

Consumption in ecological economics

Entry prepared for the *Internet Encyclopaedia of Ecological Economics*

Inge Røpke

Department for Manufacturing Engineering and Management
Technical University of Denmark
Denmark

April 2005

1. Introduction

Research in the field of consumption and environment has grown rapidly since the middle of the 1990s, and also in ecological economics, consumption issues have featured more prominently on the agenda. This overview¹ outlines the background and the characteristics of the new wave with a specific focus on ecological economic contributions. First, the roots in environmental research are described, and the breakthrough for the interest in consumption. Then the specific motivation for dealing with consumption in ecological economics is presented, followed by an exposition of the main research questions related to ecological economic research on consumption. Finally, a few words are added on the development of consumption research in general, as this is important to understand the research taking place at the point of intersection between consumption and environment. The concluding comment emphasizes that the intersecting field is still in its infancy.

2. Social background and early research

Research interests tend to respond to dominant social discourses and to political and administrative demand – and sometimes research contributes to the emergence of new discourses. The increasing interest from the early 1960s in environmental issues was inspired by the popularization of biological research, and in response to the increasing public interest, different scientific disciplines took up the challenge of dealing with environmental issues (for an outline of this early period in relation to ecological economics, see (Røpke 2004a)). In the popular debate, a critique of consumption appeared as part of the environmental discourse: environmentalists questioned the dominant societal aims of maximum economic growth and increasing consumption because of the related environmental costs, and consumption was often dealt with in moralistic terms. From the beginning, there was the promise of a “double dividend” idea that curbing consumption would simultaneously make us better off (Spargaaren 1997). However, the popular interest in consumption was little reflected in environmental research during the first decades of research.

¹ Parts of this overview draw on (Røpke and Reisch 2004).

Most research on the interface between the economy and the environment focused on the environmental impact of production in relation to resource depletion and pollution and on the demand for environmental goods such as pleasing landscapes. Indirectly, of course, production presupposed consumption, but the importance of production methods and technologies was emphasized much more than living standards and consumption patterns. Some, such as Barry Commoner and Paul Ehrlich, emphasized the importance of living standards and the size of the population – popularized in the IPAT equation – and some early ecological economic contributions (see below) dealt with consumption in abstract terms. However, whereas the population issue became one of the dominant discourses, consumption issues remained relatively unnoticed, and the contributions tended to be very general.

During the 1970s the contributions on consumption in an environmental perspective were few and isolated, but, at least, some more practical and specific research emerged. One of the first academic disciplines to contribute was consumer behaviour research. This field had developed within the marketing departments of U.S. business schools in the 1950s and had gradually separated from marketing and included more macro-oriented subfields such as consumer policy (Belk 1995). In the 1970s some of the leading thinkers within consumer behaviour and policy research called for the study of consumption in an environmental perspective, and a few early empirical studies on consumer behaviour in an environmental perspective appeared. Some of the first anthologies on "consumption and environment" have their roots in this field (Joerges 1982; Uusitalo 1983).

In the wake of the energy crisis in the 1970s, a few energy researchers began to take an interest in energy use and saving behaviour. Most research concentrated on energy resources, energy planning, technical possibilities for energy savings etc., but the issue of lifestyle slowly began to emerge (e.g. (Mazur and Rosa 1974) and (Nørgård and Christensen 1982), based on research results from the 1970s). After the second oil crisis in 1979, the demand for research increased, and more researchers were attracted. As the field attracted both engineers and social scientists, new transdisciplinary cooperation emerged. But the real take-off did not happen until the late 1980s and the early 1990s.

3. The breakthrough for the interest in consumption and environment

Although contributions can be mentioned, the research interest in consumption and environment was still limited at the end of the 1980s. Environmental studies were mainly concentrated on production. One of the reasons behind the focus on production was probably the type of environmental problems that politicians and administrators tried to deal with – for example toxic emissions and acidification. The problems were mostly conceived as local or regional and related to point-sources. Thus technological strategies were obvious to apply, first in the form of dilution through longer pipes, later in the form of cleaning through filters, and more recently by prevention through cleaner technologies, avoiding the conversion of pollution from one medium to another. However, during the 1980s the focus of environmental policies changed: global problems such as the depletion of the ozone layer and global warming effectively made their way to the agenda, and so did other problems with diffuse (non-point) sources such as pollutants from the rapidly growing transport activities. Simultaneously, experiences from the regulation of energy consumption in the wake of the oil crises demonstrated that increased technological efficiency tended to be offset by increasing demand for energy. Global warming, in

particular, seemed difficult to cope with through technological improvements only, so the need to look beyond production became more urgent.

The changing focus was reflected in the Brundtland report in 1987, which popularized the concept of sustainable development and emphasized global responsibility. At the UN conference in Rio in 1992 this global responsibility came to the centre of the debate, highlighting the contrast between the North arguing that population growth in the South was the main cause of environmental problems, whereas the South pointed out that the North carried a much larger responsibility through increasing consumption (Redclift 1996). Although the North far from accepted the importance of consumption and living standards, the strategy in Agenda 21 stated that the rich countries should take the lead in achieving sustainable consumption and production and that local efforts should contribute to the common goal of sustainable development. Compared to the previous exclusive focus on production, Agenda 21 at least thematized the need to also discuss consumption and to include the local activities of citizens.

The increased interest in consumption in relation to the environment was also related to the trend from the late 1980s towards ecological modernization. There was an increasingly widespread view that environmental regulation was not necessarily in conflict with economic growth, partly because environmental problems could harm the basis for production, and partly because environmental regulation could ensure competitive first-mover advantages. Conceiving environmental improvements in a win-win perspective implied that environmental regulation did not always have to be based on constraints, but could also be based on voluntary self-regulation and mutual regulation between different groups of actors. One of these actor groups was the consumers, who could contribute to environmental improvements through their choice of environment-friendly goods, in particular, when they were supported by labelling of green products, and other forms of information. During the 1990s this optimistic view was combined with a trend towards economic liberalization that, in general, implied leaving more to the market – whether such a deregulation could be expected to encourage environmental improvements or not.

The increased political interest in the consumption-environment nexus was followed and supported by work programmes in different international organizations and national administrations. In 1995, the United Nations Commission on Sustainable Development adopted an International Work Programme on Changing Consumption and Production Patterns²; the United Nations Environment Programme initiated a Sustainable Consumption Programme in 1998 (UNEP 2001); and in 1995 the OECD established a Work Programme on Sustainable Consumption and Production (OECD 1997). Characteristic of these activities was, firstly, the continued focus on increased production efficiency as the main way to secure sustainability, although the relevance of discussing consumption and lifestyle was acknowledged. Secondly, when dealing with consumption, the focus was mainly on relatively few selected issues and the promotion of more informed choice of greener products and services, whereas the problem of the general level of consumption – the standard of living – was not considered relevant. Much was done to emphasize that sustainable consumption was not about renouncing anything – only about

² See the homepage <http://www.un.org/esa/sustdev/sdissues/consumption/conprod.htm>

providing the comfort in a more efficient way, so the politically difficult topic of “sufficiency” was usually omitted.

