

Investigating Pathways To Post-growth Economies Through Prospective Macroeconomic Modeling: Visions and Scenarios for France

Theme: 1. Post-growth economics

Sub-theme: 1.1. Degrowth and steady-state economics

(Nota: could also match 1.2. Green economy and ecological macroeconomics)

Short abstract (<150words)

Keywords: Macroeconomic modeling – Prospective – Sustainable visions- Post-growth/Degrowth – Survey based Scenarios

An important theorization effort has been made in recent years in the field of degrowth and post-growth economics. Yet current literature still falls a bit short of providing detailed investigations of possible macro-socioeconomic and biophysical outcomes that may result from taking in such paths. Using a dynamic input-output simulation model of the French monetary economy, we explore different scenarios of transition towards post-growth societies. These scenarios seek to reflect contrasted “visions of sustainable societies and lifestyles”, inferred from a survey conducted amongst different social groups - including in particular actors within the Degrowth movement. They involve structural and behavioral changes in consumption patterns, and integrate proposals and strategies issued from the Degrowth movement. We investigate the possible outcomes of these scenarios in terms of employment, poverty, public debt, energy consumption, waste and GHG emissions and discuss the potential strengths and weaknesses of the different visions they reflect.

Long abstract (600-1200 words)

- **Motivations:**

Throughout the last decade, significant theoretical work – especially in the field of social ecological economics - has been dedicated to stressing the importance of a transition towards sustainable “post-growth societies”, and to discussing its possible conditions and key features. With the Degrowth movement, the call for such a transition is consolidating into a *complex and multifaceted political project*. For the “wealthiest” countries, where the ecological footprint per capita is greater than the global sustainable level, this project may be envisioned as a voluntary, socially sustainable, equitable, smooth **downscaling of production and consumption, and thus throughput**, to an environmentally sustainable level, “that increases human well-being and enhances ecological conditions at the local and global level, in the short and long-term”[Kallis and Schneider, 2008].

Yet, the possible socioeconomic outcomes of such a project still remain uncertain. For instance, while GDP degrowth is *not per se* an objective of Degrowth, as one can reasonably presume, a project of Degrowth is very likely to entail a decrease in GDP as a *consequence* of the downscaling of production and consumption [Kallis, 2011, Martinez-Alier et al., 2010, Schneider et al., 2010]. However, in the current capitalist system, economic growth may not be an option, but rather a

structural imperative stemming from fundamental institutions such as “the use of private property as a collateral [van Griethuysen, 2010], debt, interest rate and credit [Löhr, 2010, Douthwaite, 2010], and the grow-or-die competition of private enterprises for profit and market share” [Douthwaite, 2012, Farley et al., 2013, van Griethuysen, 2012, Kallis, 2011] . In this context, an inversion or a slight slowdown in economic growth quickly translates into dramatic social tensions, rising unemployment rates, poverty, and increasing government debt in the short term, as well as potential environmental harm in the medium or long term due to lower investments in environmental protection or industrial maintenance [Bayon et al., 2010].

Therefore, several questions remain unanswered. In particular, we would like to focus here on the following issues: what concrete proposals could initiate such a transition? What could such paths induce in terms of employment, public debt, energy consumption, waste and GHG emission mitigation? What structural or institutional obstacles must be overcome and how? Etc.

- **Modeling approach**

Applied macro-models are useful tools to investigate such complex questions ([BarcelonaWG, 2010], [Victor and Rosenbluth, 2007], [Victor, 2008]). In this perspective, we have developed a dynamic input-output simulation model of the French (monetary) economy to explore different scenarios of transition towards post-growth societies.

Our model features a sectorial disaggregation of the French economy into 37 branches, and – among other things - an age-cohort model of the population, and a detailed representation of the French fiscal apparatus and public administration budget. It has been built using data from Eurostat, from the French national accounts, and from INSEE, mainly for the period 1978-2012. The model allows us to run medium to long term simulations (starting in 2010 and up to 2050 or after).

Figure 1 shows the simplified structure of our approach.

In a nutshell, for the elaboration of different scenarios, hypotheses relative to the evolution of the final demand for each branch of the economy are derived from a survey conducted amongst different social groups, including in particular actors within the Degrowth movement. Drawing up on a detailed nomenclature of ordinary consumption goods and services (*COICOP, Classification of Individual Consumption According to Purpose*) and on different proposals issued from the degrowth movement, this survey aims to explore, in particular, these fundamental economic questions: “*what do we want to produce and consume? How much? And how?*” The survey results allow us to elicit different visions of “post-growth economies” in terms of individual and collective consumption patterns, and to draw contrasted scenarios of sectorial demand.

