An offer you can’t refuse – Enhancing personal productivity through ‘efficiency consumption’

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ZOE Discussion Papers | No. 2 | January 2019

zoe institute for future-fit economies

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ZOE. Institut für zukunftsfähige Ökonomien. www.effizienzkritik.de

Abstract: Worldwide, economic growth is a prominent political goal, despite its severe conflicts with ecological sustainability. Contributing to the debate on economic 'growth imperatives', this article explores the thesis that firms and consumers both frequently acquire goods that increase their efficiency (productivity). For firms, efficiency is accepted as a main investment motive, but for consumers it is usually framed as convenience, ease, or comfort. Via social diffusion processes consumption goods that can save time and costs are transformed from a welcome expansion of possibilities into a social imperative whose noncompliance over time also has economic drawbacks. Positive feedback mechanisms not only lead to an acceleration of private life but favor ever more efficient industry and trade structures on the supply side, contributing to a redistribution of incomes and revenues. Eventually a comprehensive consumption pattern leads to a new 'normality' and makes the renunciation of consumption goods like cars, computers or smartphones literally impossible. Both microeconomics and consumption sociology usually assume fundamental differences of motivations, goals and structural overall conditions for firms and consumers. Some reasons for this scholarly asymmetry are discussed and a more symmetrical consumption model is proposed. As a political dimension the increasing resource use of this quest for efficiency is addressed.

Keywords: Efficiency; Diffusion of Innovations; Growth Imperative; Feedback loops; Theory of Consumption

Herausgeber / Publisher: ZOE. Institut für zukunftsfähige Ökonomien e. V., Thomas-Mann-Straße 36, 53111 Bonn. info@zoe-institut.de · www.zoe-institut.de · ISSN 2627-9436.
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1 Introduction

Economic growth (measured as Gross Domestic Product, GDP) is one of the most important goals of politics worldwide. GDP growth is generally associated with progress and improved human well-being, a "panacea" to most economic and social problems, and over time "growth for growth's sake" became "the supreme and largely unquestioned objective" (Schmelzer, 2015, pp. 262–70). But the suitability of GDP growth to measure social progress is questioned, as is its promise to improve social conditions (Stiglitz et al., 2010; Wilkinson and Pickett, 2009) and the ability of growing economies to stay within "planetary boundaries" (Steffen et al., 2015). "Green Growth", the absolute decoupling of economic growth from the environmental impact (OECD, 2011), is discussed as a way out of this dilemma. It is doubted whether this will ever be possible (Jackson, 2009; Kümmel, 2011; Madlener and Alcott, 2009; Santarius, 2015). The alternative to refrain from growth "remains anathema to policymakers and arguably to the public at large" (Rosenbaum, 2015, p. 624).

Scholars in different fields have criticized this as a lopsided and unreflecting clinging to growth, but are far from being unanimous whether this is caused 'only' by political will or whether systemic 'growth imperatives' exist (Daly, 1973; Kallis, 2011; Schmelzer, 2015). For the question 'Why can't we stop clinging to growth?' no generally accepted answer exists, but a plethora of theses that range from unchangeable anthropological constants over system failures, business power and cultural influences to personal character. Accordingly proposals for a socio-ecological transformation are made along a whole spectrum, ranging from institutional over cultural to individual changes (Richters and Siemoneit, 2017a,b, 2018, 2019, and references therein).

As a contribution to this debate, I want to discuss a socio-economic mechanism that would reveal a systematic necessity for consumers to net invest (i. e., to 'grow'). The thesis is: Firms and consumers are *both* acquiring frequently, intentionally, and often enthusiastically numerous goods that make them more *efficient* (in the sense of time and cost efficiency). In microeconomic literature, the topos 'efficiency' (as defined here) has been related usually to production only. But there is also an *efficiency consumption*: Certain technical products like freezers, washing machines, cars, computers and mobile phones (as well as services based thereon) are suitable to relieve consumers' schedules, make them independent and more flexible. Consumption research has scrutinized this type of consumption from time to time but mainly viewed it as 'convenience' or an answer to 'time pressure', a phenomenon interpreted as a culturally imposed practice or sign of a personal lifestyle, like dual income families (Hochschild, 1997; Linder, 1970; Schor, 1991). But efficiency consumption also has *economic* advantages, a topic often lacking attention in consumption research. This more existential aspect may be the cause for a *systematic* 'escalation': These goods provide access to opportunities for cutting costs and generating or sustaining income. Via economic feedback loops they can contribute to a reshaping of the supply side, escalating supply *and* demand and making these consumption goods no longer a choice but an obligation, thereby closing a positive feedback-loop which can be interpreted as (part of) a 'growth imperative'.

This article tries to explore the potential of this perspective to explain certain consumption decisions and to resolve some theoretical issues. As a starting point, section 2 outlines two aspects where current theory is lacking coherence. Section 3 delivers definitions of several terms relevant for this article. In section 4, the concept of efficiency consumption is introduced theoretically and underpinned empirically. Micro economists and consumption sociologists repeatedly have emphasized the fundamental difference (asymmetry) between firms and consumers. Section 5 offers an explanation how this (in connection with other effects) may have contributed to not perceiving efficiency consumption as a research field yet. In section 6, an alternative theoretical model for consumption is presented that 'symmetrizes' firms and consumers (and therefore also investment and consumption). Finally, in section 7 some political conclusions regarding the environmental impact of this quest for efficiency are discussed.

2 Starting Point and Question

The concept of efficiency consumption could help to better understand at least two aspects discussed unsatisfactorily yet:

(1) In microeconomics and consumption sociology, a remarkable asymmetry of firms and consumers is prevailing.

