



Note from the field

Societal metabolism, working hours and degrowth: a comment on Sorman and Giampietro

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ABSTRACT

Can we choose whether to degrow? Sorman and Giampietro in this Special Issue argue that degrowth can only be forced upon us; it will never be the outcome of voluntary or collective choice. In this commentary, I argue instead that although sooner or later we will have to degrow because of bio-physical limitations, we still have a choice of how to do it. Constructing a positive vision of degrowth as an inspirational political project that mobilizes citizens, increases the likelihood of a “prosperous way down”. I agree with the authors that in an energy scarce world we will have to work more to maintain the same level of material affluence, but I contend that under conceivable conditions we might be equally happy with less work, less energy and less material affluence. A multi-scalar analysis of societal metabolism is essential for the evaluation of degrowth policies and trajectories. However, unlike what Sorman and Giampietro suggest, there is nothing in existing metabolic analyses that suggests that a prosperous degrowth trajectory is *a priori* impossible.

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1. Introduction

The transition to a green economy was at the centre of the Earth Summit 2012 in Rio (“Rio + 20”). Are however growth and environmental sustainability compatible? A growing number of scholars argue that continuous economic growth, even if greened, is environmentally unsustainable (recent – among many – contributions include Schneider et al., 2010; Latouche, 2010; Hueting, 2010). If growth is unsustainable, a crucial question is whether societies can choose and organize social processes in order to degrow or whether instead they are destined to grow, crash and adapt.

This journal hosted the 1st Special Issue on the topic of sustainable degrowth, with a follow-up 2nd Special volume featured in Sorman and Giampietro (2013) (hereinafter S&G) make an important contribution to degrowth debates. Using data from major industrialised economies and a novel multi-scalar methodology of metabolic analysis (MUSIASEM), they show how productivity growth has benefited from access to cheap energy. They subsequently argue that further economic growth is unsustainable given the exhaustion of sources with sufficient energy return on energy investment. However while in their view an economic

downscaling is inevitable, they are skeptical that this can come through an organized social process. Institutional responses increase transaction costs, and State services depend on the same diminishing energy surplus. They conclude that the best we can hope as a society is to adapt to the new conditions, not in a pre-fixed, planned manner, but through deliberative processes and flexible experimentation in the spirit of “post-normal science” (Funtowicz and Ravetz, 1994).

On a first look S&G reinforce the case for economic downscaling, what I prefer to call degrowth (Kallis, 2011). They offer a very useful methodology for studying the feasibility of alternative degrowth trajectories and the bio-physical implications of different degrowth-inspired policies, such as the reduction of working hours. Their proposal also for deliberative processes and experimentation are in the degrowth community’s spirit. Yet the authors go one step further and present their analysis as a *critique* to the degrowth proposal. Why?

S&G perceive degrowth as on the one hand, a proposal for a voluntary reduction of personal consumption and on the other, a proposal for a governmental plan that enforces degrowth, mainly through the reduction of work hours. Following this they argue that, first, voluntary energy reductions will have little effect as they will rebound due to the Jevons paradox, i.e. gains in efficiency will lead to an increase in total consumption (Polimeni et al., 2008). Second, they contend that the world is too complex and unpredictable to plan. Changing the pattern of human activity within

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a given metabolic regime is extremely difficult. For S&G degrowth can not be chosen, it will fall upon us and we will adapt painfully, no matter how much planning or wishful voluntarism we do now.

S&G's comments and objections to the degrowth proposal express common misunderstandings: degrowth does not call for mere voluntary reductions of consumption nor for full-scale governmental planning of a degrowth transition. It is such misunderstandings that I wish to clarify in this "note from the field" and in the process contribute to the ongoing debate about the definition, feasibility and desirability of degrowth (see van den Bergh, 2011; Kallis, 2011).