In our model, the final demand then drives the production via an input-output analysis, and for each branch, the production level determines the amount of labor required. The socio-economic impact of our scenarios depends on policies (these can include distributional or working time policies). Energy consumption, waste and GHG emissions are derived from consumption patterns, and from the production level and structure via hypotheses on intensity coefficients. For the sake of simplicity, there is no explicit monetary sector in our model¹. Given the complexity of the system considered and the uncertainty surrounding hypotheses, our development is made according to priority on

¹ This does not allow for exploring in detail alternative monetary creation and financial systems, although these are generally expected to play a critical role in a Degrowth transition.

results *intelligibility* and model *transparency*. In this perspective, various uncertain parameters and relationships related to highly complex or poorly understood mechanisms, or deriving from agents behaviors or political choices, are kept exogenous and are subject to sensitivity analyses.

In an additional part, we implement our simulation results in terms of energy demand within a bottom-up, technology detailed, optimization model of the energy sector (of the MarkAI-TIMES family), and explore how different paradigms (e.g.: “economic rationale” vs. “ecological rationale”) can impact the choice of energy mix and the climate balance.

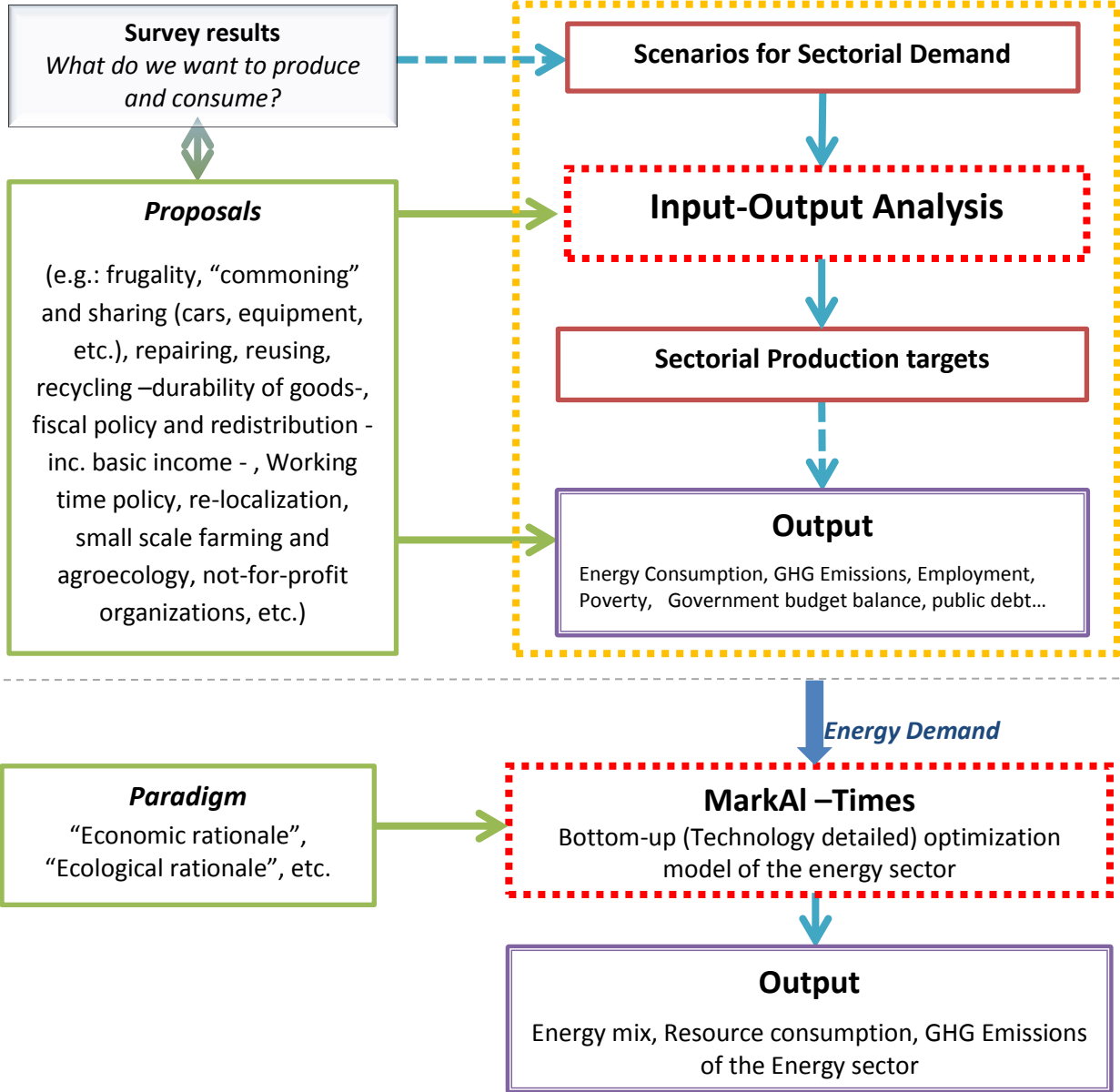


Figure 1: simplified structure of our modeling approach

• Results

By investigating various scenarios built upon our survey results, we demonstrate how different visions of post-growth economies and different paradigms of rationality may entail distinct macro-socioeconomic (poverty, inequalities, unemployment, public budget and public debt) and environmental (energy consumption, energy mix, waste and GHG emissions) futures. In particular, we examine the possible impact of evolutions towards more frugal, “downscaled” lifestyles (reduction in consumption, repairing, recycling) and social practices (“commoning”, sharing), leading to quantitative and structural changes in the final demand. Our results highlight the importance of cultural, social, behavioral and “non-technical” factors, and recall the critical need for the collective elaboration of a societal project. In this perspective, our modeling approach provides a simple, yet powerful tool for common understanding and collective debate. This paper brings valuable preliminary elements to discuss and question the coherence and relevance of different prospective visions of post-growth societies, and calls for further (strong) interdisciplinary research in this area.

References

