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Tackling the dual challenge of sustainable consumption and economic growth

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contradictions of sustainable consumption and economic growth”

Tackling the dual challenge of sustainable consumption and economic growth: a research agenda

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RESPONDER

Linking SCP and Growth Debates

Abstract

There is overwhelming evidence that one of the most important challenges facing society today is the growing scale and unequal distribution of consumption of natural resources. Both the socio-economic implications of resource scarcities and the documented decline in provision of and rising threats to ecosystem services have spurred parts of the academic and policy communities into identification of problems and solutions. Some of the most fundamental debates, led by researchers from various disciplines, centre around economic growth and sustainable consumption. However, there is often a lack of knowledge exchange between these researchers as well as between researchers and policy makers. Together with other factors this results in slow policy progress. In this paper, we seek to contribute to the dialogue and understanding between sustainability science and policy by identifying a set of important research questions that link the challenges of sustainable consumption with economic growth debates and critiques. The research questions have been identified through an extensive participatory process involving leading researchers and policy makers responsible for sustainability policies throughout the whole EU and cover five areas (food, housing, mobility, information and communication technology, finance). The aim of the research questions is to orient researchers towards important research priorities as well as guide policy makers and public authorities in funding of research and use of sound scientific evidence and policy advice to inform decision making. We anticipate that addressing these questions will contribute to rethinking of societal institutions and forms of consumption in order to transition towards sustainability, while improving the synergy between policy and sustainability science. This paper presents some results of the RESPONDER project, *Linking Research and Policy Making for Managing the Contradictions of Sustainable Consumption and Economic Growth*, funded by the European Commission's 7th Framework Programme, 2011–2014.

Keywords

sustainable consumption, economic growth, research agenda, systemic approaches, policy-usable knowledge

1. Introduction

There is overwhelming evidence that one of the most important challenges facing society today is the growing scale and unequal distribution of consumption of natural resources (Rockström et al. 2009, UNEP 2012). Both the socio-economic implications of resource scarcities and the documented decline in provision of and rising threats to ecosystem services have spurred significant numbers of the academic and policy communities into identification of problems and solutions. Some of the most fundamental debates centre around economic growth (discussing topics such as the possibility of absolute decoupling of economic growth from resource consumption, social institutions underlying economic growth, or the possibilities of zero-growth, steady-state economy or ‘degrowth’, e.g. Victor 2008, Jackson 2009, Dietz and O’Neill 2013, Sorman and Giampietro 2013) and sustainable consumption (e.g. the roles of social, cultural and economic drivers of consumption, limits to change on the level of individual behaviour, strong vs. weak sustainable consumption, e.g. Princen et al. 2002, Reisch and Røpke 2004, Jackson 2006, Seyfang 2009, Fuchs and Lorek 2013), conducted by researchers from various disciplines. However, there is often a lack of knowledge exchange between these various researchers as well as between researchers and policy makers (shortcomings in use of available evidence and scientific expertise in sustainability and environmental policy making have been documented in, e.g., Pouyat, 1999; EC, 2008; Holmes & Clark, 2008; Likens, 2010; cf. EC, 2001: 19). We would not go as far as to suggest that lack of knowledge, or its exchange, is the only reason for slow policy progress. Other factors would include, e.g., entrenched economic interests, infrastructural lock-ins and deep-seated hegemonic discursive and institutional structures and strategic selectivities of policy making. Nevertheless, there are successful cases of environmental policy change achieved through interaction among researchers and policy makers that resulted in the formation of international ‘epistemic communities’ around shared knowledge and values that (sometimes successfully) compete for access to central national-level decision making and thus to framing of problems and definition of solutions (e.g. marine pollution in Haas, 1989; cf. ‘puzzling’ and ‘powering’ in Hecló, 1974; Weiss, 1979). Knowledge is inextricably linked to power, and while the processes and outcomes that we describe in this paper focus on knowledge, we do not pretend that the world of policy is a transparent arena of deliberation driven by principles of scientific objectivity and teleological compromise around the common good.

Nevertheless, this modernist representation of knowledge in policy was symbolically and structurally inscribed in the calls for and funding of a series of knowledge brokerage (KB) projects by the European Commission. The projects were funded through the *Seventh Framework Program for Research and Technological Development* (FP7) with the explicit aim to address the lack of knowledge exchange between researchers and policy makers in a number of areas of sustainable development and environmental governance. During the implementation of several of these projects the modernist assumptions behind knowledge exchange and policy change were questioned (Martinuzzi and Sedlacko, forthcoming).

The research agenda presented in this paper was developed in the project *Linking Research and Policy Making for Managing the Contradictions of Sustainable Consumption and Economic Growth* (RESPONDER)¹. This was one of the funded projects, attempting to bring together researchers from various communities and representing various paradigms as well as policy makers representing various sectors. Research on sustainable consumption and economic growth is carried out in a range of (sometimes competing) communities that have their own paradigms, implicit assumptions and problem understandings, with sometimes very limited knowledge exchange between

¹ For more details see www.scp-responder.eu.

the communities.² The research agenda was developed to contribute to dialogue and understanding between these diverse scientific communities as well as between sustainability science and policy. It identifies a set of important research questions that attempt to link the challenges of sustainable consumption with economic growth debates and critiques. The questions have been identified with the help of an extensive participatory process involving leading researchers and policy makers responsible for sustainability policies throughout the whole EU – i.e. not only is the research agenda intended *for* contributing to knowledge exchange, it is also an *outcome of* a structured process of knowledge exchange. The aim of the research questions is to orient researchers towards important research priorities as well as guide policy makers and public authorities (e.g. research agencies, research ministries) in funding of research and use of sound scientific evidence and policy advice to inform decision making in five areas (sustainable food, sustainable housing, sustainable mobility, sustainable information and communication technology (ICT), sustainable household saving). We anticipate that addressing these questions will contribute to rethinking of societal institutions and forms of consumption to enable transitions towards sustainability, strengthening epistemic communities around these questions, and improving the synergy between policy and sustainability science.

