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**Consumer Behaviour  
and Sustainable Change**

by

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## 1 Introduction

In recent years it has become widely accepted that sustainable development requires long-term fundamental economic change. This change must involve not only new technologies, but also new institutional arrangements and – last but not least – new consumption patterns.<sup>1</sup> Achieving durability of goods, the private reduction of energy consumption and a new modal split in transportation is not so much a problem of technological possibilities, but rather one of behaviour, preferences and individual organization. This begs the question of what economic theory can contribute to this problem of dynamic change and what kind of theoretical approach is appropriate to deal with it. What are the key factors affecting the long-term development of consumption patterns? And how can this process be influenced and guided by the state?

Traditional consumer theory is based on rather strange assumptions when it comes to explaining processes of long-term change. It is founded on the view that households have stable preferences for certain market goods and maximize a utility function assuming perfect information. Accordingly, individual behaviour only depends on relative prices and income. For any given set of prices and income, there is exactly one consumption optimum the household chooses and maintains over time. Consumption can only be changed by altering prices or income, the new optimum again being determined by the individual preferences. This approach takes no account of time, history, transaction costs or the institutional framework; moreover, no endogenous change or social feedback occur.

Not surprisingly, the traditional neoclassical analysis and evaluation of policy instruments to attain environmental goals appears to be one-sided. Environmental policy recommendations are focused on „how to get the prices right“, either by taxes, tradeable permits or liability law. The general advantages of these market-based instruments – cost efficiency, incentives to innovation – are indisputable. However, the drawback of this approach is that it seems impossible to achieve sustainable consumption patterns *exclusively* via governmental interventions in relative prices. As previous experience shows, the political implementation of, for instance, environmental taxes is rather difficult. Distributional conflicts and political resistance usually result in tax rates which are too low to induce a fundamental change in consumer behaviour.

Moreover, neoclassical economics involves a normative cost-benefit analysis that appears inappropriate for long-term processes of behavioural change. According to this approach, the reduction of negative externalities leads to benefits, whereas costs result from the distortions

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<sup>1</sup> The role of consumption patterns for sustainable development is stressed in the Rio Convention (Agenda 21).

caused by state interventions.<sup>2</sup> If current consumer choices reflect the welfare optimum with given preferences, policy instruments designed to change individual behaviour will inevitably lead to utility losses and/or abatement costs at the individual level. Starting from such a theoretical framework, policy instruments supposed to induce a fundamental change in consumption patterns will cause huge welfare losses even in the long run.

During the past few decades, a shift away from the narrow view of traditional neoclassical economics has taken place in the theoretical foundations of microeconomics in general and household behaviour in particular. Firstly, there is the new consumer theory with its central notion of household production (Michael and Becker (1973), Lancaster (1966b)). Secondly, there is the concept of bounded rationality questioning the view of households as perfectly informed maximizers and serving as a starting-point for analysing the role of the institutional framework in guiding individual behaviour.<sup>3</sup> Finally, there are evolutionary theories of technological and social change incorporating innovation, learning and preference evolution into economic analysis.<sup>4</sup>

The objective of this essay is to discuss the implications of these new approaches for the problem of long-term change in consumer behaviour. Compared to the neoclassical view, they paint a completely different picture concerning the potentials and restrictions for sustainable consumption patterns. Moreover, it becomes obvious that static efficiency criteria still dominating normative economic analysis are not appropriate if we consider an evolutionary process of behavioural and institutional change. In section 2 I will briefly discuss the implications of household production theory if bounded rationality is assumed. Section 3 and 4 analyse the determinants of stability and change in individual behaviour from an evolutionary point of view. Section 5 concludes and outlines the policy implications.

## **2 Household production and bounded rationality**

Consumer theory as introduced by Becker and Lancaster<sup>5</sup> opens up a completely different view of the consumption process. Instead of passively consuming what the market supplies, households are regarded as economic actors autonomously creating their own utility. This view has important implications concerning the long-term potentials for sustainable change –

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<sup>2</sup> One example in this respect is the double dividend debate about ecotaxation. See e.g. O’Riordan (1997).

<sup>3</sup> See e.g. the essays and notes on bounded rationality in JITE 1990, 1994 and 1997.

