# Utility and Happiness in a Prosperous Society

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This article is scheduled to be a chapter in a book on the economics of the prosperous society. My claim is that there is a gap between economic theory and economic reality in the western world, since economics was traditionally established to deal with conditions of scarcity. As many of our current problems are associated with abundance rather than with scarcity, new tools are needed to tackle the modern dilemmas. For a definition of *a prosperous society*, please see the previous chapter (*Unemployment and Job Creation in a Prosperous Economy*). I would be grateful for any suggestion or comment.

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# Abstract

Some examples of human behavior which seem paradoxical or irrational in view of the utility maximization principle can be explained as rational if we distinguish between two types of utility. The first type is the conventional utility – cardinal or ordinal – which the rational economic actors are expected to maximize. The second type is connected to actions which fulfill some psychological needs and might appear irrational by costeffective calculations. Two instances of the second type are philanthropy and altruism on the one hand and excessive consumption, on the other. Although they stem from totally different drives, both are economically irrational but can be linked to the utility of the second type. The two-utilities model is rooted in Humanistic Psychology tenets, such as Maslow's hierarchy of needs as well as in recent results in Happiness Economics. It can be assumed that, on the average, the richer a person is, the less he cares about maximizing the first type of utility, while the importance of the second type in his life increases. As the society becomes more prosperous, both positive and negative trends of the second type of utility become more widespread: more resources are wasted on unnecessary products and services, and more money is spent on philanthropy. The two-utilities model can explain some seemingly odd features of the prosperous society, and may have practical applications as well.

# 1. Cardinal and Ordinal Definitions of Utility

*Utility* is a fundamental concept in economics although its definition is somewhat vague and ambiguous. A rational actor in the market is supposed to act in a way that is liable to maximize his or her utility in any transaction. Thus the producer aspires to get the maximal amount of money for his product and to manufacture it at a minimal expense; the consumer tries to buy the product at the lowest possible price; the wholesalers and retailers which transfer goods between producers and customers aim at a maximal sales profit between revenue and cost. In these examples, the utility can usually be expressed as equivalent to sums of money and therefore, the utility of all the actors can be measured by the same scale.

The problem is more complicated when we wish to use the utility in order to weigh different choices of a consumer or to compare between the choices of two consumers. For example, let's say that we want to construct the utility functions for bananas and apples for a specific consumer in order to find out whether she would prefer an additional kilogram of apples or of bananas, after she already has X kg of apples and Y kg bananas. The basic theory of utility assumes that the utility function (i.e. the utility as a function of the amount of a product) is a monotonic increasing function with a positive but diminishing slope, due to the law of diminishing marginal utility. Referring to the apples and

bananas example, the following graph depicts the utility in arbitrary numerical units ("utils") as a function of kilograms of bananas, for a given amount of acquired apples.



Graphs like this one are based on the assumption that the utility an individual gets from the consumption of goods and services can be measured by a *cardinal scale*, namely, using numerical values for the utility. The cardinal definition of the utility function, which dominated until the 20th century, proved to be problematic especially when we want to compare between consumers or to construct an aggregate utility function for a group of consumers. Cardinal utility has no universal scale, and the factors that determine the value of utility in a given situation are subjective and might vary from one consumer to the other. Therefore interpersonal comparisons of cardinal utility are usually meaningless.

In the 20th century, an alternative approach won favor which preferred as far as possible to avoid the cardinal scale for utility and instead to use an *ordinal scale*, which ranks different choices without assigning them numerical values. Thus, instead of saying that in a given situation, the utility of 1 kg of apples for a specific consumer is 10 utils, and that of 1 kg of pineapples is 20 utils, we would only say that the utility of 1 kg of pineapples is greater for this consumer than the utility of 1 kg of apples, without assigning numerical values to the two alternatives.

The benefit of this approach is that the subjective differences between products and between consumers are avoided. However, neither is the ordinal scale free of problems. First, when the independent variable of a y=f(x) function is measurable numerically, it is normal to assign numerical values to the dependent variable as well, otherwise there is a function which is mathematically impaired. Secondly, here too there is a problem with constructing an aggregate utility function. If all we know is that consumer *A* prefers apples while consumer *B* prefers bananas, but we do not have any quantitative information about *how much* each of them prefers his preference, it is difficult to maintain distributive justice or optimal allocation when it is necessary to apportion a certain amount of apples and bananas among consumers. The problem does not usually exist in the case of a free market, where the price that each consumer is willing to pay for the product fixes the demand. It appears, however, in welfare economics, when it is necessary to plan how to satisfy the needs of a deprived population

without the instrument of a free market.<sup>1</sup> In addition, the cardinal approach has continued to be useful in certain problems, especially when utility can be measured by sums of money, and the employing of the two distinct concepts of utility in parallel has been a source of confusion.