2. What is the degrowth proposal?

(Socially sustainable economic) Degrowth can be defined as a stable and equitable downscaling of society's throughput (Kallis, 2011; Schneider et al., 2010). First, this is not to come through mere individual reductions in energy or material consumption such as retrofitting light bulbs or driving Prius. The advocates of degrowth endorse "voluntary simplicity" (Alexander, 2011), an expanded, integrated and committed package of downscaled lifestyles that goes beyond isolated consumption decisions and hence reduces, though it does not eliminate, the scope for rebounds. Jevons paradox is a founding thesis of degrowth (Schneider et al., 2010). Indeed, the reduced demand from the resource savings of 'simplifiers' can reduce the costs of resources to others and increase overall consumption (Alcott, 2008). Therefore voluntary simplicity is a necessary, but not sufficient condition for a sustainable downscaling. Institutional interventions and limitations at various scales are necessary to ensure that the resource gains of simplicity are not invested in further capital accumulation and resource expansion making simplicity materially irrelevant.

Degrowth advocates recognize also that voluntarism alone cannot go far, if it is not expressed in collective and political action to ensure the conditions necessary for making simple living possible or for ensuring that resource savings are not reinvested in further accumulation. Rather than voluntary simplicity, I prefer to talk about "the right to simplicity". This refers to the safeguarding of a set of social and institutional conditions that make the choice of a simpler living possible and hence facilitate adaptation to climate change and the end of cheap oil.

Second, unlike what S&G suggest, degrowth advocates do not call for "degrowth plans" envisaged by experts and enforced by governments. They propose different possible institutional interventions. Institutions redistribute costs, benefits and incentives of action among different social actors. Shorter working-hours, a basic and a ceiling income, cooperative property structures, etc – are some among the many institutional proposals discussed in a degrowth context (see this special issue, and also JCLP, 18(6)). Degrowth advocates are not different than any other scientist or social actor who proposes policy interventions to achieve certain goals. S&G give the impression that they see no role for policy or deliberate collective action in shaping human affairs.

Further than this, they imply that there is something totalitarian and reminiscent of old-style development planning in the above degrowth proposals. Far from it: these are tentative proposals put forward for social deliberation. To our knowledge, no one in the degrowth community talks about "optimal degrowth plans" (this is S&G's expression). Drawing inspiration from the work of political philosopher Cornelius Castoriadis, degrowth advocates are proponents of direct democracy through open-end participatory and assembly processes (Asara et al., forthcoming). Degrowth serves as a "missile word" (Aries, 2005), a new semantic signifier that triggers new deliberations over alternative futures and ways of adapting to changing socio-environmental conditions. Degrowth

advocates are engaged in real-existing post-normal, "extended peer review" scientific processes at various scales and forums, such as the "15M" and "Occupy" movements in Spain and elsewhere, where people from different domains of social life, including scientists, meet in public squares to deliberate alternative responses to the economic and political crises. The international conferences of degrowth are explicitly modelled on the post-normal science principle of an extended peer-review community (Cattaneo et al., 2012). Scientists, activists and policymakers come together with the intention of co-producing knowledge and subjecting their partial perspectives to the criticism of one another.

In these and other public debates tentative degrowth proposals are personal "doxai", opinions in Castoriadian terms, to be deliberated by the participants and society at large. They are not 'solutions' or planning recipes. S&G ascribe to a post-normal science epistemology, according to which values are inseparable from scientific analysis and scientists and lay people should mingle and co-produce knowledge. But then they contradict themselves criticizing degrowth proponents precisely for being normative. S&G basically imply that they are the only ones among scientists who have found a way of doing value-free science (with what they call the MUSIASEM "syntax"), which they then offer to "people" who can use it to deliberate how to adapt. Their view is a reproduction of the normal scientific distinction between 'neutral' scientists and 'normative' people. Degrowth researchers instead are much closer to the true post-normal science ideal recognizing that they themselves are social actors with their own set of values, involved and engaged in actual processes of deliberation and change. They deposit their tentative, incomplete and potentially wrong proposals for public debates, rather than remain in the comfortable confine of "neutral" scientific prediction.

3. Working hours and metabolism

One of the tentative "doxai" that have emerged in degrowth debates is the proposal for shorter working-hours in the paid sector. Three reasons have been given (here I am giving only the reasons; below I accept that there are some problems with parts of this reasoning).