<sup>4</sup> See e.g. Nelson and Winter (1982), Dosi (1982), Arthur (1988), Kuran (1991), Huck (1997).

<sup>5</sup> See e.g. Michael and Becker (1973), Stigler and Becker (1977), Becker (1996), Lancaster (1966a), Lancaster (1966b), Lancaster (1971). Initial applications are also to be found in environmental economics; Seel/Hufnagel (1994) try to explain the discrepancy between personal concern for environmental quality and actual behaviour with a Lancaster approach.

especially if the assumption of perfect rationality still used in the existing theoretical work on household production is discarded.

The fundamental idea of this approach is that market goods and services are merely inputs of the consumption process. Together with time and human capital reflecting the skills and experiences of the household, these market inputs are transformed into basic commodities in line with a personal production function (Stigler/Becker (1977, 77)). The commodities or needs, not the goods themselves, are what the consumer really cares about. Examples include nutrition, clothing, transportation, health, fun and social standing. Consequently, the utility function a household maximizes is related to these commodities.

Considering that consumption is a complex production process and that utility is related to basic commodities, the satisfaction of a specific need does not depend on a single market good. On the contrary, there may be a great deal of combinations of market inputs, time and skills which give rise to the same commodities (Lancaster (1966a, 16)). A person may drive a big car or become involved in the local community to secure a high social standing. Nutrition may be obtained by vegetarian food or (also) by meat. Mobility is possible by car, train or bicycle. These examples illustrate that every household faces highly complex decisions concerning the alternative ways of producing the desired commodities.

In view of the enormous complexity of the decision tasks, utility maximization clearly transcends human cognitive abilities (Selten (1990, 649)). If we assume the more realistic concept of bounded rationality, including incomplete information, cognitive limits and satisfying (Simon (1957)), it becomes obvious that consumers' choices are probably inefficient most of the time. Even if an individual feels content with his or her personal life, there will always exist unexploited opportunities to increase utility by improved commodity production (Choi (1993, 9)). Lancaster (1966a, 18) summarizes the main sources of suboptimal consumer choice as follows: „In consumption, as in production, the prime reasons for inefficient use of the existing technology are ignorance and lack of managerial skill. The consumer may not be aware that a certain good possesses certain characteristics or that certain goods may be used in a particular combination to give a specified bundle of characteristics.“ Unlike commercial production, the market mechanism does not eliminate inefficient consumers; as a result, inefficiencies in consumption will persist to a certain degree, even in a highly competitive market system (Lancaster (1966a, 19)).

Witt (1987, 127) explains inefficient behaviour with biological characteristics of the human brain. In standard situations, consumers rely on past experiences and proven patterns of behaviour which are committed to their memory and normally guarantee a relatively high level of efficiency. However, when confronted with new problems in a rapidly changing environment, the cognitive limits of the brain become obvious: people use rules of thumb, consider only a few of all possible solutions, and find it difficult to appreciate far-reaching implications.

As they acquire more and more experiences, consumers learn about the adequate behaviour required to efficiently achieve the desired commodities. Thus, household production can be viewed as a trial-and-error process of continuous learning in which consumers attempt to discover more efficient consumption patterns.

With the concepts of household production and consumption efficiency, it becomes obvious that the notion of innovation can no longer be confined to commercial production (Lancaster (1966a), Wohltmann (1997), Linscheidt (1999)). Innovation is generally defined as the introduction of a new production function, i.e. a new combination of factors and know-how, allowing a higher output with given input (Schumpeter (1993)). Accordingly, *behavioural or social innovation* means that a household introduces a new combination of purchased market goods, time and human capital to obtain a higher commodity output with its given income. Unlike industrial innovation, new production methods in the household sector have so far received little attention from economists.<sup>6</sup> Nevertheless, behavioural innovations may be significant for sustainable development and individual welfare.

As empirical research indicates, there is a great potential for welfare-enhancing and ecologically beneficial change in consumption, even in the short term. One example is the field of energy conservation. „Numerous studies on home energy consumption (Feist, 1986; Bosma, 1990; Lovins and Lovins 1991) have assessed a high potential for energy conservation and have suggested that a switch towards more efficient standard technology in the end-use (better insulation of homes, compact fluorescent lamps, low-energy refrigerators, washing machines and other electrical household equipment) would result in significant conservation at negative costs“ (Cogoy (1995)).

