Review Article

Review, Evolution, and Theoretical Implications of the Utility Concept

Giacomo Di Foggia[1], **Ugo Arrigo**[1]

1. University of Milano - Bicocca, Italy

This article reviews the evolution of the concept of utility in economics, with particular attention to forms of utility that cannot be traced exclusively to the material results of choices. After examining the main theoretical approaches – from utility as preference to utility as subjective satisfaction – the contribution focuses on procedural utility, i.e., the utility derived from the way decisions are made and interactions occur. A classification of this form of utility is proposed in the following areas: individual, relating to autonomy and self-determination; interpersonal, linked to the quality of social relations; and institutional, connected to participation and recognition. Finally, the potential for integration between welfare economics and communicative action theory is discussed to extend economic reflection to dimensions often neglected but central to the well-being of individuals.

Correspondence: papers@team.qeios.com — Qeios will forward to the authors

Introduction

This study contributes to the debate on the concept of utility Haslett[1], highlighting aspects that complicate treating it univocally. The term utility has undergone a shift in meaning over time[2][3], transitioning from representing a material property of goods to a subjective mental state, later becoming synonymous with revealed preference, and finally, becoming a subject of reflection within the economics of happiness. Additionally, the plural nature of utility makes comparison and aggregation challenging[4] due to its multiple frameworks[5]. Alongside these two approaches—genealogical and pluralist—we propose a third perspective that identifies two peculiarities. The first deals with the coexistence of two meanings of utility: (1) a chrematistic, instrumental meaning anchored in the Aristotelian-Smithian tradition, and (2) a hedonic meaning linked to the mental states elicited by the possession of goods, according to the utilitarian and marginalist traditions. The latter concerns hedonic

utility, which can be derived from final results and the processes by which they are obtained[6][7]. We explore the concept of utility by tracing its main conceptual transformations to recover its original semantic richness and theoretical depth. Four critical steps in this evolution are identified: the pre-Bentham distinction between material utility and pleasure, the post-Bentham identification of utility with personal well-being, the aseptic redefinition of utility in the revealed preference approach, and its re-hedonisation in the happiness and economics approach. Of these, the first two are particularly relevant. We argue that, while useful in the context of consumer choices, the revealed preference approach is inadequate in areas where procedural dimensions are important. The impossibility of inferring welfare preferences from choices in the presence of procedural costs confirms the need to distinguish between these two concepts. In this sense, it is impossible to maintain consistency between choices and preferences on the one hand and between preferences and welfare on the other[8][9][10]. Although the happiness and economics approach enables the dissection of the sources of perceived well-being, it risks underestimating its material component, which respondents often do not consider adequately. We aim to highlight the centrality of two conceptual distinctions. The first is the distinction between crematistic and hedonic utility[11][12], recovering the semantic clarity present in classical thought, and the second is the distinction between procedural B. S. Frey[13] and final state utility, extending the concept of PU to non-institutional contexts. These two distinctions open new critical perspectives on dominant economic theories, and raise questions about the legitimacy of exclusively using the outcome utility (OU) in collective choices. In this context, the procedural and communicative approaches, inspired by Habermas, can offer an alternative to the simple aggregation of individual preferences, suggesting the need for justification and universalisation in collective decision-making processes. The remainder of this article is organised as follows. After the introduction, the second section examines the transformation of the meaning attributed to the concept of utility throughout the history of economic thought. The third section proposes a classification of the main theoretical utility variations, paying particular attention to the distinctions between dual utility, outcome utility, procedural utility (PU), and hedonic and instrumental utility. The fourth section explores the nature of PU, which is analysed in four respects: individual action, interpersonal relations, communicative intersubjective contexts, and institutionalised processes. The fifth and final section critically discusses the theoretical implications of this reconstruction, highlighting the heuristic potential of a concept of utility enriched in its semantic and normative dimensions.

Evolution of the concept of utility

Broome[2] offers an interesting analysis of the evolution of the concept of utility across the history of economic thought, identifying two significant changes in its meaning. Initially, see [14]utility referred to the property of an object that tends to produce benefit, advantage, pleasure, or happiness or to prevent harm, pain, or unhappiness for those interested in it. A first conceptual change occurred from this definition of utility as an object's capacity to generate benefit. Progressively, utility came to be understood not as a capacity, but as the benefit itself. This interpretation led to individual utility being considered the sum of the benefits obtained from the goods possessed, making the measurement of individual well-being more operational. The second change concerns the introduction of the axiomatic approach to revealed preferences. Following Broome's reflection, a new development emerged within the strand of studies known as Happiness and Economics. Since most of these studies attribute a predominantly hedonic and psychological meaning to happiness, it could be argued that this development is partially a return to the Benthamian conception.

The adoption of the term happiness as a synonym for the original concept of utility may be explained by the fact that the revealed preference approach stripped the term utility of its hedonistic meaning and more simply, the psychological origin of the happiness and economics strand, which initially developed in the field of psychological sciences, where the adoption of economic terminology was by no means obvious. Among the mentioned changes in the meaning of the concept of utility identified by Broome, the first is central to this paper.

Our analysis thus raises two questions: (i) which specific aspects of Bentham's use of the term favoured the conceptual shift highlighted by Broome? and (ii) does Bentham's use really represent the starting point for the analysis? It is not necessary to go further back and identify terms previously used to express similar concepts? Regarding the first question, a change in meaning is possible precisely because Bentham also attributes utility with a hedonic and psychological content. This emerges from the terms he associates with the concept, such as pleasure, good, and happiness, while benefit and advantage can be interpreted psychologically and objectively. If utility is understood as a good's capacity to generate positive mental states, according to Bentham's terminology, then it is not surprising that the hedonic benefit received by an individual comes to be considered utility and, by extension, that individual utility is defined as the sum of benefits derived from the goods possessed. From this perspective, hedonic utility arises from the relationship between goods and individuals. However, a non-hedonic but material or

instrumental conception of utility refers to the objective properties of goods. In this conception, a good has utility insofar as it produces material benefits. However, this form of utility intrinsic to the good does not allow for a conceptual transition to a representation of individual well-being. The change in the meaning of the term utility—from property of the good to property of the individual and, therefore, from an instrumental conception to a final conception—was only made possible by an underlying shift from an objective/material view of utility to a subjective/hedonic view. This shift is far more significant than the previous shift. Although utility has primarily been used in a subjective sense, this has not always been the case.

