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'Green growth' is called into question

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Policy recommendations

Sustainable development, already rather a catch-all concept, seems now to be giving way in political discourse to 'green growth'. If this term has a meaning, it must mean growth (in the general sense of an increase in quantities produced) which is compatible with the most urgent requirements of the environment: reducing greenhouse gas emissions in wealthy countries to one fifth by 2050, greatly cutting back the use of fossil fuels and water, conserving biodiversity, halting the artificialisation and degradation of the soil, safeguarding the oceans and the species that live in them, and so on.

We will express here our doubts about the possibility, generally accepted without justification or context, of pursuing growth while respecting 'vital' constraints, in the true sense of that term. But these doubts would be pointless if there were no credible alternative 'post-growth' strategies, aimed at 'sustainable prosperity without growth', which might be more conducive to employment and equality than the current 'productivist' trajectory.

Limitations of the planet

Let us begin with a basic philosophical objection. Growth of only 2% per year from now until 2100 would mean a six-fold increase in the quantity of goods and services produced. And a 40-fold increase by 2200, etc. Does this make any sense in the wealthy countries, quite apart from any environmental considerations? What kind of ideal 'good life' is this?

Now let us look at actual environmental factors and in particular those concerning dangers to the climate. To reduce our current emissions to one fifth by 2050, which is the target set by the United Nations for wealthy countries (while awaiting the next IPCC report in 2013-2014), we would need, in France for example, to reduce them by 4% per year for 40 years. This is as much per year as France has achieved over the last ten years, according to the emission criteria produced by that country. This would be difficult enough with zero growth. But with 2% growth per year it would mean reducing emissions by 6% per year per unit of production. There is no credible scenario for this. It would be like putting one's foot on the emissions accelerator just as one should be stepping hard on the brake.

What is more, if emissions are measured by including 'imported' emissions, which more accurately takes into account the impact

of lifestyle and consumption patterns, then a sharp increase is seen in France over the past twenty years (+25% according to the study by the consultancy firm Carbone 4¹): the gap between reality and what is desirable appears even wider.

One may also wonder whether growth will head towards zero, no matter what we do, because of the effect of limitations imposed by nature and the increasing scarcity of resources, so that it would be better to anticipate this trend by seeking a new type of 'prosperity' without delay. There are various grounds to support this hypothesis.

Oil is running out, and we are close to the 'peak' from which global production will unavoidably decrease and prices will shoot up. According to some experts (for example those from the International Energy Agency in their 2009 report), we are already there. The race for oil via shale or deep water drilling

1 www.carbone4.com/fr/actualites/lettre carbone

is suicidal. Besides fossil fuels, the exhaustion of resources - or a price surge - has been predicted in forthcoming decades for nearly all abundantly available basic minerals²; that is without mentioning increasingly coveted arable land, water and forests. Lead deposits which can be exploited at an acceptable cost will be exhausted by about 2030; 71% of its production is used for batteries. Silver is expected to run out between 2021 and 2037; it is used in industry (electricity, electronics, brazing, welding and other alloys). Copper deposits which can be exploited at an acceptable cost will run out by about 2040; this is mainly used in the electrical industry (cables, winding gear). Uranium (at an acceptable price) will probably be exhausted somewhere between 2025 and 2060. Nickel deposits which can be exploited at an acceptable cost will be exhausted by about 2050; this is used in certain batteries (button cells, batteries for laptop computers).

Could future growth come from a green technological revolution? It is very unlikely, as the minerals essential for most new technologies have just been referred to above.

Let us take the example of the electric car. Nicolas Baverez, a well-known French free-market writer, came up with a startling statement: 'The EPR (European Pressurized (water) Reactor) and the electric car are the two breasts suckling sustainable development'.