Moreover, the concept of household production suggests that there exists an even greater potential for sustainable change without utility loss in the long run. The crucial question is whether there are fundamental recombinations of factors which lead to the same commodities. This would be impossible in the traditional neoclassical theory of consumer demand. However, in the household production approach, the potential for change depends on how basic the commodities are. As Becker (1996, 3) notes, most of the needs in developed countries are rather abstract and can basically be fulfilled by a broad variety of goods or activities. This corresponds to the psychological theory of Maslow (1970), which states that there are only a few fundamental needs in hierarchical order; in modern societies, needs like social appreciation and self-realization play a dominant role for human behaviour. Scitovsky (1976) merely considers striving for comfort and joy depending on the level and change of emotional excitement as the basis of all consumer needs. The way these ‘commodities’ are produced at a

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<sup>6</sup> For an initial theoretical treatment, see Wohltmann (1997); for empirical results about ecological innovations in the household sector, see Sprenger et al. (1999), Lehr (1999), Linscheidt/Tidelski (1999).

certain time closely depends on the cultural and institutional framework and consequently varies considerably between different societies.<sup>7</sup>

As a result, consumption patterns seem to be much more flexible in the long run than traditional neoclassical theory suggests. Current behaviour is not an optimum choice determined by stable preferences, but rather one possibility of fulfilling human needs. However, if consumers can achieve the desired commodities in a completely different way, why is it so difficult to realize the potentials for sustainable behaviour? Is it merely a lack of information preventing consumers from choosing ecologically beneficial alternatives? What are the crucial factors bringing about stability in consumption patterns over time?

### 3 Path-dependency of consumption patterns

In recent years, there has been growing interest in the analysis of dynamic processes of social change and development. One of the basic approaches is the work of North (1981 and 1990) focusing on the problem of institutional change and its implications for economic performance. Dynamic aspects of market systems are being increasingly analysed within the theoretical approach of evolutionary economics (Witt (1990) and (1992), Erdmann (1993a)). The main focus of the huge, proliferating literature in this field of research has been the problem of industrial innovation and technical change (Dosi (1982), Dosi et al. (1988), Freeman (1992), Saviotti and Metcalfe (1991)). Moreover, evolutionary approaches are applied to explain human behaviour and even preferences (Axelrod and Hamilton (1981), Güth and Yaari (1992), Kuran (1991), Huck (1997)).

One of the central theoretical ideas of this work is the path-dependency of social processes. According to this view, economic development is largely driven by self-reinforcing mechanisms giving a certain direction to the process of change. Positive feedback can easily result in inferior economic outcomes. „(O)nce random economic events select a particular path, the choice may become locked-in regardless of the advantages of the alternatives“ (Arthur (1990, 80)). This lock-in effect is one of the major economic arguments against the general dynamic efficiency of market systems concerning long-term technological development. However, North (1990, 92) successfully applied this idea to explain the persistence of inefficient institutions over long periods of time. Obviously, the mechanism of positive feedback is not confined to a certain sphere of economic development.

The question arises whether the concept of path-dependency can be transferred to explain the stability of consumption patterns, too. Proceeding from the idea of household production,

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<sup>7</sup> Cogoy (1995) argues that environmental degradation is closely interlinked with a distortion in the consumption process towards a predominance of market relations. Reshifting the border between market and non-market sectors would thus have significant environmental impacts.



there seems to be no essential difference between industrial and consumption technology. Dosi (1982, 152) introduced the notion of technological paradigm to underline that the process of technological change is focused on selected patterns of solution and therefore blind to the variety of other possibilities. Similarly, one could speak of consumption or home production paradigms to illustrate the fact that consumption is shaped by certain behavioural patterns.<sup>8</sup> Eating meat every day or driving to work in one's own car may be just as much production paradigms as fossil-fired power plants or end-of-pipe technologies. However, the analogy may not hold when it comes to the causes and factors sustaining a certain path. Consequently, we have to analyse the specific barriers preventing consumers from choosing different (ecologically beneficial) behavioural patterns.

