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Extending the Informational Basis of Welfare Economics: The Case of Preference Dynamics

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Abstract

Normative reasoning in welfare economics and social contract theory usually presumes invariable, context-independent individual preferences. Following recent work particularly in behavioral economics this assumption is difficult to defend. This paper therefore explores what can be said about preferences and their changes from a motivation-theoretic perspective, i.e. by explaining what motivates economic agents in making their choices and what mechanisms of change are at work here. We show that on this basis it is possible to complement social welfare assessments by a differential weighing of different human motivations which is derived from empirically informed foundations rather than from ad hoc arguments.

Keywords: Preference Change, Welfare, Needs, Subsistence Level, Redistribution

JEL code: D63, O12

1. Introduction

By pointing to inconsistencies and the context-dependency of individual preferences, recent works in behavioral economics have raised doubts about how preferences are usually represented in economic theorizing. As highlighted by Sugden (2006), the decision anomalies observed in numerous experiments also challenge the basis for normative economics usually presuming invariable and coherent preferences (Hausman and McPherson 2009). In response to these problems, attempts have been made that implicitly follow Sen's (1977) early suggestion to extend the 'informational basis' of welfare economics beyond the narrow confines of ordinal utility theory. Sen's (1985) capability approach can be seen as his own, highly influential, step in that direction. A different strategy has been proposed by Sugden (2004) with his notion of welfare that is based on the concept of 'opportunity' and on the idea that, as an autonomous agent, the individual has to bear 'responsibility' for whatever preferences she may form in life. Still another proposal by Ng (2003) transcends the level of manifest preferences and suggests to regain solid ground for welfare evaluations by focusing on individual happiness as the ultimate goal of public policy. [1]

All these approaches try to replace or at least complement the orthodox preferentialist concept of welfare, either by the notion of capabilities, or by that of opportunity or of happiness. However, all these approaches refrain from specifying more precisely what the objects or states are that increase an agent's quality of life, satisfy her preferences, or yield subjective well-being, and for

[1] See Frey and Stutzer (2007) for a critical discussion of 'Happiness Politics'. Some have argued that Sunstein and Thaler's (2003) concept of 'libertarian paternalism' -- seemingly supporting an orthodox notion of welfare (and rationality) by suggesting to shield biased agents from the welfare-decreasing effects of their 'errors' without restricting their choice set -- can actually be shown to build on richer notions of well-being (Lowenstein and Haisley, 2008); see also Thaler and Sunstein (2008) and for a related approach involving "asymmetric paternalism" Camerer et al. (2003).

what reasons (or, as in the case of the capabilities view, no explanation is given for why a particular specification is postulated). These are the *motivational* aspects of behavior which in the more narrow utilitarian terms translate into the question of what the place holders x_1, ..., x_n for the arguments of an individual utility function $u(x_1, \ldots, x_n)$ stand for.

As we will set out to show in this paper, an extension of the informational basis of normative economics that accounts for these motivational aspects makes a difference with respect to the welfare implications of a behavioral approach to economics. At the explanatory level the motivation-theoretic perspective (what is it that *drives* decisions and actions?) and the decision-theoretic view (how are decisions actually made -- what systematic biases occur as compared to the ideal of 'rational' choice?) represent complementary facets of behavior. At the normative level, in contrast, the two aspects seem to match with a substantially differing range of arguments and theories. One of the differences on which we will elaborate in more detail is that, unlike in the framework focusing on decision anomalies, the inquiry into the motivational foundations of behavior leads to specific hypotheses as to how the motivation to act, and hence the individual preferences, systematically change over time.

Specific information on the motivational aspects of behavior that can thus be derived is of obvious normative relevance. Moral intuition frequently acknowledges that, in judging on a particular choice or action, it can be decisive to know how it is motivated. Welfare assessments with quite a diverse background often also implicitly or explicitly refer to differences in how the underlying behavior is motivated as, e.g., certain postulates in Sen's (1992) capabilities approach or arguments known from the basic needs approach (Streeten and Burki 1978, Thomson 1987), claiming higher normative weight for the satisfaction of what are considered 'basic' needs. Also Scanlon's (1975) differentiation according to the suggested 'urgency' of different preferences is a case

in point, as are Pigouvian redistribution arguments The analysis we are going to present supports the conjecture that all these contributions share, viz. that moral judgments hinge on the motives underlying observed behavior. However, we suggest to found this conjecture on an empirically well established motivational theory of human behavior and, by doing so, to go beyond the unspecific canonical preference satisfaction concept in normative economics.

The paper proceeds as follows: Section 2 elaborates on the need to extend the informational basis of normative economics. Section 3 presents the motivational theory on which our normative discussion will be based. Section 4 discusses some normative implications, focusing in particular on shifts in the normative 'weights' resulting with a growing individual capacity to satisfy needs and wants. Section 5 concludes.