Samples from microeconomic textbooks reveal a *technical progress naturalism* on one side and an *insatiable need naturalism* on the other. On the supply side, a quasi natural cut-throat competition is a constant source of efficiency increases and innovations (Schumann et al., 2011, pp. 37–8). On the demand side, there are quasi natural wants that never can be fully satisfied, since the level of wants rises parallel to the standard of living, and something to desire always persists (Fehl and Oberender, 2002, p. 352; critically on *need naturalism* Ilmonen and Sulkunen, 2011, p. 47). Depending on whether the authors interpret goods as 'necessary' or 'extravagant' the consumption motives are assessed differently, but *per definitionem* a satisfied (non)consumer does not exist in microeconomics (Ackerman, 1997b, p. 189). Rational decisions by firms based on objective criteria are contrasted with irrational or 'eccentric' decisions by consumers based on personal desires (Lancaster, 1969, pp. 181–2). This asymmetry is justified by assuming that the profit maximization of firms is a consequence of a "Marktzwang" (market coercion) due to competition, while the utility maximization of consumers does not arise from a comparable pressure (Fehl and Oberender, 2002, p. 305). While modern textbooks tend to alleviate this asymmetry, they still scrutinize 'soft' topics

like tastes, altruism and cognitive limitations for consumers, but assume 'hard' profit maximization, efficient allocation and optimal input choices for firms (Frank, 2010).

Consumption sociologists emphasize other aspects, but come to similar conclusions. They also insist on a *fundamental difference* of motivations, goals and structural overall conditions for firms and consumers. Hedtke (1999, pp. 50–73) discusses vehemently an in his view misguided 'parallelization of households and firms' by economist Gary S. Becker and others, and most authors in Goodwin et al. (1997) as well as in Rosenkranz and Schneider (2000) draw the picture of a more or less volatile consumer and insist on mainly cultural influences on consumption, as opposed to firms. Works in the tradition of *Consumer Culture Theory* (Arnould and Thompson, 2005) discuss all domains of consumption under cultural aspects, be it architecture, mobility or clothing.

I would question that this strong asymmetry is really justified by reason, and will make a case for a stronger symmetrization (that in accordance with Occam's razor would also be a more parsimonious theoretical presupposition).

(2) Accordingly there is no microeconomic approach that reveals a 'growth imperative' for consumers like the one discussed since long for firms in competitive markets ("grow or die", Rich, 1999, p. 27).

A growth imperative only for firms who then meet consumers *un*willing to consume would quickly fade out. But up to now, unwillingness to consume can hardly be observed: Since necessarily "C equals P" (i. e., except for exceptional circumstances the extent of consumption equals the extent of production, McCloskey, 2011, p. 17), increasing supply has always met some demand. But *do* have consumers to consume ever more? Consumer researchers insist that in westerly industrialized countries consumption has lost its existential function and has become mainly symbolic: "[. . .] today only a small part covers elementary needs, but is rather *choice consumption*, *desire consumption*." (Wiswede, 2000, p. 48, own translation, original emphasis). Or: "Insofar, as private consumption beyond an elementary securing of one's existence is marked by a distinctly expressive character [. . .]" (Lüdtke, 2000, p. 117, own translation). Or: "Due to widespread wealth, consumption has moved apart from securing one's existence [. . .]" (Stihler, 2000, p. 169, own translation). Also Hellmann (2010, pp. 179–80) makes a distinction between consumption of first and second order (primary and secondary needs), accepting only *physiological* basic needs as primary. Discussed are conspicuous consumption, consumption as a meaning of life, convenience and the permanent quest for novelties (Bauman, 2007; Goodwin et al., 1997; Jackson, 2009; Lipovetsky, 2011; Paech, 2010, 2012; for a critique of the moralistic bias of this debate see McCloskey, 2011). Moreover, Rosa (2012, p. 243) has shown how decisions of consumers for the expansion of their possibilities by time-saving technologies contribute to an acceleration of society ("acceleration circle"). He explicitly rejects, however, any economic pressure and refers to self-determined consumption decisions (pp. 279–80).

I would challenge also the theses that modern consumption is mostly beyond basic needs and lacks economic pressure. The consequences of diffusion of time- and cost-saving technologies are more than mere acceleration or cheaper life. Everyone is getting more efficient, and this has consequences for the *distribution of income*. In an accelerated society, securing the balance of income and expenditure requires ever more 'consumption' that seemingly is beyond basic needs, but is essential for their satisfaction (via an income) and therefore existential. This consumption has to be viewed rather as an investment.

3 Clarification of terms

3.1 Investment and Consumption

On the one hand (and also colloquially) investments are defined as long-term capital, as opposed to immediate consumption. On the other hand investments are defined in economics as the deployment of production factors *outside of the households*, for a better provision of goods in the future (Brockhaus, 2017: "Investment"). The term consumption is used with two meanings as well: In a wider sense consumption is defined as using up goods for increasing human welfare. In a narrower sense, consumption is defined as using income for purchasing consumption goods (Brockhaus, 2017: "Consumption").

Unifying and referring to the first of both definitions, an investment can be regarded as a renunciation (postponement) of immediate satisfaction of wants, for securing or improving the future provision of goods (long-term advantages). Accordingly, investments of households are long-lasting goods, but also using (non-working) time, e. g., for education, further qualification or learning languages.

3.2 Growth Imperative

The term 'growth imperative' has been discussed in detail by Richters and Siemoneit (2017a,b). For this article it should suffice that a growth imperative prevails when economic agents (individuals, firms, states) are *systematically biased* by exterior conditions to prefer investment to consumption (or work to leisure) such that in the end we observe net investment (i. e., economic growth).

3.3 Efficiency

Productivity as the quantitative relation between production output and production factors employed (Brockhaus, 2017: "Productivity") determines parsimony by figures. Efficiency as the more general relation between efforts and goal attainment (Brockhaus, 2017: "Efficiency") is used qualitatively as well (and also colloquially). In the context of this article, both terms can be regarded as synonyms.