The coexistence of the two meanings, combined with the lack of theoretical clarification, has generated considerable confusion. It is, therefore, important to return to the second question, which involves verifying the use of the term or related concepts, even in authors before Bentham. For example, Adam Smith adopts an objective and instrumental conception of utility in The Wealth of Nations, which he calls value in use. His analysis demonstrates that utility or value in use refers to the material usefulness of goods. A similar view is found in Hume, as Sidgwick points out, where utility is meant in a narrower sense than in Bentham's conception because he distinguishes the useful from the immediately agreeable, recognising that, alongside utility as the basis of moral approval, there are qualities that people approve of simply because they are pleasant, either to those who possess them or to others[15]. Smith's objective conception of utility is consistent with that of Aristotle in his Nicomachean Ethics, where it is stated that wealth is not, manifestly, the good we seek since it is used to procure other things. Here, the utility of material goods is understood in an instrumental and objective sense. How, then, should we name the real utility to distinguish it from the hedonic and psychological utility proper to utilitarianism? There is no established term that may have hindered this concept's adequate theoretical consideration. If hedonic derives from Greek, similarly, we argue that crematistic indicates the material utility of goods, referring to the term that designates wealth.

Aristotle and Smith speak of pleasure in relation to the subjective effects of goods. Aristotle observes that the things most people like are in conflict with each other because they are not pleasant by nature. Smith asserts that the qualities that generate pleasure or displeasure produce an irrelevant demand because they are unnecessary: man not only strives to satisfy primary needs but to obtain the comforts required by refined taste. Smith distinguishes between physical and intellectual needs: just as the body, due to its fragility, requires a great deal of care, so the intellect, due to its greater sensitivity, requires an even more complex provision, as ensured by the various arts. This objective and material view of utility, which is

close to common sense, has been progressively replaced by a subjective conception—utilitarianism. This shift can already be seen in Ricardo's writing, in which utility is not the measure of exchange value, yet is essential. If a product or a service were useless—that is, if it could not possibly contribute to our satisfaction—it would have no exchange value, regardless of how rare it might be or how much effort it might take to obtain it[16][17]. A subjective conception of utility that was even more explicit than that expressed by Ricardo was formulated by J.S. Mill, when he stated that the utility of a good in the estimation of the purchaser represents the extreme limit of its exchange value: a higher value is not possible, except in exceptional circumstances[18]. For Mill, therefore, the value attributed to use is identified with the individual's maximum willingness to pay. This marks a clear departure from Smith's conception: the fact that someone is willing to pay a high price for a good, such as a diamond, implies the attribution of a high monetary value to its use, even in the absence of relevant objective properties. However, in the transition from an objective to a subjective conception of utility — necessary for interpreting consumer choices — awareness of the existence of a dual component has faded. This is partly due to the indiscriminate use of the term 'utility': a chrematistic component based on the material and objective characteristics of the good and a hedonic component referring to the mental effects perceived by the subject. More precisely, willingness to pay reflects an overall subjective assessment that integrates both benefits derived from the good's tangible and functional properties and those associated with the perceptual and symbolic sphere of individual experience. This leads to a dual conception of utility. On the one hand, utility is linked to objective properties — for example, the nutritional value of food — that produce effects on physical and material well-being; on the other hand, utility is associated with the subjective representation of certain qualities — such as a good's adherence to aesthetic or cultural standards —which generates hedonic well-being. The willingness to pay, therefore, incorporates both components without implying that the objectivity and subjectivity of the sources of utility are ontologically equivalent. It is important, however, to avoid the mistake of reducing subjective evaluation exclusively to the subjective properties of the good. Consider, for example, two goods that are identical from a material point of view but differ in terms of how they are culturally perceived. Both have equal objective use value, but one may be preferable for reasons related to fashion, reputation, or symbolism. The greater hedonic utility attributed to the first good reflects, in this case, a subjectively perceived added value, which may also be zero or negative in the second case. However, this hedonic utility remains conditional on the persistence of the objective basis and disappears if the good proves to be inadequate or defective, thus also compromising the subjective perception of its value.

Utility approaches

The material and psychological nature of the concept of utility reveals a more complex view of individual and collective well-being. The following three sub-sections explore this complexity in greater depth, examining the influence of dual utility on utilitarian thinking, the distinction between the OU and that of processes, and the relationship between instrumental and hedonic utility.

Dual utility and its influence on utilitarianism and consequentialism

The dual nature of utility facilitates a clearer interpretation of many economic phenomena. First, there is often a trade-off between material and hedonic utility: goods with high instrumental utility, such as water, tend to have a negligible hedonic component, which explains the low willingness to pay and the resulting low exchange value[19][20]. Conversely, goods with high hedonic content often lack significant material properties but generate a high willingness to pay, with a high exchange value. Second, the fact that goods with high material utility but low hedonic utility generally receive a low subjective valuation does not imply that consumers completely disregard their objective characteristics. It is plausible that Bentham extended the concept of utility to include every possible effect that goods have on individuals, paving the way for the transition from an objective conception, centred on the intrinsic properties of goods, to a subjective conception based on the effects experienced by those who consume them. However, these effects also include those associated with goods that have purely technical or instrumental functions. These considerations regarding the relationship between goods and individuals through the lens of dual utility are illustrated in Figure 1 as an adaptation of a diagram proposed by Collard and Sen[21]. The main changes are as follows: (i) the distinction between the two categories of utility, objective and subjective, represented separately; (ii) the differentiation between instrumental and hedonic functions. The chosen example is a car rather than a bicycle, since today cars can address functional needs (transport of people and goods) and be used for hedonic purposes. Conversely, the use of bicycles is primarily associated with recreation rather than practical needs.