2. Moving Beyond 'Given' Preferences

Behavioral economics has delivered ample evidence that human preferences are not as perfectly consistent and immutable as rational choice theory represents them (Sugden 2006). This insight is relevant not only for positive (descriptive) economic theory, but also for normative economics. The most important implication is that the standard view, equating well-being with the satisfaction of 'revealed' preferences only, is no longer plausible and operational. This is so for essentially three reasons: First, logical circularity issues are involved when the preferences on whose basis social states are being evaluated turn out to be themselves shaped by those states. Second, with malleable preferences, determining which state of preferences should serve as a consistent basis for a criterion of well-being becomes an arbitrary decision. Third, when preferences are partly shaped by the situational context, it is no longer plausible to assume that they reliably indicate the individual's level of well-being. As Sen (1987: 45-46) has emphasized, even agents enduring an 'objectively' miserable situation may well 'learn to prefer' it in order to reduce their cognitive dissonance. (In

certain cases, indoctrination may also be involved.) Then, these agents' *stated* preferences may conflict with a variety of other indicators of well-being, including their own state-dependent, *revealed* preferences.

Hence, with the richer account of human preferences normative theory faces what may be called a 'quicksand' dilemma. To cope with it, it is widely agreed now that the 'informational basis' of the concept of human well-being needs to be enriched. The standard welfarist approach that equated well-being with utility, narrowly defined as the satisfaction of given 'revealed' preferences (choice), only makes use of a very limited kind of information, viz. ordinal information on observed choice behavior insofar as it can be used to construct well-behaved utility functions (see Kelsey 1987).

By excluding information on important aspects of the quality of life of real-world people (e.g., the rights and entitlements emphasized by Sen), economics has a hard time in giving advice on policy issues in which these aspects are at stake. Furthermore, if well-being is defined in a low- or even one-dimensional way, it is always possible to derive strongly counter-intuitive implications -- a possibility that undermines the credibility of welfare economists' policy advice (which ultimately always aims at *convincing* real-world citizens). Two social states with identical distributions of individual utilities may differ very much in terms of other, empirically equally important, currencies of welfare.

Sen (1985) suggests to account for this critique by systematically enriching welfare economics' account of human well-being with *non-utility* information, in particular with empirical data on functionings. While he retains the general consequentialist approach of welfare economics, he proposes an alternative 'evaluative space' that is considered to be better able to provide a reliable indicator of human well-being and social welfare. A lot of extra information on constituents of man's

quality of life – which Sen apparently considers as self-evident -- enters the welfare calculus, such as provision of food, health services, and the satisfaction of complex psychological needs such as 'appearing in public without shame.' Others have followed this methodological lead so that the state of affairs now is that the evaluative criteria underlying the modern welfare economic calculus have become distinctly multidimensional: Human well-being may be defined and assessed in terms of 'laundered' (perfectly informed, say) preferences (Sobel 1994), happiness (Ng 2003), or in terms of the formal opportunity to act on whatever preferences one may turn out to have (Sugden 2004).

In view of this diversity of approaches the question can be raised which information should be used for enriching the foundations of normative economics. The quality of life of real-world human beings seems to depend on a large number of factors. From a perspective that looks beyond the standard 'revealed preference' concept of well-being, this set of elements comprises mental states, experiences and 'objective' attributes. Mental states may be, e.g., feelings of pleasure, experiences may be the experience of an agent to choose freely from a set of options (the privilege that, in Sen's famous example, separates the fasting man from the starving), and an objective attribute may be a certain functioning (in the sense of Sen), real income, or the history of an agent's entitlements (as in Nozick 1974). Which of these factors should be accounted for in making normative judgments on human well-being should not be left to intuition or common sense. It is possible to identify the factors that play an essential role by means of an empirically backed and psychologically informed account of human well-being and its motivational underpinnings.

We therefore plead for incorporating empirical insights on human *motivation* into normative economics. It is generally acknowledged that the motivation behind an agent's preference (and, hence, the utility derived) can be decisive for the moral assessment of that agent's behavior or a particular social state that agent finds herself in. An often cited example concerns a sadist deriving

pleasures from torturing others (Sen 1981). In this example normative reasoning draws on information about a perverse motivation to satisfy the common moral intuition that the sadist's source of well-being is not legitimate. A monstrosity of this kind illustrates the point, but it cannot substitute for a more general and subtle account of what motivations matter normatively, and how. Such an account has to be based on an encompassing *theory* of human motivation that allows not only to identify different motivations – which may then be treated differently as to their relative weight in a welfare calculus – but also to inquire into the *processes* that govern the change of motivation. These processes can be argued to deserve their own normative assessment.