First, if the scale of the economy is to be limited by climate change policies, productivity increases will create mass unemployment. Only a reduction of working hours and a redistribution of paid work can keep everyone employed and the climate within safe thresholds (Victor, 2008). Second, the increasing redistribution of work in western societies from the unpaid to the paid sector, has increased the commodification and monetization of everyday life, which has negative effects on social cohesion and quality of life (Latouche, 2009; Hirsch, 1976). There is a welfare argument for reversing the commodification of work and redistributing work from the paid to the unpaid sector, independent of climate change concerns. Third, degrowth advocates see no reason for the distribution of goods and services to depend so much on wages and salaries as it does now. A universal basic income could be introduced as a right (Martinez-Alier, 2009).

Note that the degrowth proposal calls for a reduction of working hours *in the paid sector* substituted by more useful and if possible gratifying work in the self-employed or unpaid sector. It is not a universal call for reduction of work as S&G perceive it. The semantic distinction between paid and unpaid (reproductive) work that S&G assume as given is a contemporary Western one. Subsistence societies for example mix productive, reproductive and communal work, or work and play. Is work for a home food garden or a local festival really "work" or "leisure"? Such semantic categorizations change as societies change. This does not imply that we should return to a subsistence economy, only that there might be

more flexibility than suggested by S&G's view of a given distribution between paid and unpaid labour.

Independent of semantic categorizations of course there is an absolute limit in the actual stock of hours any population has available for production and reproduction. S&G are *absolutely right* that, *other factors equal*, as energy becomes scarcer, more total work will have to be put to produce the same level of social functions. They are right also that productivity is not an exogenous factor that increases automatically; productivity gains build upon cheap energy and as cheap energy ends, we will need to work more. Climate change and climate policy may also shift consumption to goods and services that are energy extensive and labour-intensive.

S&G are therefore right that unlike what degrowth proponents argue climate change and energy limits may call for more, not less, work. However, first, while in the longer-term energy limits might bite, in the short-term productivity keeps increasing and creating unemployment under conditions of no-growth. We can afford to work less, at least for the time being. Sharing work can reduce unemployment now and does not preclude that we might have to work once again more in the future. Second, and crucially, degrowth advocates have never argued that we can work less but maintain the same level of affluence. In MUSIASSEM terms, the degrowth proposal is *not* less work hours for the same GDP/capita of the same set of socially desired functions. It is a call for a change of social functions, which will permit less work even if we have less energy in the future. Furthermore, working less in the paid sector now will lead to a shift of values and perceptions that will make the downscaling of desired functions easier.

S&G argue that a voluntary change in social functions is unlikely because it will lead to lower wages and badly paid jobs that no one wants. Note that wages are a price quantity. MUSIASSEM has very little to say about relative prices. Wages are a complex function of the distribution of the total product between capital and labour, and between individuals, as well as a function of the supply and demand for paid work. How such factors will play out in the future is an exciting research question, but the answer cannot be known *a priori*. For example in many cases trade unions have managed to increase hourly wages through reduced work hours agreements (Hunt, 1991). Future changes in population and demographics, upwards or downwards difficult to predict, may change labour supply. Redistributive policies may shift income from high to low wages and from capital to labour. The distribution of wages depends also not only on supply and demand but also on social norms and power relations, which can change with them. So, even if GDP per capita declines as a result of energy limitations and/or changes in society's desires, this does not mean that wages will decline on a 1:1 basis.

Finally, let me note that the welfare (well-being) derived from a given wage is not a fixed quantity. The nominal value of a wage says little. The wage is worth what it can buy. As wages decline so may the prices of goods. If inequalities are reduced and everyone had the same wage, the prices of luxurious goods may fall. Also what one desires to purchase is not a fixed quantity: it changes through time as norms and expectations change. In an energy-scarce world, people may desire less material goods and as a result put less work and accept lower rewards from the paid sector, developing ways to increase welfare through leisure or work in the unpaid sector. A low wage by today's standards may be high enough by tomorrow's standards. Again, this does not mean that it is not likely that they will also have to work longer or harder; my point though is that this cannot be taken for granted.

