Unsustainable consumption: Driving forces beyond behaviour

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1 Introduction

The current global financial crisis and its impacts on societies worldwide bring up a series of questions concerning our economic system and ways of consuming. In order to combat a deep recession many national governments launch economic recovery plans that include consumption stimulating policies and programmes (OECD 2009). Beyond controversy however, the magnitude of consumption of industrialised countries is a major contributor to global and local environmental problems; in other words, major environmental impacts are the result of consumer choices and quantities consumed. The spreading of Western consumption patterns as they are shaped today to the whole world would probably require three more planets – a prominent statement that expresses the ecological limits of current European lifestyles.[1]

To counteract the multi-dimensional global crisis, the United Nations Environment Programme (UNEP) and partners are launching a "Green Economy Initiative" (GEI)[2], which aims to make recommendations for greening national economies, for creating new green jobs and greening existing jobs, and for a just transition from a dirty to a green economy for enterprises and workers.

Despite many promising initatives and successful best practice stories, the following questions are unanswered:

- What factors influence people's consumption behaviour?
- What barriers hinder them from taking actions towards sustainable consumption patterns?

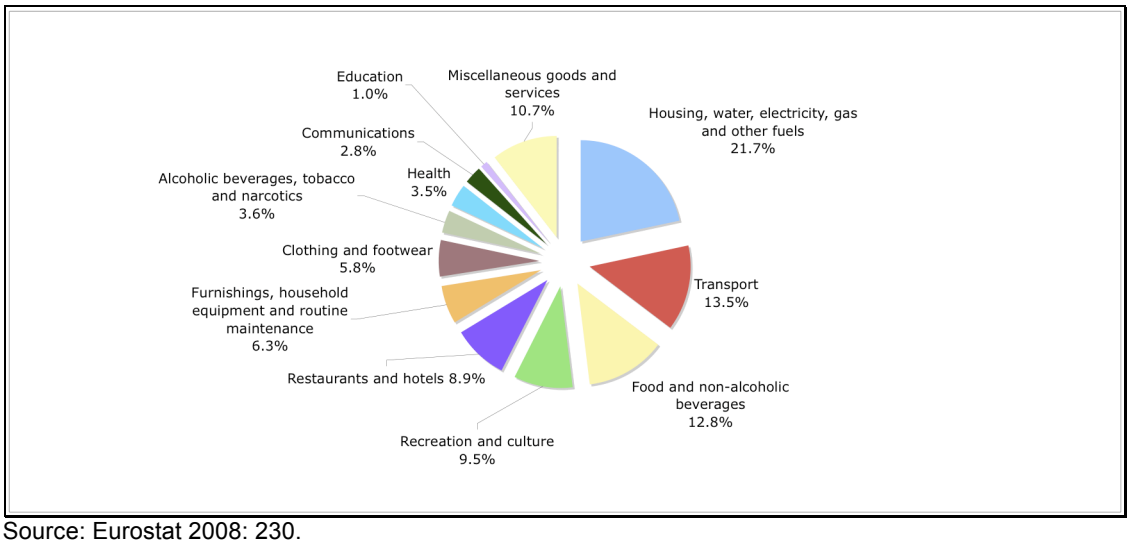
In the period 1995 to 2006, the private final consumption expenditures in EU-27 have increased by 27.4%[3]. The highest increases in Europe were recorded in the Baltic States and Ireland, the lowest in Austria, Italy and Germany (Eurostat 2008). The largest share of the consumption expenditures was spent for housing, water, electricity, gas and other fuels (21.7%) in 2005, naturally also due to oil price increases, the second largest share for transport (13.5%), and the third for food and non-alcoholic beverages (12.8%) (Eurostat 2008).

1 http://www.wupperinst.org/en/home/index.html

2 http://www.unep.org/greeneconomy/

3 in constant prices of 1995

Figure 1: EU-27 Consumption expenditures of households on goods and services in 2005



Source: Eurostat 2008: 230.

Conventionally, rising consumption is associated with increasing income (see e.g., Tukker *et al.* 2010). However, the analysis of enviromental impact in relation to household expenditures not only reveals that various product categories, in particular basic and luxury goods, differently contribute to impacts such as CO_2 emissions, acidification or euthrophication. It also shows that despite shiftings among those main product categories occur, the assumption that *„environmental impact increases with increasing household expenditures“* has to be confirmed even though *„the degree to which the environmental impact increases depends on the impact category“* (Kerkhof *et al.* 2008).

1.1 Consumption hot spots and impacts

Three main areas have been identified as environmental hot spots in different studies to be causing about 70-80% of the environmental impacts: transport, food and drink and housing (e.g., Moll *et al.* 2008, Tukker *et al.* 2010). When these priority areas are examined after product categories *“a surprisingly small number of product categories have the greatest environmental impacts”*. These are cars and air travel, meat and dairy products, energy-use for room and water heating, structural (construction/demolition) work and energy-using domestic appliances (Tukker 2006a, 2006b, Tukker *et al.* 2008, European Commission Joint Research Centre/Institute for Prospective Technological Studies [so-called EIPRO Study] 2006)[4].

When extended input-output analysis is applied to show the contribution of the individual product categories food, house, clothing/footwear, hygiene and medical and development, leisure and traffic to the environmental impacts, food turns out to be me the main contributor to acidification and eutrophication, whereas food, house and deve-

[4] It should be noted though that the products identified in the EIPRO study are not fully congruent with the expenditure areas of the Eurostat yearbook.

lopment, leisure and traffic moreless equally contribute to CO_2 emissions (Kerkhof et al., 2008).[5] When carbon emissions are allocated to high-level consumers needs, recreation and leisure, space heating and food and catering turn out to be most relevant (Jackson et al., 2006).[6] When environmental scores of products and expenditures for those products are combined it reveals that the consumption of meat and dairy products, household heating and car driving score very high on the environmental effects per euro. At aggregate level, this analysis identifies the consumption domains Food and non-alcoholic beverages, transport and furnishings, household equipment and maintenance, followed by clothing and footwear and hotels and restaurants as most important (Huppes et al., 2006). In spite of variances in detail, the studies verify the assumption that most of the environmental impacts can be ascribed to consumption activities in the fields food, housing and transport.