3. What Motivates Economic Action?

In economics the question of what induces agents to have a preference for something, to form a preference order over their choices, and to act accordingly is rarely addressed. In the original, Benthamite version of *sensory* utilitarianism, in contrast, the question was center stage and answered by an elaborate hedonistic theory according to which action is motivated by seeking pleasure and avoiding pain. This explanation has recently been revived in behavioral economics by Kahneman, Wakker, and Sarin (1997). But a revival of hedonistic hypotheses is not the only way of reconstructing the motivational foundations of economic behavior. There are also non-hedonistic explanations which focus on the motivating power of drives, (deprived) needs, and wants. [2] While in economics the motivational explanations fell out of fashion (see Broome 1996), in the behavioral and human sciences research on the motivational underpinnings of behavior continued and was

[2] Need-theoretic reasoning has a tradition reaching back to Aristotle. Several economists have made use of it to explain the motivation underlying economic behavior, among them Duesenberry (1949), Georgescu-Roegen (1954), and Ironmonger (1972).

deepened further by extending the focus to the biological, evolutionary roots of behavior (Caplan 1978). With these extensions, attention is drawn to inter-personal commonalities in what motivates behavior. [3] In the perspective of such a broadened behavioral view, pleasures and pains are themselves explicable in terms of physiological or psychological processes that trigger such feelings and induce the agents to act (Rozin 1999). These physiological and psychological processes belong to the domain of theories of needs and drives as motivators/inhibitors of action. In terms of these theories it can be argue that, if a need is deprived, the (temporary) reduction or removal of deprivation is classified as a pleasurable experience. Conversely, rising deprivation of a need can be expected to cause increasingly painful feelings.

Since we are interested here in explaining what motivates economic action, it is necessary to be more specific as to what the relevant needs are and for what kind of behavior they are relevant. Unlike earlier need-theoretic approaches in economics, we follow Witt (2001) in adopting a strictly behavioral interpretation of needs.[4] Let a certain action reduce or eliminate deprivation in a certain

[3] Much as the layout of the human body is genetically determined, so are basic human behavioral capacities and dispositions. They are shared by all humans with the usual genetic variance. Apparently, natural selection has not systematically modified them over the last millennia. They can therefore be conjectured to be adapted to the living conditions in the early phases of human phylogeny in which selection pressure was still tight. These basic behavioral capacities and dispositions may best be understood in terms of the value which they seem to have had for reproduction and survival under such conditions (Barkow, Cosmides, and Tooby 1992).

[4] We do not adopt Maslow's (1954) often cited hypothesis of a need hierarchy (amounting to the assumption of lexicographic preferences), since there is little empirical evidence for that hypothesis, see Wabha and Bridgewell (1976).

need. If this event increases the rate with which that action is chosen in the future, the satisfaction of the need is connected with (unconditioned) reinforcement. Restricting the notion of needs to those for which this connection holds ('basic needs'), need satisfaction can be identified with 'primary reinforcement' in the theory of instrumental conditioning.[5] Thus, if satisfaction and deprivation of basic needs are classified as pleasurable and painful experiences respectively, a triple correspondence between hedonistic, need-theoretic, and reinforcement-theoretic motivation hypotheses can be established. The correspondence can be used to give the hedonistic, utilitarian hypotheses richer connotations than they originally have.

To demonstrate this, consider choices by which a preference order is revealed. With regard to the motivation underlying the choices the question is what induced the decision maker to consider the alternatives and prefer or value them more or less. A hedonistic explanation would refer to the pleasures and pains which the decision maker associates with the alternatives to choose from and the balance between them. Simplifying somewhat, pleasures and pains are assumed to be homogenized into a single hedonic currency – the utility index – taken to express the relative strength of the action motivation (Shizgal 1999). Thus, a higher value of the hedonic currency suffices as a proximate cause for the motivation underlying an observed choice of an action. What determines the pleasure and pain feelings from which utility is derived does not have to be, and

[5] See Herrnstein (1990). Only a limited number of needs qualify for this category. In a rough approximation they can be identified with such activities as drinking, sleeping, eating, keeping body temperature, physical activity, sex, and seeking pain relief, shelter, affection, social recognition, sensory arousal, cognitive consistency, and achievement (see Millenson 1967: 386). Given their obvious reproductive value in times of fierce selection pressure, such basic needs can be argued to be innate and, indeed, they are commonly shared by humans (and not only humans) with the usual genetic variance.

usually is not, specified. The suggested need-theoretic explanation, by contrast, provides an ultimate cause for the motivation underlying the choice of an action. It does so by identifying how the action reduces deprivation with respect to some specific need(s) – related above to primary reinforcers – and, thus, triggers a pleasurable experience (generates utility). Moreover, besides giving deeper reasons for how utility is generated, the present interpretation also offers an important dynamic extension by explaining how the motivation to act (or, for that matter, utility or preferences) change over time. One adaptation dynamics is instrumental conditioning, the other is conditioned reinforcement or conditioning learning (see,.e.g., Leslie 1996).