Can we really reconcile our current lifestyles and means of transport with environmental demands? France's leading expert in carbon assessment, Jean-Marc Jancovici³, shows clearly that when we take into account the numerous stages and sites of manufacture, the sources of electric energy used and the materials required, then the supposed environmental advantage of the electric car becomes very debatable. To produce the electricity needed to maintain car usage in France at its current level using nuclear energy, we would have to build, according to his calculations, 18 EPRs! Of course we should be developing electric vehicles, but doing so can only play a small part in the issue of green mobility.

The myth of 'immaterial' growth

One variant of green growth is 'immaterial growth'. This involves two areas: growth in the service sector, supposedly having little environmental impact, and 'grey growth', in the sense of grey matter, in other words the knowledge economy. In both cases their advocates display a lack of understanding of the environmental impact of these activities.

According to the 'immaterialists', developing knowledge, services (as opposed to industry and agriculture) and remote electronic communication would facilitate limitless growth with little pressure on the environment. A service, for example, is sometimes defined as 'a product which does not hurt you when it falls on your foot'.

Great discoveries and major risks

According to the philosopher and economist⁴ Dominique Bourg, director of the Institute of Land Use and Human Environment Policies at the University of Lausanne, 'we must learn the lessons of the 21st century. When radioactivity was discovered, it was thought to be harmless. It turned out to be carcinogenic - what a surprise! When CFCs (chlorofluorocarbons) were invented, people were very pleased with their chemical inertia, which was thought to be a guarantee of safety, and they were mass produced. Decades later it became clear that CFCs damaged the ozone layer - another surprise! DDT appeared to be the invention of the century, very effective and completely safe. But this pesticide is harmful to the environment and even to health at certain concentrations - yet another surprise! And I was forgetting, among other things, asbestos. Last of all, the use of hydrocarbons turns out to be dangerous for the climate. This shows that our techniques are only partially mastered and in no way give us complete control over the whole system, and that they can cause damage. *The more powerful these techniques are, the greater the resulting damage can be.*

In April 2010, the explosion of a BP oil platform caused a huge oil slick in the Gulf of Mexico. A technique we had fully mastered, they said. Just like all the others: nuclear, gas and oil extraction from shale, carbon storage, etc.

The Fukushima tragedy, which is continuing to play out behind the orchestrated silence of the mass media, provides the most appalling recent proof of the lethal danger of rushing headlong into mega-technology, usually for the sake of growth requirements. On an optimistic note, we can see that even without the economic recession, electricity consumption in Japan fell by 15% in summer 2011 compared with summer 2010, thanks to a rallying of society.

Passing on or producing knowledge, giving advice, delivering analyses, what could be more immaterial?

However, services are not immaterial. It is true that on average their carbon footprint per job is smaller than that of industry, energy or agriculture. But that does not make it negligible. Producing and using them does indeed involve an element of verbal or cognitive exchanges that are apparently immaterial, but a standard office computer 'weighs' 1.3 tonnes of CO₂ for its production and transportation. In a sustainable world, emissions per person per year should not exceed 1.7 to 1.8 tonnes of CO₂ (and 1.2 tonnes in 2050, if there are 9 billion human beings). A single computer, without counting the energy it uses to function, already 'consumes' three quarters of the current annual 'drawing rights' per person. The current growth model of the IT industry, based on a continuous upgrading of performance and very rapid product obsolescence, is not sustainable. We must find another model, which is steady, based on reliability and on careful, shared use of the computer and its networks.

Development of the service economy is by no means new. It has certainly helped to achieve the reduction in 'energy intensity' (per unit of output) recorded in recent decades, but because of growth this reduction has been nowhere near sufficient to prevent the increase in total energy consumption. If growth persists, there is no reason to expect the development of services to have a significantly stronger impact on energy intensity in the decades to come. We

2 <http://www.eco-info.org/spip.php?article129>

3 http://www.manicore.com/documentation/voit_elect.html

4 <http://biosphere.blog.lemonde.fr/2008/03/10/dominique-bourg/>

note that those countries where services feature most prominently in the economy and in employment are also the ones which produce and consume the most material goods per inhabitant, the countries whose carbon footprint is the largest!