Despite all the problems and the ongoing discussions, both concepts of utility continue to be extremely useful in economics, decision theory, operation research, management science and related fields. Following the analyses of Georgescu-Roegen<sup>2</sup> and others since the 1950s (see Gowdy, & Mesner, 1998), the recognition has spread that although both the cardinal and ordinal approaches to utility are not perfect, they are complementary and can be integrated in a coherent way. The two approaches basically measure the same function. When using the ordinal scale, the economist still believes in the law of diminishing marginal utility and therefore implicitly assumes the existence of a hidden numerical utility function. When using the cardinal approach, one does not presume that a choice which yields 100 utils gives twice as much satisfaction as a choice which yields 50 utils, but merely that the first choice is much preferred to the other.

Both approaches assume that all the actors in the market strive to maximize their total utility. Consumers, for example, are assumed to be rational individuals who are able to compare every conceivable bundle of goods, and make decisions that maximize their utility function – either cardinal or ordinal – under budget constraints. Both approaches make it possible to calculate, e.g. by *indifference curves*, the combination of products which will bring the maximal utility to a single consumer or to a group of consumers. It has been shown for some models of utility-calculation that applying cardinal utility as a "working tool" and then moving to ordinal utility is perfectly valid, if it is done carefully (Batley, 2008). Rather than talking about cardinal and ordinal utility, the current tendency in various applications is to deal with cardinal and ordinal *data*, and build an integrated utility function which combines the available data: ordinal and cardinal (Saen 2006, Madden 2010, China & Fuc 2014).

### 2. Utility and Happiness

It is interesting to compare the evolution of the utility concept with the definition of *happiness* in happiness economics. Since the beginning of happiness research in the 1970s and 1980s, the measurement of happiness has depended almost exclusively on questionnaires or interviews that examined the subjective sense of satisfaction of the respondents, or their subjective positive and negative affects. In these questionnaires, respondents are asked to rate their feelings on a numeric scale. Typical questions are: "How happy are you nowadays on a scale of 1 to 10?" or: "On how many

<sup>&</sup>lt;sup>1</sup> Unique techniques have been developed in welfare economics in order to bypass the problem, such as the Pareto optimality (e.g. Stiglitz, 1987).

<sup>&</sup>lt;sup>2</sup> Georgescu-Roegen formulated the "ordinalist fallacy" which has been the subject of a continuing debate: the ordinalist approach is not substantially different from the cardinalist, and the shift from the latter to the former had not actually brought a theoretical or practical improvement.

days in the previous week have you been satisfied with your life?" Hence the term *Subjective Well-Being* (SWB) for the reported level of happiness (Diener, 1984, Armenta, Ruberton & Lyubomirsky 2015).

The numerical scale of happiness yielded meaningful results, e.g. when averaging levels of SWB across populations, yet it was clear that someone whose level of happiness is 8 (on an 1-10 scale) should not be considered as two times happier than someone whose level is 4. Thus, the cardinal scale of SWB has often been given an ordinal interpretation, when discussing the results. An example is the famous research of Daniel Kahneman's group, in which the emotions of 909 employed women were registered during one working day, in connection with 19 activities, such as working, commuting to work, watching TV and intimate relations (Kahneman et al., 2004). The participants rated their negative and positive affects for each activity on a scale of 1-6. The *net affect* was calculated by subtracting the negative affect from the positive one. The highest average rating was 4.74 for intimate relations and the lowest was 2.03 for the morning commute to work. The authors assumed "that affective experiences can be compared across people; that net affect provides a cardinal measure of utility; that utility is time separable; and that a simple measure of net affect represents the utility of an experience."