1.2 Starting points for change and the EU Action Plan on Sustainable Consumption and Production

All studies mentioned above are essential for the analysis of consumption trends and environmental impact associated with household consumption. Frequently however, the conclusions drawn are optimistic concerning the options for change from a policy science perspective. Tukker et al. (2010), for example, identify as leverage points for a sustainable alteration in consumers' behaviour to raise the knowledge by labeling and other information-oriented measures, to shift attitudes through awareness campaigns, to change the symbolic meanings of consumption, and to change consumers' habits and routines, etc. (Tukker et al. 2010). Other authors argue that „moving toward a service economy [...] does not necessarily improve things" since „no general rules exists that service products are environmentally superior to products as goods" (Huppes et al. 2006). This is true, for example, regarding the consumption areas transport or restaurants.

In 2008, the Commission of the European Communities released the Action Plan on Sustainable Consumption and Production (SCP) and Sustainable Industrial Policy. It was substantiated by a public consultation process carried out in 2007 and introduces a series of ambitious qualitative targets such as the use, revision and improvement of existing and approved instruments in the realm of environmental products and product policy such as the Ecodesign Directive, the Ecolabelling and Public Procurement (CEC 2008). However, the document is production-oriented and despite broaching the issue to *"smarter consumption"*[7] through, for example, Green Procurement, changing VAT rates, and environmental performance agreements with retailers, etc. it is mainly a product and technology-based approach, with special emphasis on energy efficiency that expects consumers to assume responsibility and take the right consumption choice

[5] Referring to the Netherlands.

[6] Referring to the UK.

[7] This term represents the idea that parts of the consumption are dispensable or symbolic and could be more purposive.

(CEC, Background Paper 2008). Hence the Action Plan initiates important steps but does not grasp fundamental issues such as an accelerated quantitative material throughput (Daly and Cobb 1989, Matthews et al. 2000) that outweighs many efficiency gains – known as rebound effect (Sorrell and Dimitriopolous 2007) – ensuing consumption patterns and its underlying driving forces that pose pressure on ecosystems worldwide.

2 Methodological approach

The EU SCP Action Plan, the findings on hot spots of consumption as well as the global character of the current crisis lead to a straightforward question: When environmental effects are directly and indirectly driven by consumption, what drives consumption?

This paper undertakes a first step in carrying out a literature review on consumption drivers and on driving forces that shape the behaviour of consumers either as hindering or facilitating change towards more sustainable patterns.[8] We regard a profound understanding of prevailing policies, economic structures and institutions that feature strong forces of persistence and resistance to change beyond individual consumer behaviour as indispensible. The aim is to contribute to the variety of drivers investigated in different strands of research and give an new impetus.

The term driving force – as the central term of this study – has no clear-cut definition. The notion seems to be used rather flexible. The OECD DSR model (Driving Force - State - Response) uses the term driving force as *"human activities, processes and patterns that impact on sustainable development"* (OECD 1996). The subsequent EEA DPSIR model (Driving Forces - Pressure - State - Impact - Response) (EEA 1998; Moll *et al.* 2008) advances the DSR model but introduces a more sectoral understanding of the term driving force such as industries, transport, etc. Human activities are considered via the notion *"responses"* that have an instrumental character and include political action which again influence the drivers. In addtion, there is no explicit differentiation between drivers and driving forces hitherto. Although the NOA model (needs - opportunities - abilities) (OECD 2002) develops an understanding of the interactions and interdependencies of social, environmental and economic aspects, the deficient addressing of *"outside factors"* remains widely unsolved. This insufficiency is critised: „*Yet the DPSIR framework is a relative linear approach that does not reflect sufficiently the interrelation between different driving factors nor the multi-scale nature of decision-making"* (Bringezu *et al*. 2007).

[8] The following data sources were screened: SCOPUS, Social Science Research Network SSRN, Political Science Network PSN, OECD-Website on ongoing and completed research, SCORE network (library), google scholar, search.ebscohost.com, ideas.repec.org. Journals that were screened in detail (in addition to the above mentioned sources): Journal of Industrial Ecology, Journal of Consumer Policy, Sociological Inquiry.

Consequently, most models leave important aspects in the context of private consumption out of consideration. They do not sufficiently reflect that some policies explicitly aim at increasing private consumption and some policy fields have no explicit link to consumption on the surface but often increase unsustainable consumption. They do not account for (frequently path-dependent) institutional-structural and socio-cultural environments/frameworks either and miss to consider the complex interdependencies between both.

As working definitions for the literature analysis the following definitions are derived from the foregoing research of EEA, OECD and EU:

Drivers shall be understood as specific and evident agents or factors leading to increased or reduced private consumption. Ideally, this causal connection is empirically documented or at least accessible for empirical research.

Driving forces shall be understood as a bundle of drivers that can be classified alongside categories, such as policy and socio-cultural fields. They may be multi-directional and dynamic. However, research should be able to establish causality and a quantitative relationship within causal networks.

In addition, we consider it decisive to distinguish between two categories:

- the institutional, political, regulative and economic system (external system) and
- the socio-cultural, values and lifestyles system (internal system).[9]

This simple model draws on what Giddens calls duality of structure in sociology (Giddens 1997); his theory assumes that social structures allow for social action and social actions create the very structures: social actions and social structures are recursive. Lachman (1971) has distinguished between 'inner' and 'outer' institutions of markets in the sense of market-based versus state-created institutions. The terms also outline the difficulties to cut system boundaries and thus indicate overlaps and a two-way conditionality.