In Section 2 of the paper we describe the aims of the research agenda as well as the principles we followed when developing it. Section 3 presents the research agenda itself, structured into areas listed above. Section 4 provides reflections of the authors on the research agenda's process as well as their commentaries on the implications of the challenges of sustainable consumption and economic growth for policy. The concluding section also tries to reflect on the challenges of knowledge exchange on the basis of the experience the authors acquired throughout the project.

2. The purpose and principles of the development of the RESPONDER research agenda

We started out with a conceptual frame of the need of 'aligning' research priorities between the needs and interests of multiple stakeholders (researchers and policy makers primarily) so that research funded and produced on the basis of these priorities would produce policy-usable (salient, robust, integrable) knowledge. Alignment of research priorities between science and policy may take various forms such as high-level scientific committees involving policy makers, purpose-bound budgets for state research agencies, high-level scientific reports, dedicated research programmes that 'attempt both to focus on short-term political agendas and develop long-term research capacities' (Nowotny et al., 2003: 181) or collaborative research agendas. A collaborative research agenda typically identifies priority areas, specific topic and goals of research, methods and/or expected results, and its development involves other actors beside scientists: primarily policy makers, but also industry representatives, civil society organisations and other actors. Such research agendas are becoming more widely used in various areas; recent relevant examples include ETP/CIAA (2007), Niggli et al. (2008), and Sedlacko et al. 2013.

We developed a research agenda to address knowledge gaps regarding a range of topics within the areas of sustainable consumption and economic growth and to support a continued dialogue between the science and policy communities. Our specific goals were: (1) to inform researchers (which is the primarily intended audience) on potentially insightful research questions on sustainable consumption, in particular as linked to the issues currently discussed in the growth debates; (2) to provide policy makers and other actors (e.g. persons in charge of research programs) with a set of

² Describing the theoretical assumptions, ideological positions or problem framings in the discourses of individual communities or otherwise mapping them would exceed the space and ambitions of this paper.

fundable research questions that are challenging current policy practice and its underlying worldviews; (3) to coordinate with other projects and actors for joint future action.

2.1 Principles of research agenda's development

Development of a collaborative research agenda can become a complex process. Our work spans the time between October 2011 and August 2014, in which 14 events (workshops and conferences) on the topics of sustainable consumption and economic growth have taken place in the frame of the RESPONDER project. We have collected and processed input from participants of these events through various means (for a more detailed description of the process see below), and as a guidance we used the following principles:

- (A) *Giving voice to and protecting the interests of the participants:* Even though this paper is written by members of the project consortium, the key principle when (re-)formulating a research question was protecting the interests of the event participants – that meant to ask ‘what did the participant try to achieve with this point?’ and ‘what was he/she concerned about?’
- (B) *Protecting the plurality of perspectives:* We have made an effort to ensure participation of representatives from various communities. The research agenda also tries to abstain from an explicit identification with a particular paradigmatic position, with the intended effect that no matter in which paradigmatic environment it will be read, it will have a balancing effect in the sense that it provides an equalising representation of various worldviews.
- (C) *Majority principle:* The voting on the knowledge gaps conducted in five of the events (the first round of ‘multinational knowledge brokerage events’, MKBEs) as well as the frequency of reoccurrence of questions throughout discussions and group work during all of the events influenced what we considered to be a direction for a research question (or its priority).
- (D) *Useful level of abstraction:* Throughout the work on the research agenda we have developed a shared (and to some extent tacit) understanding on what would be a too detailed, or in contrast a too general, research question. We also strove for a compromise between a detailed focus (more useful for a researcher) and capturing more general issues (useful for a policy maker).
- (E) *Issues relevant at the EU scale in particular:* RESPONDER was an EU-funded project and the events were also framed in terms of European challenges. Nevertheless the policy implications of our research agenda can be relevant for all political-administrative levels.
- (F) *Diversity of themes:* We strove to cover a diverse set of topics – which is manifested not only in the five consumption areas (food, housing, mobility, ICT, finance), but also in the choice of frames for the events and the issues covered in them. (The thematic directions were to a large extent developed with the involvement of participants and external persons which we involved on the basis of their deep knowledge of a given field.)
- (G) *Controversy around issues:* We were inclined to consider issues that are finding resonance in current public and political discourse and that challenge accepted interpretations in science.
- (H) *Manageable length:* We were aiming for about 8 to 15 questions per area. That also implied that we had to prioritise the questions, which increased the intensity of our deliberation on the research questions.
- (I) *Research question format that also introduces the problem or background:* We decided for a specific format of a research question to make the intention behind the question and its context more clear, and make the question more operationalisable.

2.2 The process of development of the research agenda

At the onset of the RESPONDER project we (i.e. the members of the project consortium) started conceptualising the topics for the upcoming events. These considerations can already be thought of as

the first phase in the research agenda development: our ‘expert’³ input consisted explicitly of the identification of the framing issues for the events and a pre-event summarisation of the state of the field (both in terms of research and policy), and more indirectly by setting the agenda and selecting the speakers. Especially in the later stages of the project we involved also participants and other external persons with deep knowledge of a given field in the event framing. We tried to document the content considerations in the pre-event background papers and ‘knowledge units’ developed throughout the project, and these then served, together with our interpretation of policy documents, research project reports and academic literatures, as the background sources for the research agenda.