Two notable points in this citation are first, the comparison of SWB to *utility* and second, the emphasis on the cardinal nature of the data. However, while discussing the results, neither the authors nor the many commentators responding to the results, referred to the ratio between the ratings of the various activities. The numerical differences between the ratings were hardly mentioned either. Most of the researchers concentrated on the *order* of the activities according to their rating, namely, they took the data as ordinal rather than cardinal. For example, there have been fervent debates about the meaning of the low status of "taking care of my children," which was only four places above the lowest item, with a rating of 2.95. Does it mean that previous surveys, in which people asserted that their children made them happy, was a kind of self deception, as Kahneman claimed? Or perhaps, as many other SWB researchers maintained, children do bring happiness to their parents, yet a working woman who has to bathe a screaming child at the end of a tedious day did not see it as the happiest moment of the day? The argument is still going on. However, it illuminates the fact that although the net affect was treated as *a cardinal measure* (for averaging the net affect over the participants), the final results were discussed as ordinal data.

An alternative strategy for measuring the SWB is to use questions of the type "How satisfied are you with your life: very satisfied, satisfied, not so satisfied, not at all satisfied," and then to take the percentage of those who chose "very satisfied" or "satisfied" as a measure of the happiness in a specific population. This method enables the researchers to compare between countries and population groups (men–women, old–young, etc.,) and circumvent the averaging of grades.

Happiness and utility are seemingly two equivalent or overlapping concepts: to maximize *happiness* seems to be the same as to maximize *utility*.<sup>3</sup> Nevertheless, there are some significant differences between the two concepts when treated as empirically measured variables in contemporary research.

1. The total utility, cardinally measured, can be infinite. Its upper boundary is set by the total number of goods and services available for consumption by a consumer. Happiness, on the other hand, is usually evaluated on a numerical scale or a Likert scale of a finite range, e.g. from 1 to 10. The assumption that happiness has an upper limit appears to be a basic tenet in happiness economics: you can not be happier than "absolutely happy." The growth of the utility function, on the other hand, can theoretically go on with no effect of saturation. The law of diminishing marginal utility might sometimes bring the slope to zero, but this is not an ultimate demand. This may be due to the fact that utility was defined when economics was "the science of scarcity," and the idea that the wants of a typical consumer could be saturated seemed unreal.

2. Researchers of SWB believe that cardinally-measured happiness can be compared across people, as Kahneman's aforementioned citation asserts. Economists, however, usually assume that utility has no universal scale, and that usually utility can not be compared across people.

3. The two concepts emerged in different branches of science. The study of happiness evolved in psychology, while utility is rooted in economics and related areas. Typical to psychological measures, the concept of happiness is subjective, and is based mainly on self-report. However, a high correlation has been found between the self-reported degree of happiness and objective tests, such as hormone levels, analysis of brain waves and the evaluation of objective interviewers (Sandvik, Diener & Seidlitz, 1993; Kahneman & Krueger, 2006). This correlation has built trust in the self-reported values of SWB, and supported its cardinal aspects. The utility concept was treated as cardinal by Bentham, Mill and other 19th century supporters of the *Utilitarianism school*. However, when mathematical economics strengthened, objections were raised against cardinal utility on the grounds that it has no universal scale.

4. The level of happiness usually measures *a present condition* of positive and negative emotions and of life satisfaction. Utility mainly refers to preferences and choices, and their influence on *decisions about the future*.

5. Even in situations where happiness and utility play a similar role with respect to future decisions, they are not necessarily identical. For example, think of a travelling salesman who has to visit a number of cities. He can choose the shortest route, or a longer route which will take more time but make his journey more pleasant due to nicer views and less heavy traffic. Despite the fact that both "utility" and "happiness" are about satisfaction, if he chooses to maximize utility, he will most likely take the shortest route, while if he prefers to maximize happiness, he will choose the longer and nicer

<sup>3</sup> John Stuart Mill in his book *Utilitarianism* (1863) used the concepts *utility* and *happiness* alternately, as if they were synonyms.

one. This too is related to the fact that *utility* was developed in the economy of scarcity, while *happiness* as a scientific subject is a new emergence typical to a prosperous society. I will elaborate on this point later, regarding my proposed model of two types of utility.

In recent years, the tendency of researchers in positive psychology and happiness economics is to define the goal of well-being programs as promoting *flourishing* rather than maximizing happiness (Diener et al., 2010). The concept of flourishing covers a broader scope in which happiness or SWB is only one component. It embraces subjective aspects, like satisfaction and self-esteem, with objective measures, such as socioeconomic status, mental health, level of education, capabilities in the Sen-Nussbaum meaning and the access to opportunities. The construct of flourishing combines both ordinal and cardinal data. The same is true for many other contemporary domains, such as branches of operations research (mainly optimization under constraints and decision theory) which deal with maximizing utility or equivalent measures. Thus, the century-old campaign to eliminate cardinal utility from the economical sciences has reached, at most, only partial success.