In conclusion, the term **external driving forces** is defined as classified bundles of drivers that exert influence on private consumption and have a systemic, institutional and structural nature (cf. e.g., Tukker *et al.* 2008), i.e., they are not imminently determined by individual action of consumers but rather at political and corporate level.[10]

[9] The internal system and its driving forces are subject to a separate investigation by Baedecker et al. (unpublished).

[10] In contrast to this, internal driving forces are bundles of drivers developing within and from socio-cultural environments, i.e., they are influenced more at individual and less at political or corporate level.

3 Policies and (infra-)structures

Consumer decision-making is a very complex process affected by many factors and actors. The term driving force seems to suggest a clear-cut causality between human activities, processes and patterns that have an impact on consumption. Ideally, a causality can be expressed as a monocausal chain, with one specific driver causing certain impacts. In reality however, activities are influenced by a number of forces and counterforces, often in inconsistent ways. This study therefore proposes to regard driving forces as elements of causal networks rather than causal chains, taking into account recent findings on rationality and dynamics of modern societies (Niemeijer and de Groot 2008). *"Mega-trends"* such as globalisation and demographic change are regarded as underlying forces that are not analysed in-depth. It is also beyond the scope to study customs, habits, values and other examples of social phenomena because they deserve an in-depth sociological approach.

3.1 Growth path, fiscal policies and competition

The literature draws on a very broad spectrum of (non-material) institutional and (material) infrastructural drivers that contribute to today's magnitude of consumption. First of all and at a very prominent level, the **growth path** hypothesis aims to explain the consumption dynamic through an ever-growing GDP that is indispensable to keep employment figures stable while the labour productivity is increasing. This fact creates the *"paradoxical situation (…) that goods are produced not because they are needed (…) but to prevent unemployment from going up any further"* (Jespersen 2004). While controversial this assumption is very popular and reflected in many prevailing policies by emphasising the relationship between growth and employment. Implemented policies such as the Lisbon Strategy can be expected to have tangible material consequences, all the more when implemented for this very purpose.

In market economies, regulative instruments for private consumption are either entirely refused or not taken into consideration at an official level. Effectively, most policies have and shall have influences on private consumption. Higher-level policies such as **fiscal policies** (such as government consumption, transfers, taxes, etc.) are namely not interlinked with the issue of environmental or non-environmental consumption behaviour but they often pursue the objective to counterbalance cyclical changes in private consumption (Jönsson 2007 and Linnemann 2005, Linnemann 2006). Transfers are causing either neo-classical or Keynesian effects depending on the feature, the government expenditure or the household income feature that dominates in the consumers'/recipients' expectations. As Jackson puts it, this has farreaching consequences:

> *"Government policies and practices send important signals to consumers about institutional goals and national priorities. They indicate in sometimes subtle but very powerful ways the kinds of behaviours that are rewarded in society, the kinds of attitudes that are valued, the goals and aspirations that are regarded as*

appropriate, what success means and the worldview under which consumers are expected to act" (Jackson 2006: 120).

The European **Competition policy** can be regarded as a very important and strong driver for consumption levels within Europe because it is targeted on reducing prices, mostly not on enhancing quality. In addition, the severe competition facilitated by the competition policy does not distinguish between sustainability-supporting and sustainability-adverse competition yet (Scherhorn 2005); this area is left to environmental policy. The principle of consumers' sovereignty leaves it up to the consumer to induce, foster and strengthen sustainable products by his or her purchase decisions and prior screening efforts and information search. In the meantime – as Scherhorn points out – both, consumers and producers, often benefit from the externalising of environmental costs and, for this reason, sustainable products often have to compete with lower prices and/or more equipment, etc. He proposes the introduction of top runner approaches to install sustainability-supporting competition mechanisms (Scherhorn 2005). One may, on the other hand, argue that competition policy is required to facilitate entrepreneurs and transparency, factors that help to overcome market barriers for sustainable consumption and eco-innovations.

The deregulation of the **shop opening hours** in the retailing all over Europe is sometimes associated with the notion *"hypercompetition"* (Meloche and Plank 2006). As the labour hours per shop inevitably rise when the shopping hours are extended, labour and operational costs rise concurrently, thus creating an incentive to increase sales, economies of scale are stimulated and *"thereby affect the competitive relations between large and small shops"* (Noteboom 2006). Once the economy of scale is established, the sales rise with every decreasing labour hour unit. This has caused a long-term change of institutions and supply and competition structures such as a decline in shop numbers and increasing average distances to shops. Another study emphasises the implication of competition leading to *"a constant introduction of new products into the market"* in order to satisfy those needs caused by individualisation and time pressure as they are *"closely connected to the material dimension of a society by shaping the demand for technologies that give greater individual liberty of action"* (Haunstrup *et al.* 2005). Denmark tried to address the impacts of these developments by introducing consumer-oriented policies (such as information campaigns, eco-labelling, taxes, subsidies, etc.) and stands out of the European countries because it implemented these policies at a comparably early point in time. The effects, however, were primarily realised *"in mitigating the potential growth in consumption"* (Haunstrup *et al.* 2005), particularly in energy consumption, but could not stop the general rising of standards (more dwelling square metres per capita, more than one car per household, more than one television per household, etc.) that can be observed all over Europe.