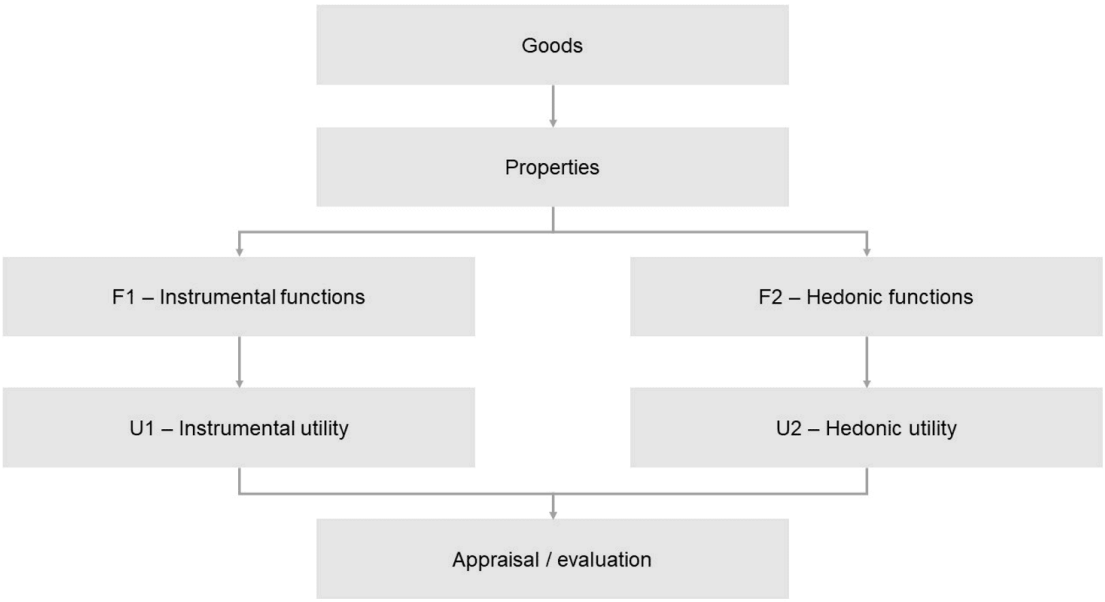


Figure 1. Concepts involved in the relationship between goods and people

As mentioned above, some goods are characterised by high instrumental utility and little or no hedonic component, while others largely generate subjective utility, with no significant objective benefits. Goods that activate only one of the two components are rare, while goods that produce opposing effects are more common: increased utility in one dimension may be accompanied by a reduction in another, giving rise to complex and ambivalent configurations of the overall assessment. It is helpful to propose representative examples for each of the four main theoretical categories derived from the dual nature of utility. A paradigmatic example of goods that generate exclusively material utility is a drug that is crucial for treating a specific disease. Its consumption does not produce any hedonic satisfaction, yet individuals are clearly willing to pay for it because of its therapeutic effectiveness. In this scenario, the perceived utility is entirely attributable to the good's objective and functional properties.

Examples of goods that generate exclusively hedonic utility are non-functioning vehicles, such as vintage cars kept by collectors or prototypes exhibited at motor shows. These goods have no instrumental utility but are nevertheless desirable to individuals who derive aesthetic, symbolic, or identity satisfaction from their possession. Similarly, collectable items, such as stamps and coins that are no longer in circulation, are typical examples of purely hedonic utility: their original function has ceased to exist, but a willingness to pay for them remains, reflecting emotional, symbolic, or cultural value. The above-

mentioned medicine may also be an example of goods with positive material and negative hedonic utility. Such medicine could fall into this category if it is unpleasant to the taste or causes unpleasant sensations when taken. The subject experiences an objective benefit in terms of health, but this benefit is accompanied by a subjective disvalue linked to the sensory experience. The complexity increases if the drug, while producing an improvement in the target condition, causes unwanted side effects and additional, albeit less severe, disorders. In this scenario, positive instrumental utility, negative instrumental utility , and negative hedonic utility coexist, involving subjective assessments that must mediate between conflicting effects. Numerous cases fall into the category of goods with negative material and positive hedonic utility, such as reckless driving, high-risk sports (e.g. those that insurance companies do not cover), or activities carried out without adequate safety measures. Addictions (e.g. to food, alcohol, smoking, or psychoactive substances) also belong to this class. In all these cases, individuals are subject to objective disvalue, potentially harmful to their health or safety. Still, they perceive a mental or emotional benefit sufficient to compensate for these risks, at least in the short term. Psychological utility prevails over rational assessment of material costs, leading to potentially self-harming but subjectively satisfying choices.

Below is a formal representation of the four categories of goods, based on Equation 1 i.e. a utility function comprising two components, where U is the total utility perceived by the subject, U_m reflects the material utility (instrumental, objective), and U_h stands for the hedonic utility (psychological, subjective).

$$U = U_m + U_h \qquad (1)$$

Table 1 resumes the the utility (U_m, U_e), according to a class of goods.

Category	U_m	U_h	Example	Notes
Goods with only material utility	>0	$=0$	Effective drug with no hedonic impact	Value based solely on functionality
Goods with only hedonic utility	$=0$	>0	Non-functional collectible car, rare stamp	No instrumental function
Positive material utility, negative hedonic	>0	<0	Effective but unpleasant medicine with side effects	Hedonic discomfort reduces overall value
Negative material utility, positive hedonic	<0	>0	Harmful but tasty foods, smoking, reckless driving	Subjective pleasure outweighs objective harm

Table 1. Some approaches to utility

Accepting the dual nature of utility creates specific theoretical issues for utilitarianism and, more generally, consequentialist-welfarist theories. In particular, the hedonic approach overlooks the effects of the availability of the material foundations for well-being that do not generate mental perceptions and, therefore, do not constitute psychological experiences. Material well-being does not necessarily coincide with psychological well-being; therefore, the two dimensions should be assessed separately. An example clarifies the issue: installing air conditioning in a home improves material and psychological well-being. However, although material benefits persist over time, psychological benefits tend to fade with habit. Conversely, a system failure reduces well-being at both levels: when the environment becomes too hot or cold, attention returns to a previously ignored aspect. If psychological well-being records change and not levels of material well-being, focusing solely on it results in neglecting overall well-being. More generally, welfare approaches tend to consider hedonic utility as being generated exclusively by outcome, neglecting the following two fundamental elements: (i) psychological utility can also be derived from the processes that lead to outcome, and (ii) relational goods can be produced by interpersonal interactions not aimed at specific outcomes. Thus, while material goods generate well-being only when obtained, psychological effects can arise from the availability of these goods and the path to obtaining them[22][23]. Furthermore, communicative interaction between people is procedural, generates hedonic utility, and

can lead to Pareto improvements without changing outcomes. Unlike exchanging goods, these exchanges do not alter material well-being but affect subjective well-being. Thus, the utility can be considered a complex set of at least four components: material OU, psychological OU, procedural, psychological utility, and communicative, psychological utility, which is connected to non-strategic interaction. Therefore, the concept of utility is complex and consists of distinct elements that extend beyond its identification with hedonic perceptions linked to outcome alone. Equation 2 formalises the utility function into a four-component form as argued, where $U_{m,o}$ is the material utility from the final state, $U_{h,o}$ is the hedonic utility from the final state, $U_{h,pr}$ is the procedural hedonic utility, and $U_{h,com}$ is the communicative hedonic utility:

$$U = U_{m,o} + U_{h,o} + U_{h,pr} + U_{h,com} \qquad (2)$$

Classical utilitarian theories that focus primarily on $U_{h,o}$ neglect stable levels of material well-being $U_{m,o}$, the relevance of procedures $U_{h,pr}$, and the role of relational and communicative goods $U_{h,com}$. Similarly, traditional welfarism risks assessing quality of life solely based on tangible and perceived outcomes, ignoring pathways and relationships.