### 3. Economic mode versus leisure mode

In Sections 4 and 6, I shall discuss some paradoxes relating to human behavior which apparently contravene the principle of maximizing utility. The discussion will serve to examine a model that defines utility in a prosperous society in a broader sense than the traditional definition. I intend to show that some of the so-called paradoxes are not paradoxical at all, since they do not necessarily indicate the irrationality of actors in the market, and can be explained by assuming a type of rationality that is different from the traditional "economic rationality." Before going into this subject, I wish to consider some important points

The first question to be asked is, what exactly is "economic rationality?" A plausible answer would be that it is a strategy which will most likely maximize *personal utility in the long run*. We emphasize *long-run* because pursuing short-term profits can be damaging in the long run. For example, exorbitant prices may increase the immediate profit of a merchant but will chase customers away in the future. The emphasis on *personal utility* is to say that economic rationality is inconsistent with the naïve tenet of the early utilitarians who maintained that the goal of every action should be to maximize the *general utility*. An attitude that gives my own utility the same priority as the utility of all other human beings is unreal in the economic sphere.

We can ask whether "my personal utility" embraces the interests of *some* other people besides myself. Most of us will agree that the utility of my spouse and children should be included in the term "my personal utility" but what about good friends? I might be interested in taking care of them in order to have their support in the future, or just because not helping them will make me sad. It can be assumed that each of us has a group of close persons ("personal group") which he cares for, and his

concern for those persons would not be considered as violating the principle of maximizing personal utility.

Another question is whether there are boundaries to the striving for personal utility. Most of us were educated to respect some social values. Therefore, we would hurry to save a strange child that has fallen into a shallow pond and appears to be drowning, even if we get our clothes wet and muddy.<sup>4</sup> This example implies that the pursuit of personal utility is always done within boundaries, not only legal boundaries but also restrictions of morality and conscience. The task of maximizing the utility is therefore a problem of *constrained optimization*.

All these points are quite trivial, but there is another important issue which is sometimes ignored when the rationality of decisions is examined. It is about the type of choices for which the requirement to be rational in the economic sense is legitimate. After all, we do not wake up in the morning and put on our "economist hat". Sitting at the breakfast table we do not calculate which combination of food will give us the vital nutrition in the cheapest way. When we go out to have fun, we do not check how to get the maximal pleasure for the minimal cost but spontaneously choose a favored entertainment. When we go shopping, we often buy what entices us without doing a market study.

In our daily life we obviously experience two distinct modes of thinking and behaving: the *economic mode* and the *leisure mode*. In the first mode, we are in an economic state of mind, we think about what we are doing as "business", put reason before emotion, check possible actions and weigh alternatives, apply practical rather than aesthetic criteria, and prefer selfish cost-benefit considerations over the benefit of the community; we set goals and endeavor to achieve them, and we value actions according to their results. In short, we are acting as *homo economicus*.<sup>5</sup>

In the leisure mode, we are in a relaxed state of mind, we appreciate pleasure more than tangible gain, act spontaneously and let our emotions guide us rather than our reason; we activate our imagination and creativity, and cherish the experience rather than the end.

It would be justified to criticize deeds that contradict economic rationality only if done in the economic mode, since our behavior in the leisure mode obeys an entirely different reasoning. Of course, we have to be careful not to classify actions as economic type or leisure type by their economic rationality; this would be considered circular reasoning. We need external criteria of classification which are not based on the logical quality of the action. Apart from the above-mentioned behavioral characteristics, here are some more guidelines which might serve us in the classification.

Conditions in which we would most probably be in the economic mode:

1. When we are working for our living.

2. When we buy or sell an expensive private property, such as a house.

<sup>&</sup>lt;sup>4</sup> This example was given by the modern utilitarian Peter Singer in 1977.

<sup>&</sup>lt;sup>5</sup> According to Wikipedia, the model of *homo economicus* portrays humans as consistently rational and narrowly self-interested agents who usually pursue their subjectively-defined ends optimally. Generally, homo economicus attempts to maximize utility as a consumer and profit as a producer.