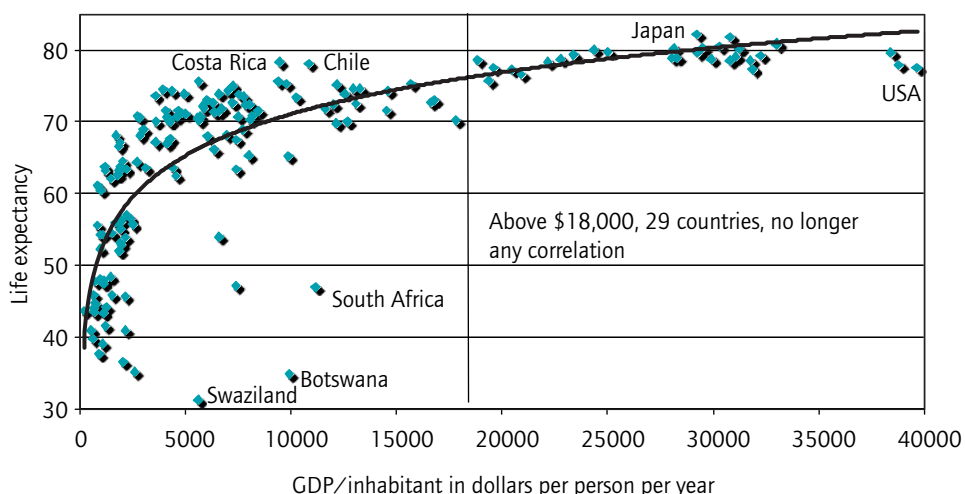
After all, these so-called 'immaterial' service interactions require endless journeys, except when they are carried out remotely (telephone, internet...). And if they are provided remotely they call for computers, cabling, energy, and so on. The carbon footprint of a university campus, a hub of the knowledge economy, becomes very heavy if one includes, as one must, the thousands of daily journeys it causes. Let us add, to make the picture almost complete, the material nature of service locations and technical tools: offices, teaching rooms, hospitals, bank counters, computers, etc. The 'service society' which has developed in the wealthy countries based on unsustainable productivism is today, unknowingly, a 'hypermateral' (for other developments, see Gadrey 2008) society.

Environmentally impossible, but also socially pointless

The demand for endless growth may also be challenged from the point of view of social and human development. Are the wealthiest countries, according to the GDP per inhabitant criterion, also those where people live longest in good health, where they have more advanced education, where there is less inequality, stronger social cohesion, less crime and violence, more democracy, etc.? Here we will look at just one example, that of average life expectancy at birth. The graph below⁵ shows, for all countries in the world, a clear positive correlation between this variable and the GDP per inhabitant.

But if one zooms in on the group of 29 countries that have a GDP of more than \$18,000 per inhabitant (second graph), any correlation disappears. Yet between the least good and the best, the difference in life expectancy is just six years.

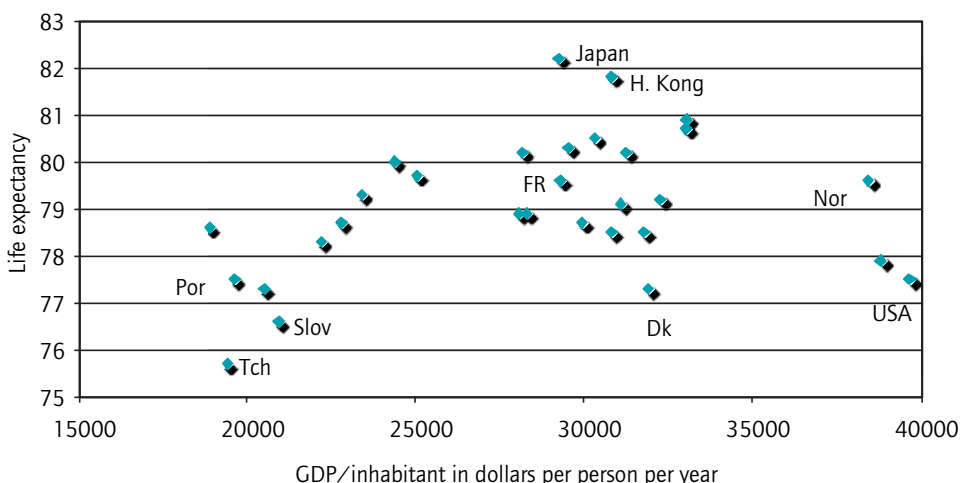
Figure 1: GDP/inhabitant and life expectancy in 2004, all countries: a very strong logarithmic correlation ($R^2 = 0.62$)