Outcome and Procedural utility

If we do not consider the goods achieved in the outcome as the only source of utility, we must also examine the types of well-being that are not derived from results[24]. PU is a relevant concept in this regard. Hahn, for example, proposes three examples in which the same final state can be achieved through different paths: choosing or being forced to take a job with certain characteristics and remuneration, choosing or being forced to participate in a dangerous military mission, and choosing or being forced to allocate part of one's income to a charitable cause[23]. In all these cases, the outcomes are identical, but the process that made them possible changes. Even if individuals chose the same options, it is intuitively acceptable that they would prefer to arrive there through free rather than compulsory action. Accordingly, an individual's utility function depends not only on the goods obtained Q through an action A, that is $U_i = U_i\left(Q_i(A)\right)$ but also on the utility derived from the action itself, which can be formalised as $U_i = U_i\left(A, Q_i(A)\right)$.

Removing the possibility of choice changes the utility, even if the goods obtained remain unchanged. The same effect occurs if the condition of the action changes, for example, from free to compulsory. Hahn points out that, while remaining within a consequentialist approach, his expanded utilitarian model is

not limited to outcomes but also includes the value of the action itself, without considering its intrinsic correctness. While not a radical change, the introduction of PU could have significant implications for the analysis of welfare economics.

Hedonic and instrumental utility

The utility of autonomy is one of several possible forms of PU, and some recent developments are worth considering since individuals evaluate actual outcomes ans also the conditions and processes that lead to them. The economic concept of utility is outcome-oriented, where individual utility is seen in terms of the benefits and costs associated with instrumental outcomes. In contrast, PU refers to processes' non-instrumental, positive, and negative satisfaction. The authors highlight PU's psychological nature, contrasting it with instrumental utility, characterising outcome; PU emphasises utility's hedonic content. They also link the concept of PU to the sense of self and self-esteem, which influence people's well-being and are conditioned by decision-making processes and interactions with institutions and other individuals. This can be summarised as a dual conception of utility, which is depicted in Figure 2 .



Figure 2. Utilities taxonomy according to Frey et al.

Distinction between psychological (hedonic) PU derived from procedures that influence individuals in institutionalised processes and the OU, consistent with the traditional approach.

While we agree with the distinction highlighted in Figure 2 and the importance of the well-being derived from the treatment individuals experience within institutionalised processes, we believe the scheme can be implemented as depicted in Figure 3. This amended scheme includes the different types of utility that can affect human well-being, when well-being is understood sufficiently broadly and when the interactions among individuals and between individuals and institutions are considered.

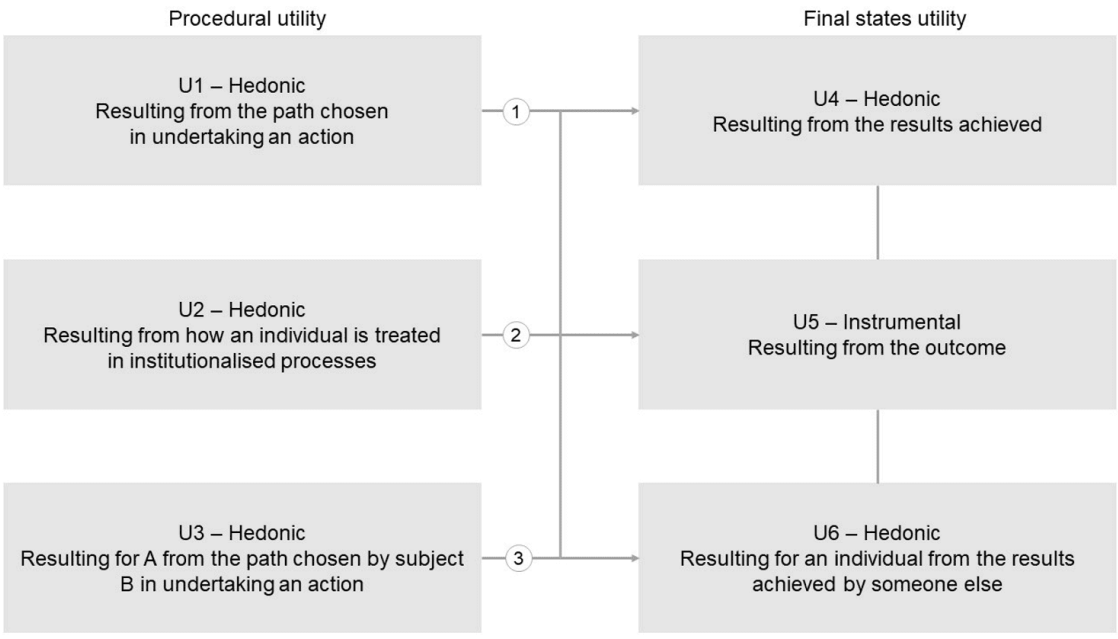


Figure 3. Proposed utilities taxonomy

Implementation of the distinction of utility referred to in Figure 2, with the addition of four other types of utility that influence human well-being.

A distinction is made between procedural, instrumental, hedonic, and other forms of utility related to interactions between individuals and institutions. Figure 3 retains the distinction between the utilities introduced in Figure 2 (level 2) and four are added. It should be noted that the diagram is intended to represent only the welfare effects that accrue for an individual as a result of actions.

Actions that can influence a person's well-being fall into three different categories, based on who undertakes them: (a) the beneficiary of the welfare effect, (b) an institution, (c) a different subject with whom there are links, such as to entail an interdependence of utilities.

