



## Methodological and Ideological Options

## Does sustainability-promoting policy making reduce our welfare?

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## ARTICLE INFO

## JEL code:

D11  
D60  
H23  
Q01  
Q57  
Q58

## Keywords:

Sustainability  
Welfare  
Consumption  
Preferences  
Economic growth  
Evolution

## ABSTRACT

Economic growth has brought prosperity for large parts of the growing world population. But it also expanded the use of nature's resources and absorption capacities to a critical extent. The transition to sustainability that policy making therefore tries to promote may, however, have adverse effects on the growth path. If so, how will consumer welfare be affected? How can policy interventions be legitimized if they cause welfare sacrifices? How will consumers as voters react in the political decision making process if such interventions are proposed? For answering these questions the present paper develops an extended explanation of consumption behavior and welfare related to work in the human sciences on the evolved foundations of human behavior. The approach allows a differentiated view on the driving forces and the welfare effects of consumption growth as well as legitimization and acceptance problems of different sustainability-promoting policy options.

## 1. Introduction

After two hundred years of near exponential growth human per capita consumption has reached a historically unprecedented level, the simultaneous exponential growth of the world population not withstanding (Maddison, 2001). Income, wealth and, hence, consumption opportunities are as unequally distributed as ever, both nationally and internationally. However, the prospect of continued economic growth nourishes hopes among the less well-to-do all over the world to catch up and participate in an opulent consumption style. No wonder, stimulating additional economic growth to ultimately serve the expanding consumption aspirations is the mantra of policy makers worldwide (see, e.g., OECD, 2019). However, the historically unprecedented level of consumption has become feasible through an equally unprecedented "industrial metabolism" (Ayres and Simonis, 1994). This has exposed the Earth system in some dimensions to critical strain (UNEP, 2014; Steffen et al., 2015). The global scale of resource depletion and degradation, pollution, species extinction, and the greenhouse effect threaten the resilience of nature's absorption capacities.

In order to ward off a potential threat to humankind a transition to

sustainable forms of the industrial metabolism and, consequently, consumption is inevitable (Costanza et al., 2007). This transition will have to be accomplished while, at the same time, the developing economies are going to claim a rising share of the use of nature's resource and absorption capacities for catching-up with the developed world (Chang, 2006). Many of the challenges which the transition implies can perhaps be tackled by future innovative technological and organizational change. But, due to epistemic boundaries neither the true extent of such improvements can reliably be predicted nor the rebound effects triggered by the improvements (van den Bergh, 2013). If politics and the public do not wish to bet on future innovations as the sole solution to all problems, massive substitution processes will have to be initiated in both production and consumption.

It is discussed since some time already what consumer behavior may look like when it is adapted to a sustainable lifestyle (see Durning, 1992 and for recent surveys Røpke, 2015, Reisch et al., 2016). Yet, the necessary substitution processes are unlikely to come about without incisive policy interventions such as taxes and regulation. Their implementation may lead to less or no further growth of income and, hence, consumption as we know it, if not even to de-growth (see, e.g., D'Alessandro et al., 2020). This is a severe effect that raises normative

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questions as to how such policy interventions can be legitimized – questions that are important for gaining support for the interventions by the consumers in their role as voters in the political decision making process.

While the efficacy of various policy options with respect to promoting sustainability (in the sense of [Baumgaertner and Quaas, 2010](#)) is widely examined, the legitimization question has found less attention. The present paper is devoted to its discussion. This requires an analysis of how the particular design of policy interventions affects consumers. The impact is traditionally analyzed in economics by means of the concept of consumer welfare (see [Binder, 2010](#), Chap. 2; for alternative measures see [Safarzynska, 2013](#)). However, in the canonical theory of consumer behavior and welfare, the level of abstraction makes it difficult to do justice to the actual complexity of (sustainable) consumer behavior ([Gowdy, 2005](#)). The present paper therefore adopts a less abstract approach. Related to recent work in the human sciences about the evolved foundations of human behavior (see [Brown and Richerson, 2014](#), [van den Bergh, 2018](#) for surveys) the approach integrates hypotheses from evolutionary biology, behavioral science, and cognitive psychology.

The analysis proceeds as follows. [Section 2](#) outlines the chosen approach to consumer behavior and discusses several implications regarding the growth of consumption and its welfare effects. As will turn out, the conclusions to be drawn differ significantly from those of the canonical approach. [Section 3](#) elaborates on a special, dynamic feature of consumer behavior, namely the innovation-driven learning of preferences. While the phenomenon contributes crucially to modern consumption growth it is largely neglected in the canonical theory and also in the literature on sustainable consumption. [Section 4](#) turns to the political economy implications. More specifically the legitimization for policy measures that discriminate between different consumption activities will be discussed together with possible problems related to the acceptance of these measures. [Section 5](#) presents the conclusions.

## 2. Why the welfare effects of growing consumption depend on how consumption is motivated

If the toll that human consumption takes on nature's resources and absorption capacities is to be reduced to sustainable levels, changes of the presently prevailing consumption behavior are inevitable. In view of the critical strain which the Earth system is already exposed to in some dimensions ([Steffen et al., 2015](#)), the necessary changes are substantial, urgent, and likely to only come about with supporting policy interventions. In effect, a massive substitution of the strained resources and sinks will have to be induced. To accomplish this, policy makers can try to persuade producers and consumers to voluntarily change behavior. A more vigorous way is to ration access and/or to drive up utilization costs and prices by means of regulations and/or taxes. These interventions are associated with negative real income effects for consumers, a fact nourishing concerns that there will be less or no further growth of consumption or even de-growth. How would consumer welfare or well-being then be affected?