The adaptation dynamics implied by instrumental conditioning ('reinforcement learning') converge to a state in which the relative frequencies of choices among alternative actions over a given period of time match the relative size of the rewards previously obtained from the alternative actions. This rule is called the 'matching law' (Herrnstein 1997, an empirical generalization based on hundreds of experiments at the level of behavior with little or no cognitive participation, see Davison and McCarthy 1988). The reward accruing to an action depends (a) on how much deprivation of the need(s) which it serves there is to be reduced and (b) the actions' relative effectiveness in accomplishing deprivation reduction. Accordingly, at any point in time the relative strength of the motivation to take an action hinges on the degree of deprivation of the need to be served by the action to the degree of deprivation of all other needs *and* the actions' relative effectiveness.

The consequence of these non-cognitive behavioral regularities is that, over their conditioning history, the agents on the one hand adjust to the reward structure of each single need. On the other hand, they learn to adjust to the relative ease with which reinforcement can be obtained in their environment across their needs. The result is that the agents tend to specialize with respect to where they seek more or less intensely the rewarding experience of need satisfaction.

(Such specialization patterns may be strongly supported by cognitively controlled self-efficacy, see below.) Beyond all variance caused by such individual specializations there is, however, one general tendency in the mean behavior triggered whenever the overall means for satisfying needs grow with rising income. This tendency results from the fact that basic needs differ with respect to their deprivation-satiation patterns in a way that is similar across all humans. There are basic needs where deprivation can, in principle, be reduced temporarily to zero, i.e. which can be satiated quite easily. Examples are the needs for liquids or for calorie intake where this is a concomitant of the body's homoeostatic metabolism. But there are also basic needs where, for different reasons, it is difficult, if not impossible, to reduce average deprivation to zero. Typically, these are needs whose satiation level is defined in relative terms like the need for arousal or for social recognition. Since this observation has important normative implications (see below) we summarize it as:

Hypothesis 1 With rising opportunity for serving basic needs (i.e. rising real income), different needs show characteristic, inter-personally similar differences in their deprivation-satiation patterns such that some are on average more easily satiable than others.

The adaptation dynamics implied by conditioning learning (conditioned reinforcement) are quite different. They result from the fact that an organism tends to learn to associate stimuli that trigger an action leading to reward (a pleasurable experience) and neutral stimuli (triggering neither a pleasurable nor an aversive experience), if these two kinds of stimuli coincide repeatedly. Once such an association is established, the originally neutral action triggers a rewarding experience qua the learnt association. A conditioned (secondary or acquired) reinforcer is then established.[6] Making

[6] This effect works even if the previously coinciding primary reinforcement is dropped, but the strength of a conditioned reinforcer fades away, if the association is not at least occasionally corroborated. An example of how such associations are learned may be helpful. Imagine taking

use of the triple correspondence between the different motivational theories we may speak here of the emergence of an "acquired want" whose satisfaction triggers pleasurable feelings and hence is capable of changing the agents' preferences. For the normative implications to be discussed below this important feature can be stated as follows:

Hypothesis 2 An elaborate structure of acquired wants can emerge over an individual's lifetime through conditioning learning on the basis of the few innate needs. Acquired wants show no specific deprivation and therefore no specific satiation either. (The motivation to act on acquired wants is upheld if the association with a deprived primary reinforcer is at least occasional corroborated.)

Unlike the widely shared basic needs, the emerging structure of acquired wants is of a highly idiosyncratic nature. It would make little sense, therefore, to produce a list of learnt reinforcers comparable to that of the limited number of innate ones. Together with the individual specialization patterns resulting from the adaptations under instrumental conditioning, the structure of acquired wants explains a good deal of the observable inter-individual variance in human preferences. However, the particular cultural (conditioning) environments in which the agents live have an influence on what associations the agents happen to learn and result in a certain cultural bias in the

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repeatedly a good meal when hungry in a special setting characterized by particular aesthetic aspects like scenic architecture, furniture, tableware, table music etc. Assume that the special setting is initially experienced as a neutral stimulus. Through the repeated coincidence, an association is learnt between good eating and the features of the special setting by which scenic architecture, furniture, tableware, table music etc. can become a rewarding experience in their own right – a conditioned reinforcer – so that the frequency with which the corresponding exposure is chosen is increasing – even if no longer coinciding with eating activities.

individually acquired wants. For this reason, agents in similarly socialized groups or similar cultural environments may show less variety in their acquired wants than agents from different backgrounds.

The motivational underpinnings of economic behavior would, of course, be incomplete without hypotheses that account for the cognitive influences that intervene into the motivational structures shaped by instrumental conditioning and conditioning learning. An economically particularly relevant case is the cognitive construction or perception of means-ends relationships as it often underlies deliberate decision making. Where actions are recognized as instrumental for attaining the actual need satisfaction this can change observable behavior away from what reinforcement contingencies would predict. The perception of instrumental relationships can consciously be manipulated and actual reinforcement thus postponed as in the case of self-efficacy (Bandura 1986). Furthermore, cognitive activity can induce own motivational forces as, for example, the consistency of self-image (Dunning 2007) and the pervasive need for high self-esteem (Gollwitzer and Kirchhof 1998).