In case (a), the utility can be further separated into the following types:

- PU arises from the method selected to act, as outlined in Box U1. Consider the task of lawn mowing: an individual can either perform the task personally or outsource it. If the individual experiences procedural pleasure from undertaking the task, they will likely choose to mow their lawn. Conversely, if the hedonic utility derived from this personal involvement is negative, the individual will evaluate the cost of purchasing the service and opt for the choice that minimizes disutility.

- Instrumental utility is derived from the outcome achieved. This corresponds to the material utility described in Box U5, which is obtained through the goods acquired in that final state. For example, purchasing a new car provides material benefit through its use for commuting to work and during leisure time.
- Hedonic utility is derived from the outcome achieved, representing the psychological well-being, see Box U4, obtained from the goods acquired. For instance, if a newly purchased car is a sophisticated sports model long desired, its possession provides significant satisfaction. It is important to note that an outcome's instrumental and hedonic utility are distinct phenomena that can coexist in varying proportions.

Even in case (b), well-being generated through procedures adopted in institutionalised contexts can be divided into different categories: the PU (box U2) and the instrumental and hedonic outcome utilities.

Finally, case (c) represents a hypothesis of interdependence in well-being: the individual acting is a different subject from the beneficiary we are considering, but the procedural path adopted in the action and/or the outcome achieved produce external hedonic utility. For example, if an individual embarks on a career path that is a source of satisfaction for me, this could provide me with significant hedonic utility, even if I am not making that choice (Box U3). If, in addition to embarking on this path, the individual achieves a result that confirms the value of that decision, this will provide me with additional hedonic utility but is linked to an outcome (Box U6). In other examples, the action of an individual may have material effects, in addition to hedonic , on the outcome of someone else (Box U5). The utility effects considered thus far derive from actions that an individual, others, or institutions may perform. Nevertheless, there may be sources of well-being arising from particular actions that are not deliberate or instrumental, i.e. that do not aim to change external reality. For example, sleeping or breathing produces well-being but is not intentional; conversing with a stranger for no particular purpose can produce well-being but is not instrumental; thinking and meditation are sources of well-being but do not necessarily aim to change the external world, may not have a specific goal, and may not constitute deliberate actions. Finally, let us consider the case of events that can generate well-being but which do not constitute actions: meeting by chance a individual with whom we will fall in love and who will make us happy is an event that generates well-being but does not result from deliberate action and could not be represented, a priori, in the preference order of either of the two people who met. While, in general, seeing our preferences satisfied produces well-being, happiness is often generated by events that were not included in any preference order because they were unpredictable.

As follows the consequences of these considerations. First, it should be noted that, beyond the many types of utility identified above, the most important distinction is between the hedonic and instrumental cases (Box U5). Hedonistic utility is psychological and derives from mental states; instrumental utility derives from the objective properties of the goods included in the outcome and from what they can do for the material well-being of the individuals to whom those outcomes belong. A good's instrumental utility does not always translate directly into psychological utility. Hedonic well-being seems to depend more on changes in material well-being than on its absolute level. In other words, the psychological effects of well-being are not necessarily linked to using instrumental goods that may not produce additional satisfaction. However, it is still possible that psychological well-being may derive, to a limited extent, from using such goods. Therefore, it is necessary to distinguish between psychologically perceived and non-psychological well-being, considering all possible sources of hedonic utility—material goods, which also offer instrumental utility, and non-material social goods, which derive from relationships between people and institutions. Unlike material goods, the latter are derived from social and cultural practices and traditions whose preservation is fundamental to happiness, but which are not adequately considered in traditional theories of welfare economics. To formalise the concept of hedonic and instrumental utility we can define overall utility U as a function that depends on the actions taken by an individual, the outcomes, and the processes leading to those outcomes. Utility can be divided into two main components: Instrumental utility U_i, which represents the utility derived from the final state and the material benefit obtained through the action; and hedonic utility U_h, which represents the psychological well-being derived from the experience of the process and the intangible or psychological benefits associated with the outcome. We can write the total utility U in Equation 3 where: $U_i = f(X)$ and $U_h = g(X, P)$.

$$U = U_i + U_h \qquad (3)$$

Specifcally, X is the outcome (e.g., the purchase of a good or the achievement of a material goal), P is the process or procedure that leads to the outcome (e.g., the path taken to obtain a good or a result), $f(X)$ reflects the function that links instrumental utility to the final result X, and $g(X, P)$ is a function that links hedonic utility to both the result X and the process P. In the context of interdependence, an individual's utility may depend not only on their actions, but also on the actions of others. To formalise these interdependencies, we can introduce a term that represents the effect of others' actions on utility in Equation 4.

$$U_i = U_{ii} + U_{hi} + \sum_{j \neq i} \phi\left(U_{ij}, U_{hj}\right) \qquad (4)$$

Where U_i is the total utility of individual i, which depends on their actions and the actions of others, $\phi\left(U_{sj}, U_{hj}\right)$ represents the effect of the actions of another individual j on the utility of i, including both instrumental and hedonic effects.

To distinguish between different types of utility (procedural, instrumental, hedonic), we can divide the contributions to overall utility according to the type of source, where U_p represents the utility derived from the procedure itself, regardless of the outcome. It can be expressed as a function $h(P)$, where P is the procedure followed. So, $U_p = h(P)$. Instrumental utility U_i represents the utility derived from the material effect of the final result X and can be expressed as $U_i = f(X)$ while hedonic utility U_h: Represents the psychological well-being derived from the final result X and the process P and can be specified as $U_h = g(X, P)$.

Procedural utility

While OU depends on the results achieved, PU arises from different factors that manifest during an action and its main characteristics can be summarised as follows: the focus is the process followed, not from the results obtained, the process can be initiated either by the individual experiencing the utility or by someone else that can be an individual or an institution, and if it is an institution, the individual involved may be internal or external to it. In this respect, Table 2 provides a comparative synthesis to strengthen the conceptual connection among the three domains of PU—individual, interpersonal, and institutional.

