carbon dioxide emissions. One might think that a shift to services will lead to decoupling, but these services themselves need support from a complex production economy in the form of intermediate deliveries originating from material- and energy-intensive activities (Hueting, 2010). Illustrative of this is that internet and other ICT related activities, what we tend to call services, are steadily increasing their absolute demand for electricity (Coroama and Hilty, 2014).

In addition, in emerging economies, growth generally has been much faster than carbon intensity reduction. On the other hand, in high income countries, carbon intensity improvements have generally been too slow to produce significant absolute emission reductions during periods of economic growth. Moreover, any improvements have often gone along with considerable carbon leakage through relocation of pollutive industries and changes in trade patterns, predominantly involving shifts to emerging economies (Peters et al., 2011).

Looking towards the future with serious policies, one can imagine that an important role is played by shifting taxes from labor to carbon/energy. This will be good for employment and the environment as innovation will then shift from labor productivity to carbon productivity growth. But the resulting slowdown of labor productivity growth will mean that income (and GDP) growth will slow down as well.

In view of the foregoing arguments, it is difficult to avoid the cynical conclusion that talking about green growth is merely populist, effectively coming down to giving little weight to environmental and climate risks. This does not deny that many writings on green growth are subtle or even sophisticated, richly

garmented with theoretical notions, mathematics and empirical considerations (see, e.g., Hallegatte, 2012). But they do not convince in terms of overall empirical evidence, which should come as no surprise as the history of growth is very far removed from being green. This, of course, does not mean that green growth is impossible, but any claims that green growth is a real option need to build in provisions and uncertainty to reflect a careful and honest scientific approach. Surprisingly, writings on green growth, whether by organizations like the OECD or individual academic researchers, tend to express unconditional bold optimism and virtual certainty that green growth is feasible.

Table 3 shows the possible combinations of conditions, policy and risks associated with a green growth strategy, resulting in four options regarding green growth and the best strategy to follow. Only under one of these green growth is riskless, advisable strategy. Another way to approach it is to recognize that realizing green and growth each separately are difficult, so realizing their combination is bound to be very difficult. In fact, in a meeting at the OECD where this paper was discussed (see the acknowledgements), a high officer of the EU noted that effectively we already have zero growth: perhaps we reach 1% average growth in these years, but with 1% inflation and most of the growth going to the richer part of the population, most citizens actually face zero growth.

Table 3. Four options regarding green growth

	Green growth feasible?	GDP good indicator of social welfare?	Policy implication (best strategy to follow)	Risk of green growth strategy
1	yes	yes	go for green growth	none
2	yes	no	focus on important social goals	social risks
3	no	yes	focus on avoiding environmental risks	environmental risk, and derived social risks
4	no	no	double reason to not focus on green growth	environmental and more severe social risks

It should, finally, be noted that whereas many economists and international organizations express a strong belief (a kind of “stated preference”) in green growth, few politicians show through their actual behavior (a kind of “revealed preference”) that they share this belief. Otherwise they would already have signed an international post-Kyoto agreement. Instead, politicians seem afraid that such an agreement will reduce the rate of economic growth. This might be taken as an indication that economists have not yet delivered sufficiently convincing evidence and arguments for the feasibility green growth.

#### *Anti- and degrowth strategies*

What about *anti-growth including degrowth* then? First of all, by focusing on the antipode of economic or GDP growth, anti-growth believers, including the most recent degrowth proponents, just give as much importance to the GDP indicator as do the growth adepts – as if GDP decline by itself is good and desirable, or a guarantee for environmental sustainability. This can be linked to growth of type 1 in Figure 1 above. If degrowth is about less market and more informal activities, then it is better described by degrowth type 2 in that figure.

How effective is degrowth in realizing environmental goals? If degrowth results from concrete policies, then is it not very clear what are these degrowth-specific policies. It is fair to say that degrowth proponents do not clearly and systematically argue in favor of strict, top-down environmental policies, as if they do not see the importance of them.<sup>5</sup> This suggest that degrowth is focused on spontaneous, bottom-up change through local experiments that diffuse or are upscaled without top-down regulation. This would require that the ideas of “less income”, “simplicity” and “altruism” have enough attraction to spread widely and become the dominant mode, and moreover to do so quickly to be able to solve urgent (global)

<sup>5</sup> Kallis (2011) expresses support for such policies, but only after I stressed them very much in my criticism of degrowth to which he then responded. What I do not see is a clear, strong and repetitive commitment to effective, top-down policies. In debates with degrowth supporters I further often sense disdain for pricing policies (notably carbon prices), without a credible alternative being offered.