3.2 Settlement and work-life structures

Material and infrastructural drivers are explored in most detail in the context of network-bound consumption (such as energy, traffic, telecommunication). A very important fact referred to in literature is the **growing number of households**, a phenomenon obser-

ved in almost all industrialised and also European countries due to increasing divorce rates and decreasing family sizes (Liu *et al.* 2003). Although the study explores the connection between household growth rates and biodiversity threat, it reveals the important fact that these household dynamics have great influence on consumption, both in the form of construction materials for buildings as well as in the form of household equipments. Per capita consumption grows with shrinking household sizes (Liu *et al.* 2003). The numbers of households caused by the reducing of the average household sizes that will be added until 2015 are projected to an enormous 233 million. This is interconnected with certain paths of **urban development** not only but also in European countries. A Norwegian study[11] examines different urban forms and shows how single family housing, high distances between residential areas and city centres and a low population density contribute to rising ecological footprints in energy and material consumption (Holden 2004; Camagni *et al.* 2002).

Urban forms again are deeply interwoven with **settlement structures** and the energy requirements for housing and transport and the planning procedures behind (e.g., Moll *et al.* 2005, Camagni *et al.* 2002). Also **retail structures** and the expansion of *"multiple food retailing"* (Guy *et al.* 2004; Clarke *et al.* 2004) play a role. Guy *et al.* identify the major developments of the food retail sector increasingly being aligned to the *"car-borne consumer"* since the 1970s, entailing not only rising short-haul routes but also growing so-called *"food deserts"*. Food deserts are low income and low mobility areas with low access to high quality. The housing conditions and the energy consumption in Europe were studied by Healy (2003)[12] who found near exemplary housing standards in the Scandinavian countries and the least energy efficient housing in the South going along with the financial situations of households (and possibly the economic performance of the countries).

Institutional factors[13] are decisive for the link between private consumption and patterns of **working hours and time use**, through regulations of the labour market, the shopping hours, etc. Unlike the conventional assumption that working hours in industrialised countries are decreasing over time, Schor says that the volume of working hours in most industrial OECD countries has been increasing since the 1980s and thus seems to counteract a historical trend towards less individual working hours due to increasing labour productivity. When working hours are then pulled together with ecological footprints, they show a positive correlation, especially in the US (Schor 2005; similar: Durning 2006). Sanches assumes that the "time gained from work reduction (…) is mainly used for non-commoditised activities" (Sanches 2005) whereas Jalas (2002)[14] argues that time gains resulting from efficiency gains go along with a service-

[11] Norway (Oslo and Førde), housing related consumption of 537 households, four year research project (1997-2001)

[12] 14 European countries (Germany, Denmark, Netherlands, Belgium, Luxembourg, France, UK, Ireland, Italy, Greece, Spain, Portugal, Austria, Finland), Household Panel 1994-1997

[13] North has defined institutions as "the rules of the game in a society, or, more formally, the humanly devised constraints that shape human interaction".

[14] Finland (1987-1990), distribution of energy use between different consumption activities outside working hours

orientation and therefore tend to be used at least partly for new consumption activities. It remains an open issue whether and under which conditions people opt for a wealth of time (i.e. less working hours, less consumption) or a wealth of income (i.e. more work, more consumption).

The difficult balancing act of planning policies in relation to environmental goals has been notably become manifest in the mobility sector. According to Litman, the existing *"excessive automobile dependency"* is not only caused by rising standards but also consolidated by a dispartment of responsibilities in **conventional planning** specialising on the traffic and transport planning, the reduction of accidents, the protection of the environment, and the location of public facilities which are usually all organised in different departments (Litman 2006, Camagni *et al.* 2002). Market distortions caused by encouraging or even subsidising road construction, parking and automobile use in general (through leaving the environmental costs externalised) contribute to a path dependency. But even if sustainable consumption projects specifically address automobile dependency (e.g., car-free settlements in various European cities)[15] emissions per capita may decrease but *"the overall differences [between a car-free settlement and a car-owning reference settlement] in CO_2 emissions and energy use are small, and much lower than the variations inside the settlements"* (Haas *et al.* 2005). This is partly explained by using the savings for other consumption activities such as travel expenditures for airplanes – a classical rebound effect.

3.3 Consumer policy and information

The EU **Consumer Policy** strategy 2007-2013 (EC 2007) does not seem to reflect on hypercompetition mechanisms that can entail a downward spiral of quality and just as little on environmental products and their visibility and availability/accessibility in the internal market. Instead, growth, jobs and competition are declared as main objectives of the policy paper without providing insights on how to support quality, low prices, market transparency and increased cross-border trade/logistics in equal measure. Informational instruments are hence regarded as indispensable tools for directing consumption behaviour and ease consumption decisions within the scope of a knowledge-creating competition. In the light of a vast and ever-growing choice of products in many sectors labels are overwhelmingly seen as helpful and successful. Incardona and Poncibò (2007) however point out that *"extensive, multi-dimensional information leads to a significant decrease in the quality of consumer choice"*. Moreover, due to very different perception and informational processing abilities of consumers the omnipresent advertising may cause **informational overload and informational asymmetries** that are difficult to channel. Advertising and informational overload go hand in hand with a serious **lack of information** (and a lack of research in other fields). Cooper (2005) states, for example, a serious information gap on the fact that *"a significant proportion of the*

[15] Austria, household behaviour of two groups with distinct consumption patterns but similar demographic, socio-economic and geographical conditions, quantitative analysis (MFA, LCA, IOA, NAMEA), qualitative analysis (interviews)

overall costs of appliances arises from [their] energy consumption", leading to an *"inadequate price competition"* between products. The ignoring of the (energy) costs and environmental impacts of the consumption stage of products are linked with rising numbers of domestic household appliances. A Danish study finds out that it is not the percentage of low-energy bulbs or the high-efficiency refrigerator-freezers that is correlated with electricity consumption but *"the number of television sets and computers as well as the numbers of appliances with a standby-function strongly correlates to the household's level of electricity consumption"* instead (Gram-Hansen 2004). That is one of the factors why some households use ten times more energy than others even if they live in the very same neighbourhood.