The second phase of the research agenda development consisted of the input by the event participants. On the one hand, this input has been voiced by participants through (i) voting on ‘knowledge gaps’ (mostly first round of MKBEs), (ii) voicing controversies and open questions during participatory systems mapping activities (as the main deliberative method used in RESPONDER, see Sedlacko et al. 2014), and (iii) identifying explicit research questions (second round of MKBEs). On the other hand, a less systematic source was the set of open questions identified by invited keynote speakers. All of these inputs have been captured in the documentation of the 14 events in the form of poster-format system maps (with voting on knowledge gaps and post-it notes with concerns voiced by the participants), notes recorded in relation to the ‘knowledge unit’ posters, flipchart transcripts (giving attention in particular to the research questions identified by the participants in a facilitated format), event minutes and keynote presentations.

The third phase of the research agenda development consisted of us collecting and collating all the mentioned input into the first draft of the research agenda (August–September 2013). It was necessary to reformulate and prioritise the individual concerns and questions so the principles above were developed as a guidance to cope with the complexity of the process.

The fourth phase consisted of a validation of the research questions captured in the first draft through event participants of one of the last RESPONDER events (October 2013). The validation took place in the format of a poster session – however, because of the large amount of text and the attention required this format of validation was not ideal. This to some extent of course questions the robustness of the validation stage.

The fifth phase consisted of us processing the input and developing the second draft (February–March 2014 around the time of the final project conference, and July–August 2014 immediately after project ending). In this phase we also developed the commentaries to the research agenda and reflected on the knowledge brokerage processes over the course of the project. This phase also led to the writing of this paper.

A planned sixth phase is supposed to take place in the frame of the ISEE 2014 conference through validation by participants and the project’s advisory board.⁴

³ We try to use the term ‘expert’ with care as there are several problems with it. The term introduces a hierarchy, which has a range of implications in terms of the ownership of the process and results, among others. The use of the term can also serve as a discursive move for signalling that those who emerge out of the (politicised) processes of construction and acknowledgement of expert status can speak with higher legitimacy. For example, the consortium members might be implicitly framed as experts possessing valuable knowledge and the people coming to the events as ‘just’ participants. We are also trying to avoid implying that the only valid expertise is scientific expertise; we should not discount the participants’ long-term experience in the field or everyday practical exposure to the problem as well as their possibilities for action. It was suggested during the peer review to use the term ‘knowledge holders’, as different actors possessing different forms of knowledge come together in the process. The consortium members and authors of this paper are of course knowledge holders too, and it wouldn’t be entirely right to depict them as neutral translators or facilitators that are ‘above’ the process. Avoiding the term ‘expert’ also means to use descriptions that correspond to the complexity of the relationships between the ‘communities’ (civil servants, researchers, ‘pro-growth’, ‘beyond-growth’, and the consortium primarily consisting of ‘beyond-growth’ researchers) as well as the boundary work involved.

⁴ Please do get in touch with us if you can comment on the research questions, share your experience with developing a collaborative research agenda, or provide other feedback.

3. The RESPONDER research agenda on sustainable consumption and economic growth

We structured the research agenda into sections according to the five sustainable consumption areas addressed by the RESPONDER project (also as devoted events): food, ICT, housing, finance, and mobility.⁵ Some of the research questions obviously overlap across several sustainable consumption areas; those research questions we left affiliated to the consumption areas that formed the context for their articulation. Also note that not all of the questions provide a well formulated link to economic growth debates (some of these aspects are picked up later in Section 4).

Each of the sections is structured into the categories of *general questions*, *present trends* and *perspectives*. The classification of individual research questions into these categories is not unambiguous. These are not supposed to be exclusive categories, but rather a guidance for reading.

3.1 Sustainable food

General questions

1. Environmental, economic, nutritional, health and cultural concerns have often been weakly linked in food policy. “Sustainable diets” are emerging as an overarching concept for food policy integration. How can this concept be mainstreamed and operationalized? Which indicators should be used to measure progress towards sustainable food systems?
2. Long-term food security depends upon boosting resource efficiency of food systems. How can resource efficiency at the farm, landscape, food chain and diet levels be improved? Is resource efficiency at odds with the promotion of local or organic food? Which governance structures and steering mechanisms (e.g. prices, technology) are needed to enable such system-wide changes?

Present trends

3. Europeans consume more protein, saturated fat, salt and sugar than recommended, with resulting risks to individual health, social systems and environmental life-support systems. How can consumer awareness be promoted to decrease consumption of meat and dairy? What is the effect of cultural and traditional practices on meat consumption patterns?
4. Over the past 20 years dramatic increases in quantities of imported food are reported in Europe. How do trade rules, market conditions (e.g. resource prices and availability) and policies (e.g. subsidies) influence this trend? What are the effects of these factors on the possibilities of a shift towards regional, seasonal or organic agriculture?
5. It has been suggested that low resource prices are among the reasons for high environmental impacts caused by the food system. How do trade rules and measures aiming to internalise environmental externalities interact? Who are the winners and losers of changes in resource prices?
6. The agro-economic model is now more focused on providing food at the lowest possible prices. What are the consequences of a shift towards a demand-driven food system? Do health and environmental-oriented choices bring competitive advantage?
7. With bargaining power now more concentrated in the retail sector, large companies are increasingly practicing ‘choice editing’. What is the evidence of these practices on influencing food choices?

Perspectives

8. Safe, local and sustainable food implies a decentralisation of food production and distribution. Under which market conditions and policies does the availability of regional and seasonal food create demand for regional products?
9. How does a preference for local or regional food influence consumers’ well being? What environmental impacts and employment effects would such a shift bring?
10. Many reasons are known to influence household food waste, from planning and buying habits to food storage, preparation and use practices. Still, some determinants of food waste have been less studied:

⁵ For more details see also <http://www.scp-responder.eu/events>.

- How do location, size and number of available retailers affect household food waste?
- What is the effect of household composition and cultural norms (e.g. number and age of people, pet ownership, presence of guests) on food waste?
- How are income levels related with food waste practices?
- Do sustainable diets affect the amount of packaging waste and shopping times?
- Has the financial crisis influenced eating habits and food waste?