Business economics are using the term efficiency exclusively to denote *cost* efficiency: "Efficiency, i. e., the relation of assessed output to assessed input, is for the economist the *only valid standard* to judge business acts" (Wöhe and Döring, 2010, p. 8, own translation, original emphasis). Time efficiency and resource efficiency, two important factors for businesses, are only means to improve cost efficiency and thus not valuable per se.

Nevertheless, time plays a different role in the microeconomic process than material. With regard to the finished (material) product, any reduction in material is limited by objective material properties. The quantity of built-in material ceases to create utility if the design becomes too weak (a deliberate form of this is discussed as *built-in obsolescence*). Material contributes *directly* to the quality of a product.

Time efforts on the other hand can in principle be reduced further and further, since the time needed only contributes *indirectly* to the quality of a product. Automation makes it possible to transfer time efforts from relatively slow human workers to machines. Saving time is also important with regard to revenues (e. g., an earlier date of delivery as a competitive advantage).

For these reasons I would define efficiency in this article as *time and cost efficiency*. The exterior conditions for firms and consumers are just such that more and more material (and energy) is used to achieve individual time and cost advantages (Ayres and Warr, 2009; Kümmel, 2011; Madlener and Alcott, 2009).

3.4 Efficiency Consumption

A strict division of consumption goods into 'efficiency consumption' and 'no efficiency consumption' misses the point, because efficiency is a *utility dimension* of consumption goods whose markedness is variable (cf. section 6.1). Efficiency consumption in a wide sense I would define as consuming a good *essentially* for increasing the personal time and cost efficiency. This does not mean that these are the only motives (cf. section 6.1), nor that these motives are explicitly stated as reasons by the consumer (cf. section 5.2).

Analytically I would restrict the term to those goods that have the potential to become a societal standard and therefore literally "an offer you can't refuse" (Puzo, 1969). Typically these are technical products (or services based thereon, especially Internet-based platforms or social networks).

4 Efficiency Consumption – Causes and Forms

Even if Adam Smith denoted consumption as the sole end of all production, this does not mean that production is a one-way road from firms to consumers. In this section several cross-cutting issues and feedback loops to the supply side will be discussed.

4.1 Increases of Efficiency and Securing an Income

Efficiency is so decisive in market economies because revenues and income are diverted from the less efficient to the more efficient (cf. Pianta, 2005, on the distributive consequences of innovations, but also Wöhe and Döring, 2010, on efficiency in general).[1] This is denoted as meritocratic principle: In a market economy those are more successful who offer a better 'cost-benefit-relation' whereby the achieved benefit is not objective, but results from the assessment of the demanders (for the normative significance of the meritocratic principle in market economies, cf. Marris, 2006; Miller, 1999; Saunders, 2006). Consumers in market societies are in a competitive situation quite similar to firms, but their economic and social predicament is seldom perceived as such, since many of their investment decisions come along – like a Trojan Horse – disguised as a convenient relief, gratefully accepted by modern man. Only later these investments turn into a curse because the level of efficiency has to be raised further and further.

Mobility by car or mobile communication for example are not part of physiological or social basic needs. The car and the mobile phone of a working mother (or father) are not immediately necessary for survival. But the car enables them to get to work and to provision the household, and the mobile phone increases their flexibility – they can reduce efforts for planning and coordination, take advantage of favorable opportunities, react better to unplanned occurrences, avoid idle or transit times and can spontaneously squeeze tasks into their schedule.

Both goods may be the *precondition* to combine work and family, and then this *consumption* also has an *economic* component. When 'necessary' not only denotes the immediate satisfaction of basic needs but also securing the balance of income and expenditure, then basic needs of consumers definitely have expanded significantly in modern societies, far beyond the usual notion of 'subsistence'. If mobility is necessary for getting to work, a car may become as basic a need as calories (cf. Cebollada, 2009, and references therein), as do other types of expenditure. That a car, once bought, can also be used on many other occasions, some of which may appear 'eccentric' (or culturally imposed), should not obscure the fact that for many a car is part of their economic assets, as are their smartphones, computers, dishwashers and the like. Consumers therefore experienced a development similar to firms whose 'basic needs of production' have significantly expanded due to technical progress.

This approach is inspired by the 'symmetrization' of New Household Economics by Stigler and Becker (1977). They have tried to model both 'sides' such that they consume factors for producing something that is needed as factors by the

[1] Anthropologists go even further: "[H]umans [...] have evolved to maximize efficiency. Other things being equal, they prefer to carry out activities by minimizing the amount of time and energy they devote to these activities. A Law of Least Effort governs human behavior [...]" (Sanderson, 2001, p. 148).

other side. Firms consume the production factor labor and produce market goods, which are consumed by households who in turn 'produce' the production factor labor. Stigler and Becker indeed went so far as to assume constant and *uniform* preferences for all individuals (identical utility functions), in an attempt to explain *all* behavior of individuals with differences of prices and incomes. Although I would question the very radical approach of Stigler and Becker, in accordance with them I would make a case that a more symmetrical view than usual (with a stronger emphasis on economic pressure on consumers) can have a far better explanatory power for certain consumption decisions and can contribute to an understanding of growth dynamics. Probably the Golden Mean is somewhere in between, and section 6 will substantiate such an approach.

4.2 Consumers: Enthusiastic first, urged later

The scholarly question is how free consumers' decisions for goods like car, computer and smartphone really are, and whether consumers perhaps – in a kind of 'anticipatory obedience' – evade the pressure even before it has been built up, viewing these goods rather as an expansion of possibilities than as a necessity (and therefore possibly deflecting the view of consumption sociology and time sociology towards secondary motives).