Textbook economics offers the following answer. Expenditures on goods and services are motivated by the utility or preference satisfaction that can be derived from their consumption. Utility is an ordinal index number not explained further. It reflects the degree of preference satisfaction which, in turn, is defined as the measure for individual welfare. If, as a result of a policy intervention, the consumers' budget constraint tightens and less income (in real term) can be spent, consumers no longer reach the same utility index as before. This means that preference satisfaction is reduced and so is individual welfare,

regardless of what ends the expenditures had served. Correspondingly, foregoing further growth of consumption means to forego potential welfare improvement.<sup>1</sup> But are the welfare effects really independent of the ends which motivate consumption activities?

To answer the question it is necessary, first, to specify the concept of consumer welfare in less abstract terms. It will be interpreted here as measure for how well consumers fare with respect to accomplishing their ends. Hence, having been able to better accomplish one's ends is assumed to be synonymous with improved welfare or preference satisfaction. A problem associated with a consequentialist interpretation of welfare like this is that the actual satisfaction derived from an action undertaken to accomplish an end can deviate from the satisfaction expected when the action was chosen. The reason can be (i) that the intended end has not been accomplished or (ii) that it has been accomplished but that this did not result in the expected preference satisfaction.

The problem can be neglected here if it is of only transitory nature, i. e. if by experiential learning the initial expectations are adjusted to the actual outcomes and the choice of actions is adapted accordingly. There are, however, cases in which no such adaptation can be observed and the outcome therefore consistently deviates from the initial expectation that motivated the action. This observation begs the question of why consumers over and again try to obtain preference satisfaction (accomplish ends) without success and yet do not correct their expectations. The question is relevant for policy making as resources spent on intended, but not realized, welfare improvements may be considered legitimate targets of sustainability-promoting policy interventions.

The explanation for the apparent paradox offered in behavioral economics is an affective forecasting failure with the result that the eventually experienced utility can consistently deviate from the assumed utility on which the choice was originally based ([Kahneman et al., 1997](#)).<sup>2</sup> Yet, an affective forecasting failure is not the only possible cause for the apparent paradox. Other causations relating to both of the

<sup>1</sup> In economic textbook theory the ends pursued by utility maximization are not specified. In applied research. However, variables in the utility function are often specified ad hoc so that inferences on the assumed ends are possible. If, for example, a variable represents an environmental good (or the state of a natural resource), the implicit assumption is that consumers are engaged with certain environment-related ends. The ad hoc specification serves, e.g., to assess the willingness to pay as an estimate for the value that consumers attribute to environmental good for which no market price exists. Yet, with or without ad hoc specification, given the standard properties presumed in the canonical theory for the utility function, utility maximization does imply that less income (growth) and, hence, consumption (growth) comes down to foregone welfare improvements.

<sup>2</sup> The possible deviation of what has been called decision utility and experienced utility is also important for assessing the value which consumers attribute to environmental goods for which no market prices exist (see footnote 1). Should the assessment be based on the decision utility or the experienced utility? The mentioned willingness-to-pay estimates refer to decision utility. In ecological economics it has been suggested instead that the value assessment should be based on experienced utility (also specified ad hoc), assuming that the experience is sufficiently accurately reflected in, and conveniently measurable by means of, subjective well-being data, i.e. self-reported life satisfaction data ([Welsch, 2009](#); [Welsch and Ferreira, 2014](#)). This approach has paved the way for a rapidly expanding empirical literature that assesses the value of various environmental goods or particular states of nature by means of life satisfaction statistics, see, e.g., [Ferreira et al., 2013](#), [Bertram and Rehdanz \(2015\)](#), [Methorst et al. \(2021\)](#). These empirical estimations focus on the impact of single variables on subjective well-being. In contrast, the present paper offers a motivation-theoretic inquiry into systematic changes in the composition of consumption and the resulting changes in welfare (in the sense of *experienced preference satisfaction*) together with a discussion of the implications for sustainability-promoting policy making.

above reasons (i) and (ii) are possible as well.<sup>3</sup> The instances in which they occur and the welfare implications depend on the particular ends pursued by means of an action. A specification and closer examination of the ends is thus needed as will be discussed subsequently for the case of consumption.

What is known about these ends? To a large extent they belong to the sphere of the individuals' idiosyncratic intentions and perceptions which evade any generalizing hypotheses. Yet, there are also some commonly shared ends on which more general hypotheses can be formulated. Many of these ends reflect the influence of motivational forces which have been shaped by biological evolution and cultural evolution. Commonly shared with the usual interpersonal variance these motivational forces are heritable "human universals" (Brown, 1991) or culturally conditioned dispositions, respectively (Witt, 2018). They induce generic behavior patterns that are characteristic for consumption and that can be observed at the population level.