Why do some countries which are four or five times less 'wealthy' than the United States, such as Costa Rica, have the same average life expectancy as the US? Why, above a certain GDP per person threshold, which is incidentally quite low, does life expectancy no longer correlate with this variable? Why, despite this observation, is life expectancy continuing to rise nearly everywhere, including in the United States, but at increasing cost?

The health of a population depends on many factors: the social and physical environment, conditions of life and work, living standards and their distribution, levels of education, etc. And, of course, access to medicine and healthcare, a factor which, however, contributes a proportion of only about 25% towards health.⁶

Figure 2: Above \$18,000, 29 countries, no longer any correlation



In these conditions one can understand that (some elements of) material wealth is significant in the early stages. This is because it allows a healthcare system to be set up, and especially because of its effect on living standards (food, drinking water and sanitation, hygiene, etc.), education, social

⁵ Database: United Nations Development Programme.

⁶ A seminal collective work on this topic was the volume edited by Evans et al. (1994).

welfare, etc. There is still a need for this type of growth in many Southern countries, but it is imperative that it be shared fairly.

At a later stage, however, lifestyles following the productivist model, inadequate and excessive food, pollution (chemical, air, water, etc.), inequality and violence, tend to have a negative influence on health in certain countries, especially that of the poorest people. In countries which can manage to finance it, the healthcare system is then caught up in a chase to 'repair' various types of damage produced by a pathogenic economy and society. Of course, progress is always being made in medicine and health. But a growing proportion of this progress, half of it in the United States according to some people⁷, simply counters the harmful effects on health of a bad lifestyle, 'junk' food, obesity, a poor environment, poor work, insecurity and endemic violence. Countries where this damage and waste are most obvious are 'doomed', if they have the means, to spend more and more on health without managing, as in the case of the United States, to do any better than Cuba, where life expectancy is 78 according to the WHO (World Health Organization).

We could look at many other criteria of human development. In almost every case we observe that the available variables of human development, social cohesion, poverty, economic or political inequality between women and men, crime, etc. either do not correlate at all with GDP/inhabitant (this is the case for the indicators of income inequality and inequality in the participation of women and men in the labour market), or else only correlate below a certain GDP/inhabitant threshold (ranging between \$10,000 and \$18,000 in 2004).

This leads us to believe that, in all these fields, one can attain a high level of social well-being with significantly less economic wealth, but with policies for human development, social justice, decent employment, etc.

Let us add another argument, which is both environmental and social. The rush towards growth in the North now seems to represent a deadly threat to the South. According to the 2007 UNDP report, 'For the poorest 40%, that is around 2.6 billion people, we find ourselves on the eve of climate changes that will threaten the chances of human development.' The UNDP shows that climate warming is becoming a major obstacle to human development, because of its effects on agriculture and on food security (drought), on water shortages, the disappearance of vital eco-systems, exposure to flooding in coastal areas, increased health risks (for example, malaria), and that it significantly reinforces social inequality.

But, without growth, can unemployment and social insecurity be reduced?