However due to limitations of the information processing capacity of the human mind and the selectivity of attention processes, cognitive interventions are always of a selective nature. Whether intervening cognitive activities are triggered hinges on the information input which, in turn, is contingent on the way in which incoming stimuli are processed. The outcome of the internal cognitive activities that are triggered is difficult to predict. For that reason, hypotheses on the effects of cognitive intervention on economic behavior are often easier to derive from exploring how the information input is constrained so that these constraints and their changes over time deserve a closer inspection.

The crucial feature here are selective attention processes that filter out which of the stimuli usually offered in abundance to the sensory system will be processed further in the working memory (Anderson 2000: Chs. 3, 6, and 7). What signals grab attention depends on both their physically measurable attributes (frequency and relative strength) and on whether, and if so what, meaning can be attributed to them. Meaning is identified through tracing information from long term memory in which knowledge is stored that has previously been accumulated. In order for elements of long term memory to be made available, they have to be activated selectively through cognitive cues contained in the information coming from outside. This means that at any point in time the incremental change of individual action knowledge through newly processed information ultimately hinges on already existing knowledge that can be activated in long term memory. However, the cognitive cues and the associated memory content differ in how much attention they are able to attract, depending on the affective value of the particular meaning that is associated. The affective value, in turn, reflects the strength of previous rewarding (pleasurable) or aversive (painful) experiences that are memorized in association with the information.

Put differently, the more an agent has developed an explicit preference (or aversion) for a particular information or an object or event to which the information refers, the more affective weight is attributed to its meaning, and the more likely attention is allocated to that information. Thus, what new knowledge an agent acquires is not only contingent on her already existing knowledge. It also hinges on the current state of her preferences that influence the selective allocation of attention. Since this conclusion is again of normative significance (see below) we summarize it as

Hypothesis 3 The interactions between the current state of the agents' knowledge and the current state of their preferences feed back on the further shaping of both the agents'

perceptions and preferences. Extending the attention given to an action possibility at the expense of others allows to recognize details in that possibility which otherwise are likely to have gone unnoticed (refinement effect).

4. In What Way Is the Motivation to Act Normatively Relevant?

In the previous section, a utilitarian, a need-theoretic, and a reinforcement-theoretic interpretation of the motivational side of human behavior have been discussed. The three interpretations have been shown to correspond with one another in several respects. However, if, as proposed, innate needs and acquired wants are identified with primary and secondary reinforcers respectively, the need-theoretic interpretation often allows to be more specific with respect to what it is that motivates behavior, or what generates utility and in which way.[7] Furthermore, with the hypotheses 1-3 derived on that basis, an economically significant connection can be established between rising real per capita income as a driving force on the one hand and the dynamics of differential need satiation, of

[7] In the normative context this has the advantage of allowing to assess the normative value of human action motivators in a more comprehensive way. In the utilitarian tradition, the choice of one action over another is usually interpreted as an expression of preference satisfaction and, hence, of a welfare improvement (with ordinal utility this holds as long as the Pareto criterion is satisfied). As mentioned, the ultimate causes for the choice of the action (beyond the proximate cause 'preference satisfaction') are not specified – except in the case of obviously anti-social or perverse preferences. In that case the usual inference from preference satisfaction to welfare increases would lead to counterintuitive conclusions. Instead of checking the full spectrum of motivations in this regard, a moral filter is constructed by denoting in an ad hoc fashion a subset of action motivations that is denied any positive weight in the welfare calculus; see, most prominently, Harsanyi (1982).

acquiring new wants, and of cognitive and affective specialization on the other hand. It is precisely this connection that is of additional normative significance. The different, income driven, *developments* implied by hypothesis 1 - 3 are neither all neutral nor all equal with respect to their normative implications.

When consumption rises sufficiently with a growing real per capita income, some basic needs will more quickly approach a satiation level than others. Typically, the more easily satiable needs like those for liquids, food, or body heat are based on homoeostatic, physiological mechanisms with a minimal subsistence boundary that needs to be met in order for an organism to survive. This contrasts with the less easily satiable needs and, in particular, those that will probably never reach a satiation level, e.g., because satiation is defined in relational terms as – for different reasons – in the case of the needs for social status recognition or for arousal. We will argue that the differences in satiability and the reasons behind them are relevant for specifying welfare when preferences change over time.

With an increasing satiation of some of the basic needs more resources become available for consumption activities serving the refinement in acquired wants and cognitively constructed motives that concomitantly develop. Producers have incentives to come up with innovations supporting the development of those consumption motivations. In view of the technically 'insatiable' nature of acquired wants and cognitively constructed motives it is not surprising that they tend to absorb a share of rising income that can become significantly larger than the amount spent on the basic needs on which they are conditioned. However, the very 'learning to prefer' that is going on in the formation of acquired wants and cognitively constructed motives implies a peculiar asymmetry. Had there been no opportunity for such learning, e.g. because of lack of income, it would mean no sacrifice in welfare if the possibility of serving (not yet learned) wants and motives were removed. Once the

learning experience has been made, though, the removal of that possibility would translate into a sacrifice in welfare. Under certain conditions, we claim, this asymmetry is normatively relevant.