Prominent examples of these motivational forces are innate needs. They are characterized by the fact that their satisfaction is associated with primary reinforcement. Accordingly, the motivation to serve these needs is contingent on, and varies positively with, the degree of their deprivation (or, conversely, of their satiation).<sup>4</sup> A subclass of these needs including, e.g., those for nutrition, clothing, shelter (housing), pain relief, or physical and mental autonomy have been dubbed "basic" needs in development economics (Streeten and Burki, 1978). They are also closely related to the list of "functionings" in Sen's (1992) capability approach to the theory of welfare. For the needs in this subclass a specific satiation level exists at which the motivation to spend more resources on their satisfaction vanishes. As long as this is not the case, the motivation to extend consumption persists.

Hence, when the consumers' budget constraint is relaxed, e.g. as a result of real income growth, the expenditures serving "basic" needs tend to grow (per unit of time) until a satiation level is reached, for instance until hunger, lack of clothing, shelter etc. are eliminated. As a matter of fact, while the share of household expenditures on goods which serve "basic" needs is very high for low-income households, this share rapidly declines the higher the household income is (Chai and Moneta, 2009; Kaus, 2012; Bruns and Moneta, 2017).

With respect to welfare as just defined this means the following. A growing income enables consumers to better accomplish the ends shaped by "basic" needs. For that reason the *direct effect*<sup>5</sup> of an increased spending on "basic" needs is a welfare improvement (or greater experienced preference satisfaction). However, the positive effect vanishes once consumers have reached the satiation level of the "basic" needs. Put differently, the welfare effect is contingent on the expenditure level that consumers have already reached which in turn depends on their real income. Since a relatively modest real income suffices to satiate the

<sup>3</sup> Besides the affective forecasting failure (for a discussion of its deeper reasons see Witt and Binder, 2013) the paradoxical behavior can be due to cognitive myopia or unawareness regarding the relevant means-ends relationships that prevent a realization of an end.

<sup>4</sup> This is a behavior pattern experimentally well confirmed in the behavioral sciences (Staddon and Cerutti, 2003). For the related need-theoretic discussion see Lea (1983) and Sheldon (2011). Innate needs as characterized here do not have a hierarchical structure. Such a structure is often assumed with reference to Maslow's (1954) theory of a need hierarchy, see, e.g., Jackson and Marks (1999). However, empirical evidence does not support the need hierarchy hypothesis (Wahba and Bridwell, 2002).

<sup>5</sup> To determine the total welfare effect (the sum of direct and indirect effects), the welfare gains from spending additional resources have to be set off against welfare losses due to increasing environmental strain which the use of the additional resources causes. Calculating and balancing both effects is a not yet settled core problem in ecological economics. The total welfare effect can be negative despite a positive direct effect. The point to be elaborated in this paper is that in several cases there is not even a positive direct effect or, if there is one, it may be contestable on normative grounds.

mentioned "basic" needs, most consumers in the developed economies have the capability to reach satiation. Nonetheless, spending on goods serving "basic" needs continues to grow in real terms – though only moderately (see, e.g., Chao and Utgoff 2006 for the U.S.).

An explanation for the apparent motivational paradox is that expenditures on food, clothing, housing etc. may serve not only the corresponding "basic" needs which are satiable. Many goods and services can actually serve to satisfy a combination of motivations. Accordingly, spending on a certain expenditure category may simultaneously be motivated by several innate needs (as well as learned wants and cognitive goals to be discussed in the next section). Some of them are more and some less easily satiable, if they are satiable at all.<sup>6</sup> This fact is of vital importance for consumer industries facing market saturation for their products. By creating innovative and/or diversified goods and services that simultaneously appeal also to less easily satiable consumption motivations, market saturation can be postponed – a frequently observable marketing strategy.

In the case of food, to take that example, the motivation to expand consumption (beyond the satiation level for calories and other nutrition components) may be driven by the need for cognitive and sensory stimulation. This is another commonly shared, innate motivational force. In fact, it is an eminent one that drives a wide variety of consumption activities such as those connected to entertainment, recreation, leisure, and tourism. In relation to food the need can be served, e.g., by experiencing varied taste, scent, and texture of foodstuff, or by experiencing an exciting ambience and/or society when consuming food away from home. But while in the case of the need for nutrition satiation is reached in a basically unchanging way that is determined by metabolic requirements, for the need for cognitive and sensory stimulation this is different.

Consumers forecast the amount of arousing stimuli they may experience by consuming suitable goods and services. Yet, even if the forecast is initially confirmed by the actual experience and the need is temporarily satiated, repeated experience of the same stimuli over time is subject to "hedonic adaptation" (Frederik and Loewenstein, 1999). A kind of stupefaction effect eventually leads over to a feeling of boredom. The crucial point is that new, stronger stimuli are then required to satisfy the need for cognitive and sensory arousal. They do not necessarily have to be experienced by means of consumption activities, let alone more resource-intensive and therefore more expensive ones. Yet, facing tempting offers from the industry, many consumers are motivated by the feeling of boredom to resort exactly to that strategy to again satisfy their need, if an expanding budget constraint allows them to do so.<sup>7</sup>

While relevant for food consumption, this pattern is even more pertinent where the need for cognitive and sensory stimulation is the main or exclusive driver of consumption. Thus, not only the food industry, but producers in many other businesses such as entertainment, recreation, leisure, tourism are eager to create the upgraded – often more resource-intensive – goods and services consumers can use to overcome boredom (see Chai, 2007 for a case study of the innovations in the tourism industry). The latent insatiability of the need offers nearly inexhaustible opportunities for expanding sales as the long-term time series of real household expenditures shows. In recent decades the expenditure shares of consumption activities related to entertainment, recreation, leisure, and tourism are among those with the highest increases over time (see, e.g., Chao and Utgoff, 2006 for the U.S. and Jackson and Marks, 1999 for the U.K.).