3.2 Sustainable ICT

General questions

1. Rebound effects are a particularly important issue for generic technologies like ICT. The application of ICT can increase efficiency in many fields and thus encourage increased consumption that might counterbalance the efficiency improvements. Which policies could be applied to reduce rebound effects?
2. ICT is applied for green services that encourage consumers to consume in more sustainable ways, but ICT is also enabling consumption in various ways that increase resource use. Is it possible to assess which trend is the most important? Which conditions are decisive for the relative strength of the trends?
3. The renewal rate for most ICT devices is high. How can it be reduced? Some devices, like e.g. gaming consoles, seem to have relatively longer lives. How can that be explained? Can something be learned for other devices?

Present trends

4. In some cases ICT devices are multi-purpose: they include several functions and can replace several other devices. Simultaneously, ICT devices undergo a process of diversification with development of special-purpose products. Which trend is dominant, replacement or diversification? Can this trend be influenced?
5. The increasing amounts of electronics increases the problem of waste handling and recycling. The problem is further aggravated by the inclusion of electronics as a minor part of many other kinds of products such as textiles. How could deposit regimes be organised to reduce the problems with electronic waste? How can products that only include electronics as a minor part be recycled in a sustainable way?
6. The concept of “Internet of Things” implies that many household devices get networked and thus due to standby regimes consume energy. What does network connectivity imply for energy and resource consumption? How can network standby be regulated?
7. Cloud computing has been considered to have a potential for saving energy and resources. What are the potential gains of each of the efficiencies in cloud computing (i.e. user device efficiency, device production energy efficiency, data centre efficiency, network efficiency, in-house server efficiency)? What is the relative importance of these efficiencies? What is the dynamics (factors of influence) behind these efficiencies? Will cloud computing be overtaken by the development of cheaper storage?
8. Whether the demand for cloud services continues to grow also depends on the trust that users have in service reliability as well as of data privacy and security. To what extent will problems of security impede the use of cloud computing?

Perspectives

9. Home automation may imply both energy-saving and energy-using services. Which trends are dominant? Can the development be influenced?
10. Robotics in the home seems to be a trend that will be strengthened in the coming years. What environmental implications could be expected?
11. What is the potential for environmental improvements through ICT-supported sharing services? Can these services have rebound effects, and then, how could they be counteracted?
12. In what ways could ICT support sustainability in local communities?
13. ICT could be applied for carbon accounting systems. How could such systems be designed?

3.3 Sustainable housing

General questions

1. In many European countries there is a mismatch between demand for and supply of housing: a substantial share of housing is not used,⁶ while, at the same time, the right to housing is left unaddressed for a portion of the population. How could changes in laws regarding ownership of property contribute to addressing this challenge?
2. Since the late 1990s a number of EU member states has implemented financial liberalisation reforms in housing. How are these policies linked to commodification of housing and to the rise of housing prices experienced in the 2000s?

Present trends

3. Energy efficiency refurbishment has not only long-term environmental benefits, but can also be conceived as a source of employment while not aiming at the increase of existing housing stock. In this sense, it would be interesting to analyse the relationship between job creation and the type of refurbishment. What are the relationships between material intensity and labour intensity in refurbishment? What is the quality of refurbishment jobs (salaries, gender, conditions, location...)? What are the training needs in relation to refurbishment? What case studies on employment potential of refurbishment are there (Portugal, Hungary...)?
4. House sharing leads to a higher utilisation of existing stock of housing. What are the existing and potential environmental effects of house sharing and collective spaces? What are the effects of house sharing on redistribution of care work and employment?
5. Social rent is a rent in which the tenant does not pay more than 30% of her/his income, while the housing enables a dignified quality of residential life, irrespective of whether the housing is public, cooperative or private. Do public interventions in the form of social rent increase demand for housing? Is there a trade-off between sustainability and affordability?

Perspectives

6. One negative side effect of energy efficiency refurbishment is forced eviction and gentrification (called “renoviction” by some experts). How should refurbishment policies be designed to avoid the effects of “renoviction”?
7. Cohousing is housing in which the tenants share some collective spaces and facilities. One of the main obstacles for implementation of cohousing is the inherent conservatism of the construction sector. How could participatory urban planning foster cohousing projects?

3.4 Sustainable finance

General questions

1. Much of the investment requirements for a transition to a sustainable economy, whilst making a real return, needs to be long term, focused on the real economy and take into account the future value of environmental and social benefits. The existing financial system, however, rewards short-term profits, encourages speculation over investment, and largely ignores environmental or social risks. How can governments and financial regulators intervene at a systemic level to ensure that conditions for sustainable investment are created?
2. Are the current financial regulation debates in Europe on structural bank reform, long term finance and regulation of new financial products integrating sustainability and the needs of a low carbon, resource-efficient economy?

Present trends

3. When looking at the European banking sector, the business models most compatible with a sustainable economy are smaller in scale, sometimes locally based, and with explicit sustainability values written into their constitutions (such as the members of the Global Alliance of Banks with Values). How can the new banking regulations at the EU and international levels be designed to facilitate the growth of these business models, rather than creating barriers?

⁶ Reaching more than 20% of existing stock in countries such as Spain and Italy, and altogether more than 11 million homes across Europe (the latter estimated by *The Guardian*, see <http://www.theguardian.com/society/2014/feb/23/europe-11m-empty-properties-enough-house-homeless-continent-twice>).

4. In contradiction to government policies on cutting carbon emissions state financial institutions are still lending to fossil fuel projects. What changes to lending guidelines need to be made in public development banks, such as European Investment Bank (EIB), European Bank of Reconstruction and Development (EBRD) and their national equivalents, in order to make their portfolios compatible with the low-carbon transition?
5. The European Commission has recently published a paper on encouraging more long-term finance across the EU. How could requirements to integrate sustainability, and, in particular, better methodologies for assessing environmental and social risks of investments, be introduced through EU policy intervention?
6. Can European financial institutions create viable products (such as climate bonds) which can aggregate many small sustainable investments in large portfolios suitable for private institutional investment such as pension funds?