S&G refer to wages in monetary terms, but seem to understand them in biophysical, i.e. in their framework lower wages are equivalent to less energy available per capita. True, in a resource scarce world, the average job will probably guarantee access to

a lower quantity of energy and materials. But again, there is nothing to state *a priori* whether this will be experienced as a welfare loss, apart for an initial period of transition. Much depends on comparisons and what happens to everyone else's "wealth". In energy or material terms, the wealth of a rich medieval merchant is probably equivalent to that of a poor person today. But most people in medieval times would be happy to work for the merchant's "wage", which was high by the time's standards. Equivalently in a materially poorer world tomorrow, people may be delighted to work for much less than today. There are no objective "high" and "low" wages and "good" or "bad" jobs independent of the surrounding social conditions, comparisons, norms and possibilities. Expectations adapt.

All this is not to conclude that we won't have to work more in the future. It is simply to suggest that the future of work - paid or unpaid, productive or reproductive, waged or voluntary, outside the home or domestic - under energy limits is an extremely complicated research question. It becomes more complicated when one considers the quality of work, or the conditions under which a reduction in paid work may be experienced as a welfare gain rather than loss. Rather than taking a dogmatic position in favour of reduced (paid) working hours, or against it as S&G do, I propose that we continue studying alternative degrowth and working hour trajectories and scenarios. MUSIASSEM is an accounting tool that has much to offer in this.

4. The feasibility of social and institutional change

The final and ultimately central objection by S&G to the degrowth proposal concerns its feasibility. S&G argue that a voluntary downscaling mediated by political-institutional change is extremely difficult within a given metabolic pattern. They are skeptical of proposals such as reduced work hours, precisely because they do not believe that people will voluntarily settle for less. Their thesis has two components: the first focuses on institutions and uses a metabolic argument. The second focuses on individuals and is based on anecdotal evidence and opinion. Let me examine each argument in turn.

The first argument builds on the work of Tainter (e.g. Tainter, 2011). Tainter has argued that as societies grow more and more complex they face more and more problems to which they respond by adding more institutional complexity. As government expands to deal with new problems, it taxes more and more of the social or energetic surplus to a point that the social system collapses. According to Tainter his theory explains the collapse of the Roman Empire. Following Tainter, S&G argue that institutional efforts to deal with the current energetic-economic crisis are doomed to fail, as they can only come at the cost of increased institutional complexity, transaction costs and hence increases in energy use. Institutions, that is, feed from a diminishing energy surplus, and can only speed up its exhaustion.

I do not share S&G's conviction that an organized societal downscaling will necessarily increase institutional costs. First, Tainter does not provide operational definitions of complexity or of the intensity of a "problem" and is therefore difficult to judge the specifics of his proposition. It is not clear for example in what sense contemporary society has more problems compared to the 2nd world war or compared to the Cuban missile crisis where the world was at the brink of nuclear annihilation. I do not see also any universal correlation between problems, institutional size and energy use. Western civilization did not collapse when it achieved the metabolic pattern or the institutional size of the Roman Empire. Furthermore, historians offer a variety of interpretations of what happened to Rome, ranging from collapse to mere transformation and evolution into new centres of power. Histories of the Roman

Empire say as much about the historical context of the time of their writing, as they do about Rome. I can't avoid but see here a parallel between Tainter's attraction to Reaganite "supply-side economics" (see Allen et al., 2003) and his underlying narrative that the American Empire will collapse because its government is growing too big. The question is whether after decades of Reaganite policies this is really the problem, or precisely the opposite, i.e. the shrinking of government and the weakening of its capacities to oversee the private sector and regulate for environmental and other public goods (Ashford et al., 2012).

Second, it is not clear from Tainter's account why a transformation towards simpler, less complex, forms of organization is by definition regressive. What counts as collapse and what as transformation depends on the eyes of the beholder: what was collapse of an Empire for Roman aristocrats, was liberation and transformation for the subjugated populations of the Empire as several new civilizations sprung or evolved out of Rome. In fact, degrowth advocates do not envisage a bigger state bureaucracy, but a transformation towards decentralised, directly democratic and deliberative communities (O'Neill, 2011) with a combination of state/representative and local/direct forms of governance (see various contributions in Cattaneo et al., 2012). True, all this may sound vague for the time being and is a vision, which we don't know if it will work or how it can be achieved. My point though is that there is no universal historical law that states that problems can only be solved by adding complexity and bureaucracy, or that the evolution of decentralized forms of governance is impossible, or necessarily regressive.