environmental problems.<sup>6</sup> It is not difficult to see why such spontaneous diffusion has not yet occurred. Moreover, as this did not yet occur in the past, an obvious question is: what is different this time – in human behavior and society – that can make us optimistic?<sup>7</sup>

If degrowth denotes a radical anti-capitalistic view to solve environmental issues (difficult to represent in figure 1, but arguably somewhere in between degrowth types 1 and 2), then it easily falls into the trap of being communism in disguise.<sup>8</sup> Humanity has experimented with this, but without great success. So if one really believes “degrowth communism” has a future, it should be well argued why this time we can avoid the perils of free riding, mal-planning, lack of incentives (without profits and market prices), misuse of power and corruption, huge inefficiencies, and associated extreme environmental pollution and nature degradation. This is not to say that capitalism is without shortcomings, certainly not. But we are not observing any pure form of capitalism in any country. Instead, we see a mixture of social democracy and market economy. Moreover, we find a diversity of hybrid forms of regulation and free market in the world today. So anti-capitalism really is a straw man. It would also be better to reflect this in the name given: something like “semi-capitalism” would be more appropriate. I would further say that many of the barriers to change we face have to do more with the limits of democracy and politics than with the (semi-)capitalistic nature of economy – think of the influence of climate-skeptical or -disinterested voters, notably in the USA.

It has been suggested that unconditional growth is inherent to capitalism so that degrowth (and agrowth) will require overturning capitalism. But this is not so clear, for two reasons. First, growth of a market share of one firm, one of the central dynamic forces of the current economy, is often complemented by a decline of market shares of other firms. This is simply part of the creative destruction that characterizes the economy over time. Second, income growth in a system with an income ladder linked to education, experience, initiative, creativity and responsibility allows individual income growth without the need for this translating into aggregate income (GDP) growth (as continuously individuals at the top of the income ladder disappear, notably through retirement). These two arguments mean that one can in principle have zero growth (constant GDP) without undercutting these two fundamentals of capitalism.

Degrowth further reflects an ambiguous term that is interpreted uniquely by almost every author. This is not helping a clear communication about it. Earlier, I identified five different interpretations of degrowth, namely related to GDP decline, less consumption, a shorter working week, a smaller physical size of the economy, and a radical move away from “capitalism” and markets (van den Bergh, 2011). Ambiguity may not seem an attractive property of a concept that is supposed to foster societal or scientific change. On the other hand, it can be an advantage in the sense that one can avoid criticism on it by arguing it was misinterpreted. More importantly, it is doubtful that degrowth will ever count on broad public support, or even a constructive debate with mainstream thinkers, given its rather explicit suggestion that our incomes have to go down to save the environment (despite the fact that this interpretation will be denied by some degrowth adepts). For alternative views on these arguments see Kallis (2011).

Degrowth as a decline in economic activity to reach environmental goals is not very credible either. Take the ambition of realizing more than 80% reduction of carbon dioxide emissions by 2050, as discussed in the previous section. Surely, degrowth proponents do not want to suggest that we have to degrow with 80% to meet this goal. But with how much then: 10, 20 or 50%? Any of these numbers is arbitrary and moreover non-contrivable (i.e. not amenable to planning). Thinking in terms of a decline of GDP to solve environmental problems just does not make very much sense. It turns the causality and basic logic around.

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<sup>6</sup> Even if the large majority of people would be very altruistic in their generation, which is not the case, then solving a public-good type of problem like climate change would still be very difficult as it requires an unusual degree of intergenerational altruism to forego free riding. On a more practical note, it is very unlikely that people adopt a low-carbon lifestyle if this is not coordinated and regulated top-down, since most individuals will not be willing to sacrifice the luxuries of modern life in exchange for an unnoticeable reduction in total emissions.

<sup>7</sup> This is not to downplay the importance of bottom-up change or local initiative, but it is unlikely to lead (quickly) to a sustainable economy without top-down regulation. By definition, sustainability of the economy requires a complete, system-wide sustainability check and control of impacts. Without top-down regulation this is not guaranteed: well-intended local solutions are then sure to rebound or generate carbon leakage outside the local or national boundaries (van den Bergh, 2011). Note that rebound should not be misunderstood as an argument against striving for energy conservation (or efficiency), but as an argument in favor of policies that effectively stimulate such conservation, namely by controlling rebound.