In the middle of the 1990s there was a short period when the NGO Friends of the Earth succeeded in popularizing the idea of environmental space, combining the idea of consideration for future generations with the idea of a more equal distribution within the present generation, and this idea surfaced in some official publications, e.g. (Miljø- og Energiministeriet 1995). The idea of environmental space placed consumption and lifestyle on the agenda in a much more radical way than the dominant interpretation of 'sustainable consumption and production' tended to do, but the radical version remained an outsider position as it still does.

Interestingly, the increasing political and administrative interest in 'sustainable consumption' co-existed with a boom in global consumption during the 1990s, both in the North and in parts of the South. Simultaneously, inequalities increased in many countries, widening the gulf between extravagant consumption and poor conditions at different levels (this development has been followed in the yearly reports from the Worldwatch Institute; a recent contribution is (Myers and Kent 2004)). However, the political interest concentrated and still concentrates on a narrow conception of consumer choice and consumer behaviour, keeping away from the sensitive issue of the quantities of consumption.

The changing political focus towards sustainability and the involvement of a broader array of actors in environmental policies encouraged increasing research interest in consumption issues during the 1990s – a period where funding became available for social science research on environmental issues, both nationally and at the EU level. Firstly, the research increased in the two fields that had already taken on consumption and environment issues. A new group of researchers within consumer behaviour and policy and the related field of economic psychology was attracted to environmental issues, for instance, Suzanne Beckmann, Anders Biel, Klaus Grunert, Lucia Reisch, John Thøgersen, and Folke Ölander (for a brief overview of research questions, see (Beckmann 1998; Ölander and Thøgersen 1995). And within energy studies the interest in lifestyle and consumption issues expanded with researchers such as Willett Kempton, Loren Lutzenhiser, Lee Schipper, Elizabeth Shove, Hal Wilhite (Shove 1997; Shove et al. 1998). Secondly, environmental researchers from other fields began to take an interest in consumption – as can be seen in ecological economics. Thirdly, the demand for inputs from national and international organizations called for contributions from consultancies and other suppliers of applied research outside universities, in particular from the late 1990s.

4. The motivation for dealing with consumption in ecological economics

Before dealing with the research on consumption issues in relation to ecological economics, a few basic ideas of the field will be outlined to establish a framework. When ecological economics was institutionalized at the end of the 1980s, the complex of problems related to consumption was certainly not central, but a foundation was laid for later bringing up the issue. The importance of consumption arises almost directly out of the basic ideas, which take shape during the first years. Some of these ideas are summarized below.

The core idea of ecological economics is that the human economy is embedded in nature and that economic processes are simultaneously natural processes in the sense that they can be described as biological, physical and chemical processes. Thus society can be seen as an 'organism' with a 'social metabolism' based on flows of energy and matter, and this organism can take up more or less 'space' in the geo-biosphere of the earth. The greater the size – or scale – of the human economy, the greater the risk of destroying the conditions for human life on earth in the long run, and as humans will never know the exact limits, margins must be left. The researchers who gathered in ecological economics agreed that the scale of the economy was now so large that nature's basic life support systems for humans are threatened. In other words, there are limits to the material growth of the economy, and these limits have already been reached or exceeded. This is all the more so, since most ecological economists add a consideration for the living conditions of species other than humans.

As the scale of the economy has to be limited in the interest of future generations and in the interest of other species, the global problems of poverty cannot be solved through economic growth. To increase the environmental space for improving the living standards of the poor, the affluent have to reduce their appropriation of natural resources and pollution absorption capacity. Although technological change can be managed in ways that increase the flow of services achieved from a given throughput of energy and matter, such efficiency increases will not be sufficient to meet the challenge. Therefore, the “efficiency revolution” has to be accompanied by a “sufficiency revolution” among the richest fifth of the world population. Accordingly, living standards and consumption had to appear on the agenda of ecological economics.

As it is outlined below, there were some early contributions to consumption studies in ecological economics, but it was not until the middle of the 1990s that consumption studies became more visible. At the inaugural conference of the European Society of Ecological Economics in 1996, many papers dealt with consumption, including the plenary speech by Faye Duchin. Some of the papers later appeared in the journal *Ecological Economics*, including a Special Section in 1999. The late 1990s and early 2000s saw a number of contributions at conferences and in journals with relation to the field.

5. Ecological economic research on consumption

When the research on consumption and environment gained momentum during the 1990s, contributions came from researchers with a wide array of disciplinary backgrounds and with orientations towards different reputational organizations (actually, many researchers orient their work towards more than one reputational organization, in particular, when they do transdisciplinary work). Therefore, it can be difficult to single out contributions that can be said to 'belong' to ecological economics rather than to other fields – and in any case there will be a considerable overlap with consumption studies related to, for instance, the field of energy research. Furthermore, most consumption studies related to ecological economics are characterized by being problem-oriented: they take their point of departure in a problem and search for answers from different fields. As for ecological economics in general, many contributions are thus transdisciplinary and based on a pluralistic approach. This makes it even more difficult to distinguish between what are and what are not ecological economic studies of consumption. Obviously, the following selection is skewed by my personal perspective and knowledge.

The following exposition concentrates on five broad consumption research questions that relate to basic research questions within ecological economics, have been discussed by central figures of the field, or have been central to the contributions in Ecological Economics and at the society's conferences. The aim is to present the questions and not to enumerate all relevant contributions (a good supplementary source is (Reisch 2003)). The five questions are:

- a. How can consumption be conceptualized?
- b. What are the environmental impacts of consumption?
- c. What are the driving forces behind growing consumption?
- d. How does consumption relate to the quality of life?
- e. How can consumption patterns be changed?