The composition of diets, as an example of a virtually non-regulated issue but a frequent target of informational campaigns for health purposes, is another important consumption driver attention should be paid to. A study examining a number of country cases shows that the Mediterranean type of diet would lead to considerably less land use and other environmental impacts associated to imports and exports of food and intensive animal farming if it was extended to the whole of Europe (Duchin 2005). The **global standardisation of food patterns** (i.e. the international diffusion of the U.S. diet, accelerated by a rapid proliferation of fast-food restaurants, cf. Ritzer 2008) and the globalising retail grocery industry (including a growing convenience food industry) contribute to a strong increase of meat, seafood and dairy consumption all over the world (Duchin 2005; Moll *et al.* 2008; Halweil and Nierenberg 2008). This is accompanied by a lack of information of the impacts of food patterns on the environment *and* the personal health. An Austrian study reveals the importance of age and education in the context of food consumption patterns but also points out to the unfruitful impacts of modern developments: *"Higher age and education lead to reductions in CO_2-emissions due to negative preference effects whereas the increasing out-of-home and easy-to-prepare-food consumption compensates this positive effect with higher income and higher education"* (Friedl *et al.* 2006). The authors therefore not only advocate informational but also regulative (for retailers) and economic instruments (for consumers).

Meanwhile, many European countries have caught up in implementing policy mixes to give consumption a sustainable impetus, but there is no silver bullet to tackle rebound effects occurring from rising standards of living and the shifting of savings of environmental behaviour to new consumption activities.

3.4 Economic instruments and prices

The relevance of prices for consumer decisions can hardly be overestimated. According to the law of demand, consumers demand more of any product if the price goes down and less if the price goes up. A context-based rationality of consumers does not imply that prices don't matter. Market-based instruments are thus widely established in many European countries for a wide range of different environmental purposes (EEA 2005; 2006). However, the revenues from environmental taxes are low; in some countries such as Germany, they are even shrinking again. In general, **environmental taxes and charges** are overwhelmingly implemented in a selective manner; for the time

being, they cannot be considered as large-scale instruments sending clear-cut signals to consumers, except for the context of energy and petroleum. Despite similar consumption patterns as in U.S./Canada, Europe is far more energy-efficient. Görres *et al.* (2008) characterise petroleum taxes as *"home made drivers"* for the decrease of fossil fuel consumption that have resulted in less driving, a considerably more energy-efficient vehicle fleet, a strong railway system, better public transport and more energy-efficient homes compared to the U.S. and Canada, thus emphasising the significance of (infra-)structures. *"Imported drivers"* such as price increases strengthen this effect. However, environmental tax reforms often underachieve because the tax rates are too low or too many tax exemptions are implemented for certain sectors and industries. For this reason, Albrecht (2006)[16] asks for the targeted use of consumption taxes to *"re-launch green tax reforms"*. The heterogeneous and inconsistent use of reduced **VAT rates** on European scale calls for a more homogeneous implementation in order to address industries that, for example, produce sustainable and unsustainable products at the same time and shift tax breaks from activities/products with strong environmental impacts (such as construction activities) to activities/products with low environmental impacts[17]. The reorganisation of the VAT system could also help to stimulate further environmental innovations, gradually alter consumer preferences and shift labour into low taxed sectors.

Another economic instrument – **subsidies** – bears the risk to work as driver for unsustainable consumption as subsidies tend to remain in the tax system once they are established. It is usually not easy to abolish them, they are quasi *"resistant to reform as the recipients have amassed political clout on par with the payouts they receive"* (Halweil and Nierenberg 2008). Moor and Calamai (1997) criticise the strong unsustainable subsidising of certain sectors in OECD countries, in particular water, agriculture, energy and mobility through budgetary subsidies, public provision, capital subsidies, price support for coal, oil, gas, nuclear, etc. Due to an immanent growing distance between original objective of the subsidy and the respective steering effects over time and emerging strong stakeholder interests that aim to keep the subsidy, strong counterproductive market and competition distortions result apart from an unbroken externalising of environmental impacts and stimulating overuse. When subsidies become counterproductive, this is clearly a policy failure. *"A market failure (…) implies a lack of government action, but does not imply that the markets cannot work. A policy failure refers to the distortion effects of an active government intervention"* (Moor and Calamai 1997). The authors suggest to *"sharply focus and limit subsidies in duration"* and call for a comprehensive reform of the subsidy systems in OECD countries (Moor and Calmai 1997).

Market-based instruments like taxes or subsidies are applied in many sectors. They are quite common for housing and construction activities (cf. Sunnika 2003); here, they often support the construction of new homes and buildings. On the other hand, they

[16] Europe EU-15, 1995-2001
[17] This issue will also be examined in-depth in a parallel project at the Wuppertal Institute.

are rather rare in the context of basic needs such as food (Smed *et al.* 2007) or mobility – with a few exceptions – freight and passenger transport (Calthrop *et al.* 2007).

However, it is not only direct taxes and subsidies that have impacts on private consumption, it is often policies that are usually not associated with environmental issues and impacts at all. Barata and Pacheco (2003)[18] examine the wealth effects of **asset prices and real estate prices** and find *"a strong and almost contemporaneous connection between residential prices growth and consumption growth"* and therefore assume an important influence of the housing market on consumption (but only a slight influence of the stock market).[19] This argument seems to be approved by Iacoviello (2003) who discovers that the home values have an influence on the dept capacity and consumption possibilities of households: *"House prices interact with consumption through equity gains than can be transferred into higher borrowing and higher consumption."* This particularly holds true for the U.S. market due to a high-grade financial deregulation (e.g., multiple ownership of credit cards) and provides an outlook to potential developments in Europe at the same time. Current efforts to further deregulate the European money and **consumer credit market** (Coumaros *et al.* 2005) may come to a halt due to the current tide of events, which confirm the appraisement of the authors above.