<sup>6</sup> Differences in the satiability of needs translate into different income or expenditure elasticities of the goods serving the needs. That these differences exist is a long established fact, see, e.g., Lebergott (1993). Yet, unlike the present approach, canonical utility theory gives no reasons as to why they exist.

<sup>7</sup> In a similar vein, latent boredom that persist despite growing consumption expenditures has been described by Scitovsky (1976, 1981) as a characteristic of modern consumerism.

Concerning the direct welfare effect of this kind of consumption, it has to be acknowledged that escaping from boredom, even though only temporarily, results in an experienced welfare improvement, albeit one that does not last. Consumers do accomplish the end of satisfying their need for cognitive and sensory arousal when they feel new, stronger stimuli by means of corresponding consumption activities. Yet, with an ongoing hedonic adaptation the experienced welfare gain cannot be upheld (a dynamic variant of case (ii) above, i.e. of the relationship between accomplishing an end and the experienced preference satisfaction). To renew the experience ever new, stronger stimuli have to be tapped. If, for lack of other ideas, the strategy is to elicit the new, stronger stimuli by consuming ever more resource-intensive and, hence, more expensive industry offers, expenditures have to grow. Should sustainability-promoting policy measures reduce or prevent the growth, consumers forego the (temporary) welfare improvements.

There are several other innate needs that – combined or not combined with “basic” needs – motivate consumption which are not as easily satiable as the “basic” needs. Significant for consumption growth are, in particular, the need for social recognition and status and the need for a positive self-image. These needs are human universals as well. As already recognized by [Veblen \(1899\)](#), the need for social recognition and status is a driving force of “conspicuous consumption”. For an exemplary discussion consider the case of consumer spending related to housing for which this need plays an important role (simultaneously with the “basic” need for shelter).

In principle, the way in which status is signaled is a matter of convention (see [Witt, 2010](#)). Conforming to the convention on the one hand serves to indicate conformism with the behavior of peers. On the other hand this is usually meant to distinguish oneself from what is considered typical behavior of lower ranks. To be able to send the desired signals, conventional status symbols have to be visible and known to be sufficiently exclusive (which usually means sufficiently expensive, see [Charles et al., 2009](#), [Heffetz, 2011](#)). In the case of conspicuous consumption related to housing this may mean impressive facades, luxurious interiors, opulent living space, i.e. particularly resource- and energy-intensive forms of material consumption.

The need would be satisfied once the end is accomplished, i.e. the desired higher status (one’s “positional preference”, [Hirsch, 1978](#)) is socially recognized. However, a status position claimed through conspicuous consumption tends to be unstable. Some consumers (let us dub them would-be ascenders) always have higher status ambitions than their present budget constraints allow them to realize. When per-capita income grows they are enabled and motivated to spend on status symbols not previously affordable to them. This, in turn, threatens to undermine the status of consumers who previously claimed a higher status for themselves. To defend their claim they also have to raise their status expenditures so as to acquire different, more expensive status symbols. Higher incomes generated by economic growth thus fuel status races in the form of a dynamic zero-sum game. Such a race seems to drive in good part the significant growth of the budget share of housing expenditure ([Frank, 2007](#)).

However, with everyone expanding her or his conspicuous consumption, the relative social status distribution does not change much. While would-be ascenders may temporarily enjoy the possession of the desired status symbols they will eventually find that their very end of a higher status has not been realized once all adaptations have been completed. Hence, their experienced welfare is not improved (case (i) of the relationship between accomplishing an end and the experienced preference satisfaction). The motivation to reach a higher status persists and so does – presumably because of a lacking understanding of the complex simultaneous multi-agent adaptation efforts – the motivation to further expand the spending on conspicuous consumption. In the case of housing, the competitive spending is thus easily driven beyond the expenditure level at which the “basic” need for shelter is satiated. Conversely, collectively abstaining from expanding conspicuous consumption would not cause any foregone welfare improvements or even

welfare losses. While status races may thus be considered a waste of resources ([Frank, 2011](#)), consumers persistently choose to participate in them.

The example of the need for social recognition and status and for cognitive and sensory stimulation show that, in contrast to the sweeping assumption in canonical textbook economics, a growing consumption does not necessarily improve individual welfare. To the contrary, to the extent to which the growth is motivated by these two needs it may actually point to a “hedonic treadmill” syndrome (see [Binswanger, 2006](#)). To serve these latently insatiable needs ever more income has to be earned. This burden is shouldered with the expectation that the extra expenditures will improve one’s welfare or well-being in a lasting way. However, the expectation does not materialize, and yet, the motivation to earn and to spend more resources to this end lasts for reasons of an affective or cognitive forecasting failure.