Some contributions cut across all questions. This goes for one of the books that stimulated the whole discussion in ecological economics, Durning's *How much is enough?* in 1992 (Durning 1992). Another example of a perspective cutting across several issues is the modelling approach presented in (Duchin 1998).

a. The conceptualization of consumption

The application of a biophysical perspective on economic processes calls for a re-thinking of core economic concepts such as production, consumption, value, costs etc. The economy is maintained by flows of energy and matter that humans appropriate from nature, transform and degrade, and return to nature. Does it make sense to say that humans 'produce' anything, when they cannot create anything from nothing – or is procurement a better term for the appropriation and transformation taking place? Does it make sense to say that humans 'consume', when the stuff we utilize cannot disappear into the void, but only be transformed? How can we conceptualize what we have at our disposal, and what the costs are of providing this? Should consumption be considered an aim or rather a means? Early contributions dealing with such questions came from Boulding, Daly, Ayres and Kneese (Boulding 1945; Boulding 1949; Daly 1991; Daly 1968; Ayres and Kneese 1969) (for brief summaries see (Røpke 1997; Røpke 2004b)). A recent contribution is (Princen 1999)). Daly's definitions of the concepts service, stock and throughput became influential for ecological economic thinking: service is the satisfaction experienced, when wants are satisfied; service is yielded by the stock, which is the total inventory of producers' goods, consumers' goods and human bodies; and the stock is maintained and renewed by the throughput, which is the physical flow of matter and energy from nature, through the economy and back to nature ((Daly 1991) pp. 35ff). Here the concept of consumption is replaced by other concepts that clarify that the use of goods is not an aim in itself, that most goods are multi-use products, and that the services enjoyed are basically dependent upon nature.

In neoclassical microeconomics consumption is defined as the act of buying goods and services, and it is assumed that consumption yields utility. Daly and other contributors question both the definition of consumption as the act of buying, since this does not make sense from a biophysical point of view, and the idea of a direct relation between consumption and utility (more on this below in relation to quality of life). Nevertheless, the act of buying can be seen as one of the important links between household activities and

the environment (although the payment can be separated from the actual acquisition of the good, e.g. paying for water and electricity), as consumers appropriate resources this way. Other links are constituted by use behaviour (e.g. way of driving) and waste handling.

Other authors have questioned the lack of interest in the consumption process that takes place after the market transaction – a process that is usually regarded as a private activity outside the scope of economic analysis. Starting from a neoclassical position, economists such as Gary Becker, Kelvin Lancaster and Gordon Winston have focused on this process applying a time-allocation approach. Consumption is viewed as a process having enjoyment targets as outputs and requiring both market and non-market inputs. In ecological economics, this approach has been elaborated by Mario Cogoy (Cogoy 1999; Cogoy 1995). He considers the environmental implications of understanding consumption as social activities performed by consumers, who are regarded as skilled social agents. The activities and their environmental impacts are influenced by the social and institutional framework in which they are embedded; for instance, Cogoy argues that the expansion of market relations into formerly non-market organized sectors of social life can have significant environmental impacts.

Most of the contributions mentioned in this section are intended to be abstract and theoretical. They also tend to stay within a functionalistic understanding of the outcome of the consumption process: consumers are expected to buy goods to achieve some services or some enjoyment. A more subtle understanding of consumer behaviour and consumption as a social process appears in relation to some of the issues below, which depend more on empirical studies and tap into knowledge from disciplines other than economics and natural sciences.

b. The environmental impacts of consumption

With a biophysical perspective it is obvious to discuss the environmental impacts of consumption. The focus is not so much the specific and detailed impacts related to specific products, but rather the more general impacts of broader categories and practices of consumption. Most studies are based on an input approach originating from the idea that environmental impacts can be expected to correlate with the quantities of inputs from nature. The first approach applied in this discussion was based on energy accounting, which was already well developed, and which constituted one of the important roots of ecological economics as a field. Based on economic input-output tables supplemented with energy statistics, different studies calculated the direct and indirect energy consumption related to different categories of final consumption. The results illuminated which categories of consumption were more energy intensive than others, and when these data were combined with studies on the composition of consumption in different income groups, it could be used to highlight the relationship between income and environmental impact (Biesiot and Moll 1995; Noorman and Uiterkamp 1998). The input-output based studies were supplemented by lifecycle analyses that were better suited to expose the impacts of specific product groups and to discuss more in detail the effects of transporting consumer goods over long distances or the energy consumption related to travelling for different social groups (Carlsson-Kanyama 1999; Carlsson-Kanyama and Linden 1999).

Energy accounting was soon followed by other ways of 'calculating in nature'. One approach was the ecological footprint, which used the appropriation of land area in relation

to the provision of consumer goods as a measure of environmental impact (Wackernagel and Rees 1996). Due to the conversion of energy consumption into land appropriation, the measure has much in common with energy accounting, but the perspective of land appropriation adds interesting new information, for instance, in relation to food consumption and infrastructure. Another approach was materials flow accounting (MFA), where input-output tables were combined with statistics on the weight of the materials input flowing into the economy – and in some cases the weight of the hidden flows was also included (Matthews and et al. 2000). In relation to materials flow accounting, the concept of MIPS – Material Input Per unit of Service – was introduced and applied in the discussion of the environmental effects of different consumption patterns (Schmidt-Bleek 1994; Schmidt-Bleek 1993). Gradually, MFA has been developed, as more data have been collected, and the methodology has been more thoroughly discussed. Besides energy, materials and area appropriation, ecological economics has dealt with the human appropriation of net primary production (HANPP), i.e., the product of photosynthesis. However, this approach has (to my knowledge) not been reflected in consumption research.

Ecological footprints and MFA have been used in the same way as energy accounting – for instance, for the discussion of the relative environmental impact of different consumption categories (Spangenberg and Lorek 2002). At the very general level, the studies indicate that food consumption, particularly meat consumption; car driving; and housing, particularly heating/cooling and the use of appliances, are categories of heavy consumption, but, obviously, much more detailed information is provided. The data from all three approaches have also provided the basis for considering how consumption in the rich countries implies appropriation of resources from the poor countries, and how the market mechanisms disguise an environmentally unequal exchange between nations as an equal exchange in money terms (Giljum and Eisenmenger 2004). The approaches thus contribute to the exposition of environmental impacts of national consumption in foreign countries. Furthermore, the approaches have been applied in the discussion of issues such as whether the composition of consumption changes over time in the direction of more environmentally benign patterns (Munksgaard, Pedersen, and Wier 2001; Røpke 2001b), and whether the development of the so-called service society will be helpful in this respect (Røpke 2001a). The conclusions are not optimistic with regard to any automatic improvements.

Usually, the environmental impacts are considered in relation to categories of consumption goods and services or to specific consumption goods (in life cycle analyses). However, this perspective has been supplemented by studies on the environmental impact of everyday life activities, where data on activities from time use studies are combined with data on related consumption and environmental impacts (Jalas 2002; Jalas 2004).

c. The driving forces behind growing consumption

The motivation in ecological economics for dealing with consumption issues is related to the need for curbing consumption growth in the rich countries and for changing the composition of consumption towards less damaging patterns to increase the environmental space for improved living conditions for the poor. To contribute to this aim it is necessary to understand the driving forces behind both the growing consumption and the continued development of materials- and energy-intensive consumption patterns, so

the possibilities for counteracting these forces can be considered. In this section the focus is mainly on the macro and micro perspectives related to the general growth of consumption, whereas the issue of promoting so-called sustainable consumption is left to section e.