Future issues

7. A large proportion of bank lending goes to the property market in the form of personal mortgages and commercial property development. How could the financial benefits of investment in the energy efficiency of buildings be integrated into the property lending market, either through better information, regulatory requirements or fiscal incentives?
8. Credit rating agencies do not take a long-term view of the companies and investments they are rating; typically they assess prospects no more than a few years forward. How can the longer-term risks of stranded assets in unsustainable activities (such as fossil fuels) be properly integrated into the credit rating process?

3.5 Sustainable mobility

General questions

1. A number of factors influence daily mobility decisions of people (especially of commuters) – such as petrol prices, car efficiency standards, traffic volume (congestion) and car restrictions, and availability and quality of public transport, pedestrian areas and bike routes. How can regulatory, economic, voluntary and information approaches be balanced to influence modal split? How can these approaches be integrated into bundles of measures oriented towards specific target groups?
2. European settlements increasingly face congestion problems, while the public transport has been rapidly transformed (sometimes for better, sometimes for worse) and the settlements are changing in their social structure, distances and the space occupied. How does road construction influence mobility patterns? Does road re- or de-construction (for example, decreasing the number of lanes) offer new chances? How to deal with conflicting interests around road re- or de-construction?
3. Habits, prejudices, stigmatisation, or even simple lack of information can play decisive role in peoples' decisions about their transport modes. What are the available policy tools that stimulate long-term behavioural changes towards a more sustainable modal shift? How can existing windows of opportunity be mobilised for a change of mobility patterns?

Present trends

4. Some cities recently face, on the one hand, the process of gentrification, and, on the other hand, ongoing ghettoisation. What is the contribution of mobility (and public transport in particular) to these trends? How and which mobility measures can help reverse these trends?
5. Many cities experiment with car restrictions, decreasing road capacity and zoning. How do these restrictions impact economic development? What are their impacts on the switch to public transport, pollution, and traffic in general? What are the best restriction tools and their parameters in varying conditions?
6. An increasingly popular approach to restrict cars is the congestion charge (e.g. in Stockholm and London). What are the impacts of congestion charges on consumption patterns and modal shift, emissions and pollution, health, and social disparities?
7. One of the economic tools deployed to address crisis and its impact on car production and economy has been the car-scraping premium. What are the short and long-term benefits and shortcomings of this tool, in particular from the perspective of impacts on mobility and GHG emissions?

Perspectives

8. Cities are constantly changing and evolving. Suburbanisation patterns of urban development, changing social and demographic structures, cost of fuels and of alternative transport modes are all influencing public transport. How do the transport and land use models need to be changed to be used in different contexts? How can development of affordable and at the same time modern and well functioning public transport be supported? How can intermodality among different carriers be supported?
9. Biking is acquiring increasing popularity as a tool for daily commuting, and in some places it became a social norm. How was it elevated to such a status? What measures and tools support the spread of biking? How can this be replicated in other contexts? How could social networks be used?
10. Car sharing (and also bike sharing) are mobility alternatives to car ownership that are less environmentally harmful. What are the minimum preconditions (e.g. the necessary state of public transport) for introducing these sharing schemes and what factors are important for their public acceptance? What are the linkages with electrification of bikes (e-bikes, pedelecs)?
11. The concept of “e-mobility” receives increasing attention in some EU Member States, e.g., Germany. What are the overlaps with and linkages to the concept of sustainable mobility? How can e-mobility be evaluated with regard to GHG emissions, safety and health issues and (lack of) noise?

4. Tackling the dual challenge of sustainable consumption and economic growth: a commentary

In this section we provide a commentary on the (participatorily developed) research questions. Our reflection on the research questions picks out some specific and resonant challenges. We have singled out several issues relevant for trying to think the concerns of sustainable consumption and economic growth together: the economic crisis and the need for new conceptual frameworks, compatibility of sharing as a new form of consumption with mainstream macroeconomic approaches to economic growth, the role of policy tools that are in specific intersections of several consumption areas, and studying localisation across consumption areas. Perhaps not surprisingly, we can recommend systemic approaches to research and decision making as a means to tackle a number of aspects of these issues.

Over the last 6 years or so one dominant topic has been the economic crisis, and to some extent it is also a concern in the research agenda. One of the major uncertainties around the crisis is whether new and more sustainable consumption patterns emerge as a result of the economic crisis – as some limited evidence seems to suggest from countries such as Greece or Spain. Changes in consumption patterns may have occurred across several areas such as localisation, new institutions for ownership and management, and employment. For example, as a consequence of the financial and economic crisis self-help solutions by organized neighbourhood groups to manage abandoned urban lots have been pursued: from urban gardens to social and cultural centers, to cooperatives.⁷ In addition, the changes of consumption patterns towards sustainability have probably played out rather differently across different regions and countries in Europe (not forgetting about the geographical differences of the meaning of the concept of sustainable consumption) – as the impacts of the crisis, and the resulting tensions between the social and economic development, have been distributed unevenly. There are also issues of international political economy: perhaps there is a merit to framing the problem as some (Northern European) countries forcing other (Southern European) countries to

⁷ These experiments around new patterns of ownership and management (urban commons) can be seen as a counter-trend against long-term tendencies of privatising the provision in areas such as energy and water. Privatisation has been coupled with centralisation, and a potential alternative may be coupled with increased localisation. In the areas of urban commons this could be promoted through policies aimed at legitimising and fostering the social use and management of empty spaces by social movements groups (Asara, 2014).

adopt sustainability and radical social experiments in the face of poverty. Such questions could be raised over all of the thematic areas outlined in the research agenda.