### 3. Why preference learning is an important albeit ambivalent driver of consumption growth

The preceding analysis focused on the welfare implications of consumption motivated by commonly shared innate needs and their unequal satiation patterns. But evolution has also shaped innate learning capacities that result in a certain (intra-generational) adaptability of the heritable motivational forces. New motivations are generated and existing ones are adapted to experience and insight. In economic terms this comes down to preference learning and preference change – an important though often neglected dynamic aspect of consumption behavior. Its implications for explaining the growth of consumption and for assessing the welfare effects of that growth (or a lack of it) will be discussed in this section.

The emergence and change of motivational forces rests on non-cognitive learning (also called conditioning learning) and social cognitive learning and cognitive goal setting.<sup>8</sup> Within groups of consumers who share information the learned content is often similar and influences similarly the ends which consumers pursue. To distinguish the newly emerging motivational forces from those arising from innate needs, let us call them culturally learned wants and cognitive goals respectively. (They may however be conditioned on, or be perceived as being instrumental for, the satisfaction of deprived innate needs.)

A prominent driver of these learning processes is the incessant stream of consumer innovations. The more a consumer innovation is acclaimed in social media and, as already noted by [Galbraith \(1973, Chap. 15\)](#), is actively promoted by advertising, the more attention do consumers pay to the innovation. With the growing attention the chances increase that the innovation becomes an object of cognitive goal striving and/or conditioned responses of consumers and, hence, that preferences change accordingly. A motivation to consume the innovation emerges and results in a growing spending in particular if, as a result of income growth, the consumers’ budget constraint is relaxed.

To assess the welfare effect of such an innovation-driven consumption growth an inter-temporal comparison of the consumers’ situation at the time before and after their preferences change is necessary. However, unlike in the case of invariable preferences, a time-invariable measuring rod is no longer available for that inter-temporal

<sup>8</sup> Conditioning learning is the learning of a conditioned reinforcement of an originally neutral action, see [Leslie \(1996, Chap. 2.14\)](#). For the motivational aspects of social cognitive learning and cognitive goal setting see [Bargh et al. \(2010\)](#). The role of two mechanisms for consumer behavior is discussed in more detail in [Witt \(2018\)](#).



comparison. The assessment of welfare effects is possible either from the point of view of the pre-change preferences or that of the post-change preferences. As already noted by [Elster \(1982\)](#), the consequence is that the alternative assessments may contradict each other.<sup>9</sup>

To demonstrate this let the new wants or goals emerge while the budget constraint is not changing. (In a more elaborate version the argument can be extended to the conditions of a relaxing budget constraint.) To serve the new wants or goals, i.e. to adapt to the preference change, consumers re-allocate their resources. Assessed by the post-change preferences (the newly adopted ones) the new allocation is experienced as welfare-improving. But from the point of view of the pre-change preferences, i.e. under the condition that the new wants or goals have not (yet) been formed, the new allocation would mean a deviation from a preferred allocation and, hence, result in a welfare loss. The assessment of whether or not a growing consumption motivated by newly learned wants and new cognitive goal setting improves welfare is contingent on which state of the preferences – pre-change or a post-change – is used as measuring rod. Welfare theory offers no clue as to which measuring rod to adopt.

From an empirical point of view, the alternative positions seem to correspond to two irreconcilable attitudes towards life. Some consumers may deliberately control the learning of new wants and the formation of new cognitive goals in an ascetic manner. Not having learned to appreciate fancy new stuff, these consumers would not have to forego a welfare gain, if the possibility of expanding the corresponding consumption were thwarted by sustainability-promoting policy measures. However, in the developed world it seems more often that consumers are endowed with a pro-innovation mindset corresponding with the opposite of an ascetic attitude. Receptive to ever new consumption opportunities, they learn to appreciate them, and adapt the ends they pursue accordingly. (Such behavior may simultaneously be motivated by the fact that the incessant stream contributes to the satisfaction of their need for cognitive and sensory stimulation and helps to avert boredom.) Consequently, the possibility of less or no growth of the corresponding consumption would mean foregone welfare improvements to them. Besides the latently insatiable innate needs, preference learning may thus explain why longing for a greater command of resources is widely shared among the already very rich no less than among the poor.

#### 4. Political economy implications: legitimization and acceptance issues

Among the objectives of sustainability-promoting policy making two are particularly important. One is reducing the thermal and material waste load of production. The other objective is a reduction of the use of critically strained natural resources, if possible through increasing the resource efficiency of products and production processes. To what extent specific policy measures are able to accomplish these objectives is from an instrumental point of view still under – partly controversial – debate.<sup>10</sup> This question is, however, not center stage here. Focus will rather be on two problems that have found less attention: the legitimization for, and the electorate's likely acceptance of, different policy options in the light of their diverging direct<sup>11</sup> welfare effects.

The policy options that are frequently discussed in relation to the two objectives are various forms of taxes and regulations. They have in

common that they are “hard” policy measures in the sense that they imply a coercive element imposing severe restrictions on individual decision making. They cause cost and price increases for presently consumed goods and services which trigger intended substitution processes (if they are not directly triggered by regulatory action). These processes are associated with negative income effects which, when left uncompensated, result in real terms in reduced consumption or consumption growth.