The macro perspective directs the focus towards the basic conditions that make the growing consumption possible: the 'false assumptions' embedded in, first of all, the low energy prices that do not reflect the externalities related to the use of energy; the infrastructure that has been built upon these 'false assumptions'; and the global transfers that take place through market institutions based on very unequal power structures. The basic conditions also comprise the core motor of competition in market economies driving the search for product innovations, new market opportunities and marketing strategies, cost reductions etc. – a motor supported by the dominant ideological understanding equating economic growth with progress and emphasizing the need for growth to maintain employment. With such strong forces at work, it is not surprising that environmental improvements through increased technological efficiency tend to be counterbalanced by growing consumption – which is highlighted in the discussion of rebound effects (Binswanger 2001). The basic conditions have been highlighted in contributions on economic growth, unequal exchange etc. (Daly 1991; Sachs et al. 1998; Redcliff 1996; Schor forthcoming). Interestingly, technological change, which is usually conceived as part of the solution in relation to environmental problems, is also an important part of the problem, both as an encouragement of consumption (Røpke 2001c; Reisch 2001a) and through the influence on relative prices, as material goods tend to become ever cheaper compared to labour-intensive services such as care, teaching etc.

Related to the issue of growing consumption in general, it has been discussed why consumers tend to play their role in the game. As elaborated in the next section, ecological economists usually do not accept the simple neoclassical idea of a direct relationship between satisfaction and consumption, so more explanation is needed to understand consumer behaviour. Of course, the well-known explanations have been forwarded and discussed, such as the persuasive power of advertising that is strongly intensified through the television medium, the temptation of deferred payment, the takeover of public space by shopping centres etc. More complex considerations have been added, as ecological economics has been open to the bringing in of ideas from several different disciplines and to broadening the perspective far beyond mainstream economic reasoning (Røpke 1999). For instance, insights from anthropology and sociology regarding the role of consumption in the symbolic communication between people have been important to modify the functionalist perspective shared by most economists and natural scientists (Douglas and Isherwood 1980). Symbolic communication, identity formation, the role of dreams or visions, the pursuit of meaning etc. comprise explanations that go far beyond the traditional understanding of "keeping up with the Jones" – an explanation which still plays an important role (Brekke, Howarth and Nyborg 2003; Howarth 1996). Furthermore, it has been important in ecological economics to consider lock-in effects, for instance, the institutional lock-in related to the labour market which makes the choice of more leisure difficult and lock-in related to technological infrastructure, that encourage consumers towards environmentally detrimental behaviour such as car driving (Schor 1991; Schor 1995; Schor 1998; Sanne 2002; Sanne 1995).

A wider interpretation of lock-in and path dependency was suggested by Fine and Leopold, who argue that explanations about consumption must be specific to particular commodities or groups of commodities. For each area of consumption there is a distinct 'system of provision' – an integral unity of the chain of activities related to the commodity: production, distribution, retailing, consumption, and material culture (Fine 1995). Fine and Leopold did not deal with environmental issues, but Lucia Reisch, in her overview of consumption in ecological economics (Reisch 2003), suggests that this approach should be systematically integrated into the field. A related, but more sociologically and culturally oriented systems approach is applied by Elizabeth Shove, who deals with 'the construction of normality' – the normal and mostly inconspicuous consumption that can be very environmentally demanding such as the daily shower, the increasing amounts of laundry, the diffusion of air conditioning etc. (Shove 2003a; Shove 2003b). In general, these ideas fit very well with the systems orientation of ecological economics.

d. Consumption and the quality of life

As mentioned, ecological economists are critical towards the neoclassical idea of a direct relationship between consumption and welfare. The critique has been raised by, for instance, Daly and Cobb in their discussion of Homo economicus, and they have suggested using the concept person-in-community to counterbalance the dominant individualistic focus (Daly and Cobb, Jr. 1989). They argue that humans are not only egoistic and insatiable, but also social and ethical beings who need and create communities and take on duties. Simultaneously, these communities are decisive for our welfare, which is highly dependent on the collective conditions that we can influence as citizens, such as the state of the environment, the social inequalities, the infrastructure and educational system etc. The focus on consumption and economic growth can contribute to the deterioration of the collective conditions – the social costs of consumption can exceed the private benefits.

Another influential contribution was Max-Neef's discussion of needs and wants and his introduction of the concept of satisfiers (Max-Neef 1992a; Max-Neef 1992b). Whereas neoclassical economics focuses on wants and preferences that are purely subjective, Max-Neef argues that needs can be discussed in more objective terms. He elaborates the concept of needs and emphasizes how needs can be satisfied in fundamentally different ways, and how consumption can be counterproductive in relation to well-being. He also argues that when a reasonable material standard of living has been achieved, further improvement in the quality of life has little to do with increased consumption. The work of Max-Neef has inspired later empirical work (Jackson and Marks 1999).

As the search for driving forces led to the inclusion of sociological and anthropological ideas and theories, the discussion on quality of life has motivated ecological economic research to tap into philosophical discussions on the good life, for instance, Sen's concept of capabilities and other related issues (Nussbaum and Sen 1993). The meeting between the different fields of study – consumption, environment, and the good life – is reflected in the anthology *Ethics of Consumption* (Crocker and Linden 1998). Another example of bringing new ideas to this debate in ecological economics is the paper on evolutionary psychology by Tim Jackson (Jackson 2002).

As mentioned, ecological economics accepts the ethical challenge of making environmental space available for consumption increases for the poor and the need for curbing the consumption of the rich. Within a neoclassical framework this would imply sacrifice for the rich who would have to give up consumption increases, whereas the ecological economic approach opens up for the possibility that curbing consumption can be combined with improved quality of life – a kind of double dividend idea. This idea is substantiated by the contemporary discourse on stress and time pressure, implying that the lifestyle with much work to both earn the money and to organize the consumption has costs that can be avoided by more 'simple living' (the phenomenon of the simple living movement is described by (Maniates 2002); (Sachs 1995; Schor 1991; Sanne 2002; Lintott 1998)). Similarly, the discussion on „wealth in time“ (as a new non-material luxury) – and its relationships with wealth in goods – is slowly gaining weight within the quality of life debate (Reisch 2001b).