We think therefore that talking about 'a different type of growth', whether it be soft or green, is merely playing with words. Neither technological revolutions nor the development of the service

industry will enable us to completely break the link between growth and greenhouse gas emissions, between growth and the consumption of non-renewable resources, between growth and a proliferation of pollution. But how can unemployment be reduced without growth, while productivity gains are still being made, even if they are much smaller than in the past?

Reducing working time is no doubt one aspect of the solution. For two centuries this has been the best antidote to productivism. Cutting working hours has historically enabled us to limit the accumulation of goods and to allocate a major share of productivity gains to creating jobs and improving people's lives.

However, it is not only growth, but even more crucially, productivity itself whose relevance as an economical indicator is now open to question. Labour productivity gains are measured according to the ratio of GDP growth in real terms (excluding inflation) and the variation of the hours worked. The increase in real value may theoretically be split between the increased volume produced and the increase in product quality. But in practice only volume is taken into account by national accounting systems - and only when that is feasible, for example for material goods. For services, accounting practices are even more 'conventional', just as is the case for non-marketable services where production is measured by the remuneration paid.

How could these fundamental macro-economic indicators be adapted to an economy based mainly on improvements in quality (including sustainability)? Let us take the example of organic agriculture. Producing one kilo of organic potatoes takes more work and uses fewer inputs than a kilo of industrially produced potatoes. The taste, health benefits and nutritional qualities, as well as the environmental sustainability of the organic potato, are far superior, but national accounting systems are unable to measure these qualities; they simply note that the organic potato is more expensive. The shift towards sustainable agriculture will therefore appear to cause inflation and a drop in labour productivity, with no growth. Yet with a clear increase in job creation for the same quantities produced!

In the medium and long term, a trajectory of increasing quality and sustainability (and not quantity) would be much more likely to create (decent) work than the current trajectory, which continuously cuts jobs while causing ever-increasing human and ecological collateral damage. Much more work is needed to produce 'clean' than 'dirty' quantities, even with a negotiated decline in employment in the most polluting sectors. And we must not forget the additional 'driver' of job creation: the reduction in working time.

We can show that the majority of 'clean' production processes, those which are most environmentally-friendly (also as regards working conditions), most economical in their use of energy and materials, as well as water, require more work (than production that causes pollution and over-exploits natural resources) to produce the same quantities, but of a completely different quality (Gadrey 2012). Environmental and social requirements are good for employment, unlike profit requirements which bolster the 'ever more' productivist agenda.

⁷ The promoters of the Index of Sustainable Economic Welfare (initially Herman Daly and John Cobb) support this hypothesis.

By way of illustration, here is a case study from France, based on some existing scenarios (they are sometimes too old, but are all that was available) on prospects for 20 years from now.

In 20 years, without any growth in quantities, and subject to major non-productivist innovations, one could envisage adding more than four million jobs in the following areas:

- Modern local organic agriculture, forests: + 150,000 jobs;
- Renewable energy, thermal insulation, energy-saving, recycling, partial relocations: + 700,000 to 1 million;
- Transport and mobility, proximity retailing: + 500,000;
- 'Quality of life services' associated with rights: young children, elderly or disabled people, care, social, education, environment: 1.5 million 'decent' jobs;
- Fair reduction in working time, to approximately 32 hours per week: + 1 million.

This case study, which would need to be consolidated by collective work at national and European level, tends to show that one could expect more useful jobs from quality of life services and from cuts in working time than from policies focussed solely on 'greening' the economy (the famous 'green jobs').

But it would be much more awkward to predict the all-round outcome of labour productivity or GDP in such scenarios: these macro-economic indicators lose all meaning within a development model based on 'quality of life' and on the quality and sustainability of products and services⁸. We must promote completely different efficiency criteria to guide the decisions of stakeholders, both public and private, and a range of quality criteria enabling us to judge between the various aspects of quality and enjoying a good life. Instead of aggressively pursuing growth, we must pursue quality of life for people, based on enhanced democracy. Production and jobs that respond to social needs, needs which can only be defined and prioritised by the deliberations of citizens themselves, not needs drawn up to serve the imperative of maximum profit and spurred on by 'continuous greed'.