- 3. When we really care for the money involved in a transaction.
- 4. When we do something that might influence our life for a long time.

Conditions typical to the leisure mode:

- 1. When, after work, we look for relaxation and an escape from life's little nuisances.
- 2. When affordable sums of money are involved and we are not eager to make the optimal financial choice.
- 3. When our enjoyment is more important to us than the cost.
- 4. When we prefer a spontaneous action over calculations and vacillations.

To conclude, in the economic mode, we want to get the maximal profit (or spend the minimal price), while in the leisure mode, we just wish to enjoy. In the economic mode, we are focused on making money; in the leisure mode, we spend the money that we have earned, and enjoy the freedom to use it as we wish. The differences between the two modes resemble the distinction we made above between maximizing utility and maximizing happiness. In the case of the travelling salesman, for example, we can imagine him taking the shortest route when he is in the economic mode, and enjoying the longer and nicer route on occasions in which he allows himself to be in the leisure mode.

### 4. Economic irrationality revisited

In order to investigate examples of economic irrationality, we need to find situations in which people are obviously acting in the economic mode, yet they carry out transactions which are not optimal in the economic sense. If we find such cases, we can explain them in one of two alternative ways. One option is to assume that the action was caused by erroneous calculations, namely, somebody thought he was acting rationally but he was wrong. As we shall see, this was the explanation which Kahneman and Tversky essentially gave for the paradoxes they studied, concerning irrational decisions. The other option is to show that the apparently paradoxical behavior is consistent with a kind of rationality which is different from traditional economic rationality.

I shall first present two examples of "economic irrationality" which can be explained by assuming a new kind of utility. We shall argue that some examples of "irrational behavior" turn out to be quite rational if explained as the maximization of a total utility function that combines the two sorts of utility – the traditional one and the new one. We shall later check whether this two-utilities model can explain some of the paradoxes discussed by researchers of irrationality in decision-making.

#### Philanthropy and altruism

As already mentioned in Section 1, any kind of philanthropy and altruism outside *the personal group* contradicts the principle of maximizing utility. This is especially obvious with big donations since

charity of five dollars to an occasional beggar can be classified as belonging to the leisure mode. However, when speaking about a million dollar donation, or about average people who, for a long time continue to spend their money or their time to help nonprofit organizations, it can be argued that these acts of philanthropy are eligible to be classified as belonging to the economic mode, for several reasons.

- 1. Substantial amounts of money, or money-equivalent, are involved in these transactions.
- 2. Such acts of charity are not spontaneous and usually involve investigations, considerations and follow-up.
- 3. The decision on the target of a big donation depends on reason more than on emotion, although the initial will to contribute may be emotional.
- 4. People treat big or continuous donations with the same type of attention they pay to their work or business.

In short, big charity is a kind of business for both donors and fundraisers. The claim that charity is economically paradoxical is straightforward: people in their sound mind, being in the economic mode, carry out operations which leave them with fewer assets than they had before. Two explanations have been suggested for the philanthropy paradox. One is that all philanthropic actions are really selfish, since the donor expects some material benefit in return (Harbaugh, 1998). This explanation does not embrace all forms of philanthropy. What tangible profit can one expect from an anonymous donation to the hungry in Africa or to an organization which struggles against cruelty to animals? One would have to be really cynical to argue that any charitable activity of this kind somehow supports the self-interest of the donor. The other explanation is that charity brings the donor a sort of pleasure which stems from an inner sense of altruism and social responsibility, and is not part of the economic utility for which the rational *homo economicus* looks (Sugden, 1982).

I would like to argue that the pleasure associated with philanthropic acts which are performed in the economic mode is essentially different from the fleeting emotion of pleasure which accompanies acts in the leisure mode. The philanthropic pleasure is a deep and lasting sense of satisfaction and fulfillment that make philanthropists feel they have found their mission in life. Some classical researchers in positive psychology have proved that there is a mutual correlation between altruism and happiness: happy people tend to help others more than unhappy people, and altruistic activity make persons happier (Lyubomirsky, Sheldon & Schkade, 2005; Sheldon & Lyubomirsky, 2004). The impact of philanthropy on happiness is stronger and more prolonged than any enjoyable activity (Seligman, 2002).