Ideal-typical firms and households are structurally comparable in their activities: They try to increase their benefits and to decrease their efforts, by automation, by standardization and purchase of large quantities, by cost pressure on their vendors, by outsourcing, by investment in specialization. Only the manifestations in households differ. A household for example automates laundry and dish washing. Standardization and purchase of large quantities are realized via food superstores, DIY warehouses and furnishing stores, cost pressure on vendors is created by bargain hunting, discounts and search engines, outsourcing is realized with child minders, frozen food and delivery services. Investments in specialization are mainly made by individual further education. There is no reason to fundamentally distinguish firms and households with regard to these aspects.

As a precondition for this, consumers have to use certain *technical* products (and services based thereon) that save time, make more flexible, and provide access: Washing machine, car, computer and smartphone as hardware, social networks and platforms as portals, railway and parcel services as service providers. These goods enable reductions of the efforts that generally have to be expended to make an act of distribution or consumption affordable. For that, consumption is *decentralized*, *individualized* and *flexibilized* (Shove, 2012, p. 301) (many cars instead of few buses, many TV sets and video projectors instead of few cinemas, mobile phones instead of landline etc.), while production and distribution are *centralized*, *collectivized* and *standardized* (Nelson, 2007; Ritzer et al., 2000) ("McDonaldization": super stores and chains instead of small shops, ever bigger

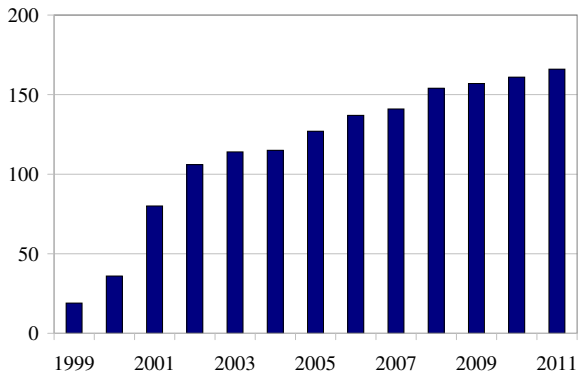

Figure 1: Number of mobile phones per 100 households in Germany. Own diagram according to Statistisches Bundesamt (1999–2011). After 2011, mobile phones have ceased to be a distinct category in the statistics.

producers and vanishing of the smaller, mass products instead of handcrafted works etc.). Many consumers view this as an expansion of their possibilities and help themselves enthusiastically. Mobile phones have gained full coverage in German households within a few years (cf. figure 1), a remarkable fast diffusion of a new technology.

The dynamics of this process are at least qualitatively in line with the Theory of the Diffusion of Innovations (Rogers, 2003). According to this theory, *innovators* willing to take risks are using the good first, followed by further groups with decreasing innovativeness and increasing skepticism, and finally the *laggards* lag behind, more or less involuntarily. But seldom they totally refuse, because these technical products and services are increasingly socially demanded. They become the standard that everybody expects, they define the societal *interfaces*. This is meant quite literally: Email, online banking, office software, electronic tax declaration etc. can only be used for data exchange with an up-to-date program version or the correct protocol version. Eventually an update is inevitable. Cars have to fulfill new exhaust emission standards, radios become digital etc. An important role plays the network effect, when the number of users of a standard (e. g., SMS or PDF) or a network (e. g., mobile phones, social networks or platforms) grows the bigger the higher the number of users already is, until eventually a de facto standard is established.

Whoever does not use these standards or networks increasingly experiences a need for justification, lags behind, looses access – and has higher cost of living. The costs of refusal are increasing rapidly, because one day or other the 'traditional' way of distribution, communication, or access breaks off or becomes an expensive (and slow) niche (compare for example cost and time needed for a conventional and an online bank account, letters and email, stationary

shops and online suppliers, small food shops and large super stores, landline or mobile phone and Voice over Internet, conventional and e-books). Thus a growth imperative for businesses is complemented by a growth imperative in private life. All these goods are becoming offers that sooner or later can hardly be refused, economically and socially. Whenever the future of mobility is depicted, mobile communication devices play a central role, for checking different options, availability, booking and paying (Jittrapirom et al., 2017; Kamargianni et al., 2016). "Bring Your Own Device" (BYOD), i. e., a model of using privately owned mobile communication devices in contexts of firms or education institutes, is spreading rapidly (Song, 2014). Job offers are increasingly placed exclusively on online platforms not accessible without computer and Internet. Those who comment 'Everyone has to decide on her own' on the usage of these goods are overlooking the pressure that is building up, first 'only' socially, later also economically. Røpke (2010, p. 108, own translation) spoke of "social and material rigidities" that in form of traffic infrastructures, norms, building regulations, taxation laws etc. limit freedom of decision and "tend to lock-in consumers in resource-demanding patterns of life".

4.3 Positive Feedback Loops due to Efficiency Consumption

I see mainly two ways of how a societal standard due to efficiency consumption can be established: (1) The consumption good in question over time establishes (at least in sectors) an 'exclusive form' of mobility of persons, goods, or data (i. e., an *infrastructure*), and refusing to use it can lead to a factual exclusion when the mainstream is not willing to be considerate of those who did not catch up yet. Expectations regarding car mobility or electronic communication are good examples. (2) The consumption good leads to so significant a saving of time and costs that without it, basic social needs cannot be fulfilled anymore with 'reasonable' effort. The renunciation of a dishwasher, a fridge or a washing machine leads to time efforts that subjectively do not allow a 'decent' private life any longer – at least not in comparison to others. Gradually expectations on cleanliness, hygiene, nutrition, education etc. grow and want to be fulfilled. Shove and Southerton (2000) described how the freezer became "normality" in Britain, further explored in Hand and Shove (2007). The societal standard (i. e., normality) could be raised because technics made fulfilling these expectations ever easier.