Regarding the legitimization problem let us assume that, because of the urgency of the transition to sustainability, the coercive element can be defended. The question then is whether there is also a legitimization for a particular design of taxes and regulations that discriminates between consumption activities according to the effects they have on individual welfare. The effects depend on how the activities are motivated. It can therefore be argued that a design of taxes and regulations is legitimate that places the burden of the necessary adaptations primarily on consumption activities where this causes little or no welfare sacrifices. Put the other way round, those consumption activities where less or no growth implies definite welfare sacrifices should as far as possible be exempted from, or compensated for, the consequences of sustainability-promoting taxes and regulations.

Adhering to this device two clear-cut cases can be singled out. The first is that of activities serving not yet satiated “basic” needs. A reduction or reduced growth of consumption serving these needs results in welfare losses or foregone welfare improvements. To avoid this, goods and services primarily catering these needs have to be exempted from “hard” policy measures. Alternatively, price increases and/or shortages resulting from these measures have to be compensated. Where the goods and services are subject to a value-added or sales tax, this can be accomplished by a reduced tax rate. Where these taxes do not play much of a role – as, e.g., in the case of housing expenses – compensation can be realized by subsidizing the provision of the relevant consumption items.

The second clear-cut case is that of consumption serving the latently insatiable need for social recognition and status. In this case the opposite holds. As mentioned, in the developed economies households devote a rapidly growing share of their expenditures to that kind of consumption. Yet, neither spending more nor spending less on this purpose affects individual welfare (as long as everybody does so and the status distribution therefore remains basically unchanged). From a utilitarian perspective there is therefore no justification for exemptions or compensations in this case. To the contrary, if it is possible to identify particular items primarily serving conspicuous consumption purposes, it would appear legitimate to impose an extra tax<sup>12</sup> or scarcity-increasing regulation on these items. (The proviso is that substantial resource savings and/or waste reductions can be realized in this way without unduly cutting employment.)

In the case of the latently insatiable innate need for cognitive and sensory stimulation the utilitarian criterion is less conclusive. Spending more on goods and services consumed for that purpose does improve welfare, albeit only temporarily. Conversely, less or no growth would mean to forego the welfare gains which, however, would not have lasted. Unlike in the case of the need for social recognition there is thus a notable welfare effect. Yet it is different from the enduring effect in the case of not yet satiated “basic” needs. From a utilitarian point of view the difference can be argued to matter. While the growing consumption serving the need is likely to have a permanent impact on natural resources and absorption capacity, the welfare effects do not last. The legitimacy of exemptions or compensations is therefore contestable on grounds of a lack of lasting effect. A point can even be made that, in

<sup>9</sup> By means of certain restrictions on the form of the preference change it can be logically excluded that inter-temporal welfare comparisons based on pre-change preferences contradict those based on post-change preferences, see [von Weizsäcker \(2005\)](#), [Bernheim and Rangel \(2009\)](#). Whether preference orders that satisfy the restrictions have any empirical relevance is unknown.

<sup>10</sup> The controversy revolves not least around the possible rebound effects. See, e.g., [Miklós and van den Bergh \(2014\)](#) and [Santarius and Soland \(2018\)](#) for an exemplary discussion related to energy consumption.

<sup>11</sup> See footnote 4 above.

<sup>12</sup> The impact of such a tax, resembling a luxury tax usually collected in the form of a surcharge on the value-added tax, can however be ambiguous. A higher relative price of the taxed items may induce the desired substitution effect. But a higher price also makes the items more exclusive so that additional demand is attracted.

order to accomplish substantial resource savings and waste avoidance, extra taxes and/or regulations restraining corresponding consumption activities, e.g., in tourism may be worth the negative welfare effects that do not last.

A similar conclusion can be drawn for the ever more important innovation-driven consumption motivated by learned wants and/or cognitive goal setting albeit for different reasons. In this case it is not the phenomenon of hedonic adaptation that ultimately relativizes the welfare assessment. It is rather a kind of habitual adaptation which, in turn, is contingent on one's attitude towards life. For consumers with a pro-innovation mindset who constantly adapt their ends and preferences to the incessant stream of consumer innovations it is a self-fulfilling prophecy that growing consumption capabilities result in welfare gains. Not being able to keep pace with emerging innovative offers consequently means to forego the potential gains. The opposite is true, however, if consumers resist the innovation-induced adaptation of their preferences. In principle it is thus up to one's more or less deliberate choice of ends and preferences whether or not one suffers negative welfare effects if consumption growth slows down or ends. Because of this contingency any argument legitimizing exemptions from, or compensations for, taxes/regulations on resource-intensive (rather than resource-saving) consumer innovations would rest on ambiguous grounds.

On a utilitarian basis it is thus possible to defend the legitimacy of a policy design that selectively exempts consumption items serving "basic" needs while such a defense would, for different reason, be problematic in the other cases. A selective design discriminating in the suggested way would place the burden of sustainability-promoting taxes and regulations mainly on consumers who spend the lion's share of their budget to serve latently insatiable needs, learned wants, and cognitive goal setting. These are consumers in higher income classes. Household expenditure data consistently show that consumers with low income spend a much larger share of their budget on products serving "basic" needs than consumers with a higher income.<sup>13</sup>

Both reduced tax rates for, and subsidized provision of, goods and services catering "basic" needs are already in place in many countries, though for redistributive social policy reasons. To adapt the existing policy measures to the purpose of preventing sustainability-induced welfare sacrifices some modifications are required. First, more flexibility in adjusting the taxes and regulations has to be allowed so as to be able to follow the adjustments of prices and supply conditions during the transition to sustainability. Second and more importantly, the product categories for which exemptions or compensations are presently valid have to be replaced by a new classification. The latter has to account for the fact that many goods and services which can satisfy "basic" needs simultaneously also serve to satisfy other motivations. The motivation that dominates the consumption in such cases (and which therefore is relevant for assessing the welfare effects) does not necessarily justify exemptions or compensations.