Domain	Agent(s)	Source of Utility
Individual action	Same subject	Autonomy, freedom, capacity, direct involvement
Interpersonal Relationship	Self and other individual	Communicative interaction, mutual recognition, dialogic exchange
Institutionalised Processes	Individual and institution	Fairness, transparency, participation, procedural justice

Table 2. Procedural utiliy dimensions

Procedural utility in individual actions

When the action that generates PU is performed by the same individual who experiences it, four primary sources of procedural well-being can be distinguished: Negative freedom[25] as defined by Nozick: the individual derives utility from the fact that they can act without external interference; Capacity to act as introduced by Sen: The individual experiences utility from having the resources and abilities necessary to act[26]; Autonomy in choice as foundable in Hahn: the individual feels satisfied by choosing an action freely and autonomously[27] ; Personal action: The individual derives well-being from doing something directly instead of delegating it to others as foundable in Scitovsky thought. These forms of well-being respond to the human need for autonomy and self-determination, corresponding to four different aspects of action: being free from external constraints, having the necessary capabilities, choosing freely, and acting in the first person. These sources of utility are independent from the outcome. For example, a individual can feel satisfied simply knowing that they have the option to change jobs, even if they decide not to. This illustrates that positive freedom is also important at the subjective level. If the individual decides to change jobs of their own free will, their satisfaction will be greater than if they had made the same choice under external pressure, even if the results are the same. Finally, there is a specific well-being associated with doing things yourself. If I enjoy mowing the lawn or picking up my child from the nursery, these actions give me pleasure that I would not experience if I entrusted them to others, even if the result is the same. Therefore, in addition to the utility linked to results (result values), utilities are linked to freedom, choice, autonomy, and direct action. These types of utility represent distinct sources of subjective well-being.

Procedural utility in interpersonal relationships

When PU is generated by an individual other than the recipient, it is a hedonic externality where the utility arises from how the action is performed. Another case concerns the interdependence: it is possible to feel good about the well-being of those close to oneself[28][29]. Interpersonal PU should be understood as the pleasure derived from the relationship itself, regardless of the results it produces. Interpersonal relationships are not final results but are based on mutual attention between people, and cannot be crystallised into an objective result. There are similarities and differences between market and personal relationships. In the market, cooperation occurs through money, the procedure is bargaining, and the result is a basket of goods. In personal relationships, however, the means are language, the procedure is

dialogue, and the result may be an agreement. However, while utility is linked to the outcome in the market, in personal relationships, utility arises above all from the dialogue itself, even if no agreement is reached. For example, one can enjoy a discussion with a friend even if they know they will never agree: the opinion exchange is what matters, not the outcome. PU in personal relationships—or communicative utility—therefore derives from the possibility of communicating with others, even before the actual content of the dialogue. A network of social relationships, comprising active communication channels, improves hedonic well-being and contributes to social positioning. This form of utility is linked to Habermas' philosophy and can therefore be called Habermasian utility, following the criterion already used for the other types.

Intersubjective procedural utility as communicative utility

Many kinds and type of well-being can be identified[30] as the indicators that can be used[31] in social interaction analysis. Habermas' theory of communicative action analyses how people use language and rationality to interact with the world and others. Human beings interpret reality through language and cultural tradition, which offer a shared set of meanings and values. This tradition guides interpretation and is also continually renewed through social interactions and the transmission of norms and knowledge, which constitute the symbolic dimension of a community. However, society does not live by symbols alone: it must also ensure material reproduction, i.e. maintaining living conditions. This generates two forms of knowledge use: the first involves the non-communicative use of knowledge to achieve individual or collective material goals. The second is the communicative use of knowledge to achieve a shared understanding of interpreting reality. Each of these modes corresponds to a different model of rationality. The first can be associated with teleological action, that is, success-oriented, with instrumental rationality; one acts to achieve results. The second is associated with communicative action, which is oriented towards shared understanding and communicative rationality. Habermas defined communicative action as the interaction between subjects who seek understanding and communicative agreement to coordinate, by mutual consent, the interpretation of the situations in which they find themselves, their plans of action and, therefore, their actions. In this case, language serves as a means of understanding each other rather than as a means to obtain advantages. It is a tool for building relationships, agreements, and mutual understanding[32][33]. Teleological action, however, is efficiency-oriented: the most effective means are chosen to achieve established goals. Language has an instrumental function here in describing reality and planning practical actions. Two subtypes of

teleological action include instrumental action, in which the individual acts on the physical world (e.g. producing, transforming goods), and strategic action, in which the individual acts on other subjects, considering them instruments for achieving their goals. In both cases, the goal remains material- and result-oriented. Habermas' theory offers valuable insights into economic analysis, particularly regarding rationality, social evolution, and the epistemological foundations of economic behaviour. His distinction between material reproduction linked to instrumental action and symbolic–cultural reproduction linked to communicative action provides a framework for discussing key areas of economic theory. This dichotomy between system and lifeworld corresponds to different types of rationality and values: outcome-oriented in the former, procedural in the latter. It also implies a dual conception of individual interest, which is instrumental in the system sphere and oriented towards mutual understanding in the lifeworld. While both forms involve utility, only communicative action requires symmetrical relationships and openness to persuasion. In contrast, strategic behaviour distorts communication and undermines genuine agreement. Communicative action becomes necessary when coordination involves shared understanding rather than material exchange, and the interest must be benevolence and reciprocity. The duality between egoistic and benevolent motives was already present in Smith's work, although framed in psychological terms[34]. Habermas transforms this psychological dualism into an institutional and communicative one suitable for modern capitalism. In this respect, Habermas theory of communicative rationality echoes Smith's idea that the human tendency to persuade is the basis of both intellectual and material exchange[34].

Procedural utility in institutionalised processes

Considering the value people attribute to outcomes and the processes and conditions that lead to those outcomes[13], PU is an alternative approach to the traditional economic framework, focusing on utility derived from instrumental outcomes. The authors explored this concept concerning the relationship between individuals and institutions, highlighting how people derive their well-being from the quality of treatment they receive in institutional processes. Central to this is the sense of self, i.e., each individual's reflective perception of themselves and their social recognition. How institutions treat individuals affects their overall well-being, regardless of the outcomes[35]. This is particularly relevant in situations where individual outcomes depend on the behaviour of others, whether individuals or institutions[36][37].In a subjective approach, individuals' preferences concern the decision-making methods of institutions; in an objective approach, utility arises from interactions governed by procedural rules, which indirectly

influence well-being. Finally, a key element is the perception of fairness and impartiality in procedures. Studies on procedural impartiality have shown that a procedure that is perceived as fair promotes acceptance of the outcome and reduces subsequent conflict[38][39]. The impartiality of procedures is a central element of PU in hierarchical contexts, where decisions are made under authority. Individuals are susceptible to the quality of treatment they receive and the transparency of the rules. Even price increases perceived as unfair in situations of extraordinary demand are sources of procedural disutility[40][41][42]. Political participation is one area in which PU plays an important role; ative citizen involvement in decision-making processes generates both outcome and PU, linked to the perception of self-determination[6]. The departure from conditions of fairness and impartiality in institutionalised processes has a cost in terms of perceived subjective well-being that does not concern the outcome generated but should be adequately considered when designing and managing the functioning of collective institutions.