Sometimes the promotion of the double dividend idea can get a moralistic touch: we should just give up all this bad and immoral consumerism and change our materialistic values, as it would simply make us better off – an idea lying in continuation of the old critiques of the consumer society (see section 6 below). Unfortunately, it is not as easy as that. Although it is easy to imagine a society with less consumption and a higher quality of life due to less stress and improved collective conditions, less “defensive costs” etc., it is difficult to imagine the way to get there, as people in practice make other choices. The main point is that consumption is embedded in social and cultural life – it is not something that can be isolated and reduced without interfering with the foundations of everyday life. Consumption is not only about being egoistic, but can be related to the most altruistic motives (Miller 1995; Campbell 1987; Wilk 2004). Therefore, we face a real dilemma when we argue that curbing consumption is highly needed.

e. Changing consumption patterns

Compared to the other research questions, the question about how to change consumption patterns in a more sustainable direction is relatively under-researched in ecological economics. In relation to the fields of consumer behaviour, economic psychology and environmental psychology, research on 'sustainable consumption' developed, and energy studies provided new knowledge about energy saving behaviour – research that is sometimes reflected in ecological economics (an extensive review of literature on consumer behaviour and behavioural change in relation to sustainable consumption can be found in (Jackson 2005)). The main focus of this research is consumer choice and individual consumer behaviour, and sustainable consumption is about choosing more environmentally friendly products and services (e.g. organic food) and about recycling behaviour, water saving, room temperature etc. The question is how to encourage consumers to make the environmentally correct choices, and measures such as labelling and information campaigns are studied. This research has also tried to distinguish between different social groups or lifestyles to consider whether the political measures should be tailored to different target groups (Empacher and Götz 2004).

A successful contribution from this field has been the NOA-model that describes consumer behaviour as the result of the consumer's Needs, Opportunities and Abilities (Ölander and Thøgersen 1995; Gatersleben and Vlek 1998). For instance, the model is used as an organizing device in the OECD publication *Towards Sustainable Household Consumption*

(OECD 2002). The model opens up for public initiatives that can improve the opportunities for more sustainable household behaviour, but neither the social construction of needs, nor the macro aspects of the model are well developed. However, the idea works well together with strategies for increased technological efficiency: more efficient products and services are provided, and the consumers are encouraged to buy them.

Whereas the behavioural research usually focuses on individual consumers or households and how they can be motivated to change behaviour, others have taken an interest in bottom-up initiatives where consumers or citizens organize collectively to change their lifestyle and consumption patterns – initiatives varying from mutual help to be 'green consumers' to the establishment of eco-communities (Georg 1999; Michaelis 2004). Unfortunately, such initiatives still seem to have marginal importance. In general, organizational measures are increasingly studied, both bottom-up initiatives and commercial enterprises – for instance, car-sharing has been arranged in both ways (Prettenthaler and Steininger 1999). A widely promoted idea is to reduce resource use by selling services instead of products, the so-called product-service system concept (Mont 2000; Mont 2004). In this way the final services can be provided with fewer resources, as the provider will have an incentive to reduce costs also in the use phase, and as hardware can sometimes be shared by several consumers.

Most of the practical steps to change consumption patterns and most of the related research concern relatively marginal changes that are like a snowball in hell compared to the challenge we face, if consumption patterns should deserve to be called sustainable – consistent with a level of consumption that could be generalized to all humans without jeopardizing the basic environmental life support systems. Very little is done to face the 'quantity problem'. At the level of research it is difficult to translate the complexity of driving forces behind the ever-increasing consumption into suggestions for workable solutions, and at the level of politics it is hard to imagine how to achieve support for such solutions. As the driving forces are as strong as ever, all the small steps towards 'sustainable consumption' co-exist with a general worsening of the situation – although many of these steps can be fine, they are far from sufficient.

A contribution from ecological economists could be to promote the development of system oriented consumption research that focuses on the social construction of the ever-increasing normal consumption, as suggested by Elizabeth Shove (Shove 2003a). A better understanding of this complexity can go beyond the NOA-model and encourage a broader perspective on possibilities for political action. Furthermore, the quantity problem has to be faced directly through the discussion of ways to reduce income and total consumption, without jeopardizing social stability (Jespersen 2004).

6. Consumption research in general

Consumption studies in general – independently of the environmental discourse – experienced a boom from the middle of the 1980s. I include a few words about this boom, as it provided an interesting stock of knowledge for environmental research to tap into (this section is copied nearly unaltered from (Røpke and Reisch 2004)).

Studies on consumption have a long history, dating back to the turn of the 20th century when Veblen wrote his theory of the leisure class. Since then a number of contributions

have appeared, such as Leibenstein's article on bandwagon, snob, and Veblen effects, which inspired a whole strain of research on demonstration and status effects as well as social external effects of private consumption. Other seminal works came from John Kenneth Galbraith, Erich Fromm, Roy F. Harrod, Herbert Marcuse, Roland Barthes and Jean Baudrillard, but the number of contributions was sparse compared to analysis of the production side. Until the early 1970s, consumption studies tended to look at the consumer society in a critical perspective. The writers drew attention to issues such as: the endogeneity of wants, the creation and manipulation of needs, the symbolic, compensatory and pseudo-therapeutical nature of consumption, the dubious achievements of consumer society with regard to quality of life, the alienation, emptiness and conformism related to mass consumption, the egoism, hedonism, and limitlessness of consumption, and the priority of private goods over collective goods. However, in this early critique of consumer society, environmental impacts of consumption were not usually part of the discourse, apart from a few exceptions such as Fred Hirsch, who discussed both social and ecological limits to growth (Hirsch 1976).

In the late 1970s a less "moralistic" research on consumption issues began to emerge across several social science and humanistic disciplines. When Douglas and Isherwood published their anthropological work *The World of Goods* in 1978 and Bourdieu published *La Distinction: Critique Sociale du Jugement* in 1979, these were isolated contributions, but they heralded a new era of interest in understanding consumption in a more comprehensive way. From the mid 1980s on, the number of contributions exploded, and seminal works appeared such as (Miller 1987) and (Campbell 1987). Looking back, British consumption sociologist Colin Campbell (Campbell 1991) observed in a paper about the new wave of consumption research in the humanities and the social sciences: "Occasionally a special combination of events causes a topic or field of study to spring into prominence in several disciplines at approximately the same time. This is indeed what has happened over the past decade with respect to 'consumption'." In 1995, another British consumption researcher, the anthropologist Daniel Miller, documented the first decade of the "new consumption studies" in the multi-disciplinary volume *Acknowledging Consumption* (Miller 1995). The collection illustrates the widespread interest in consumption with reviews of the developments in the fields of consumer behaviour, sociology, political economy, history, geography, psychology, anthropology, and media studies. With that, the concept consumption became applied to a bewildering range of goods and services, everything from art to shopping, receiving welfare, and visiting a zoo (Edgell, Hetherington and Warde 1996).