One of the key factors in sustaining certain consumption patterns over time is the mechanism of *habit formation*. In their present choice, consumers rely heavily on their past decisions. Notably, the economic implications of habit formation were an intensively discussed topic in the 1970s (Pollak (1970), von Weizsäcker (1971), Pollak (1976), El-Safty (1976), Hammond (1976)). „Most economists would agree that past consumption patterns are an important determinant of present consumption patterns“ (Pollak (1970, 745)). In these former approaches, habit formation is modelled as an endogenous change of tastes; an individual's current preferences are assumed to depend on past consumption. These economic approaches are founded on psychological learning theory viewing habitualization as a result of continuous reinforcement over time (Witt (1987, 135), Wiswede (1995, 304)). If a consumer is basically content with his or her choice, problem-solving behaviour is progressively replaced by routinized responses. An active search for new solutions is likely only if there are strong hints that current behaviour is no longer appropriate.

In addition to the psychological view, there are also economic explanations of habitual behaviour stressing the individual costs of decision and change. Proceeding from household production theory, Stigler and Becker (1977) explain the stability of behavioural patterns with specific consumption capital accumulated over time. As stated above, this capital consists of all the information and skills acquired to increase the productivity of a certain consumption activity. Changing this activity depreciates the accumulated human capital. „The costs of searching for information and of applying the information to a new situation are such that habit is often a more efficient way to deal with moderate or temporary changes in the environment than would be a full, apparently utility-maximizing decision“ (Stigler and Becker (1977, 82)). This view represents a transaction cost approach. Confronted with a decision problem, an individual can either apply habitual patterns of behaviour or evaluate the costs and benefits of all the alternatives. Because of the huge information costs of rational decisions in a world of uncer-

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<sup>8</sup> Such a paradigmatic approach to human behaviour is suggested by Choi (1993).

tainty, people may have no other choice than to rely on proven paradigms or routines (Choi (1993), Nelson and Winter (1982)). „Without a paradigm there will be no decision and no action“ (Choi (1993, 37)).

Another source of behavioural stability over time is the *social interdependence* of consumption. Individuals are not only influenced by their past experience, but also by the behaviour of other individuals in their group or society. Although hardly used in standard neoclassical approaches, the social character of individual behaviour has a long tradition in economic thought (Duesenberry (1949), Leibenstein (1950), Krelle (1974), Becker (1996)). The stability of consumption patterns over time is caused or at least reinforced by a positive correlation of individual behaviour. Leibenstein (1950) introduced the notion of the „bandwagon effect“ to take into account the „desire of people to wear, buy, do, consume, and behave like their fellows“. As a result, even inferior consumption patterns can have a strong tendency to persist because people are trapped by their desire to adapt to the common way of life.

There are several explanations for the phenomenon of conformity and adaptation in behaviour. In some economic approaches, social interdependence is modelled as a mechanism of endogenous preference formation (Krelle (1972), Gaertner (1974), Kapteyn et al. (1980)). Individual preferences are not seen as given and stable over time, but dependent on the consumption of others. Conformity can also be interpreted as a way of fulfilling basic needs like social acceptance and recognition, which can only be achieved by adapting to the dominant behavioural patterns of society or a certain group (Becker (1996, 12)). According to the psychological theory of social learning (Bandura (1971)), complex behavioural patterns are usually not the result of rational choice or an individual trial-and-error process, but rather imitated and learned by others. Additionally, imitation can be explained by information costs and bounded rationality (Conlisk (1980), Bikhchandani et al. (1998)). In situations of high uncertainty, it may be cheaper to rely on others than to gather the information required for an autonomous decision. However, as Bikhchandani et al. (1998) show, this can easily lead to informational cascades and mass behaviour prone to error and fads.

Furthermore, consumption patterns have a social character in that they are guided and stabilized by the *institutions* of a society. This stabilization emerges because institutions and individual habits of behaviour are intertwined and mutually reinforcing (Hodgson (1998)).<sup>9</sup> As North (1981, 49) states, individual beliefs and cognitive frameworks are learned within the ideologies, customs and codes of behaviour commonly shared in a society. How a person views the world and what kind of behaviour he or she considers appropriate is therefore deeply rooted in the institutional structure. Choi (1993, 83) points to the fact that conventions and norms are the

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<sup>9</sup> This is one of the basic views of the old institutionalism. However, it has also been stressed by North (1981) and (1990) and many other authors in recent years.