We can conclude that if we take philanthropy into account, we can identify two types of utility. The first type is the traditional utility which is materialistic and selfish and can be translated to tangible profit. The other type is non-material and is associated with benevolence and generosity. Before going

into a more thorough analysis of the second type, let's turn to another instance of "irrational behavior" in the economic mode which pertains to consumption.

### Irrational consumption

As I argued elsewhere,<sup>6</sup> in the prosperous society, consumers do not always strive to buy wisely. They often buy more than they need, or buy things that are obviously unnecessary. This is explained by the fact that the very action of buying creates satisfaction which is unrelated to the question of what would be the benefit from the artifact acquired (Otero-López et al., 2011). Not only obsessive buying or impulsive acquisitions make people joyful, but also purchases of unnecessary things which were done thoughtfully and after careful planning, namely, when the consumer is in the economic mode. Purchasing items that the chance to use them is small or negligible, just for the pleasure of buying, is *economically irrational*, but may indicate the existence of an additional kind of rationality which does not comply with the traditional principles of economic rationality.

# 5. Two Types of Utility

The non-economic utility relating to charity is obviously of a different nature from the non-economic utility associated with excessive consumption. The first is due to the pleasure of benevolence and caring while the second is selfish and materialistic. However, instead of defining several types of noneconomical utility, we find it more convenient and practical to combine all of them, and distinguish only between two types of utility which can be roughly characterized as economical and noneconomical. Utility of the first type (utility I) is the conventional utility which the rational economic actors are expected to maximize. It is associated with striving to have more assets or to get maximal satisfaction from the consumption of necessities such as food, necessary garments etc. The second type of utility (utility II) is connected to pleasures from actions which might seem irrational from the conventional point of view, yet they fulfill some psychological needs of which the person himself is not always aware. Maximizing the first type leaves one with more money in one's wallet. This is because after getting a necessity for a reasonable price, the value of one's assets remains the same or increases due to the *endowment effect* (Kahneman & Tversky, 1984).<sup>7</sup> The second type does not necessarily maximize one's profit because when one buys something at an inflated price, or buys unnecessary goods or services, the value of one's property goes down, and the same happens when one donates to charity The first type of utility allows comparison between options, either by quantitative evaluation when cardinal utility can be defined, or by other means such as indifference curves, when the utility is ordinal. The second type is more subtle and may not allow easy measurement and comparison between options.

<sup>&</sup>lt;sup>6</sup> Kirsh, 2016; Ch. 9: The price of Capitalism.

<sup>&</sup>lt;sup>7</sup> The endowment effect (or the ownership effect) is the finding that people ascribe greater value to things that they own.

The distinction between two types of utility on the basis of various criteria have already been suggested. It was noted that the confusion with respect to utility measurability is partly due to the use of the term "utility" both as a measure of *subjective satisfaction* and as an indicator of *objective choice* or preference (Ng, 1985). Kahneman (1994) distinguished between *decision utility*, inferred from one's observed choices, and *experienced utility* which more closely matches the concept of happiness. Keynes (1933) distinguished between *absolute needs* which are necessary in any situation, and *relative needs* whose main purpose is "to make us feel superior to our fellows," and this distinction also indicates the existence of two types of utility

Our suggested division into utility-I and utility-II, however, is different from the aforementioned ideas. The various sub-classes of utility-II can stem from inferior or superior drives. They can be selfish or altruistic, associated with getting a higher social status and a feeling of power, or with internal self-esteem and a sense of solidarity with other people. However, common to all of them is a sense of satisfaction which is not included in the conventional definitions of rational economic behavior. Therefore, in some of the instances where the behavior of actors in the market seems to be irrational, namely not fitting the conventional idea of maximizing utility, this behavior might be explained by a more intricate sort of utility, which is a combination of utility-II and utility-II.

Can we assume that utility-I is associated mainly with the economic mode and utility-II with the leisure mode? The answer is no. In the leisure mode, most people act spontaneously and do not care to maximize either profit or pleasure. As claimed earlier, we assume that the maximization of utility-II is also done thoughtfully and with care, while in the leisure mode, calculations are neglected and decisions are made on the basis of momentary whims. Thus, when one is endeavoring to maximize one's utility, either of type I or of type II, we would say that she is in her economic mode.