<sup>8</sup> I am not saying that such a communist interpretation applies to all varieties of degrowth thinking; note also that this statement is deliberately carefully formulated, beginning with “If ...”.

We need to apply convincing cause-effect reasoning, associated with the straightforward question: which policies can realize the environmental goals, and what will be their socio-economic implications. GDP decline may be the outcome of applying effective, necessary environmental policies, but the causality should not be turned around by requiring a GDP (or market) decline *ex ante*. This further neglects the complexity that results from the many factors contributing to a reduction in environmental impacts: input mix, sector structure, geographical location of activities and transport distances, technologies, and the composition of consumption. It is not a matter of choosing the scale. Policies will stimulate changes in each of these factors, which will then have implications for scale, i.e. the volumes of activities and consumption. To say beforehand that scale has to go down or that scale is a more important element lacks any logical, scientific basis.

Finally, a forgotten implication of degrowth, through its aim of a smaller market economy and a larger informal economy, is that tax revenues of market activities supporting many public services and social welfare programs will then be at stake. To put it more bluntly, if the degrowth ideal is a society dominated by local, informal activities that do not pay taxes, then the basis of our current welfare state becomes feeble. The basis of many public goods (e.g., pensions) will then become more local, which is risky from an insurance angle.

### *Why is an agrowth strategy preferable?*

One should recognize that capitalism is not a fixed state, and is unlikely to remain the same if we would implement stringent environmental and climate policies. An *agrowth strategy* would make it possible to restructure demand and supply, and stimulate energy conservation and renewable energy, fairly quickly through effective top-down regulation, supported by international agreements – consistent with the basic idea that global problems require global governance. Taking the case of climate change, such regulation would likely limit the growth of carbon-intensive activities which tend to be relatively productive. As a result, growth will be lower and possibly close to zero, certainly during a transition period. The fact that (semi-)capitalism might change its character along the way would not be seen as a problem at all, meaning that the agrowth strategy is neutral about growth as well as (semi-)capitalism – i.e. not in favor not against them. In other words, we do not need to plan or strive for an explicitly new economic system, as the economy will automatically adapt in response to the environmental and other policies we will submit it to.

But stringent regulation of this kind is only acceptable if one is relaxed about growth. If one strongly aims at realizing green growth, then one is likely to feel (and create) disappointment and frustration. We will then not implement the needed top-down regulation (which is the status quo) or withdraw it as soon as we discover that it goes at the cost of the highly desired growth. Agrowth instead puts policy first and just awaits, but does not care, what happens with growth. If the economy declines, or even if the economy becomes less capitalistic in nature, this is not a reason to be satisfied nor dissatisfied, as long as it is the result of welfare-enhancing (or unhappiness reducing) policies.

## **8. Political feasibility and practical steps of an agrowth strategy**

Without any doubt it will be difficult to resist green growth optimism and win-win thinking. Human psychology seems to be focused on always having more, while modern consumer culture reinforces this possible intrinsic bias. Others claim that humans seek innovation and new experiences, rather than always wanting more, although it is easy to see how the first leads to the second. Again others argue that the fact that past and current hunter-gatherer societies did/do not seek growth indicates that it is not intrinsic to human nature (Gowdy, 1998). If this is true, our society has a chance to become more relaxed about growth.

Notwithstanding these considerations, an agrowth strategy is likely to be judged as odd in the current political setting, where growth is the predominant goal, as witnessed again by the majority of responses to the recent economic crisis. Agrowth nevertheless has a chance to become a serious line of thought as there is slowly but steadily increasing recognition among politicians and economists of the shortcomings of the GDP indicator. One can further see increasing support for a more critical treatment of GDP information by international organizations like the OECD and the World Bank. They frequently organize meetings and publish reports on “Beyond GDP” and alternative indicators (although at the same they foster “green growth”). In 2009 a famous, critical report about the GDP indicator was presented to then-

president Sarkozy of France by Nobel laureates Stiglitz and Sen, along with many other reputed economists (Stiglitz et al., 2009).

Another indication of potential support for agrowth is that several influential economists have stated in public that the times of high growth are over for several reasons, and that future growth may not be as high as it was in the past (e.g., Gordon, 2012<sup>9</sup>). To avoid disappointment about not reaching goals, therefore, a shift to other (welfare) goals is logical. Note in this respect that Sarkozy, arguably, was open to the “beyond GDP” message as the predictions of growth under his government at the time were unfavorable.