Despite of the importance of economic crisis, research and theories on sustainable consumption have usually been formulated independently of business cycles. In particular, this goes for psychological and sociological theories related to the choice of green products. Whether people could afford to buy green products played a role: middle class people buy more green products than poor people. On the other hand, it has been demonstrated that people's environmental impacts increase with income, although not proportionately. But business cycles have not been figured in. Of course, during a downturn households might have less money to spend, but something more complex may happen to their patterns of life – but studying this may call for a different conceptual framework⁸ than usually applied in studies on sustainable consumption. Again, this different conceptual framework would affect how the questions raised in the research agenda are addressed.

Another interesting issue emerging from the research agenda concerns the role of sharing in policies targeting sustainable consumption and the compatibility of such problem framings with mainstream economic growth debates. That is the case with house sharing and car-sharing policies, which seem to provide a short-term answer to adapt to the financial crisis but are also advocated as sustainable models of consumption in post-growth social movements (cf. Bauwens et al., 2012; Hamari and Ukkonen, 2013; Leismann et al. 2013).

The third important issue to highlight is an intensive intersection of various consumption areas around some specific policy tools. One of such tools is urban planning, emphasising relationships between pattern of urbanisation, consumption areas of mobility, food and housing, economic growth and social segregation. To address these issues in a sustainable way 'multi-functional urban planning', which can be defined as the combination of different land use functions in the same area (Dieleman and Wegener, 2004), might be relevant. The concept is directly related to the themes of compact city, as urban sprawl stems from segregation of functions together with intense automobile use, which result in low-density, dispersed development. Multifunctional planning involves stimulating walking, biking and use of public transit, preserving and fostering open agricultural and environment space, affordable housing, and fostering proximity relationships through urban redesign-reorganization. Another such nexus emerges around financing housing. Policy interventions could lever more of the capital that goes into house price bubbles, and channel it into investment in the quality of the buildings in the form of their energy efficiency⁹, where there is a shortfall of investment with damaging social impacts of high energy costs for those in poorly insulated homes. Calls for strengthening policy integration, both in and across consumption areas, also arise as a common thread to several research questions (e.g. food consumption, finance, mobility). The need for policy integration seems to have emerged more sharply due to the systemic approach adopted during the knowledge-brokerage events conducted in RESPONDER. By expanding the boundaries of thinking and following causal paths of interventions, it was arguably more evident to participants that policy interventions need to propagate

⁸ The current conceptual apparatus for thinking about sustainable conception focusing on individual rationality in consumption decision making about single products can be questioned from other perspectives too. The individualistic approach does not grant us a view on the embeddedness of consumption in social contexts, the possibility for influencing social practices and their trajectories 'behind-the-backs' of the consumers through changes in meanings or material infrastructure (cf. Shove et al. 2012), the co-evolution of provision and consumption in sociotechnical systems, or sustainability at the system level. It seems that we need new conceptual frameworks for a more realistic and politically responsible understanding of various aspects of consumption and, as a result, for a more broad and flexible policy instrumentarium. (See, for example, Sedlacko et al., 2014; Brown, 2014.)

⁹ It needs to be added that energy efficiency, by itself, might not be enough to reduce total final energy consumption. Although average energy consumption per household might even be falling in some European countries (in particular in the new member states; Lapillone et al., 2011), at the same time efficiency improvements have, especially until 2007, not led to an absolute decrease in energy demand due to a growing number of dwellings, rising personal incomes and new forms of consumption (for example through rising demand for domestic appliances and consumer electronics and air conditioning and cooling technologies). (See also <http://www.eea.europa.eu/publications/consumption-and-the-environment-2012>).

coherently across different scales. This is valid for spatial dimensions (e.g. along large food production and consumption chains) and also time frames (e.g. a long-term perspective is claimed in several future research topics for the sustainable finance area). We suggest that such nexuses that have significant impacts and knock-on effects across various areas can most appropriately be identified and studied with systemic approaches.

Fourthly, localisation issues are increasingly discussed in relation to a number of consumption areas such as ICT, finance, food, or mobility. As suggested above, to some extent this trend is fueled by the economic crisis. It also seems recurrent that there are important knowledge gaps related with the interplay between localisation and resource efficiency (e.g. food and ICT) and whether local business models (e.g. such as in the banking sector) promote a shift towards more just, environmental friendly and prosperous consumption patterns. We suggest that it would be interesting to explore whether and how these ideas, visions and correspondences fit together. This poses a question of method. The research agenda makes clear that plural deliberative methods should be pursued to take these issues forward (e.g. scenario methods), and there also might be considerable potential in empirical studies of how different trends are combined in practice. Nevertheless, it seems clear to us now that systemic approach is crucial. During the project several systemic insights were highlighted that serve as a common denominator throughout the research agenda, such as rebound effect, scale interplay, long-term perspective, policy integration and coherence.

5. Conclusion

The research agenda presented in this paper has been developed in the EU-funded RESPONDER project that attempted to bring together researchers from various communities and representing various paradigms as well as policy makers representing various sectors. Understanding that research on sustainable consumption and economic growth is carried out in a range of (sometimes competing) communities and limited knowledge exchange, the research agenda was developed to contribute to dialogue and understanding between diverse scientific communities as well as between sustainability science and policy. It identifies a set of important research questions that attempt to link the challenges of sustainable consumption with economic growth debates and critiques. We anticipate that addressing these questions will contribute to rethinking of societal institutions and forms of consumption to enable transitions towards sustainability, strengthening epistemic communities around these questions, and improving the synergy between policy and sustainability science.

The agenda, structured into five consumption areas (sustainable food, sustainable housing, sustainable mobility, sustainable information and communication technology (ICT), sustainable household saving), was developed in a participatory process of knowledge exchange between researchers and a broad range of other stakeholders. The method of participatory systems mapping (Sedlacko et al. 2014) has proven to be a very useful entryway into the research agenda (other promising tools would include role playing, systemic constellations or scenario development). During the process of participatory system mapping, knowledge gaps were identified and discussed, serving as starting points for formulation of research questions while following a set of guiding principles. The experience from the participatory process also serves for the formulation of some of the parameters for the processes of dialogue accompanying future research on the research questions presented in the research agenda as well as subsequent decision making (see the following section).