For instance, the expenditure category food is presently usually subjected in toto to a reduced sales tax. However, in terms of the present analysis this privilege can be contested for many items in this category, because the "basic" need for nutrition is no longer the main driver of their growing consumption. To give an example, the consumption of transport-intensive exotic food or highly resource-intensive meat can be argued to be motivated by the need for cognitive and sensory stimulation and/or the need for social recognition and status more so than by the "basic" need for nutrition. The same can be claimed for food consumed away from home. If so, the welfare effects of reduced

<sup>13</sup> See, e.g., Chai and Moneta (2010), Lewbel and Houthakker (2017). The income-dependency of the composition of consumption expenditures is also expressed by income-expenditure curves (Engel curves). Their shapes vary for the products serving the different needs in way that reflects the differing satiation patterns, see Lades (2013).

consumption would not be those of a reduced consumption of basic nutrition.

A different question is whether the electorate is likely to accept a selective policy design as suggested – the second of the above mentioned problems. Since the question is crucial for the prospects of making the transition to sustainability, it deserves a discussion as well. Experience teaches that any measure cutting back on the prospects of future consumption triggers strong resistance in the political process. This can even be expected to happen where more consumption eventually would turn out not to lead to welfare improvement as in the case of the need for social recognition and status. Still more opposition is likely to occur when the affected consumption activities have in the past been experienced as at least temporary welfare improvements – not to speak of the negative reaction of consumers with a pro-innovation mindset.

In view of these difficulties it is advisable for policy making to also consider supplementary "soft", i.e. non-coercive, policy options. Since they do not impose binding constraints on the agents' pursuit of their ends, such policy options have no (direct) welfare effects and face significantly less opposition in the political decision making process. "Soft" policy measures come in different forms and serve different purposes. By government sponsored information campaigns and moral suasions an attempt can, for example, be made to advertise sustainable consumer behavior as model for prudent and responsible conduct, trusting that some consumers may adopt it to satisfy their need for a positive self-image (see, e.g., Buenstorf and Cordes, 2008, Dietz et al., 2009). By suitable campaigning it may also be possible to influence the pro-innovation mindset of consumers in such a way that they pay attention to the resource-intensity of consumer innovations and favor resource-saving ones.

Furthermore, by manipulating the presentation of the choices available to consumers, policy making can try to "nudge" them, i.e. direct their attentional processes to pro-environmental choices first (Schubert, 2017, see also Binder and Lades, 2015). Focusing particularly on status consumption, governmental information provision can try to enable and encourage consumers to engage in social comparison processes focusing on sustainability-promoting status symbols (see, e.g., Allcott and Rogers, 2014). Easily visible resource-saving consumption behavior, e.g., driving an electric car, can be advertised as symbol for claiming social recognition and status. As a result of peer orientation and the need to conform such behavior may then become a social norm (see Farrow et al., 2017).<sup>14</sup>

The sustainability-promoting effect of "soft" policy options like these is, however, limited. In part this is inevitable, because their non-coercive nature allows consumers to ignore the measures or even to free-ride on them. But the limited effect is partly also due to a structural handicap which governmental information campaigns and moral suasion have. They are just one contribution to the massive information flows competing for the attention of consumers (and voters). The lion's share of the information flows is made up of commercially funded advertising and informal nudging of an entirely different kind. And, what is worse, the lion's share of the information flows conveys messages that are not compatible with, or even (unintentionally) subversive to, sustainable consumer behavior.

The structural disadvantage of public campaigning in the competition for attention can be illustrated by the example of consumption serving the need for cognitive and sensory stimulation. As a matter of fact, the public campaigns that have pointed out the environmental impact of far distance tourism, long and short haul touristic flights, and cruising tours have not prevented these sectors from becoming the fastest growing ones in the tourism industry. Moral suasions have a hard

<sup>14</sup> Some of these measures have already been implemented by some European governments, sometimes jointly with financial incentives in the pursuit of their environmental improvement programs, see, e.g., Coad et al. (2009). For a comparison of "soft" measure and taxation see Kallbekken et al. (2010).

stand against the massive multi-channel advertising of the tourism industry with its bright images – passing over in silence all negative externalities. In addition, there is a huge media industry operating on its own account. Its travel journalism, acting as if it were an agent of the tourism industry, appeals to boredom and curiosity of consumers by presenting reports on enticing touristic pleasures all over the world and on how easy it is to participate in them.