Nevertheless, we cannot be too optimistic as the beliefs in GDP and growth are dogmatic in nature. They are fuelled by persistent repetition of (mis)information through economics education and public media. Many economists agree that GDP per capita is not a good measure of social welfare but are then still unwilling to set it aside, which I have called the GDP paradox (Section 3). In interactions with colleagues (scientists or policy makers) or with public media, we should therefore persistently and continuously question those who implicitly or explicitly assume that growth per se is a good goal. We should ask them if they think it always, under all circumstances, and equally in rich and poor countries, serves the goal of progress and welfare improvement. We should at all times be critical of populist uses of terms like “green growth”, “inclusive green growth”, “beyond growth” or “beyond GDP” and ask those who use them for a clear explanation of their meaning, underlying assumptions and empirical support. This is a practical way in which we can contribute to our society becoming less obsessed with growth.

My personal experience is that particularly many macroeconomists show an almost instinctive, unconditional loyalty to the GDP and tend to dislike criticism of it. Perhaps GDP information is so central to their education and empirical studies that it is emotionally difficult to distance themselves from it. This would suggest that growth economics is not free from ideology and that unprejudiced analysis is very difficult. This is supported by the fact that most other economists (and non-economists) seem to be less upset about GDP criticism or proposals to relax about growth. Perhaps then such less indoctrinated economists should play a more important role in relevant public decision-making and debates on growth, which are currently dominated by growth-indoctrinated economists.

## **9. Complementary or alternative indicators to the GDP?**

One potential practical step in an agrowth strategy that deserves separate attention relates to the use of indicators. The core question here is: if the basic problem is GDP information, will replacing or complementing it by another indicator offer a solution? Many observers think that we should not get rid of the GDP indicator until a good alternative measure of social welfare is available. But despite decades of research no alternative has threatened the position of the GDP. One reason is that all alternatives have their shortcomings, or are very difficult to implement consistently for all countries at regular times (e.g., the ISEW/GPI indicators). We would probably need decades to agree upon an alternative indicator, if it ever would come that far.

What is feasible right now is to replace the GDP per capita (a measure of average income) by the “median income” (the middle of all incomes ranked from low to high). According to Stiglitz et al. (2009) median income is more representative, i.e. captures better what is happening to most households, than the average income (per-capita GDP). Of course, this would only improve the treatment of distributional aspects of growth. Nevertheless, it would be a clear improvement.

A median income has though two main disadvantages. First, its focus on the position where 50% of the people are is arbitrary – why not 30% or another position? In addition, it does not take the poorest individuals into account. To account for these one could without much difficulty construct an operational indicator like (Minimum income + Median income)/2 (or possibly with unequal weights for each component). If one would focus here on net income (after income taxes) one might also include a measure of expenditures on public services resulting in (Net minimum income + Net median income+ Expenditures on

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<sup>9</sup> Gordon’s thesis in essence is that technological innovation is subject to decreasing returns in the long run. In addition, he argues that factors like education, inequality, globalization, energy/environment, and the overhang of consumer and government debt will hamper US economic growth (several of these factors apply to all OECD countries). He concludes that “future growth in consumption per capita for the bottom 99 percent of the income distribution could fall below 0.5 percent per year for an extended period of decades”.

public services)/3. The advantage of both indicators (e.g., over a Gini index) is that they are in monetary terms, so can preserve the “feeling of a monetary income measure” like the GDP per capita, and thus has a chance to replace the latter.

Another option would be to replace the GDP by the Human Development Indicator, which arguably better captures social welfare<sup>10</sup> even though it is imperfect. For example, environmental and other shortcomings, as summarized in Section 2 (Table 1), would still apply to these alternatives. Complementing the GDP indicator by adding separate indicators for environmental, distributional and possibly other issues will not help either. We in fact have them already (think of the set of macroeconomic indicators), but they have not reduced the weight and attention given in public decision-making to GDP.

Apart from all these options, a deliberate strategy of removing or ignoring GDP information from public debate and decision-making is warranted. Only this can eliminate the obsession of our society and politicians with GDP growth. If the GDP indicator is around (in public debates and media), we will remain tempted to observe it and worry about its rate of change, and thus effectively assign inappropriate weights to relevant components of social welfare (see Section 2, Table 2).