Following the identification of research questions we also reflected on the content of the agenda. We identified several specific and resonant challenges for trying to think the concerns of sustainable consumption and economic growth together and came to several conclusions. Firstly, new conceptual frameworks for studying sustainable consumption that would take the role of business

cycles into account are sorely needed in order to more adequately and responsibly study the recent impacts of the economic crisis on changes in consumption patterns. Secondly, the recent proliferation of recommendations of new policy instruments and approaches (such as those regarding the sharing economy) bring up the issue of compatibility of such problem framings with mainstream economic growth debates. Where possibly in national environmental policy-making structures the epistemic community sharing causal understandings of sustainable consumption problems based on systemic, practice and transition-based approaches have acquired some foothold, political conflicts with EU-level and national actors representing pro-growth economic interests can be expected. Thirdly, systemic approaches are needed to identify policy instruments that lie in the nexuses of various consumption areas and thus offer promise of effective policy integration. Fourthly, systemic approaches might also be crucial for studying localisation issues that seem to have some similarities across several consumption areas as they help to provide a common conceptual apparatus enabling to study aspects such as rebound effect, scale interplay, long-term perspective, and policy integration and coherence.

5.1 The need for a broader dialogue on sustainable consumption and economic growth

The RESPONDER project – as well as other EU-funded knowledge brokerage projects – has shown that addressing the links and contradictions between sustainable consumption and economic growth requires an intense dialogue with the consumer-citizens. The promotion of more sustainable consumption patterns as part of a broader debate around alternative concepts of welfare and economic growth fundamentally questions current lifestyles and value orientations, and leaving some knowledge holders out of the process will reduce the complexity of the issue to such an extent that resulting solutions will only have partial, or even detrimental, effects. This has to be taken into account in the implementation of the research agenda. All knowledge-holders, including those from the worlds of policy, business, industry and civil society, must be integrated into the research and decision making processes.¹⁰

However, the idea that involving more knowledge types and knowledge holders in research, dialogue and policy making will unquestionably lead to better policy outcomes carries some problematic modernist notions. Besides instrumentalising knowledge a problem lies also in the possibility of the Habermasian compromise: it might empirically be proven that in many cases that are no win-win solutions, that various types of knowledge are incompatible and that different knowledge holders and their interests are in a deep and entrenched conflict. Bringing people together alone might not be enough, and there is an increasing recognition of the importance of process design for integrated and implementation-oriented research (Bammer, 2013), as well as dialogue and reaching decisions. In order to lead to legitimate and socially acceptable policies the process has to be organized in a way that makes synergies and trade-offs transparent and leads to experiments in dealing with the contradictions. The design of such open knowledge systems has been described, for example, by Cornell et al. (2013). Besides experimentation and evaluation another feature of good process design is explicit iteration that ensures that the process of narrowing down options and criteria is not irreversible (i.e. there are alternating phases of ‘narrowing down’ and ‘opening up’). Furthermore, experimentation should also lead to finding ways of acting as if several worlds were valid at the same

¹⁰ When speaking about knowledge exchange or knowledge brokerage it is often implied that interaction takes place between ‘knowledge producers’ (researchers) and ‘knowledge users’ (policy makers), but it is increasingly being shown that it is more desirable to speak of a triangle between policy, research and the public (cf. Martinuzzi and Sedlacko, forthcoming), and thus involve citizen-consumers (and other actors) in the dialogue as well. If we broaden our notions of knowledge and start thinking about ‘knowledge holders’ we realise that scientists are only one of the knowledge-holders in such a dialogue process. Nevertheless, a number of questions remain open, such as ensuring participation and legitimate representation of EU citizen-consumers. A particular challenge for those that design and implement research funding, is that the incentives for scientists to participate in such dialogue processes are rarely provided (Jäger et al. 2013).

time. Facilitated systemic tools for deliberating on issues and dynamics that intersect several consumption areas seem to work particularly well, and we would also recommend systems approaches as a basis for new conceptual frameworks.