social analogue of individual patterns of behaviour, reinforcing their inertia over time. Simultaneously, social rules and constraints are stabilized and reinforced by the mechanisms of habit formation and adaptation. Concerning stability over time, it is of crucial importance that individual behavioural patterns are primarily shaped by informal institutions such as conventions, norms and ideologies that usually have a certain high degree of persistency (North (1990), Kiwit and Voigt (1995)) – otherwise they would not fulfil their important function of reducing uncertainty by providing a stable structure for everyday life. As a result, it may be very difficult to change ecologically harmful behavioural patterns, even if they are inferior, as long as they remain rooted in an existing, widely accepted institutional framework.

Finally, consumption activities are frequently connected to a certain *techno-economic framework* which has been developed and refined over long periods of time (Freeman (1992, 198), Kemp (1997, 276)). This framework reinforces traditional consumption patterns because the infrastructures and technologies required for an alternative way of life are usually unavailable in the short term. The automobile system may serve as an example (Schot et al. (1994)). It is partly due to the quality of the existing road system and the high technological standard cars have attained over time that driving is such a convenient means of transport. Additionally, the adaptation of housing, shopping and the recreational infrastructure to the automobile system must also be borne in mind. An equivalent techno-economic framework for a different, ecologically less harmful transportation system does not exist and would require a long time to evolve. Consequently, having no car currently means a difficult and time-consuming way of life.

The interactions and positive feedback between behaviour, institutions, infrastructure and technologies illustrate that the path-dependency of consumption patterns should not be seen as an isolated phenomenon. Instead, it should be regarded as part of a complex system which can be described by the co-evolutionary paradigm (Norgaard (1984), Rennings (1998)). Behaviour, institutions and the techno-economic framework mutually influence each other and reinforce a common path of development – either a socially beneficial or a harmful one. The common social paradigm represents the ‘selection environment’ for a new way of consumption including much more than simply the current relative prices and incomes. The key problem of new consumption patterns is that of compatibility with the present, historically shaped environment (Kemp (1997, 277)).

#### **4 Determinants of change**

The previous analysis gives a variety of explanations for the stability of ecologically harmful consumption patterns over time. Especially if we consider the cumulative feedback between these factors, it becomes obvious how difficult it may be to leave a traditional path of con-

sumption which has evolved together with a corresponding institutional and techno-economic framework. This theoretical perspective of behavioural inertia is consistent with the historical evidence; however, variation and change are also important parts of social evolution. Throughout history, periods of relative stability have sooner or later been replaced by periods of dramatic change (North (1981)). If we want to analyse the long-term potentials for sustainable development, acquiring a better understanding of these dynamic processes is crucial. The factors bringing about change in everyday consumption behaviour have not yet been explored very much in economics. Nevertheless, some theoretical concepts shed light on the main determinants of behavioural change.

First of all, fundamental changes in relative prices and income considerably influence long-term consumption patterns. As Michael and Becker (1973) show, this includes not only different prices for market goods and services, but also changes in the relative prices of basic commodities. A continuous fall of certain prices, e.g. of energy, together with a rise of other prices, e.g. of unskilled labour, enables new lifestyles and simultaneously destroys the economic basis for more traditional patterns. Many aspects of our present culture and way of life can be explained by these determinants. The introduction of a new technology, such as the World Wide Web, or the establishment of a new infrastructure, e.g. the road system, has a comparable effect, because it reduces the prices of the corresponding basic commodities (communication, transportation etc.).

However, as North (1990, 85) states, price ratios and technological innovation are not the only factors inducing social change. Of similar importance is the emergence of new ideas, ideologies and moral judgements leading to new subjective constructions of the models that determine choices. The influence of religions on individual behaviour and consumption may serve as a striking example. As Weber (1905) demonstrated, Protestant ethics considerably shaped the individual attitude to work and thrift in European countries and was a major factor behind economic growth. The view of human dominance over nature rooted in the Christian religion leads to a different attitude towards environmental deterioration than the idea of man being part of nature on which some other religions are based. Accordingly, the idea of sustainable development might serve as a new ideological principle inducing a change in consumption patterns. However, the existence of a new idea is clearly inadequate by itself; it has to become an essential part of the institutional framework, individual moral judgements and views of the world.