From green growth to participatory planning

One cannot expect market mechanisms to allow for the necessary change of direction in the path of development. The current attempt by the ruling élites and international institutions to set up markets in polluting rights, nature and biodiversity services, etc., is only a headlong attempt to commercialise the planet, and can only accentuate instability and inequality. The latest collapse in the European CO₂ emissions market proves the truth of this. These policies are completely irresponsible and must be replaced by ecological planning, based not on technocratic expertise but on mobilising people's intelligence and energy. Neoliberalism sought to depoliticise economic policy by subjecting it to the

financial markets. Environmental requirements, and citizens' movements, demand, on the contrary, that it should be more subject to democracy (Coutrot 2010).

Let us first put ample thought, at local and national level (initially), via 'citizens' meetings and conventions' into medium and long-term needs and the socially and environmentally useful production which might meet those needs. Let us include environmental and social assessments (on the past and future) in these debates, as well as consideration of what is futile (or misused) and what is useful, sustainability, common goods and universal rights, successful experiences and failures; the list could go on. Let us not hesitate to talk about 'participatory planning' (Devine 2002), going so far as to assess volumes of work and employment which will be required 10 and 20 years from now. And working time, too, and how it should be shared. It should be done in such a way as to partially relocate some activities and to combat the ill-effects of neoliberal (or deliberative) globalisation, advertising and credit. Participatory planning has nothing to do with state control. On the contrary, it should mean that the community takes charge of its own future and does not let either the state, or MPs, or so-called experts, or market forces shape it instead of them.

Let us link estimates of the future volume of (socially and environmentally useful) work with targets, debated by the citizens, for the social distribution of economic wealth in 10 or 20 years time. Between rich and poor (what would be an acceptable gap?), between people in work and people out of work according to their anticipated relative ratio, between women and men, between pay and profit, between profit that is reinvested and that which is distributed to shareholders, etc. Let us also debate the sharing of other, non-monetary wealth, such as housework. And let us propose European and then international citizens' conferences to coordinate these thoughts, which would obviously have to 'go global' in view of the universal nature of some of the issues facing civilisation.

Let us put on the table, based on the above, the real and possible ingredients for a good quality of life in 10 and 20 years time, as might result from this comparison not of market supply and demand, but of the expression of needs and possible ways of meeting them in a sustainable world. Let us also favour quality and sustainability and not quantity or 'volume'. To achieve not simply purchasing power but the power of sustainable use and quality of life. In short, one would give centre-stage to all the factors which are disregarded by the main macro-economic indicators used in forecasts, such as growth, productivity gains and purchasing power.

Now that the financial crisis is becoming ever more clearly a crisis in the capitalist and productivist model of development, the anguished cries of economists and politicians for the return of growth appear more pathetic every day. The thirty-year post-war boom was celebrated as a period of 'shared productivity gains', without anyone realising at that time the environmental and social risks that are implicit in the 'ever more' agenda. This model will not be revived because the limitations of the planet will clearly not permit it. We must invent, without delay, a post-growth model whose centrepiece is the sharing of increases in quality, sustainability and the 'ever better'. In fact, throughout

⁸ One could imagine trying to save productivity by systematically assessing 'the quality effect' when analysing the value of products. But such an assessment would raise formidable epistemological problems and would not - far from it - obviate the need to develop a multi-criteria approach to quality.

the world, countless economic and social innovations are already based on this idea and need only to be extended or brought into general use. Let us forget about green growth and back sustainable human development and quality of life instead. This is the only outcome that will push down unemployment and lead to a reduction in inequality and to the definition of a model of society that is both democratic and sustainable.

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