## 10. Revisiting terminology

I proposed the notion of agrowth in my article of 2011. I used a dash/hyphen in spelling it (“a-growth”), but decided now that it is probably clearer to write it as *agrowth*. I have also considered other terms, such as *N-growth* (indicating being neutral about growth) or *X-growth* (relaxed about growth), or *ND-growth* (not dogmatic about growth). Post-growth is another term that may capture the basic idea of agrowth, but it already has a history of use that is ambiguous, covering ideas consistent with degrowth as well as with “beyond gdp” and “beyond growth”. The latter have been interpreted in different ways, and I would rather stay away from these. I feel an entirely different term is needed to convey the specific line of thought associated with agrowth.

The term “agrowth” was also mentioned by Latouche (2010), a degrowth supporter of the first hour. He likened “agrowth” to “atheism”. Nevertheless, his use of “agrowth” goes more in the direction of what I have called “radical degrowth” (van den Bergh, 2011). Agrowth as I propose it is more like self-chosen, purposeful agnosticism about GDP information and changes in the GDP value over time. So the “a” in *agrowth* should be seen as denoting deliberate agnosticism about growth.

New ways of thinking sometimes require new terminology, as the old terminology is part of the stalemate. Escape from it might be aided by adopting new terms.<sup>11</sup>

## 11. Conclusions

Perhaps the notion of *agrowth* was already somewhere in the air, or implicit in the work of others, but I have tried to put its feet on the ground. It represents a third strategy next to polarized views of unconditional growth and anti-growth. Agrowth is the logical consequence of GDP criticism. It is aimed to solve the information failure associated with using GDP as an indicator of social welfare and progress, namely by no longer assuming that the GDP is necessary or sufficient for progress. Such an agrowth strategy will resolve the so-called GDP paradox, that is, the situation of broad recognition that GDP (per capita) does not capture all aspects of human welfare, which, nevertheless, does not translate in diminished concern about growth in politics and society. An agrowth strategy involves stressing the irrelevance of GDP information, focusing on issues and problems that really matter the most for human (un)happiness, including local and global environmental problems.

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<sup>10</sup> The HDI includes a broader set of components of social welfare than GDP, namely income, life expectancy and education. It further nonlinearly transforms income which can be seen as consistent with diminishing marginal utility.

<sup>11</sup> One might use other terms that reflect other types of growth, namely aimed at addressing particular persistent or urgent problems. For example, with regard to income inequality one could think of *E-growth* (equitable income growth rather than growth of average income or GDP per capita), with as special cases *M-growth* (median income growth) and *G-growth* (Gini index growth).

An agrowth strategy has the potential to connect to both those currently supporting unconditional pro- and anti-growth views. The reason is that an agrowth approach does not preclude growth when it goes along with improving human welfare. As a special case of this, an agrowth strategy does not disqualify growth in developing countries when this clearly improves the social welfare of its citizens. On the other hand, agrowth allows for GDP decline if this is a necessary, inevitable outcome of policies that balance specific human welfare goals, like employment, income equality and avoiding dangerous climate change.<sup>12</sup> In fact, agrowth will make it easier to accept such goals and the implementation of related policies, since one will no longer be obsessed with growth impacts but instead focus on relevant components of human welfare and concrete threats to them. In other words, agrowth is perfectly in line with theoretical welfare economics and empirical happiness (subjective well-being) research: it reflects a real welfare approach. Rather than prescribing a fixed growth path, agrowth makes us relax about growth, allowing giving priority to urgent problems the solution of which is sure to considerably improve social welfare. It was shown in the theoretical diagram of Figure 1 that agrowth is able to reach a higher level of social welfare than growth and degrowth strategies, simply because it does not impose any ex ante constraint on GDP or its growth.

In addition, agrowth can contribute to improve economic stability and reduce the likelihood of economic crises, namely by tempering positive feedback in the economy that involves GDP or growth expectations. Such positive feedback does a lot of damage to human welfare, through creating crisis that increase inequality and cause extended periods of high unemployment. No single macroeconomic school adhering to the pro-growth view has offered a structural solution for this problem. Instead, they all propose the same strategy, namely trying to get back onto the positive spiral. We should have learned better after so many crises. However, economics as a discipline has turned out to be a slow learner, which is due to having employed a narrow-minded, unscientific pro-growth dogma. Like all dogmas, this one has precluded adequate learning, in this case about policies that offer a better guarantee to stay away from economic crises, namely by weakening positive feedback in the economy.

The mainstream solution to environmental and climate challenges is green growth. Unfortunately, history provides no evidence that green growth is a likely option. This does not mean it is impossible. One can defend that we have not tried out very serious, stringent environmental and especially climate policies, notably high carbon prices. These will make a huge difference, and set in motion major changes in economic structure, technology and consumer behavior. However, saying that green growth might be possible is one thing, trying to impose it as a safe and sure strategy is something else.