This claim can best be defended by means of a contract-theoretic argument, i.e. by recourse to the construct (or thought experiment) of a hypothetical social contract.[8] When placed behind a 'veil of ignorance', i.e. a fictitious situation of genuine uncertainty about what positions they will occupy in the post-constitutional market game, the participants in the social contract can be imagined either to consent or not to consent to a normative judgment that discriminates between the satisfaction of the various future preferences they are likely to develop. Following the standard way in which this device is made operative we thus assume that the agents are ignorant not only of the positions, but also about the specific content of their preferences after the veil has been lifted. Yet contrary to this view we do assume that they are perfectly aware of the fact that their preferences will develop and change systematically as outlined in the previous section.[9]

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[8] A corresponding welfare-theoretic justification would face some unresolved issues. It would require a measure for an individual's states of deprivation or satiation concerning the various needs and wants in order to balance them in a common 'currency' like utility and, furthermore, to aggregate utility balances across persons.

[9] Note that for a variety of reasons, put forward already by Hume, the possibility that a contract is fictitiously approved does not allow to conclude that it is normatively 'legitimate'. In the real world, actual legitimacy can only be achieved by factual consent, which, however, is difficult to obtain. We take this to imply that the conclusions presented here should be understood as no more than arguments provided for the ongoing process of public deliberation in a civil society in which responsible individuals endowed with a capacity of moral judgment (Rawls 1971) will decide which of the offered normative arguments to subscribe to.

To illustrate the conditions under which a hypothetical consent of this kind can plausibly be imagined to arise let us consider two different hypothetical scenarios in this and the next section. In the first scenario, disposable per capita income is assumed to develop very unevenly (a not perfectly unrealistic assumption). This would mean that for some agents in the economy – the 'needy' – their poverty deprives them of satisfying their basic needs at a level necessary for their subsistence (which, with minor resource claims, could actually easily be satisfied). In contrast, the well-to-do part of the population would be in the position to engage in spending ever more resources on the satisfaction of needs that are difficult or impossible to satiate and for which no subsistence level is defined, such as the needs for social status or arousal; or in the position to increasingly chase after the most recent refinements of acquired wants or cognitively constructed motives.

Now suppose that in the hypothetical social contract situation everyone expects that real per capita income will be rising, but perhaps very unevenly. If the (hypothetical) agreement on a social contract would be based on the Paretian welfare criterion, the different motivations for spending the additional income would not matter. Whatever the stipulations regarding the distribution of the rising income would be, they would find consent if and only if they ensure that no-one is made worse off while at least one agent is better off by them – whether already well-to-do or not. When the differences in the motivations underlying the use of extra income in the two subpopulations are acknowledged, however, additional information becomes relevant. It allows to anticipate which of the preferences that are caused in the different ways mentioned above will be satisfied (more or less) under different distributions of income.

It is plausible to assume that an impartial assessment by the agents deliberating behind the veil of ignorance on a social contract would make use of this additional information. Since all agents share the basic needs (with some genetic variance) they can be expected to be aware of what it

means to suffer from deprivation of basic needs at the subsistence level. Likewise, they can expected to understand the opposite situation where, with the high disposable income, expenditures to a large extent serve needs that are difficult to satiate anyway or purposes one has learned to appreciate, but would not miss had there been no opportunity to learn the corresponding wants. It is then likely that, they follow common moral intuition and attribute unequal weight to the different motivations. Hence we arrive at

Proposition 1 Suppose in a hypothetical situation of striking a social contract the agents are ignorant about their future positions and specific preferences but endowed with information about the general dynamics of preference learning and the satiation characteristics of needs and wants. Assuming that they make use of that information they can be expected to attribute a higher weight to the reduction of deprivation of basic needs at the subsistence level -- if and where it occurs -- than to other motivations. They are then likely to consent to stipulations of the social contract that account for such a priority in preference satisfaction, if necessary by redistributive measures.

The differential weighing at the level of normative reasoning may at the level of practical policy-making thus serve to legitimize redistributions of resources to help those who are 'needy' in the above sense. [10] This conclusion is similar to much what Sen's (1992) capability approach pleads

[10] It matters, of course, what time dimension is envisaged for deriving this normative conclusion. While in the short run, proposition 1 seem to require no qualification, this may be different in the longer run in order to avoid disincentives on the part of the needy. On a longer time horizon, the redistributive transfers may therefore be earmarked to help the needy to improve their chances of being able to earn themselves the necessary income, e.g. by subsidizing their education

for and to what Scanlon's (1975) differentiation according to the 'urgency' of preferences that differ may imply. It also reminds of the elder utilitarian (Pigouvian) attempts to justify income redistribution based on the conjectured hedonic impact of a decreasing marginal utility of money. What is new, however, is the explicit behavioral foundation that differentiates between needs, acquired wants, and cognitively constructed motives and that therefore can give deeper reasons for assigning different normative weight to the different motivations for spending resources on consumption. The implications of this extension are largely compatible with Sen's and Scanlon's conclusions (which lack an explicit behavioral underpinning). But there are obvious differences with respect to the Pigouvian notions which, at the same time, claim a decreasing *marginal* utility of money in all uses of money and an indefinitely growing (insatiable) total utility arising from spending additional money.