[BarcelonaWG, 2010] BarcelonaWorkingGroups(2010). "degrowth bullet points" - Working groups results 2nd conference on economic degrowth for ecological sustainability and social equity. URL: <http://www.barcelona.degrowth.org/Results.125.0.html> , http://montreal.degrowth.org/downloads/degrowth_barcelonabulletpoints.pdf.

[Bayon et al., 2010] Bayon, D., Flipo, F., and Schneider, F. (2010). *La décroissance- Dix questions pour comprendre et débattre*. Number 362 in cahiers libres. La Découverte.

[Douthwaite, 2010] Douthwaite, R. (2010). Why the global debt burden means there will be no recovery. Proceedings of the 2nd international conference on economic degrowth for ecological sustainability and social equity.

[Douthwaite, 2012] Douthwaite, R. (2012). Degrowth and the supply of money in an energy-scarce world. *Ecological Economics*, 84(0):187 – 193.

[Farley et al., 2013] Farley, J., Burke, M., Flomenhoft, G., Kelly, B., Murray, D. F., Posner, S., Putnam, M., Scanlan, A., and Witham, A. (2013). Monetary and fiscal policies for a finite planet. *Sustainability*, 5(6):2802–2826.

[Kallis, 2011] Kallis, G. (2011). In defence of degrowth. *Ecological Economics*, 70(5):873 – 880.

[Kallis and Schneider, 2008] Kallis, G. and Schneider, F. (2008). Well-being and ecological sustainability beyond growth d-growth; collaborative project (p.3) (cited in kerschner 2010). Technical report, ICTA, Autonomous University of Barcelona.

[Löhr, 2010] Löhr, D. (2010). Zero growth and zero interest rate: The revival of an old idea. Proceedings of the 2nd international conference on economic degrowth for ecological sustainability and social equity.

[Martinez-Alier et al., 2010] Martinez-Alier, J., Pascual, U., Vivien, F.-D., and Zaccai, E. (2010). Sustainable de-growth: Mapping the context, criticisms and future prospects of an emergent paradigm. *Ecological Economics*, 69(9):1741 – 1747.

[Norgard, 2013] Norgard, J. S. (2013). Happy degrowth through more amateur economy. *Journal of Cleaner Production*, 38(0):61 – 70.

[Schneider et al., 2010] Schneider, F., Kallis, G., and Martinez-Alier, J. (2010). Crisis or opportunity? Economic degrowth for social equity and ecological sustainability. Introduction to this special issue. *Journal of Cleaner Production*, 18(6):511 – 518.

[van Griethuysen, 2010] van Griethuysen, P. (2010). Why are we growth-addicted? The hard way towards degrowth in the involutory western development path. *Journal of Cleaner Production*, 18(6):590 – 595.

[van Griethuysen, 2012] van Griethuysen, P. (2012). Bona diagnosis, bona curatio: How property economics clarifies the degrowth debate. *Ecological Economics*, 84(0):262 – 269.

[Victor and Rosenbluth, 2007] Victor, P. and Rosenbluth, G. (2007). Managing without growth. *Ecological Economics*, 61(2-3):492–504.

[Victor, 2008] Victor, P. A. (2008). *Managing Without Growth. Slower by Design, not Disaster*. Edward Elgar Publishing.