Proceeding from the idea of social innovation, the question arises whether the concept of entrepreneurs accelerating the process of technological change (Schumpeter (1993)) can (at least partly) be applied to consumer behaviour. To create new consumption patterns, pioneers are necessary – just as they are for the introduction of new products or production methods. However, the motives of the consumption pioneer differ from those of a Schumpeterian en-

trepreneur. Whereas the prospect of high profits plays an essential role for the latter, the former is instead motivated by the desire to dissociate himself from the hoi polloi. Since Leibenstein (1950), this has been known as the „snob effect“. In addition, another important motive for behavioural change are different ideological and moral views. From an evolutionary point of view, the important function of these pioneers is to test new solutions, to achieve learning effects and to build up the institutional and techno-economic framework required to make a new lifestyle more attractive. Without pioneers overcoming the problems and barriers typically arising at first, radically new ways of consumption would probably never become acceptable to average people.

One crucial problem of new consumption patterns is diffusion, i.e. broad acceptance and realization. Unlike market innovations, there is no competitive pressure forcing consumers to adopt a superior way of life (Lancaster (1966a, 19)). Presumably, the central mechanism of diffusion is the bandwagon effect, the desire of people not to be left out. The interaction of snob and bandwagon effect (pioneers and imitators) usually serves as an economic explanation of fashion cycles. However, there is no guarantee that a certain lifestyle is actually seen as worth being imitated. Primarily, inducing a cumulative process or fashionable trend appears to be a problem of marketing and promotion. A new way of life has to be made attractive to consumers before they are willing to accept it. In a world of uncertainty, this decision partly depends on the reputation of consumption pioneers (Bikchandani et al. (1998, 160)), i.e. whether they are regarded as experts/fashion leaders or as social outsiders. Moreover, there may be critical levels of diffusion before a new style serves as a model to others. A hundred pioneer consumers may have no effect on mass behaviour, whereas a hundred thousand induce a cumulative process of imitation.

## 5 Conclusions

As a whole, the new theoretical approaches of consumer behaviour including household production theory, bounded rationality and evolutionary economics paint a different but still ambiguous picture concerning the prospects of sustainable change. On the one hand, there seems to be a huge potential for ecologically beneficial consumption in the long run. Information deficits, cognitive limits and the possibility of producing basic commodities such as social acceptance in a completely different way indicate that current consumption patterns can be changed dramatically without utility losses. On the other hand, the evolutionary concepts of path-dependency and lock-in of behavioural patterns caused by habit formation, conformity, institutional and techno-economic inertia illustrate the difficulties and barriers which have to be overcome to induce a process of change. What are the economic and political conclusions to be drawn from this theoretical view?

*Firstly*, an evolutionary-institutional approach to consumer theory as suggested here has important and far-reaching *normative implications* for economic analysis. Different institutional arrangements to change individual behaviour in an ecologically beneficial way are usually assessed by static efficiency criteria, i.e. by comparing their welfare effects or their cost-efficiency as defined by neoclassical economics. This assessment is based on the assumption that every change in consumer choice caused by policy instruments inevitably leads to abatement costs and/or utility losses in the private sector. However, if there are no utility losses of change in the long run, but rather informational, social and institutional barriers preventing people from choosing a new and perhaps superior behavioural pattern, the standard definition of efficiency does not consider the crucial economic problem.<sup>10</sup> In the long run, sustainable development is not necessarily a problem of lower welfare, but rather of overcoming a social and institutional lock-in. Consequently, if we want to assess the long-term efficiency of policy instruments and institutional arrangements, we need new efficiency criteria appropriate to dynamic social processes.

Starting from the hypothesis that behavioural change is prevented not by imminent utility losses, but rather by cognitive limits and social interdependencies, normative economic analysis might concentrate on (political and private) transaction costs caused by different institutional arrangements to overcome these barriers. Essentially, the sustainable change of consumption patterns appears to be a problem of establishing appropriate governance structures and social mechanisms motivating consumers to a new way of life. These structures must be able to induce an irreversible, self-reinforcing process towards new ecologically beneficial behavioural patterns.<sup>11</sup> Alternative institutional arrangements that are basically appropriate for such a complex coordination task may differ dramatically with respect to their transaction costs. Consequently, these costs could serve as the main criterion to assess the economic efficiency of policy instruments.