The argument underlying proposition 1 can be generalized to cover not only national redistributive measures, but also international ones, provided the more abstract notion of humankind is accepted to define the scope of the social contract in place of the national community. (Sen 2009 argues that a key deficiency of the standard social contract approach is that it is usually made operative by separating national constituencies from each other.) In fact, in present times, this implication seems the more momentous one. The reason is that the criterion suggested for moral legitimization – the motivation underlying the spending of resources – entails a threshold value that is significant, in particular, in international comparisons. It is defined not in terms of a 'good life' (whatever this means), but in terms of a subsistence level with respect to basic needs for which a

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and health rather than subsidizing their consumption directly. In our view this issue concerns the question of how to conceptualize 'capacities'; beyond that, it concerns the level of policy *instruments* rather than the level of policy *goals* proper.

survival condition must be met. At the national scale, in all highly developed countries the disposable real per capita income has grown beyond what is necessary to cover the subsistence level. A large share of the population living in the condition of the 'needy' in the above sense is, however, a real situation in many less developed countries where absolute poverty is a vastly more frequent phenomenon than in the developed world. An extension of proposition 1 to the international scale would therefore suggest a normative rectification for an international redistribution of income to the truly poor. The argument provides an explicit foundation to what is probably implicitly presupposed as a reasonable normative assumption in the plea for international resource transfers by the basic-needs approach (Streeten and Burki 1978, Thomson 1987) to foster economic development.

The implications of the present approach deviate from some normative pleas made earlier in the literature. This becomes apparent once one moves from a situation with a few well-to-do and a large majority of needy as in the developing countries to a situation characterizing highly developed countries. With their modern welfare states the conditions under which income redistribution occurs are characterized by a large majority of the population that qualifies as relatively well-to-do and a small minority of 'very rich'. Both the well-to-do and the 'very rich' are in a position to spend a large fraction of their resources on consumption that serves difficult or impossible to satiate needs like that for social status or arousal; or that serves freshly acquired wants and refined, cognitively constructed motives. For that reason, the condition for rectifying redistributive measures in terms of the outlined social contract – the deprivation of basic needs at the subsistence level – is no longer given. Even in the presence of drastic income differences no (hypothetical) consent on redistributive measures is therefore likely to arise as in proposition 1.

5. The Scenario of International Environmental Protection Negotiations

Let us now turn to the second scenario. The growth of consumption has boosted the depletion of non-renewable resources and contributes to the greenhouse effect and other forms of degradation of the environment. If, as it seems, such externalities are not fully internalized because of prohibitive transaction costs and/or myopic time horizons, their effects accumulate over time and their costs will have to be incurred by future generations. It cannot be excluded therefore that future generations are going to face significantly reduced opportunities to satisfy their preferences. However, unlike the comparison of the income situation of different groups within a living generation where the differences can directly be verified, a comparison with the living conditions of future generations is beset with uncertainties. Technological progress and continued accumulation of human capital and real capital may entail economic advantages that are almost impossible to predict and to balance with the future costs of a depleted and degraded environment.

For this reason, a normative assessment of the situation by making use of the veil of ignorance device requires additional assumptions not only about the (probably discounting) attitude that the living generation takes towards the fate of future generations, but also about the risk attitudes towards the mentioned uncertainties. The choice of these assumptions is likely to have a significant impact on the conclusions -- behind a veil of ignorance, a risk-friendly society is likely to reach a consent that is quite different from the one of a risk-averse societies (Witt and Schubert 2008). Since it is known from decision making research that in face of large risks people tend to be risk-averse (Slovic, Fischhoff, and Lichtenstein 1982), let us assume for the sake of the argument that in the living generation risk aversion prevails with regard to the disposable income of future generations. This means that, under the two modifications made for this scenario, the living generation would be willing to account for the negative effect that the own resource use has on the preference satisfaction that future generations can afford.

