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The dynamics of consumer behavior and the transition to sustainable consumption patterns

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ABSTRACT

Strong growth in disposable income has driven, and is still driving, consumption to unprecedented, but not sustainable levels. To explain the dynamic interplay of needs, need satisfaction, and innovation underlying that growth a behavioral theory of consumption is suggested and discussed with respect to its implications for making a transition to more sustainable patterns of consumer behavior.

In the developed countries, consumption drives much of the environmental stress, waste, degradation, and resource exhaustion directly or indirectly qua the production of the goods and services demanded. This situation is the result of a century long process fueled by the unprecedented growth of real per capita income. When discussing options for making a transition to consumption patterns with less harmful consequences it seems useful, therefore, to ponder how consumers have come to respond to a situation of relative affluence. Consumption expenditures have followed closely the dramatic increases of per capita income. In the U.S., for example, consumer spending has been rising over just one century in real terms by roughly the factor five (U.S. Bureau of Labor Statistics, Report 991,

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2006) – yes, calculated in prices of 2002, the budget an average American could spend in 1901 was only little more than 20% of the budget of 2002! The drastic expansion has not equally taken place in all consumption categories. In some of them income elasticity has been greater than one, in others smaller than one, and in yet others consumption comes close to a state reflecting saturation (see e.g., Lebergott, 1993). To simply assume that consumers are insatiable – as in canonical economics in order to ensure unique solutions for the utility maximization calculus – is therefore not very helpful both for explaining the uneven growth of consumption categories and for inquiring into how a transition to more sustainable consumption patterns can be made.

1. The growth of consumption and its reasons

To explain what is going on it is necessary to account for the highly complex motivations underlying consumer behavior (the revealed, but unexplained preferences of textbook economics). These motivations are likely to change when the ability to spend increases with rising income. As discussed in more detail elsewhere (Witt, 2001), this fundamental conjecture can be substantiated as a dynamics of learning and satiation. For this purpose, a set of hypotheses is required which specify what is left open in canonical economics: the answer to the question where utility comes from. The necessary extension can take recourse to a few general concepts as follows. From behavioral science it is known that, if an organism is deprived of something, a motivation builds up to take an action that is able to (temporarily) reduce deprivation. Let us call that what is deprived a "need".[1] Among these needs are those for water, sleep, food, body heat, shelter, pain relief, physical activity, sex, affection, social recognition and status, sensory and cognitive arousal, and consistency of self-image which are quite universally shared among humans (and not only humans). The partly cognitively mediated satisfaction of these needs is what, in the economic terminology, generates utility.[2]

The crucial insight becoming feasible by this extension is how these needs differ with regard to their satiability when consumption is increased. The intake of food or something to drink, for example, is subject to homoeostatic controls so that normally the motivation for additional consumption vanishes as the satiation level – a certain average quantity per unit of time – is approached. With rising income, it is therefore likely that the growth in the intake of food and drinks is sooner or later stagnating, not necessarily so, however, the corresponding expenditures. The food industry experiences the stagnation (corresponding to an income elasticity smaller than one) as market saturation. And as all businesses in saturated markets facing stiffening price competition and declining profits, suppliers have strong incentives to create extra demand by innovative products.

Since for the entire food industry the satiation level in calories is an increasingly binding constraint, additional expenditures can only be elicited in two ways (ignoring for the moment an increase in waste of food). The producers can either upgrade the quality resulting in a higher price per calorie, provided consumers honor the quality improvement; or they can reduce the satiating content – in this case: of calories – per product. An example of the first innovation strategy is the large scale import of exotic produce from all over the world (inducing major long haul transport activities), finding acceptance among consumers for reasons to be explained shortly. An instance of the second strategy are product innovations that allow to enjoy the rewarding experience of eating something tasty without coming nearer to the physiological satiation level, e.g., food stuffs made with low-calorie, artificial sweeteners. Satiation is postponed and so is market saturation (see Ruprecht, 2005). Diet Coke is a prominent example.

Not all needs are as easily satiated as those for food and drinks, however. It can therefore be expected that, with rising income, consumer expenditures are increasingly shifting in the direction of

[1] Since the reduction of deprivation is a reinforcing event in the sense of the theory of instrumental or operant conditioning, the concept of needs, as used here, coincides with what is called primary reinforcers in behavioral science (see e.g., Herrnstein, 1990; Staddon and Cerutti, 2003).

[2] Note that the quantities of water, sleep, food, etc. cannot simply be plugged in for the usual placeholder variables $x_1, \ldots, x_n$ in a static utility function $u = u(x_1, \ldots, x_n)$ since they are consumed on very different time scales with a limited and varying substitutability. The relevant analytic representation would be a program instead of a function, and it is doubtful whether a dynamic optimization of the program in its entirety, if feasible at all, would be relevant for actually observable behavior.