References

- Asara, V. (2014) Prefigurative spaces: the creation of alternatives by the Indignados movement. Paper for the EUI seminar *Contentious Politics and Spaces: Constraints and Opportunities*, Florence, 30 May 2014.
- Bammer, G. (2013) *Disciplining Interdisciplinarity: Integration and Implementation Sciences for Researching Complex Real-World Problems*. Canberra: ANU E-Press.
- Bauwens, M., Iacomella, F., Mendoza, N., Burke, J., Pinchen, C., Léonard, A., and Mootoosamy, E. (2012) *Synthetic Overview of the Collaborative Economy*. P2P Foundation. <http://p2p.coop/files/reports/collaborative-economy-2012.pdf>.
- Brown H. (2014) The next generation of research on sustainable consumption. *Sustainability: Science, Practice, & Policy* 10(1): 1–3.
- Cornell, S., Berkhout, F., Tuinstra, W., Tàbara, J.D., Jäger, J., Chabay, I., de Wit, B., Langlais, R., Mills, D., Moll, P., Otto, I.M., Petersen, A., Pohl, C., and van Kerkhoff, L. (2013) Opening up knowledge systems for better responses to global environmental change. *Environmental Science and Policy* 28: 60–70.
- Dieleman, F., and Wegener, M. (2004) Compact city and urban sprawl. *Built Environment* 30(4): 308–323.
- Dietz, R., and O'Neill, D. (2013) *Enough is Enough: Building a Sustainable Economy in a World of Finite Resources*. Berrett-Koehler Publishers.
- European Commission (EC) (2001) *European Governance: A White Paper*. COM(2001) 428 final. http://eur-lex.europa.eu/LexUriServ/site/en/com/2001/com2001_0428en01.pdf.
- European Commission (EC) (2008) *Scientific Evidence for Policy-making*. EUR 22982 EN. Brussels: DG Research, Socio-Economic Sciences and Humanities. <ftp://ftp.cordis.europa.eu/pub/fp7/ssh/docs/20080619en.pdf>.
- European Technology Platform (ETP) on Food for Life and Confederation of the food and drink Industry of the EU (CIAA) (2007) *European Technology Platform on Food for Life: Strategic Research Agenda 2007-2020*. http://etp.ciaa.be/documents/CIAA-ETP%20broch_LR.pdf.
- Haas, P.M. (1989) Do regimes matter? Epistemic communities and Mediterranean pollution control. *International Organization* 43(3): 377–403.
- Hamari, J., and Ukkonen, A. (2013) *The Sharing Economy: Why People Participate in Collaborative Consumption*. Helsinki: HIIT.
- Hecló, H. (1974) *Modern Social policies in Britain and Sweden: From Relief to Income Maintenance*. New Haven: Yale University Press.
- Holmes, J., and Clark, R. (2008) Enhancing the use of science in environmental policy-making and regulation. *Environmental Science & Policy* 11:702–711.
- Jackson, T. (2006) *The Earthscan Reader on Sustainable Consumption*. London: Earthscan.
- Jackson, T. (2009) *Prosperity without Growth: Economics for a Finite Planet*. London: Earthscan/Routledge.
- Jäger, J., Holm, P., O'Brien, K., Pålsson, G., Pahl-Wostl, C., Chabay, I., and Reams, J. (2013) Responses to environmental and societal challenges for our unstable Earth. *Environmental Science and Policy* 28: 1–2.
- Lapillone, B., Sebi, C., and Pollier, L. (2011) Energy efficiency trends for household in the EU. URL: <http://pdfbooks2.org/e/energy-efficiency-trends-for-household-in-the-eu-w12352/>.
- Leismann, K., Schmitt, M., Rohn, H., and Baedeker, C. (2013) Collaborative consumption: towards a resource-saving consumption culture. *Resources* 2: 184–203.
- Likens, G.E. (2010) The role of science in decision making: does evidence-based science drive environmental policy? *Frontiers in Ecology and the Environment* 8(6):e1–e9.
- Lorek, S., and Fuchs, D. (2013) Strong sustainable consumption governance – precondition for a degrowth path? *Journal of Cleaner Production* 38: 36–43.
- Martinuzzi, A., and Sedlacko, M. (eds.) (forthcoming) *Knowledge Brokerage for a Sustainable Europe: Innovative Tools for Increasing the Impacts of Research and Promoting Evidence-Based Policy Making*. Sheffield: Greenleaf.
- Niggli, U., Slabe, A., Schmid, O., Halberg, N., and Schlüter, M. (2008) *Vision for an Organic Food and Farming Research Agenda to 2025: Organic Knowledge for the Future*. Bonn & Brussels: IFOAM EU Group & ISOFAR.
- Nowotny H., Scott, P., and Gibbons, M. (2003) Introduction: 'Mode 2' revisited: the new production of knowledge. *Minerva* 41:179–194.
- Pouyat, R.V. (1999) Science and environmental policy: making them compatible. *BioScience* 49(4):281–286.
- Princen, T., Maniates, M.F., and Conca, K. (2002) Confronting consumption. In: Princen, T., Maniates, M.F. and Conca, K. (eds.): *Confronting Consumption*. 1st ed. Cambridge, MA: The MIT Press, pp. 1–20.
- Reisch, L.A. and Röpke, I. (eds.) (2004) *The Ecological Economics of Consumption*. Cheltenham, UK: Edward Elgar.
- Rockström, J., W. Steffen, K. Noone, Å. Persson, F. S. Chapin, I., E. Lambin, T. M. Lenton, M. Scheffer, C. Folke, H. Schellnhuber, B. Nykvist, C. A. De Wit, T. Hughes, S. van der Leeuw, H. Rodhe, S. Sörlin, P.K. Snyder, R. Costanza, U. Svedin, M. Falkenmark, L. Karlberg, R. W. Corell, V. J. Fabry, J. Hansen, B. Walker, D. Liverman, K. Richardson, P. Crutzen, and Foley, J. (2009) Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society* 14(2), art. 32.
- Sedlacko, M., Pisano, U., Berger, G., and Lepuschitz, K. (2013) Bridging the science-policy gap: development and reception of the CORPUS Joint Research Agenda on Sustainable Food. *Sustainability: Science, Practice & Policy* 9(2): 105–123.

- Sedlacko, M., Martinuzzi, A., Röpke, I., Videira, N., and Antunes, P. (2014) Participatory systems mapping for sustainable consumption: Discussion of a method promoting systemic insights. *Ecological Economics* 106(Oct): 33–43.
- Seyfang, G. (2009), *The New Economics of Sustainable Consumption: Seeds of Change*, Palgrave Macmillan: Basingstoke and New York.
- Shove, E. Pantzar, M., and Watson, M (2012) *The Dynamics of Social Practice: Everyday Life and How It Changes*. Londong: SAGE.
- Sorman, A.H., and Giampietro, M. (2013) The energetic metabolism of societies and the degrowth paradigm: analyzing biophysical constraints and realities. *Journal of Cleaner Production* 38: 80–93.
- United Nations Environment Programme (UNEP) (2012) *Global Environmental Outlook*. Nairobi: UNEP.
- Victor, P.A. (2008) *Managing without Growth: Slower by Design, not Disaster*. Cheltenham, UK: Edward Elgar.
- Weiss, C.H. (1979) The many meanings of knowledge utilization. *Public Administration Review* 39 (September/October): 426–431.