In order to assess the most interesting normative implication of the motivational aspects in such a scenario let us assume that resource depletion and environmental degradation are the direct consequence of the resource use in economies of two very different types. The first type is that of a less developed ('poor') economy in which per capita income is so low that the resources available for consumption in the majority of the population suffices at best to avoid deprivation of basic needs at the subsistence level. Let the second type of an economy be a highly developed ('very rich') one in which the agents can afford to spend the lion's share of their very high per capita income on difficult-to-satiate needs and on refined acquired wants and cognitively constructed motives following up the sophisticated consumption innovations of a creative consumer goods industry. Resorting to the veil-of-ignorance device and accounting for the difference in the motivation to use resources in the two types of economies it can be expected that their different circumstances- result in inter-generational social contracts taking quite different forms. Even in an impartial assessment, the agents in a poor economy have no reason to weigh the low disposable per capita income of future generations more important than their own, a situation that differs entirely from the one of a very rich economy. Hence we suggest

Proposition 2 Behind a veil of ignorance, there are good reasons to assume that agents imagining to end up in a 'poor' economy consent on rejecting stipulations in an inter-generational social contract that reduce depletion and degradation at the cost of also reducing spending in the living generation. If the agents imagine to end up in a 'very rich' economy, in contrast, there are good reasons to assume that their calculus of consent results in stipulations designed to reduce the spending of the living generation and the concomitant depletion and degradation to the advantage of future generations.

As a measure to achieve such a reduction in a very rich economy one could think of a progressive consumption tax. [11]

The difference between the two types of economies regarding the normative judgment on consumption-curbing activities is not very surprising, but it has a notable implication once we turn away from the juxtaposition of a 'poor' subsistence economy and a 'very rich', affluent economy. Consider a constellation in which a 'very rich' economy is compared to a 'rich' one. Let the latter be defined by a relatively lower real per capita income that suffices, however, to avoid deprivation in basic needs at the subsistence level. Analogously to the above argumentation that compared well-to-do and very rich subpopulations within one economy, the normatively relevant income threshold is exceeded in both the 'rich' and the 'very rich' economies. Let the relevant criterion again be whether or not this threshold is exceeded – and, hence, not the absolute differences in the ability to spend. If so, it can be concluded that differences in real per capita income between societies which all exceed the level of a subsistence economy provide no reason for consenting on an inter-generational social contract stipulating reductions of spending by a society that are the higher the higher the real per capita income of the society.

[11] Such a tax has been proposed by Frank (1999). Focusing on relational, status seeking consumption activities he argues that, because of the arms-race like nature of the increased spending, growing expenditures 'waste' resources without actually raising welfare. However, consumption activities by which status can be signaled often also serve other needs or are even predominantly motivated by other needs. In such cases, the reason given by Frank for a normative legitimization of a progressive consumption tax may not be sufficient, while the reason given here may be.

This conclusion, derived from motivation-theoretic consideration, is in notable contrast to the notions of justice informing the present international negotiations about how to distribute the burden of fighting the greenhouse effect. The latter notions grant a reduction of, or exemption from, that burden to countries that actually exceed the level of a subsistence economy. Since by our definition of the different consumption levels these countries would have to be classified as 'rich' economies, our criterion based on the motivations of resource uses would not treat them differently from the most developed economies.

6. Conclusions

Behavioral Economics has shown that in many economically relevant situations, individual preferences may be incoherent and subject to (partly systematic) endogenous change. This challenges the basis for standard notions of welfare in economics that usually presume preferences to be constant and context-independent. While several approaches to overcome this problem have been proposed recently, they all tend to focus on decision-theoretic 'anomalies' and their implications – not on the motivational underpinnings of behavior. In this paper we have therefore adopted a motivation-theoretic perspective instead, asking which factors motivate human behavior. We have argued that a fruitful way of answering this question is a behavioral approach that connects to the well established theory of drives and needs, differing in so far from earlier theorizing in economics about the role of needs and wants, which was mainly informed by introspection and common sense arguments.

We have claimed that, from such a point of view, preference formation and change result in three different ways. First, over a lifetime agents tend to specialize in what they prefer and accumulate refined knowledge on; second, differential satiation effects have an impact on and modify existing preferences; third, the agents acquire new preferences through cognitive and non-cognitive

learning. The basis of these adaptation processes can be traced back to innate dispositions and mechanisms which can be conjectured to be inter-personally shared with the usual genetic variance. This is the small set of what we have called 'basic needs' and the two mechanisms of conditioning learning and inferential (cognitive) learning. Taken together these innate endowments enable human agents to learn rich structures of acquired wants and cognitively constructed motives, starting from the small set of common basic needs. For the normative implications of these behavioral foundations it is important that basic needs on the one hand and acquired wants and constructed motives on the other hand differ markedly with respect to their contingency and their satiation dynamics.

A conclusion that we have drawn from this argumentation is that in recognizing these differences, agents behind a hypothetical veil of ignorance about their specific future positions and preferences may agree upon attributing different weights to the opportunity to satisfy basic needs, as compared to the opportunity to satisfy acquired wants or constructed motives, respectively. We have claimed that the conclusion holds independently of the actually realized level of (e.g. hedonic) well-being. Finally, we have demonstrated how this approach can be applied to derive practical normative implications for concrete examples.

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