It is easy to talk about green growth if one thinks about environmental challenges only superficially and optimistically. One should recognize the huge, unprecedented ambitions needed to avoid dangerous climate change: namely, reducing the average carbon intensity of output (GDP) with more than 80%, net of all energy rebound and carbon leakage effects. One should further realize it is very likely that stringent climate policies associated with this ambition will severely limit the growth of carbon-intensive, technology-intensive sectors which tend to be relatively productive. This can then easily translate in a reduction of the growth rate of the economy as a whole. At worst, a green growth view reflects that biodiversity loss, dangerous climate change and a range of other environmental challenges are simply not taken seriously. In this case green growth is merely paying lip-service to the environment. I wish it was not true, but I fear this is exactly what is behind many declarations in favor of green growth.

An unconditional anti-growth view – reflected in recent degrowth thinking – asks for radical changes, such as a smaller market economy or even a move away from (semi-)capitalism. I have argued that this does not guarantee solutions to important environmental problems. Hence, its radicalism is not well motivated; it may, in fact, do more damage than good. But this is not my important concern about degrowth; it is that it is simply unrealistic as an effective solution that can become large and impactful fairly quickly – say in a few decades. “Small-is-beautiful”, informal activities, cooperatives, localism and voluntary restraint already exist for many decades if not longer, but have remained a very small part of the economy. It is unclear why one should expect them to suddenly increase their share considerably in the near future. Perhaps some people can become a little more altruistic through education, or new low-carbon life styles can diffuse in certain marginal sub-populations, but before becoming an influential factor, several generations would have passed, too slow for addressing the urgent global problems we are facing.

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<sup>12</sup> Combining these goals is already difficult enough (Antal, 2014). There is no need to add an explicit GDP-growth goal (which effectively will act as a constraint on combining the other goals – as argued in Section 4).

The question then follows what real credible alternative we have to tinkering with the economy, through public regulation of markets, firms, banks and consumers, so as to guide its development in a more desirable direction. The best we can hope for in my view then is implementation of a well-balanced set of policies (van den Bergh, 2013). Most carbon dioxide emissions have come and continue to come from decisions by consumers and producers in markets, guided by prices. This strongly suggests that an effective reduction of such emissions has to involve market-directed policies, including carbon pricing. But I do not hear degrowth (unlike green growth) advocates talk about them at all – do they think we can solve climate change without them?

Because of their dependence on hope and optimism, and lack of empirical evidence, both green growth and degrowth may be seen as risky strategies that can do more harm than good. As opposed, an agrowth strategy is much more modest and assumes nothing. It does not presume the need for big radical, fundamental changes away from capitalism or market economy. Nor does it assume that continuing growth as in the past is possible or a necessary response to the environmental challenges we face. It simply reflects that we need to be agnostic about growth, focusing on a simple logic of implementing policies that effectively solve urgent problems, without concern for their growth impact, or for the way it will change the economy in structure and nature.

Of course, the change in mindset underlying an agrowth strategy, removing the GDP growth constraint from our search for a better future, may be seen as a radical, even revolutionary, change. The motivation for it is simple and strong though: deliberate agnosticism about growth is a rational response to the GDP information failure. Agrowth provides a third alternative next to unconditional pro- and anti-growth that deserves to be further explored and developed.

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## **Project Information**

### **Welfare, Wealth and Work for Europe**

#### **A European research consortium is working on the analytical foundations for a socio-ecological transition**

##### **Abstract**

Europe needs change. The financial crisis has exposed long-neglected deficiencies in the present growth path, most visibly in the areas of unemployment and public debt. At the same time, Europe has to cope with new challenges, ranging from globalisation and demographic shifts to new technologies and ecological challenges. Under the title of Welfare, Wealth and Work for Europe – WWWforEurope – a European research consortium is laying the analytical foundation for a new development strategy that will enable a socio-ecological transition to high levels of employment, social inclusion, gender equity and environmental sustainability. The four-year research project within the 7<sup>th</sup> Framework Programme funded by the European Commission was launched in April 2012. The consortium brings together researchers from 34 scientific institutions in 12 European countries and is coordinated by the Austrian Institute of Economic Research (WIFO). The project coordinator is Karl Aiginger, director of WIFO.

For details on WWWforEurope see: [www.foreurope.eu](http://www.foreurope.eu)

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