In spite of the broad variety of studies constituting this new wave, some common characteristics can be identified: compared to the earlier contributions, the new studies are less normative and try to provide both a much broader and a deeper understanding of consumption imperatives and of the role of consumption in social, cultural, and economic change. According to Miller (the introduction to (Miller 1995)), the new studies challenged the key myths of consumption that had been widespread both in the academia and public, for instance: the idea that mass consumption causes global homogenisation, that consumption is opposed to sociality and authenticity, and that consumption creates particular kinds of social being. Consumption as such, Miller contends, is neither good nor bad; it is integrated in our social practices, embedded in our cultures, and can be related to anything from egoistic to altruistic intentions. Yet, since First World consumption can have

disastrous consequences in the Third World – via international demonstration effects, via specific demand structures, via unfair pricing of resources etc. – he calls for politicising consumption in its North-South dimension. Miller is thus in basic agreement with ecological economics on this issue.

In general, environmental issues had a very low priority in these new consumer studies (Miller 1995), (Jacoby, Johar and Morrin 1998). The same appears from the survey *The Consumer Society*, where Goodwin and colleagues summarize a wide array of literature on consumption, and where only a few contributions, all from the 1990s, deal with the environment (Goodwin, Ackerman and Kiron 1997). As mentioned above, the consumer behaviour studies form an exception, and some consumption sociologists have contributed to the environmental discourse as well (e.g. Alan Warde, Elizabeth Shove, Dale Southerton).

6. Consumption and environment – concluding remark

Consumption research and environment research have developed greatly since the 1970s – environmental research taking off somewhat earlier than consumption research. Relatively late in the course of development in the respective fields, environment researchers began to take an interest in consumption issues, and consumption researchers began to deal with environmental issues. Ecological economics was relatively quick to take up consumption and is now followed by other environmental fields, for instance, industrial ecology (a special issue of the *Journal of Industrial Ecology* is in the pipeline). The contributors from the many different starting points have begun to meet, but the field constituted by this meeting – consumption and environment – is still weakly developed. The field spans not only many different research questions, but also fundamental paradigmatic and theoretical differences – from the narrow focus on individual behaviour to broader systemic perspectives ((Shove 2004) outlines these differences), and from a narrow conception of sustainable consumption choices to a more radical perspective focusing on "sufficiency". Networks cut across these differences, but it might not be easy to establish a common reputational organization, so for the next few years there is an urgent need to encourage consumption and environment research in the existing reputational organizations, including ecological economics. The field can be expected to grow, but the increasing institutional demand for applied research on sustainable consumption has tended to encourage the relatively narrow perspectives, and the possibilities for funding transdisciplinary environmental research with broader perspectives are currently few. Maybe the character of the institutional demand is in the process of changing towards a more structural perspective, so it is an important task for ecological economics to encourage such a shift and to maintain and further develop the more systemic and radical approaches.

Acknowledgement

I am grateful to Tim Jackson, Lucia Reisch and Elizabeth Shove for comments on a previous version of this entry.

References

- Ayres R. U. and A. V. Kneese, 1969. Production, consumption and externalities. *The American Economic Review*, 59:282-297.
- Beckmann S. C., 1998. Ecology and consumption. In: P Earl and S Kemp (Eds.), *The Elgar Companion to Consumer Research and Economic Psychology*. Edward Elgar, Cheltenham, UK, pp. 170-175.
- Belk R., 1995. Studies in the new consumer behaviour. In: D Miller (Ed.), *Acknowledging Consumption. A Review of New Studies*. Routledge, London, pp. 58-95.
- Biesiot W. and H. C. Moll (Eds.), 1995. *Reduction of CO₂ emissions by lifestyle changes*. IVEM, Groningen-Utrecht, The Netherlands.
- Binswanger M., 2001. Technological progress and sustainable development: what about the rebound effect? *Ecological Economics*, 36:119-132.
- Boulding K. E., 1945. The Consumption Concept in Economic Theory. *The American Economic Review*, 35:1-14.
- Boulding K. E., 1949. Income or Welfare. *The Review of Economic Studies*, 17:77-86.
- Brekke K. A., R. B. Howarth, and K. Nyborg, 2003. Status-seeking and material affluence: evaluating the Hirsch hypothesis. *Ecological Economics*, 45:29-39.
- Campbell C., 1991. Consumption: the new wave of research in the humanities and social sciences. *Journal of Social Behavior and Personality*, 6:57-74.
- Campbell C., 1987. *The Romanthic Ethic and the Spirit of Modern Consumption*, Basil Blackwell, Oxford.
- Carlsson-Kanyama A., 1999. *Consumption Patterns and Climate Change: Consequences of eating and travelling in Sweden*. Department of Systems Ecology, Stockholm University,
- Carlsson-Kanyama A. and A. L. Linden, 1999. Travel patterns and environmental effects now and in the future: implications of differences in energy consumption among socio-economic groups. *Ecological Economics*, 30:405-417.
- Cogoy M., 1995. Market and non-market determinants of private consumption and their impacts on the environment. *Ecological Economics*, 13:169-180.
- Cogoy M., 1999. The consumer as a social and environmental actor. *Ecological Economics*, 28:385-398.
- Crocker D. A. and T. Linden (Eds.), 1998. *Ethics of Consumption. The Good Life, Justice, and Global Stewardship*, Rowman & Littlefield Publishers, Lanham.
- Daly H. E., 1968. On Economics as a Life Science. *Journal of Political Economy*, 76:392-406.
- Daly H. E., 1991. *Steady-State Economics. Second Edition with New Essays*, 2 edition. Island Press, Washington DC.
- Daly H. E. and J. B. Cobb, Jr., 1989. *For the Common Good. Redirecting the Economy towards Community, the Environment and a Sustainable Future*, Beacon Press, Boston, Massachusetts.
- Douglas M. and B. Isherwood, 1980. *The World of Goods. Towards an Anthropology of Consumption*, Penguin Books, London.
- Duchin F., 1998. *Structural Economics. Measuring Change in Technology, Lifestyles, and the Environment*, Island Press, Washington, DC.