Discussion and conclusion

This study examined the evolution of the meaning attributed to the concept of utility throughout the history of economic analysis, identifying four main phases. In the pre-Bentham era, utility was understood primarily in a crematistic sense, as the objective ability of goods to produce instrumental benefits for people. The hedonic component was distinguished and identified using the term ‘pleasure’, as found in the work of Aristotle, Hume, and Smith. With Bentham, the term ‘utility’ referred instead to the hedonic aspect, but it remained a property of goods and not of the people who consumed them. Subsequently, hedonic utility became a measure of people’s subjective well-being. This shift has an important consequence: if utility coincides with the state of well-being generated by goods, there is a risk of neglecting non-material sources of well-being, such as: relational goods, PU derived from individual actions, and that generated by institutionalised relationships. This redefinition anchors utility exclusively to the outcomes, excluding any possible assessment related to the procedures that lead to those outcomes. With the revealed preference approach, utility is completely de-hedonised and interpreted as a formal representation of consumption choices. Without investigating subjective motivations, this approach allows consumers to integrate their outcome’s crematistic and hedonic components into their evaluations. However, it ignores PU by failing to consider what is not directly reflected in outcomes. This omission appears to be of little relevance to consumption choices. However, it becomes problematic when the theory is extended beyond individual consumption. In other areas,

procedural components, such as communicative ones, may be central to assessing well-being. In this sense, the choices do not always reflect the states that maximise overall utility. For example, an individual may prefer final state X to state Y, not because X is better, but because Y involves a procedural violation (e.g. breaking a promise). This calls into question the assumption of a double bind between choices, preferences, and well-being. Preferences can be described so that their correspondence with choices is preserved, or to keep them in line with well-being as understood by the individual in question; however, it is not generally possible to guarantee both simultaneously. Sooner or later, one of the conditions must be relinquished. The confusion arises from the overlap between two distinct notions of utility: the obvious (preferential) and traditional (well-being). It is reasonable to assume that, all other things being equal, an individual prefers more useful outcome and that their choices reflect these preferences. However, it cannot be assumed that preferences-choices and preferences-wellbeing always coincide, especially in the presence of procedural effects. The 'Happiness and Economics' approach recovers a hedonic conception of utility by directly measuring subjective well-being using surveys. This methodology makes it possible to investigate different well-being sources and distinguish, including through econometric analysis, between procedural and outcome-related components (Arrigo and Sordelli, 2004). However, there is a risk that respondents will underestimate the crematistic component of utility, as established material conditions tend to go unnoticed in subjective assessments. This may explain why perceived well-being does not increase beyond certain levels despite an increase in material resources.

Therefore, this paper proposes an analysis along two lines: first, by recovering the distinction between chrematistic and hedonic utility, second by extending the notion for institutionalised contexts, to individual actions and intersubjective relationships. Both extensions open up interpretative spaces in established economic theories. The existing theoretical cornerstones of economics, such as expected utility theory and game theory, generally define preferences over monetary payoffs. The notion that instrumental outcomes are not the only source of utility and not the only driving force behind behaviour has become almost absent in economic analysis. In contrast, PU refers to something beyond instrumental outputs, as they are captured in a traditional economic utility function. Individuals may have preferences about how instrumental outcomes are generated, and these process preferences generate utility. The distinction between outcome and PU invites us to reconsider the validity of final utility as a basis for collective choices. This validity is weakened in light of the procedural hypothesis. The distinction between chrematistic and hedonic utility also raises questions about the legitimacy of

collective choices made by coercive institutions such as the state. On the one hand, the state generates utility through institutional processes; on the other hand, it produces redistributive effects that transform the hedonic utility of taxpayers into chrematistic utility for beneficiaries. When recognising the priority of chrematistic utility linked to the satisfaction of basic needs, we have a more solid justification for redistributive policies than the mere hypothesis of the decreasing marginal utility of income, often adopted within a utilitarian framework.

References

1. ^*Haslett DW (1990). "What Is Utility?" Economics and Philosophy. 6(1):65–94. doi:10.1017/s0266267100000663.*
2. ^a, ^b*Broome J (1991). ""Utility"." Economics and Philosophy. 7(1):1–12. doi:10.1017/s0266267100000882.*
3. ^*Witt U (2016). "The Transformations of Utility Theory: A Behavioral Perspective." Journal of Bioeconomics. 18(3):211–228. doi:10.1007/s10818-016-9235-6.*
4. ^*Sen A (1991). "Utility: Ideas and Terminology." Economics and Philosophy. 7(2):277–283. doi:10.1017/s0266267100001425.*
5. ^*Brennan TJ (1989). "A Methodological Assessment of Multiple Utility Frameworks." Economics and Philosophy. 5(2):189–208. doi:10.1017/s0266267100002388.*
6. ^a, ^b*Frey BS, Stutzer A (2000). "Happiness, Economy and Institutions." The Economic Journal. 110(466):918–938. doi:10.1111/1468-0297.00570.*
7. ^*Easterlin RA (2004). "The Economics of Happiness." Daedalus. 133(2):26–33. doi:10.1162/001152604323049361.*
8. ^*Sen A (2006). "Reason, Freedom and Well-Being." Utilitas. 18(1):80–96. doi:10.1017/s0953820805001846.*
9. ^*Yang L (2018). "Measuring Well-Being: A Multidimensional Index Integrating Subjective Well-Being and Preferences." Journal of Human Development and Capabilities. 19(4):456–476. doi:10.1080/19452829.2018.1474859.*
10. ^*Schwartz B, Cheek NN (2017). "Choice, Freedom, and Well-Being: Considerations for Public Policy." Behavioural Public Policy. 1(1):106–121. doi:10.1017/bpp.2016.4.*
11. ^*Vigliarolo F (2020). "Towards an Ontological Reason Law in Economics: Principles and Foundations." Insights into Regional Development. 2(4):784–801. doi:10.9770/ird.2020.2.4(5).*