The second argument of S&G is a matter of opinion and does not relate directly to their research with MUSIASEM. In their view people will never accept to downscale voluntarily their consumption or their institutions. They can only be forced by a catastrophe. They see a future of resource shortages, strife and conflict over dwindling natural wealth. S&G give no psychological, anthropological or historical evidence to support this claim. Neither degrowth advocates have given sufficient evidence for the contrary or convincing examples of societies that have voluntarily chosen to settle for less. There is however some preliminary evidence to avoid a straight dismissal of such optimism. First, psychological studies show that the cost of a transition to less income may be more acceptable if it is perceived as equally distributed (Matthey, 2010).

Second, we know that economies and societies can be refashioned in a stroke when needed. A recent example is the Second World War. Investments in the U.S. shifted from private consumption to the public sector, cars were shared, bicycles made a comeback, urban food gardens multiplied and recycling and thrift reached unprecedented levels in a voluntary communal spirit that socially ostracised conspicuous consumption (Davis, 2007).

Third, and without citing specific works, it is generally accurate to say that anthropology shows that there are many pre-industrial societies which collapsed because they did not adjust fast enough its desires and its modes of organization to material realities, but also many others who managed to do so, and lived in prolonged equilibrium with their biophysical environment. Hunter-gatherer societies for example enjoyed satisfactory living standards, working less than we do today; their mode of organization and constant movement did not allow them to accumulate and expand (Sahlins, 1972). The point here is not that we should go back to the stone age, but first, that there have been societies who did not have to expand and collapse, and that, second, insights from the organization of these societies may be relevant for conceiving organizational changes for contemporary complex societies.

Finally, social and political science suggests that rather than the resource wars and dramatic catastrophes that S&G envisage as a result of energy scarcity, conflict is not the necessary outcome of

scarcity (Gleditsch, 2012). Cooperation often prevails and is triggered by scarcity conditions (Wolf, 2007).

The future has always been and always is open and there is no reason to close down *a priori* the possibility of transformative and deliberate social change other than through collapse. The pessimism of S&G runs the risk of a self-fulfilling prophecy: if we believe that there is nothing we can do, individually or collectively, to transform our societies and live within bio-physical limits, then we will not do anything, and the catastrophe will indeed be experienced as a catastrophe, leading to conflict. If instead, as I propose, we reconstruct degrowth as desirable political project, then there is, some at least, hope that we can turn what would otherwise be a catastrophe, into a "prosperous way down" (Odum and Odum, 2001).

5. Conclusion

S&G argue that societal metabolism and institutions are destined to expand, unless brutally checked by their own limits. In their view humans have limited capacity to control the expansion of the systems that they create. Industrial societies will change by collapse and adaptation. Work-hour reductions, new institutions of deliberative democracy, regulatory limitations, shifts in investments, voluntary cuts in consumption, etc, all these are vain actions in S&G's view. The system has an inexorable internal drive for expansion and will only be stopped by collapse, after which adaptation will ensue.

In this essay I have argued, that while S&G's metabolic toolkit is great for evaluating alternative pathways and interventions, it doesn't support their deterministic and *a priori* pessimistic outlook. Starting from a more optimistic premise about the capacity of humankind to deliberately transform its modes of organization, production and consumption, I have proposed a different perspective. Ecological limitations are inevitable, but societies have still a free choice of how they will adapt to them. The choice becomes easier if a simpler mode of living is socio-politically constructed as a positive outcome, and the conditions to make it happen are institutionally realised. Such a construction starts from the proposition that degrowth is not only necessary because we are running out of petrol and atmosphere, but because a downscaled world can be, under certain conditions, also more equitable, democratic and livable. The science for supporting this optimistic proposition is still underdeveloped. But let's not rush to reject it in advance.

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