- Durning A. T., 1992. How much is enough? The consumer society and the future of the earth, Earthscan Publications Ltd., London.
- Edgell S., K. Hetherington, and A. Warde (Eds.), 1996. Consumption Matters. The Production and Experience of Consumption, Basil Blackwell, Oxford.
- Empacher C. and K. Götz, 2004. Lifestyle approaches as a sustainable consumption policy - a German example. In: L.A. Reisch and I. Røpke (Eds.), The Ecological Economics of Consumption. Edward Elgar, Cheltenham, UK, pp. 190-206.
- Fine B., 1995. From political economy to consumption. In: D. Miller (Ed.), Acknowledging Consumption. A Review of New Studies. Routledge, London / New York, pp. 127-163.
- Gatersleben B. and C. Vlek, 1998. Household consumption, quality of life, and environmental impacts: A psychological perspective and empirical study. In: K.J. Noorman and T.S. Uiterkamp (Eds.), Green Households? Domestic Consumers, Environment, and Sustainability. Earthscan Publications, London, pp. 141-183.
- Georg S., 1999. The social shaping of household consumption. Ecological Economics, 28:455-466.
- Giljum S. and N. Eisenmenger, 2004. North-South Trade and the Distribution of Environmental Goods and Burdens: a Biophysical Perspective. Journal of Environment and Development, 13:73-100.
- Goodwin N. R., F. Ackerman, and D. Kiron (Eds.), 1997. The Consumer Society, Island Press, Washington DC / Covelo, CA.
- Hirsch F., 1976. The Social Limits to Growth, Harvard University Press, Cambridge, MA.
- Howarth R. B., 1996. Status effects and environmental externalities. Ecological Economics, 16:25-34.
- Jackson T., 2002. Evolutionary psychology in ecological economics: consilience, consumption and contentment. Ecological Economics, 41:289-303.
- Jackson T., 2005. Motivating Sustainable Consumption - a review of evidence on consumer behaviour and behavioural change. A report to the Sustainable Development Research Network. Policy Studies Institute, London. <http://www.sd-research.org.uk/researchreviews/documents/MotivatingSCfinal.pdf>
- Jackson T. and N. Marks, 1999. Consumption, sustainable welfare and human needs-with reference to UK expenditure patterns between 1954 and 1994. Ecological Economics, 28:421-441.
- Jacoby J., G. V. Johar, and M. Morrin, 1998. Consumer behaviour: A quadrennium. Annual Review of Psychology, 49:319-344.
- Jalas M., 2002. A time use perspective on the materials intensity of consumption. Ecological Economics, 41:109-123.
- Jalas M., 2004. Sustainability in everyday life - a matter of time? In: L.A. Reisch and I. Røpke (Eds.), The Ecological Economics of Consumption. Edward Elgar, Cheltenham, UK, pp. 151-173.
- Jespersen J., 2004. Macroeconomic stability: Sustainable development and full employment. In: L.A. Reisch and I. Røpke (Eds.), The Ecological Economics of Consumption. Edward Elgar, Cheltenham, UK, pp. 233-250.
- Joerges B. (Ed.), 1982. Verbraucherverhalten und Umweltbelastung. Materialien zu einer verbraucherorientierten Umweltpolitik, Campus, Frankfurt / New York.
- Lintott J., 1998. Beyond the economics of more: the place of consumption in ecological economics. Ecological Economics, 25:239-248.

- Maniates M., 2002. In search of consumptive resistance: The voluntary simplicity movement. In: T. Princen, M. Maniates, and K. Conca (Eds.), *Confronting Consumption*. The MIT Press, Cambridge, MA / London, pp. 199-235.
- Matthews E. and et al., 2000. *The Weight of Nations. Material Outflows from Industrial Economies*, World Resources Institute, Washington, DC.
- Max-Neef M., 1992a. Development and human needs. In: P. Ekins and M. Max-Neef (Eds.), *Real-life Economics. Understanding Wealth Creation*. Routledge, London, pp. 197-214.
- Max-Neef M., 1992b. *Human Scale Development: Conceptions, Applications and Further Reflections*, Zed Books, London.
- Mazur A. and E. Rosa, 1974. Energy and lifestyle: Cross-national comparison of energy consumption and quality of life indicators. *Science*, 186:607-610.
- Michaelis L., 2004. Community, reflexivity and sustainable consumption. In: L.A. Reisch and I. Røpke (Eds.), *The Ecological Economics of Consumption*. Edward Elgar, Cheltenham, UK, pp. 207-232.
- Miljø- og Energiministeriet, 1995. *Natur- og miljøpolitisk redegørelse*, Miljø- og Energiministeriet, Copenhagen.
- Miller D., 1987. *Material Culture and Mass Consumption*, Basil Blackwell, Oxford.
- Miller D. (Ed.), 1995. *Acknowledging Consumption. A Review of New Studies*, Routledge, London.
- Mont O., 2000. *Product-Service Systems*. Swedish Environmental Protection Agency, Stockholm.
- Mont O., 2004. Institutionalisation of sustainable consumption patterns based on shared use. *Ecological Economics*, 50:135-153.
- Munksgaard J., K. A. Pedersen, and M. Wier, 2001. Changing consumption patterns and CO₂ reduction. *International Journal of Environment and Pollution*, 15:146-158.
- Myers N. and J. Kent, 2004. *The New Consumers. The Influence of Affluence on the Environment*, Island Press, Washington / Covelo / London.
- Noorman K. J. and T. S. Uiterkamp (Eds.), 1998. *Green Households? Domestic Consumers, Environment and Sustainability*, Earthscan Publications, London.
- Nørgård J. S. and B. L. Christensen, 1982. *Energihusholdning*, Fællesforeningen for Danmarks Brugsforeninger, Copenhagen.
- Nussbaum M. C. and A. Sen (Eds.), 1993. *The Quality of Life*, Clarendon Press, Oxford.
- OECD, 1997. *Sustainable Consumption and Production*, OECD Publications, Paris.
- OECD, 2002. *Towards Sustainable Household Consumption? Trends and Policies in OECD Countries*, OECD Publications, Paris.
- Prettenthaler F. E. and K. W. Steininger, 1999. From ownership to service use lifestyle: the potential of car sharing. *Ecological Economics*, 28:443-453.
- Princen T., 1999. Consumption and environment: some conceptual issues. *Ecological Economics*, 31:347-363.
- Redclift M. (Ed.), 1996. *Wasted. Counting the Costs of Global Consumption*, Earthscan, London.
- Reisch L. A., 2001a. The internet and sustainable consumption: perspectives on a Janus face. *Journal of Consumer Policy*, 24:251-286.
- Reisch L. A., 2001b. Time and wealth. The role of time and temporalities for sustainable patterns of consumption. *Time & Society*, 10:387-405.
- Reisch L. A., 2003. Consumption. In: E.A. Page and J. Proops (Eds.), *Environmental Thought*. Edward Elgar, Cheltenham, UK, pp. 217-242.