*Secondly*, the theoretical approaches to consumer behaviour discussed in this essay also have important *positive implications* concerning the mechanisms that can be used to induce a sustainable change of behavioural patterns. According to neoclassical economics, individual behaviour can only be influenced by a change in relative prices, e.g. with an ecological tax reform, a system of tradeable permits, or public subsidies for certain goods and services. Other institutional options to support ecologically beneficial behaviour appear to have no effect in this theoretical framework. However, there are usually political, economic and financial restrictions

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<sup>10</sup> Richter/Furubotn (1996, 488) state that the neoclassical efficiency criterion is generally not acceptable from an neoinstitutional point of view. Not surprisingly, this critical view is reinforced if we consider long-term evolutionary processes of change.

<sup>11</sup> Erdmann (1993b, 88) stresses the irreversibility of change towards a new and superior path of development as an essential part of an evolutionary efficiency criterion.

which make it almost impossible to achieve a sustainable change of behaviour by taxes and public expenditures alone. Consequently, other factors supporting sustainable change must be found. The theoretical approaches discussed here give at least some indications concerning the basic economic and social mechanisms that should be considered to design new and effective institutional arrangements.

From an institutional point of view, one of the crucial factors is the information available to the consumer. Thus, environmental policy should be focused on overcoming information barriers, e.g. by product labels or consumer advice concerning improved ways of household production (Scitovsky (1976)). Moreover, the government could directly support innovative behaviour. The evolutionary view suggests that new consumption patterns need opportunities to achieve learning effects and develop the required institutional and techno-economic framework. Consequently, public innovation policy should be focused more on consumption patterns that can serve as a model to the average consumer. Additionally, the government could attempt to reinforce the cumulative process of imitation, e.g. by gaining the support of individuals who are widely accepted as experts or fashion-leaders. Finally, the possibilities of establishing sustainability as a socio-economic paradigm and guiding norm of behaviour have to be explored. As a result, the new theoretical approaches indicate the necessity of a cooperative role by the state, stimulating and supporting new consumption patterns in a (co-) evolutionary process of institutional, technological and behavioural change. However, more research into the design of such a policy approach is needed.

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## Summary

Sustainable development requires a fundamental change of consumption patterns in the long run which cannot be appropriately analysed within the traditional neoclassical paradigm. This essay discusses the implications of alternative theoretical approaches, such as household production theory, the neoinstitutional concept of bounded rationality and the evolutionary concept of path-dependency. Compared to neoclassical economics, these approaches paint a different picture of the determinants of consumer behaviour with far-reaching theoretical and political implications. Firstly, a sustainable change of consumption patterns does not appear to be a problem of individual welfare losses, but rather of overcoming a social and institutional lock-in. Consequently, we need new efficiency criteria appropriate to assess dynamic social processes. Secondly, behavioural change is not only influenced by relative prices. The design of institutional arrangements should therefore consider other factors such as information barriers, social norms of behaviour and cumulative processes of imitation.

## Zusammenfassung

Nachhaltige Entwicklung erfordert langfristig eine grundlegende Veränderung bestehender Verhaltensmuster. Für die Analyse eines derartigen Entwicklungsprozesses stellt das traditionelle neoklassische Paradigma keine geeignete Basis dar. Dieser Beitrag diskutiert die Implikationen alternativer theoretischer Ansätze, wie der Haushaltsproduktionstheorie, des neoinstitutionalistischen Konzepts der beschränkten Rationalität oder des evolutorischen Konzepts der pfadabhängigen Entwicklung. Diese Ansätze entwerfen ein anderes Bild über die Einflußfaktoren des Konsumverhaltens mit weitreichenden theoretischen und politischen Implikationen. Erstens besteht das zentrale Problem einer nachhaltigen Verhaltensänderung weniger in individuellen Wohlfahrtsverlusten, als vielmehr in der Überwindung sozialer und institutioneller Entwicklungsbarrieren. Zweitens werden die Konsumententscheidungen nicht nur von relativen Preisen beeinflusst. Institutionelle Steuerungsformen sollten folglich auch andere Einflußfaktoren wie etwa Informationshemmnisse, soziale Verhaltensnormen und kumulative Imitationsprozesse berücksichtigen.