During these processes, feedback loops emerge in several directions. On the one hand the private structuring of time changes. The more efficient people get, the higher their time pressures are, because time buffers of everyday life are disposed of (Rosa, 2012, p. 244). Previously 'unproductively' spent waiting times, way times or boring meetings now can be seamlessly embedded in one's occupational or private stream (cf. Shove, 2012, p. 301). Also, social expectations on reachability and reaction times grow (Daly, 1996, p. 32). Although some smartphone users may dawdle away their time or use smartphone activity to avoid contact, others report that they engage their smartphones to coordinate meeting someone, to make "life logistics" easier or to find the route to get somewhere, and feelings of being "productive" and "happy" appear on the first ranks (Pew Research Center, 2014, pp. 38–41) These people use modern technics in an inconspicuous, just 'efficient' way, quickly and specifically. Eventually this kind of consumption leads to 'live' more efficiently, in the sense Rosa (2012, p. 135) has described: the acceleration of the tempo of life due to a shortening or condensation of episodes of action.

Another important aspect is family obligations that today can be fulfilled despite widespread individualization. A car enables people to (co)care for their old parents although they do not live in their household or even nearby. On the other hand, "[n]ew situations inside the family, such as divorce, one-parent families and the forming of stepfamilies place demands on organizing everyday life. The mobile phone is used to narrow or bridge the gap between family and working life: contact between family members remains, even when the parents are at work" (Oksman and Turtiainen, 2004, p. 332).

Also, parents want to make possible a good education for their children. Consumption scholar Elizabeth Shove is focusing on everyday consumption in her research work. For her, 'practical products' (conveniences) are important not only for their ability to save time, but for *timing*, i. e., structuring the daily schedule (Shove, 2003, p. 171). Rational housekeeping is used for creating free spaces. Especially busy mothers are able, by shifting and compressing tasks, "to generate pockets of calm elsewhere in the schedule" (Shove, 2012, p. 302), where they can dedicate themselves to their children. The initially frowned upon, 'inferior' convenience food makes it possible to spend more time eating together and therefore becomes a sign of responsibility (Shove, 2012, pp. 299–300). But she also states that these consumption patterns are not ecologically sustainable and part of a vicious circle ("escalation of need", Shove, 2012, p. 301).

On the other hand there is a feedback from consumers to firms. The *way of life* of the nuclear family, the modern single, or the long-distance relationship is not possible without household technics and mobility, but this is not simply a cultural development but also a successful adaptation to *economic* requirements: Individualism can be a competitive advantage. Ever smaller firms can attract ever more specialized workers from an ever greater periphery, they can use cheaper estates abroad, and for a new job one can commute even between cities with a high-speed train.

Individualization of ways of life therefore is likewise an economic and cultural phenomenon. It requires a certain technical infrastructure to unfold. Businesses on the other hand react on the increasing individualization with further refinements of their processes and with demand for more specialized jobs, they allow for ever more mobility

and flexibility – not least to produce exactly those goods that enable consumers to comply: "[The suppliers of consumption goods] have focused their efforts on designing consumption goods such that the time of production [...] for households is as low as possible" (Fehl and Oberender, 2002, pp. 351–2, own translation). Consumers react with further efficiency consumption. As "Arbeitskraftunternehmer" (workforce entrepreneurs) they feel compelled to adapt commercial economization routines for their everyday life: "Also workforce entrepreneurs under highly industrialized conditions increasingly draw on a large repertoire of elaborated forms of technics to facilitate their everyday life, i. e., to increase the productivity of activities and resources employed" (Voß and Pongratz, 1998, p. 144, own translation). The individualization of society also creates all new inefficiencies, e. g., preparing meals for few or the ever more intense care for single children, accompanied by additional efficiency consumption and specialization.

Eventually the *comprehensive* diffusion of certain 'consumption' (more precisely: investment) patterns enables completely new and more efficient business models of firms that first marginalize old businesses and finally force them to give up, with a simultaneous concentration of supply. Consumers therefore contribute to preparing the next waves of automation. Supermarkets do not simply 'develop', and a frozen food industry does not 'establish' itself out of the blue. They both require technical preconditions in the households (car, freezer). The concentration currently observed in the retail sector and the emergence of online trade, both with their higher efficiency, are only made possible by more person traffic, goods traffic, and data traffic. But this *presupposes* the corresponding means of transport in the breadth of society.

Combined with the likewise existing efficiency competition between firms we see a manifold of incentives for more efficiency, creating feedback loops across society. People try to close remaining gaps of private productivity to keep up economically and socially, and only few can withdraw from this. Usually this is denoted as 'culture' in consumer research. But while social meanings and cultural practices developed and sustained around efficiency consumption goods can vary widely between different cultures and contexts, the goods themselves vary hardly, and they also do not go out of fashion (except for being replaced by an even more efficient good). They seem to *shape* culture more than vice versa. *Not* using a smartphone is much more dependent on a certain lifestyle today than the other way round.

5 Possible causes of an asymmetrical scholarly view

As mentioned in the introduction, micro economists and consumption researchers usually make a fundamental difference between the situation logics of firms and consumers. Micro economists are primarily concerned with choices and the relation of supply and demand, but are reluctant to ask for motives, assuming *consumer sovereignty*. Many works of consumption research on the other hand put their focus on cultural and social aspects, on questions of identity and style, status and distinction, behavior of sellers and buyers. Any *economic utility* of consumption goods has been pushed into the background. But consumption is *not* a "social phenomenon through and through" (Hedtke, 1999, 3, own translation) but has a considerable economic component, and part of the objective utility of several goods is to increase personal efficiency. This part of consumption can contribute to securing a livelihood, by saving time or costs and maintaining or improving an income. Status, culture, or lifestyle alone could hardly explain the growth dynamics of an 'information and knowledge society' and especially the range of the currently most attractive goods. In this section possible causes for this asymmetrical scholarly view will be discussed.