- Røpke I., 1997. Economic growth and the environment - or the extinction of the GDP-dinosaur. In: A. Tylecote and J. van der Straaten (Eds.), *Environment, Technology and Economic Growth. The Challenge to Sustainable Development*. Edward Elgar, Cheltenham, UK, pp. 55-72.
- Røpke I., 1999. The dynamics of willingness to consume. *Ecological Economics*, 28:399-420.
- Røpke I., 2001a. Is consumption becoming less material? The case of services. *International Journal of Sustainable Development*, 4:33-47.
- Røpke I., 2001b. The environmental impact of changing consumption patterns: a survey. *International Journal of Environment and Pollution*, 15:127-145.
- Røpke I., 2001c. New technology in everyday life - social processes and environmental impact. *Ecological Economics*, 38:403-422.
- Røpke I., 2004a. The early history of modern ecological economics. *Ecological Economics*, 50:293-314.
- Røpke I., 2004b. Work-related consumption drivers and consumption at work. In: L.A. Reisch and I. Røpke (Eds.), *The Ecological Economics of Consumption*. Edward Elgar, Cheltenham, UK, pp. 60-77.
- Røpke I. and L. A. Reisch, 2004. The place of consumption in ecological economics. In: L.A. Reisch and I. Røpke (Eds.), *The Ecological Economics of Consumption*. Edward Elgar, Cheltenham, UK, pp. 1-15.
- Sachs W., 1995. Die vier E's. Wie wir einer naturverträglichen Gesellschaft näherkommen. *Ökologie & Landbau*, 2:46-49.
- Sachs W., R. Loske, M. Linz, and et al., 1998. *Greening the North. A Post-Industrial Blueprint for Ecology and Equity*, Zed Books, London / New York.
- Sanne C., 1995. *Arbetets tid. Om arbetstidsreformer och konsumtion i välfärdsstaten*, Carlsson Bokförlag, Stockholm.
- Sanne C., 2002. Willing consumers-or locked-in? Policies for a sustainable consumption. *Ecological Economics*, 42:273-287.
- Schmidt-Bleek F., 1993. MIPS - A Universal Ecological Measure? *Fresenius Environmental Bulletin*, 2:306-311.
- Schmidt-Bleek F., 1994. *Wieviel Umwelt braucht der Mensch? MIPS - Das Mass für ökologisches Wirtschaften*, Birkhäuser Verlag, Berlin.
- Schor J., 1991. *The Overworked American. The Unexpected Decline of Leisure*, BasicBooks, New York.
- Schor J., 1995. Can the North stop consumption growth? Escaping the cycle of work and spend. In: V. Bhaskar and A. Glyn (Eds.), *The North, the South and the Environment*. Earthscan, London.
- Schor J., 1998. *The Overspent American: Upscaling, Downshifting, and the New Consumer*, Basic Books, New York.
- Schor J., forthcoming. Prices and quantities: Unsustainable consumption and the global economy. Accepted for publication in *Ecological Economics*.
- Shove E., 1997. Revealing the invisible: Sociology, energy and the environment. In: M. Redclift and G. Woodgate (Eds.), *The International Handbook of Environmental Sociology*. Edward Elgar, Cheltenham, UK, pp. 261-273.
- Shove E., 2003a. *Comfort, Cleanliness and Convenience. The Social Organization of Normality*, Berg, Oxford / New York.
- Shove E., 2003b. Converging Conventions of Comfort, Cleanliness and Convenience. *Journal of Consumer Policy*, 26:395-418.

- Shove E., 2004. Changing human behaviour and lifestyle: A challenge for sustainable consumption? In: L.A. Reisch and I. Røpke (Eds.), *The Ecological Economics of Consumption*. Edward Elgar, Cheltenham, UK, pp. 111-131.
- Shove E., L. Lutzenhiser, S. Guy, B. Hackett, and H. Wilhite, 1998. Energy and social systems. In: S. Rayner and E.L. Malone (Eds.), *Human Choice and Climate Change. Volume 2: Resources and Technology*. Battelle Press, Columbus, Ohio, pp. 291-325.
- Spangenberg J. H. and S. Lorek, 2002. Environmentally sustainable household consumption: from aggregate environmental pressures to priority fields of action. *Ecological Economics*, 43:127-140.
- Spargaaren G., 1997. *The Ecological Modernization of Production and Consumption. Essays in Environmental Sociology*. Landbouw Universiteit Wageningen, Wageningen.
- UNEP, 2001. *Consumption Opportunities: Strategies for change*. United Nations Environment Programme, Geneva.
- Uusitalo L. (Ed.), 1983. *Consumer Behaviour and Environmental Quality*, Gower-Aldershot, London.
- Wackernagel M. and W. Rees, 1996. *Our Ecological Footprint. Reducing Human Impact on the Earth*, New Society Publishers, Gabriola Island, BL.
- Wilk R., 2004. Questionable assumptions about sustainable consumption. In: L.A. Reisch and I. Røpke (Eds.), *The Ecological Economics of Consumption*. Edward Elgar, Cheltenham, UK, pp. 17-31.
- Ölander F. and J. Thøgersen, 1995. Understanding of consumer behaviour as a prerequisite for environmental protection. *Journal of Consumer Policy*, 18:345-385.

Consumption (economics). Quite the same Wikipedia. Just better.Â Different schools of economists define production and consumption differently. According to mainstream economists, only the final purchase of goods and services by individuals constitutes consumption, while other types of expenditure â€” in particular, fixed investment, intermediate consumption, and government spending â€” are placed in separate categories (See consumer choice). Other economists define consumption much more broadly, as the aggregate of all economic activity that does not entail the design, production and marketing of goods and services (e.g. the selection, adoption, use, disposal Ecological Economics for their intellectual contributions and the community of scholarship and support they provide. We especially wish to acknowledge Robert Costanza, and the faculty at the Gund Institute for Ecological Economics at the University of Vermont, as well as our col-leagues at the University of Maryland School of Public Affairs. We are also immensely grateful to the Santa Barbara Family Foundation for nancial support and to Jack Santa Barbara for encouragement and substantive help far beyond the nancial. Ecological Economics. To Andrea and Marcia And to the next generation, especially Liam, Anna, Will, and Isabel. â€œThe human mind, so frail, so perishable, so full of inexhaustible dreams and hungers, burns by the power of a leaf.â€ Alternatives to our mis-guided goal of innite growth and limitless material consumption will be discussed throughout this text. THINK ABOUT IT! Think about a problem society currently faces, one that you know something about. Humanity's economic system viewed as a subsystem of the global environment. v. t. e. Ecological economics, bioeconomics, ecolonomy, eco-economics, or ecol-econ is both a transdisciplinary and an interdisciplinary field of academic research addressing the interdependence and coevolution of human economies and natural ecosystems, both intertemporally and spatially. By treating the economy as a subsystem of Earth's larger ecosystem, and by emphasizing the preservation of natural capital, the field of The journal is concerned with extending and integrating the understanding of the interfaces and interplay between "nature's household" (ecosystems) and "humanity's household" (the economy). Ecological economics is an interdisciplinary field defined by a set of concrete problems or challenges related to governing economic activity in a way that promotes human well-being, sustainability, and justice. The journal thus emphasizes critical work that draws on and integrates elements of ecological science, economics, and the analysis of values, behaviors, cultural practices, institutional structures,