The rivalry between the objectives of a sustainability-oriented policy making and the counteracting messages disseminated by much of the commercially funded advertising can be observed similarly in many sectors of consumption. To solve, or at least reduce, the problem it may be necessary to consider policy options focusing on the advertising industry itself. The role of the industry has been critically scrutinized in the political economy literature at least since Galbraith (1973). In the present context, focus should be on reducing the bias in product advertising. The bias is a concomitant of the fact that producers pay for the advertisements. Since information about the true impact which their offers have on strained resources and waste emissions would undermine their sales efforts, producers have no interest in providing that information. Such information would, however, enable consumers to discriminate with their choices against products with an impact that they consider unacceptable.

A “hard” policy measure seems inevitable to address the bias and the latent conflict of interest it causes, namely a specific regulation of the advertising industry. It can follow the example of similar regulations already practiced in diverse other settings. Examples are energy labels for household appliances, CO<sub>2</sub> emission labels for automobiles, nutrition content declarations for processed food, or health warnings on tobacco products. Such declaration requirements can be made compulsory more generally and be required for advertisements as well so that the impact of the advertised goods on certain critical resources and sinks (the ecological footprint) is made public. Moreover, this regulation can be extended to advertisements for resource-intensive services such as those offered by the tourism and entertainment industries. In contrast to a (sometimes suggested) tax on commercial advertisements that cannot discriminate against specific, biased content, such a regulation would not affect advertising and its useful functions in general. It would make commercial advertising more compatible with the aim of developing a sustainable lifestyle.

A final issue to be raised in relation to the political economy implications concerns the international aspects of the present analysis. Both the composition and the dynamics of consumption that can be observed worldwide depend on the national and international income distribution. The reason is that consumers with high income are capable of satiating their “basic” needs so that only the budget shares of consumption continue to grow which serve latently insatiable innate needs, learned wants, and cognitive goal setting.<sup>15</sup> These activities are characteristic of an increasingly affluent lifestyle which is affordable to a majority of consumers only in developed economies. While its contribution to welfare improvement has been shown to be questionable, it takes a heavy toll on critically strained natural resources and absorption capacities. If this lifestyle becomes a model and pace-maker for the mass of consumers in the developing economies as well, the transition to a sustainable world economy would be in jeopardy and force policy making to bet on a salvaging effect of future innovations.

If the “hard” policy measures that are necessary for making the transition happen lead to less or no further consumption growth or even to de-growth, the direct welfare effects of these cuts can be expected to differ depending on whether developed or developing economies are affected. In the developing world where mass consumption still serves to

a large extent not yet satiated “basic” needs, cuts would cause unambiguous permanent welfare sacrifices. In the developed, high income economies, in contrast, the cuts would mainly affect consumption activities that can be reduced with the result of no welfare sacrifices, or only temporary sacrifices, or of sacrifices that are contestable on normative grounds.

This diagnosis may add to the international political economy debate on who has to incur the direct and indirect costs of a worldwide transition to sustainability. The utilitarian argument that has been outlined before has implications for the international agreements that are necessary to constrain the global resource uses and waste emissions. It can legitimately be claimed that these agreements should allow exemptions and/or compensations for economies with the lowest per capita income. Governments in these economies are, of course, called upon to put a break also on non-sustainable consumption patterns of their well-to-do citizens. But the main burden of the adaptations necessary for making global consumption sustainable should be born, it can be argued on a utilitarian basis, by the majority of the consumers in the developed high-income economies.

## 5. Conclusions

If the use of strained natural resources and absorption capacities is to be reduced to sustainable levels, policy making efforts will have to be intensified. There is presently considerable uncertainty as to whether tighter policy interventions will also reduce, or bring to an end, the growth of consumption that has lasted for a century now. Future innovations and technological progress may ease the necessary adaptations. Yet the extent to which this will be the case is unpredictable. For that reason, no informed guesses on possible effects on future consumption have been attempted here. Instead, it has been explored how individual welfare would be affected should the transition to sustainability indeed result in less or no more consumption growth. This question is important for discussing the legitimization for more incisive policy interventions and the chances of their acceptance by the electorate.

The discussion started from the truism that a growing ability to consume is a vehicle for consumers to accomplish the ends by which they expect to improve their welfare. In the abstract canonical theory of utility and welfare these ends are not systematically analyzed with their impact on individual welfare. A thorough analysis of commonly pursued ends and, in particular, the underlying motivations is, however, the key for understanding the welfare effects of sustainability-promoting policy options. Such an analysis has been presented in this paper and has led to several political economy implications.

Regarding the legitimization problem, a normative argument based on the welfare criterion has been examined which may justify exemptions from, and/or compensations for, sustainability-promoting policy measures where they have negative effects on consumption. With respect to the acceptance problem, “hard” policy measures such as taxes and regulations (involving an element of coercion) have been compared with several “soft” policy measures. The latter face significantly less opposition in the political decision making process, but their impact leaves much to be wanted. After exploring some of the reasons a concrete proposal has been made as to how to improve the effectiveness of “soft” policy measures. Finally, the (re-) distributive aspects associated with exemptions from, and compensations for, negative effects of the “hard” policy measures have briefly been addressed. Based on a utilitarian argument it has been discussed for both the national and the international level whose consumption (growth) should be cut if the transition to global sustainability turns out to require such cuts.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

<sup>15</sup> For the empirical evidence see footnote 13. A cross-country analysis shows that the effect also holds internationally when the consumption patterns in economies with low per-capita income are compared to those in high-income economies (Kaus, 2012).

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