5.1 The Disciplinary Gap

A consumer purchases a good only when it is 'good value' in the very sense of the word (for the following cf. Jevons, 1888, p. 58): Its utility appears to be higher than the price to be paid, and total net utility (the difference) therefore is positive. Whatever utility may mean to her, the consumer aims at a *maximization of net utility*. This net utility can be captured analytically by the microeconomic concept of consumer surplus (e. g., Frank, 2010, p. 144). If a good's utility equals the price, the good is literally useless, and should utility be less than the price, she is worse off (Jevons spoke of *inutility* as the zero mark and *disutility* in the negative range).

Vershofen (1940) made a distinction between functional basic utility and psychological additional utility that still is helpful today. The idea of *basic* utility has practically vanished from consumption sociology, for nowadays it seems to be so easy to satisfy one's basic needs. Seemingly the topic of basic utility falls into a 'disciplinary gap' (cf. figure 2), because on the part of economics there is an repeated and unanimous reaffirmation not to make explicit the utility function of consumers, i. e., not to ask for any 'sense' or 'real utility' of consumption (Stigler and Becker, 1977, McCloskey, 2011, pp. 18–9, Kirchgässner, 2013, p. 43; for a critical overview cf. Ackerman, 1997a, Hedtke, 1999, pp. 104–18) which repeatedly has been criticized by consumption sociologists as dogmatic (Baur, 2008; Hedtke, 1999; Nelson, 2007; Slater, 2005).

To put it another way: Consumption sociology views consumers' practices primarily as culturally and socially shaped and wants to scrutinize the resulting differences in their personal (subjective) additional utility. In contrast, microeconomics views the choices of consumers (though maybe not their preferences) as rational and themselves as mature, utility being a concept of personal freedom, and therefore does *not* want to scrutinize utility at all – also because neoclassical economics abandoned the concept of any *objective*

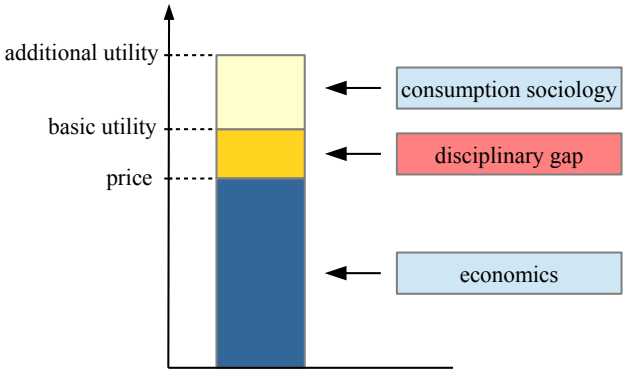

Figure 2: Schematic depiction of the 'disciplinary gap'.

value during the 'marginal revolution' at the end of the 19th century, in favor of subjective value and objective prices (Koch, 1995). Neoclassical economics would not speak of a disciplinary gap but of a chimera: Beyond the price, utility can be nothing but subjective. Another obstacle might be to assume 'objective value' necessarily to be quantifiable. But the term 'objective value' can also be used in a weaker sense as 'value recognized by an overwhelming majority'. A smartphone is *objectively* 'good value' for most people.

Especially surprising is that Becker (1976, pp. 101–4) explicitly treated time saving consumption goods in his "Theory of Allocation of Time", stating examples like supermarkets, cars, sleeping pills, electric shavers, and telephones. However, Becker focused (just as Binswanger, 2004, who also included energy consumption in his considerations, or Rosa, 2012) on the saving of time as such or assumed that saved consumption time would be used as work time, to increase income. Possible feedback loops were not part of his considerations.

5.2 Different Language Rules

The fundamental distinction between supply and demand is underpinned also by language use. Production is *rationalized* while the consumer becomes ever more *comfortable*. Consumers regard something to be *convenient* or *easy*, they become *more flexible* or *more independent*. With a characteristic lopsidedness in language use, personal motives make consumer decisions 'free', while for the part of the firms economic imperatives make their decisions rational or even inevitable. But the wording used for (and by) consumers contains motives of efficiency (saving time and costs).

"Shop comfortably online from your home and get it conveniently delivered" – this can be interpreted as comfort, but also as increased productivity. Online shopping is fast, cheap and requires a minimum of time effort: it is efficient. Fast Food and television are not only comfortable, but also efficient (even Rosa, 2012, p. 225, attributed television a particular positive 'input-output-relation' with regard to immediate satisfaction). Food packed under a protective atmosphere, long life milk, instant meals (all in disposable, non-returnable packages): They enable people to shop less often (without the need to return bottles etc.), to be more spontaneous, never to be at a loss for a meal. A supermarket that is open until midnight means flexibility, less planning, adaptation to different working time schemes. More and more 24/7 self-services are established with the help of technics, increasing once more flexibility and decreasing costs in the long run (mainly due to job losses on the supply side): Cash dispensers, automated parcel boxes, library book return machines, automated filling stations – the list could easily be expanded.

When for describing consumer behavior the words 'comfortable', 'easy', 'convenient' and 'useful' are replaced by 'efficient' (or 'productive', as in Pew Research Center, 2014), the meaning often will hardly change. Be it 'comfortable' online orders, 'convenient' disposable capsules for coffee machines, 'more flexibility' with a mobile phone or a car that makes the trip to work only 'feasible': In all these cases it is just the easier goal attainment, time gains and cost reductions that gives preference to this form of consumption.