4 Innovations and lock-ins

The discussion of the previous chapters shed some light on the necessary ability of societies to bring about and to disseminate new consumption patterns. However, this is not at all an easy task. Tukker points at the **lock-in effects** caused by a fully developed physical infrastructure that considerably hampers *"radical changes"* that are necessary "*to reduce material use per consumption unit"* (Tukker 2005, Tukker *et al.* 2008) for the majority of the citizens of the industrialised countries. System changes would therefore need destabilising factors within the socio-technical landscape and the ruling regimes and trajectories and new niches with a high inherent dynamic.

In exploring unsustainable consumption patterns in the UK Jackson and Papathanasopoulou (2008) aim to reveal how much of these patterns may be attributed to **increasing consumer aspirations** *("luxury"*) and how much to **technological and institutional constraints** (*"lock-ins"*). While the paper refers to internal factors, it examines the sectoral meso impacts. By attributing the total fossil resources requirements to consumption categories (per sectoral input-output analysis) they find the categories "recreation & entertainment" as mainly driven by luxury aspirations whereas the other

[18] 6 countries (France, Germany, The Netherlands, Finland, Portugal, United Kingdom), monetary policy, asset prices, real estate prices

[19] We do not discuss the current financial crisis here – it certainly has an impact on consumption.

significant category - “commuting & business travel” - is rather driven by structural and institutional trends such as working times, labour regulation and urban planning.

Lock-in effects might inhibit mass markets when early markets have been created, due to persistence and inertia. In a broader sense, the technological progress path European countries follow is characterised by a **constant output of new innovative products and services** that do not distinguish between environmental and non-environmental innovations. The market is supposed to separate “good” from “bad” innovations. In this respect, *“improved technology may be the enemy of truly sustainable technology”*, Mulder warns (2007). This might be illustrated by an example of the food sector: The most innovating sectors worldwide in the year 2004/2005 dealt with innovations of dairy products, water and soft drinks and frozen foodstuffs (CIAA 2007). All three product categories, however, belong to the categories with the strongest environmental impacts (Moll *et al.* 2008). It may be disputed whether the market and the consumer respectively will abstain from using these new products, in particular when they are strongly advertised and information (or labelling) on the associated environmental impacts does not exist. Whether innovations stimulate the luxury aspirations or move within the limits of lock-ins or facilitate sustainable consumption is not an issue at EU level at present. It seems to suggest however an industrial policy enabling markets to direct their innovation activities towards sustainability and to stabilise market development after niche markets and early markets might have been created.

4.1 Decreasing life spans and double rebounds

A trade-off to eco-innovation is the decreasing **life span of household goods**, especially in field of durable consumer goods; an issue that is virtually not addressed, neither by policies nor research. The acceleration of consumption due to an increasing innovation pace of electronic products and a decreasing product life span at the same time however is a serious problem not only regarding increasing household wastes but also rebound effects outweighing efficiency prosperities (Cooper 2005). A rising disparity between the product prices (some of which tend to decrease or increase at a slow rate) and the repairing charges (which rose excessively in recent years, partly due to VAT and increasing labour costs) result in the fact that many discarded appliances are still functional or are not being repaired if they are damaged. Binswanger describes the impact mechanism as a result of a combination of high wages and comparably low energy prices that *“encourage the use of time-saving but energy-intensive devices”* causing a **double rebound effect**, in time use and in energy use (Binswanger 2001, cf. also Jalas 2002 for service-orientation) and setting an incentive for the development of time-saving innovations. According to Binswanger this is similarly true in the mobility and food sector (travelling longer distances because of faster transport modes, eating in fast-food restaurants, as the name implies).

4.2 Business and marketing models

For Ritzer, the most dominant and successful business concept of today is represented by the McDonalds' franchising system – *the* business model invading almost all sectors with its production principles efficiency, predictability, calculability, and control – he calls this phenomenon **McDonaldization** (Ritzer 2008). The most important aspect of the way production is organised here (basing on Fordism, Taylorism, Weber's theory of the bureaucracy and rationalisation processes, inter alia) is the transmission and extension of the four main principles into the consumption sphere. Besides the very prominent concept of customer self-service, it is the consumption area that is also organised along the same principles efficiency, calculability, predictability, and control. Individual different forms of consuming the products and customisation are not desired and they virtually do not occur. It is the consumers who adjust themselves to the consumption pattern offered. Thus, the consumption culture accompanying the business concept and the marketing strategy of distributing outlets all over the world via franchising systems does not only favour a particular way of consuming but serves very successfully as best practice prototype for other industries and sectors, such as super markets (like Wal Mart), textile shops (like H&M), furniture stores (like IKEA), hotels (like Arcor), coffee shops (like Starbucks), construction industry, theme parks, shopping malls, etc. Despite cultural differences, a secondary culture and blueprint of a resource-intensive and accelerated lifestyle is exported to many countries of the world (Ritzer 2000). Meanwhile many cities in partly culturally very different countries are characterised by similar shops and restaurants, similar ranges of products and offers, and similar developments and configurations of city centres.

The growth and expansion trend of this business model is basically unbroken. Ritzer assumes almost no limits to the dissemination of the system yet. Despite some efforts to introduce "green" product lines (e.g., McDonald's failure to place a vegetarian burger) and support environmental activities in the context of Corporate Social Responsibility (such as a certain but low share of fair traded coffee at Starbucks company or the carbon footprint as promoted by Tesco), sustainable consumption evidently plays an underpart in the realm of mcdonaldized industries and gastronomy for the time being. In the (fast)food sector this means increasingly consuming red meat (McDonalds is the world's largest meat user!) and tolerating a lot of waste. Other franchise companies also facilitate highly standardised and thus accelerated ways of consumption.