12. ^Millgram E (2000). "What's the Use of Utility?" Philosophy & Public Affairs. 29(2):113–136. doi:10.1111/j.1088-4963.2000.00113.x.
13. a, bFrey BS (2004). "Beyond Outcomes: Measuring Procedural Utility." Oxford Economic Papers. 57(1):90–111. doi:10.1093/oep/gpi002.
14. ^Bentham J (1996). The Collected Works of Jeremy Bentham: An Introduction to the Principles of Morals and Legislation. Oxford University Press. doi:10.1093/actrade/9780198205166.book.1.
15. ^Sidgwick H (2011). The Methods of Ethics. doi:10.1017/cbo9781139136617.
16. ^Robinson A, Sraffa P (1951). "The Works and Correspondence of David Ricardo. Volume i: On the Principles of Political Economy and Taxation." The Economic Journal. 61(244):848. doi:10.2307/2226985.
17. ^Ricardo D (2014). On the Principles of Political Economy, and Taxation. doi:10.1017/cbo9781107589421.
18. ^Mill JS (2010). "The Principles of Political Economy." In: The Two Narratives of Political Economy. 295–344. doi:10.1002/9781118011690.ch20.
19. ^Seol M, Kim Y (2022). "Hedonic Consumption and Consumer's Choice Under the Windfall Gains." Journal of Korea Society of Industrial Information Systems. 27(2):83–100. https://doi.org/10.9723/JKSIIS.2022.27.2.083.
20. ^Shao A, Li H (2021). "How Do Utilitarian Versus Hedonic Products Influence Choice Preferences: Mediating Effect of Social Comparison." Psychology & Marketing. 38(8):1250–1261. doi:10.1002/mar.21520.
21. ^Collard D, Sen A (1984). "Choice, Welfare and Measurement." The Economic Journal. 94(374):409. doi:10.2307/2232367.
22. ^Stutzer A, Frey BS (2006). "Does Marriage Make People Happy, or Do Happy People Get Married?" The Journal of Socio-Economics. 35(2):326–347. doi:10.1016/j.socec.2005.11.043.
23. a, bHahn F (1982). "On Some Difficulties of the Utilitarian Economist." In: Utilitarianism and Beyond. Cambridge University Press. 187–198. doi:10.1017/cbo9780511611964.011.
24. ^Kaminitz SC (2017). "Contemporary Procedural Utility and Hume's Early Idea of Utility." Journal of Happiness Studies. 20(1):269–282. doi:10.1007/s10902-017-9943-1.
25. ^Brennan J (2018). "Libertarianism After Nozick." Philosophy Compass. 13(2). doi:10.1111/phc3.12485.
26. ^Mathias N, Rendon Teresa H (2006). "A Hermeneutic of Amartya Sen's Concept of Capability." International Journal of Social Economics. 33(10):710–722. doi:10.1108/03068290610689741.
27. ^Katz I, Assor A (2006). "When Choice Motivates and When It Does Not." Educational Psychology Review. 19(4):429–442. doi:10.1007/s10648-006-9027-y.

28. ^Kahneman D, Krueger AB (2006). "Developments in the Measurement of Subjective Well-Being." Journal of Economic Perspectives. 20(1):3–24. doi:10.1257/089533006776526030.

29. ^Neff KD (2011). "Self-Compassion, Self-Esteem, and Well-Being." Social and Personality Psychology Compass. 5(1):1–12. doi:10.1111/j.1751-9004.2010.00330.x.

30. ^Galvin KT, Todres L (2011). "Kinds of Well-Being: A Conceptual Framework That Provides Direction for Caring." International Journal of Qualitative Studies on Health and Well-Being. 6(4):10362. doi:10.3402/qhw.v6i4.10362.

31. ^Sung H, Phillips RG (2018). "Indicators and Community Well-Being: Exploring a Relational Framework." International Journal of Community Well-Being. 1(1):63–79. doi:10.1007/s42413-018-0006-0.

32. ^Bruton HJ (1989). "Human Desire and Economic Satisfaction. Tibor Scitovsky." Economic Development and Cultural Change. 37(2):440–443. doi:10.1086/451733.

33. ^Achime NH (1990). "Book Review: Human Desire and Economic Satisfaction." Review of Radical Political Economics. 22(2-3):296–298. doi:10.1177/048661349002200219.

34. a, bSeigel JE, Napoleoni C, Gee JMA (1977). "Smith, Ricardo, Marx." The American Historical Review. 82(1):63. doi:10.2307/1857142.

35. ^Gamal Y, Pinto N, Iossifova D (2023). "The Role of Procedural Utility in Land Market Dynamics in Greater Cairo: An Agent Based Model Application." Environment and Planning B: Urban Analytics and City Science. 51(4):954–970. doi:10.1177/23998083231207077.

36. ^Pereira MC, Coelho F, Silva GM (2023). "Is There a Happy Culture? Multiple Paths to National Subjective Well-Being." Kyklos. 76(4):613–641. doi:10.1111/kykl.12343.

37. ^Nikolova M (2016). "Minding the Happiness Gap: Political Institutions and Perceived Quality of Life in Transition." European Journal of Political Economy. 45:129–148. doi:10.1016/j.ejpoleco.2016.07.008.

38. ^Magalhães PC (2016). "Economic Evaluations, Procedural Fairness, and Satisfaction with Democracy." Political Research Quarterly. 69(3):522–534. doi:10.1177/1065912916652238.

39. ^Suzuki K, Demircioglu MA (2020). "Is Impartiality Enough? Government Impartiality and Citizens' Perceptions of Public Service Quality." Governance. 34(3):727–764. doi:10.1111/gove.12527.

40. ^Kahneman D, Knetsch JL, Thaler RH (2011). "Fairness as a Constraint on Profit Seeking:" In: Advances in Behavioral Economics. Princeton University Press. 252–270. doi:10.2307/j.ctvcm4j8j.13.

41. ^Cappelen AW, Moene KO, Sørensen EØ, Tungodden B (2013). "Needs Versus Entitlements-an International Fairness Experiment." Journal of the European Economic Association. 11(3):574–598. doi:10.1111/jeea.12000.

42. ^ *Sonnabend H (2016). "Fairness Constraints on Profit-Seeking: Evidence from the German Club Concert Industry." Journal of Cultural Economics. 40(4):529–545. doi:10.1007/s10824-016-9282-9.*

Declarations

Funding: No specific funding was received for this work.

Potential competing interests: No potential competing interests to declare.