This view in no way contradicts the theoretical approach that consumers engage in practices. Practices are routinized and collectively shaped ways of behavior beyond conscious reflection ("practical consciousness", Røpke, 2009). The view presented here rather emphasizes that the collective exerts a constant pressure (bias) towards the development of ever more efficient practices, usually individually perceived (framed) as the expansion of possibilities and 'easier' life.

5.3 Labor and Employment Law

A third aspect of the asymmetrical scholarly view on consumers and firms is that consumers seemingly underlie completely different market conditions as compared to firms. Why households seem to be not exposed to the same hard competition as firms and do not 'perish in the market' from time to time? Why consumers "may be as eccentric as they please" (Lancaster, 1969, p. 182)? With regard to the Lancasterian collection of characteristics, Ackerman (1997b, p. 196) wrote: "No competitive process forces consumers to be efficient in producing the desired characteristics; it is possible to go through life as an inefficient consumer."

One more possible cause can only be sketched here. A great deal of legislative regulation of market activities aims at reducing the historical asymmetry of power between employers and employees, at least in Coordinated Market Economies (CME):

- Obligations for firms: Firms are compelled to employ their workers more or less exactly to capacity – they have agreed by employment contracts to buy constant quantities of labor at constant prices. Legal restrictions regarding short-term contracts and dismissals are reinforcing this obligation. The workers as consumers do not have any equivalent obligation – they freely de-

cide when and from whom to purchase any goods (and whether at all).

- Legal price cartels for consumers as suppliers of labor: While price cartels are illegal for firms, they are allowed for workers (collective agreements with trade unions). Attempts to lower wages can expect societal resistance, a minimum wage has been introduced in many countries.

- Aid money for consumers: Insolvent households are rescued, at least at a minimal level. Such societies do not accept that households 'perish in the market'. Even if sometimes such rescue takes place also for firms (subsidies, 'too big to fail'), they remain exceptions.

With these measures the income function of the labor market is (roughly) preserved (as is societal welfare), but the reduced economic pressure on consumers corresponds to an increased competition between firms (and provides incentives for continued automation, cf. Richters and Siemoneit, 2017a).

6 An Alternative Theoretical Model

In 1966, economist Kelvin Lancaster presented an approach to consumption theory that is useful in this context (Lancaster, 1966). He proposed to view a consumption good not per se as useful, but as a collection of 'characteristics', and further proposed to relate the (stable) preferences of consumers to the characteristics which are fewer than goods and more stable. A hat for example delivers the characteristics warmth, sun protection, fashionable look etc. Characteristics are available only via goods, therefore goods are demanded (derived demand). With different collections of goods a consumer can realize his optimal collection of characteristics better or worse. Lancaster's theory at that time could settle some disputes over substitution of goods or introduction of new goods.

I will take up Lancaster's proposal here and develop it further into another direction, by aggregating the characteristics of goods and by dividing them into only a few 'basic' *dimensions of utility*.

6.1 Dimensions of Utility

The dimensions of utility behind consumption (why do people purchase and use something) can be divided like this (note that in this section the term 'consumption' is not used any longer as opposed to 'investment', but in its general meaning of 'usage'):

- Elementary (physiological) basic needs
  - Basic consumption (food, clothes, dwelling ...)
- Psycho-social needs
  - Contact consumption (social exchange, communication, love and belonging)
  - Identity consumption (how do I view myself, self-actualization)
  - Conspicuous consumption (how do others view me, status, esteem, distinction)
- Investments for securing a livelihood
  - Qualification consumption (education, occupation, further qualification)
  - Efficiency consumption (quicker, effortless, cheaper, anywhere, anytime ...)

The primary dimension is the satisfaction of physiological needs, including food, clothes, dwelling as the most important ones. The second dimension is the satisfaction of psycho-social needs, which can be divided into three sub-dimensions, along the basic human need of contact and orientation at the outside world (whose significance for consumption traditionally is disputed). Many everyday consumption acts can be placed here, from writing letters over telephone and email to social activities with others (contact consumption). But there are consumption acts that persons *also* would carry out if there were 'no outside world', because these acts subjectively correspond to their inner nature (identity consumption). On the other hand there are consumption acts that would *not* be carried out if there were 'no outside world', i. e., these acts are mainly oriented outward (conspicuous consumption, cf. also Hellmann, 2013, p. 10, with notions of "Selbstbezug" for identity consumption and "Fremdbezug" for conspicuous consumption; identity consumption and conspicuous consumption can be attributed quite clearly to "psychological additional utility" according to Vershofen).

Here consumption sociologists usually stop, but adding a third dimension, namely securing a livelihood (i. e., investments), would round out the picture. This securing of earning a living is not part of the basic needs in their narrow sense, but a necessary precondition for their lasting satisfaction and therefore surely not 'beyond elementary needs' in the sense of the literature quoted above. Again this dimension can be divided into two sub-dimensions, the formation of human capital (Schultz, 1961; consumption that promotes culture and education has to be regarded as investment that in the end will favor economic growth, Perrotta, 2004, p. 237) and the formation of material capital (in the form of efficiency consumption).

These dimensions of utility do not by chance resemble the hierarchy of needs according to Maslow (1943). Maslow's work has experienced a lot of critique, targeted mainly at the *hierarchy* he had proposed. But more important here is his attempt to structure needs into distinct but not too specific *categories* (or dimensions) which can help to understand consumption motives more clearly.

Nearly every good 'lives' on several dimensions simultaneously. A simple meal would be attributed to basic consumption, while a delicious four-course menu also has elements of identity consumption (but feeds as well). If friends are invited and impressed with one's abilities as a chef, it further serves as contact consumption and conspicuous consumption. A television is contact consumption and identity consumption. If we proudly present this model to our friends or recommend it to them, it gets shares of conspicuous consumption etc. Furthermore, the dimensions of utility of a single good can change during use, due to the good's age, fashion etc.