A related business concept can be found in the discounter branch that concentrates on so-called Fast Moving Consumer Goods (FMCG). The concept is simple: The sortiment is limited to a few hundred articles, goods are no brand-named articles but have a good quality, frugal packaging, no marketing, very basic equipment of shops (Boldt et al. 2009). An important point however is that **discounters** considerably simplify the consumption process through preselection of the products and a small product range while offering a good or satisfactory and constant quality. The discount rate is already included in the low prices and not shown or calculated separately. It can be assumed that many consumers prefer less choice and low prices since this sector is constantly growing (Fritz 2006, Boldt et al. 2009).

A new phenomenon emerges at the same time: the **hybrid consumer** who responds to the low prices in the realm of Fast Moving Consumer Goods (i.e., basic commodities) and to high-quality products in the realm of durables (Fritz 2006). Which categories belong the fast moving consumer goods and which to the durables is changing though: Furniture, electronic goods and textiles have constantly accelerated their speed of turnover.

4.3 Branding, advertising and rising aspirations

Schor (1998) points out to the impacts of consumption that is getting increasingly competitive amongst consumers themselves, resulting in e.g. larger cars, larger flats and houses, further and more exotic travelling, etc. New products ranging from new electronic devices to brand clothes, such as personal computers, microwaves, athletic shoes, continuously enter the *"work-and-spend-cycle"* of the middle-class. She calls it the *"expanding definition of necessities"*, products that did not belong to the basic commodities a few years ago but do so today (Schor 1998). One reason, inter alia, contributing to this trend is a very successful **marketing of brand names** trying to exert influence from early childhood on (Barber 2007, Chaplin and Roedder 2007). The rising standards in normal everyday life are also identified as a consumption driver in the context of bathrooms, water usage and sanitation and the perception of personal hygiene and fitness (Quitzau and Røpke 2008).

Interestingly, **advertisement** seems to be one of the blind spots in environmental sciences. Being a huge industrial sector, the foremost purpose of the advertising industry is increasing consumption. It is no surprise that Brulle and Young (2007) discover that the *"primary determinants of personal consumption are personal disposable income and advertising expenditures"*. The link between advertising expenditures and consumption is particularly strong in the field of luxury goods, to a much lesser extent in the field of basic commodities. Interestingly however, the impacts of expenditures for television advertisement appear almost statistically insignificant in this study. The causal relationship between advertising and consumption is beyond controversy. Information campaigns for anti smoking and anti drug taking base on the premise that behaviour can be influenced. Even literature on consumption drivers predominantely misses to acknowledge rising advertisement as a driver for rising consumption.

Business strategies and marketing form an intersection of external and internal driving forces, as they aim to exert influence on individual consumption decisions, but they should not be neglected as very important driver with economic relevance. The more successful certain business concepts are, the more they diffuse and thus boost their influence. Further research must therefore include the sway of distribution strategies that not only aim to sell the product but concurrently sell at certain form of consumption.

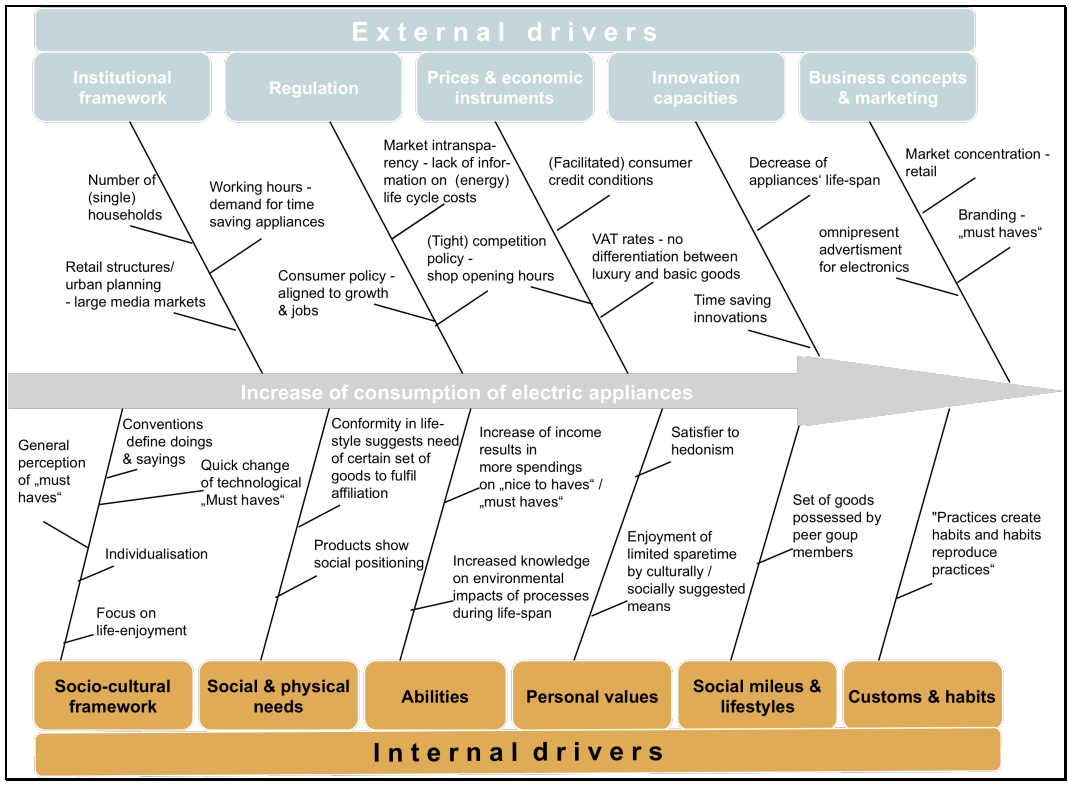
5 Eco-innovation and transition management to influence the plurality of drivers and further conclusions

Because *"the rate of increase in efficiency has been less than the rate of economic growth"* and hence "*the natural ‚background' rate of innovation is not sufficient to tackle environmental problems"* (Gross and Foxon 2003), incentives and **innovation policies** are essential for future environmental policy. The authors suggest the targeted implementation of basic R&D, market-development (e.g., strategic niche management) and financial incentives (e.g., hypothecation of revenues) in order to foster environmental innovation. In terms of a comprehensive **transition management,** Kemp (2008) describes the deliberate innovation policies of the Netherlands split into transition goals and 26 transition paths. He does not favour a reduction in material consumption though as he presumes *"there is no such thing as enough consumption"* (Kemp 2008). For rich countries it should be a qualitatively different consumption.

In the same way Hoekstra and van den Bergh (2002) assume steering potentials in the **final demand composition**. They argue *"the demand effects [i.e., the level of consumption] generally exceed the environmental improvements due to technological changes"*. In fact, it is the final demand mix effect that is responsible for reductions in material flows in most cases (naturally depending on the time period, variable and country examined) and therefore call for a combined implementation of policies that target alternative technologies as well as policies that aim at the structural composition of demand (Hoekstra and van den Bergh 2002 and Moll *et al.* 2008).

The following figure, developed within the scope of the original investigation including internal driving forces, illustrates how external and internal drivers make impact on the consumption of electric appliances. It clearly points out that addressing one or two drivers alone is unlikely to yield impact on the whole consumption area. The drawing hence allows to derive hints for potential levers if a change of consumption into a more sustainable direction is favoured. Fishbone diagrams could be done for a series of other areas such as the increase of meat consumption, the increase of housing space for heating, the increase of air traffic, etc. A superimposing of these diagrams would then probably reveal distinct dominant drivers that would have to be addressed if and when change is required.

Figure 2: External and internal drivers relevant for the consumption of electric appliances



Source: Own compilation and from a study by Welfens, Kolberg, Stengel (not published).

The illustration also emphasises the necessity to integrate attractive concepts such as eco-innovation in a strategy of purposeful civic action ("what is it good for?"), long-term objectives ("low carbon society") and system innovation ("sustainable energy systems and sustainable resource management"). Coming back to the aim of a "green economy" and UNEP's initiative on this, the conclusion is that stepwise change can start from bottom up – consumers, producers and policy-makers cooperate in market development for sustainable appliances – but more work needs to be done on future visions of a sustainable consumption seen in a world-wide perspective and on pathways to leverage investments with citizens' participation and to give multi-level incentives in that direction.

An important problem in the context of private consumption is the overall inconsistency of policies in the multi-level governance systems of Europe and its member countries. Some fiscal instruments applied in certain sectors aim to regulate and steer household consumption in a sustainable direction (and some are quite successful) but higher-level policies such as growth policies (without qualifying sectors that are desired to grow and those which should rather shrink) and fiscal policies aim to increase consumption for employment and competitiveness reasons. Hence, the unbalanced concurrence of policies at different governance levels often have decided but opposite impacts on consumption. They are not explored in detail yet.

A visible trend of previous years, the sprawl of retailers and discounters as well as the McDonaldization of many business sectors deserves more attention both in its implications for current consumption levels and a shift to more sustainable patterns. Such research also has to look at regulative tools such as shop opening hours and urban planning.

It is striking that most of the articles analysed here implicitly but not explicitly deal with rebound effects and assert that consumption further increases despite substantial efficiency gains. A very important rebound effect in the context of consumption described by many studies specify efficiency gains that are used for new or other consumption activities with new or other environmental impacts (e.g., time, money or environmental efficiency winnings gained by not using a car but entailing increasing air travel). One may also take the drivers concluded from this survey as a starting point for more in depth research on this issue.

6 Outlook on a future research contribution to SCP policies and a green economy

External driving forces such as the institutional, infrastructural and policy framework, information and non-information, innovation and marketing strategies, competition and prices do have a strong influence on consumption. They matter for **the direction of choices and the resulting quantities**. External driving forces also play a role for the overall societal focus in the case of the framework and the ensuing regulations being inconsistent, and when consumers need to interpret prices and translate them into full life-cycle costs of goods. Analysing the whole range of external driving forces is thus an indispensable complement to analysing consumption patterns. Furthermore, the analysis shows how well drivers work hand in hand and finally shape the magnitude of consumption.

The implication for policy-relevant analysis is that it has to address a variety of actors that exert influence on those drivers: civil servants from different public administrations, managers from different businesses and company divisions, peer groups in society. In order not to loose track, SCP policy however will have to focus on desired outcomes, up-stream and down-stream changes. It thus will have to be aligned with other policies such as energy or transport policy. With other words, research will have to focus on certain priority areas *as well as* on coherency with other policies. Underlining the importance of a broad range of activities does not imply that SCP policy needs to become an all-encompassing meta policy or a new leviathan. The current SCP action plan, while emphasising action on energy efficiency, can be seen as a starting point for evidence-based policy analysis for a long-term change.

Two suggestions for future research can be made:

1. **Preparing European policies**: A map of key drivers validated through a qualified experts' assessment will help to rank urgent measures and focus on high-priority strategies. Such map can take advantage of the categories on external and internal drivers and relate interactions through foresight exercises. This enables ex ante policy analysis on different levels, combining framework policies, eco-innovation and target group oriented policies in a comprehensive manner. Such work could lead to a policy mix, for example, entailing a national adjustment of the value-added tax rates according to environmental criteria – as a potential strategy in order to drop luxury goods' overconsumption – accompanied by a target-group specific campaign to influence personal values.
2. **Assessing drivers at a European scale**: A quantitative approach to check the empirical validity of the drivers identified can be taken. This requires a transformation/operationalisation of the drivers into measurable variables. Depending on the availability of the data in the European context this allows for rigorous regression analyses (times series, multivariate statistics) and thus to drawing robust findings on European societies and markets – adding substantial insights to economic and sociological analysis at a European scale.

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