These six dimensions can be viewed – like the Lancasterian characteristics – as spanning a vector space ('utility space'). The 'total sum vector' of all goods that any consumer owns (as a 'collection of characteristics') might be fairly constant (constant preferences), i. e., the purchase and discard of consumption goods might be chosen such that the 'mix' of utility dimensions remains 'reasonable' for this particular consumer. For the utility of any *single* market good there is a lot of space left for variation. Today I boast with my new smartphone, but six months later my new brand clothes are my conspicuous consumption. Nevertheless I do not throw away my smartphone since it still serves for contact consumption and efficiency consumption. Every consumption good describes a trajectory in the utility space. With this concept of dimensions of utility that vary in time one can avoid to confuse consumption motives and purchase incentives, and it may also help to understand the sometimes totally different social meanings and cultural practices people connect with different goods (Shove, 2003, pp. 106–12, for the vivid examples of "bath-time stories"). Consumers attribute different shares of the dimensions of utility to specific goods, but will take care of an overall balance. This distinction of single goods and a 'total sum vector' may also help to understand the disputes about volatile or stable preferences of consumers (Becker, 1976, pp. 3–14). In Becker's words, preferences refer not to market goods and services, but "are defined over fundamental aspects of life, such as health, prestige, sensual pleasure, benevolence, or envy" (p. 5) – i. e., they refer more to the stable 'character' of a person.

The dimensions of utility presented here do not differ fundamentally from the Lancasterian characteristics – they are one (possible) explicit concretion of the economic utility function (as are Becker's examples for preferences). They are, however, 'more basically', abstract from concrete goods and reflect the personality and situation logic of the consumer. But most notably they are selected such that they can be applied also to the 'abstract person' *firm* what opens up another possibilities of insight.

6.2 Symmetrization of Firms and Consumers

The dimensions of utility described in the previous section can be found likewise for firms *and* consumers, with different manifestations, but not fundamentally different. Firms and consumers both experience the significance of efficiency that becomes an offer that cannot be refused, neither by consumers nor (admittedly) by firms. On the other hand firms do not maximize profit but utility, like (admittedly) consumers (what for economists seems to be a bit more self-evident, cf. for example Kirchgässner, 2013, p. 15, who, however, also admitted that "nearly all textbooks" still depict it differently).

The new head office of a firm can be interpreted as basic consumption, but its pretentiousness as conspicuous consumption, just like the sponsoring of the local soccer team. Increases of productivity (i. e., the huge field of mechanization and automation) can be subsumed under efficiency consumption – efficiency is the dominant dimension of utility for firms. The adherence to a beloved product line that is not profitable any more can be interpreted as identity consumption. Brand competition is always also status competition between firms and therefore can be attributed to conspicuous consumption. If a firm can 'afford' it then it 'allows' its employees trainings, team development, in-house child care and much more (identity consumption). In the end, firms (i. e., their owners) maximize utility, which can also be non-monetary (or monetary only in the very long run, what makes it difficult to attribute it to certain decisions).

7 Conclusion

This article tried to make plausible that firms and consumers do not 'live in different worlds', but have basically similar motives to invest and to consume, even if there are characteristic differences and emphases due to their respective situation logics. Based on this 'symmetrization', one can give reasons why also consumers purchase goods to become personally more productive and to increase their economic potential. Accordingly this leads to similar positive feedback loops for consumers and firms that can force all members of society into a 'logic of increase', where an individual escape is possible only in exceptional cases. This classical prisoners' dilemma situation could not be mitigated yet but by economic growth, which literally means a growth imperative for the economy: Efficiency is an offer you can't refuse.

These insights have also political relevance. In the end, not the quest for increasing personal productivity is the problem but its environmental impact due to resource use, emissions and waste, and the 'productivity loop' described here could help to understand the difficulties experienced in limiting resource use during the last decades: 'Productivity' is usually achieved by the substitution of human labor by 'capital-energy-combinations' and their resource use, primarily fossil fuels (Ayres and Warr, 2009; Kümmel, 2011; Madlener and Alcott, 2009). Seen this way, rebound effects reflect the overall attractiveness of this substitution that is hard to resist as long as energy is cheap compared to human labor (Santarius, 2015).

With regard to the persistence of rebound effects in the past, to bet on individual resource efficiency increases alone for resource use reductions seems not to be very promising. On the other hand, these insights open up a way towards a more consistent environmental policy. Due to their environmental impact, the use of non-renewable resources has to be restricted anyway. 'Cap & Trade' of resource use licenses in a *designed market* would not only be market-compliant but also reliably prevent rebound effects, since quantities would be the target dimension, and the price would be determined by the market (Cañón et al., 2013). Such an institutional solution could contribute to technical progress devoted to resource efficiency rather than the substitution efficiency described here.

For future research there are several desiderata for further substantiating the thesis of consumption for productivity reasons and its impact on economic structures, mainly the aspects discussed in section 5 (possible causes of asymmetry). The question of 'objective value' is foundational for economics, especially with regard to the economic value of materials. This has been scrutinized in more detail for energy, but even Kümmel (2011, p. 183) as a critic of economic growth theory assumes a passive role for all other, 'recycable' materials with regard to the economic process, which is questionable given the high resource use of industrialized countries and their resource policies. Further it would be enlightening to qualitatively explore the motives of consumers for 'efficiency consumption' more deeply, with special regard to language use (framing) and to the relation between expansion of possibilities and necessity ('basic needs').

Acknowledgements

I am especially grateful to Oliver Richters for his continuous encouragement, many improvement suggestions and technical help. Gerolf Hanke, Linda Hering, Andreas Müller-Alwart, Niko Paech, Gerhard Oesten, and Corinna Vosse made helpful comments on a discussion paper version of this article. All errors and omissions are my own.

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