Can one argue that decisions in the economic mode are always rational, namely maximizing a utility of some sort? Such an assumption would be circular reasoning. It means that every unsuccessful economic decision yields some hidden utility. As Barbara Tuchman has shown, even decisions made by experts through a thorough process of learning and planning, can be wrong and harmful (Tuchman, 1984). Ordinary people as well often make decisions which are irrational with respect to both types of utility.

The travel agent may choose the longer way in order to enjoy the view, and then realize that if he had checked WAZE, he would have acted differently, since the scenic road was crowded with slow traffic. Similarly, a philanthropist may contribute to an inappropriate purpose, and a hedonist might choose to pay for an experience that proves to be unpleasant. To conclude, people often act unwisely and irrationally, yet, the distinction between economical and non-economical utility may render some of the alleged non-rational actions to being rational ones.

When will a rational person begin to take utility-II into consideration? We can refer here to the "Maslow's hierarchy" of basic human needs, which describes five levels that human aspirations usually advance through:

- 1. Physiological needs such as food, clothes and a roof over one's head,
- 2. *Safety needs*: personal security, health and well-being, economic security and protection from violence,
- 3. Belongingness and love: friends, family, an intimate partner, the sense of being part of a social group,
- 4. Esteem: having self-esteem on one hand, and being accepted and valued by others on the other,
- 5. *Self-actualization*: fulfilling personal potential, bringing dreams to fruition and making the most of one's talents and capabilities.

According to Maslow, one usually fulfill the needs in a lower level before progressing to an higher level. When the needs in one level have been satisfied, our aspirations usually turn towards the next set of needs, and they become our salient wants. The first four levels are often defined as *deficiency needs* and the top one as *growth needs*. I suggest an alternative division, in which the two bottom levels – the physiological needs and safety needs – are connected to utility-I, while the top three levels – belongingness and love, esteem, self-actualization – are ascribed to utility-II. This division emphasizes that the two lower levels are associated with materialistic and tangible needs, while the three higher levels represent psychological or spiritual needs. When the two lower-level needs are satisfied, the person goes on to satisfy the higher needs, and that is the point where the maximization of utility-II becomes important.

In general, we can assume that the richer a person is, the less he cares for the maximization of utility-I while the importance of utility-II increases. Thus, as a society becomes more prosperous, utility-II turns out to be more influential. Therefore, in the prosperous society, both the positive and the negative sides of utility-II become more widespread: more resources are wasted on unnecessary products and services while more money is spent on philanthropy.

For some people, utility-I is totally irrelevant. In order to demonstrate this, think of a person who is not involved in any commercial transactions, yet he can have everything he needs; he does not get paid for his work but he enjoys working for the common good. We can think, for example, of a member of the British Monarchy family, or of a wealthy man who has a fixed cash flow from his assets, or of an idealistic kibbutz member in Israel. In all these examples, the needs in the two lower levels in Maslow's pyramid have been satisfied, utility-I has little relevance, and the person's concept of utility is almost entirely of the second type.

### 6. Solutions to Some Paradoxes

I would like to claim that the definition of the two types of utility can solve some of the paradoxes relating to human behavior which seemingly violates the principle of maximizing the utility. In other

words, some of the so-called paradoxes are not paradoxical at all, since they do not necessarily indicate the irrationality of the actors.

In a famous research (Kahneman & Tversky, 1984), respondents were asked to imagine that they were planning to buy a jacket for \$125 and a calculator for \$15. They are informed that at another branch of the store, twenty minutes drive away, the calculator is on sale for \$10. The respondents were asked: Would you drive to the other store to save five dollars? In another version of the problem, the prices of the two items were switched. The price of the calculator was \$125 in the first store and \$120 in the other store, while the jacket cost \$15 at the both stores. It was found that the proportion of respondents who said they would drive to the other branch differed sharply in the two problems. While 68% of the respondents were willing to drive to the other branch to save \$5 on a \$15 calculator, only 29% were willing to make the same trip to save \$5 on a \$125 calculator. According to the authors, these results run counter to the standard rational theory of consumer behavior. They claimed that in both cases the customer could save \$5 with a 20 minute drive on a total expenditure of \$140 for the two items; thus, in a rational world, the percentages should roughly be the same for the two versions of the problem.

In another research (*ibid.*), the problem presented to the respondents was about a person who decided to go to the theater. In the first version, he bought a ticket for \$10 and as he entered the theater, he discovered that he had lost the ticket. The seats were not marked and the ticket could not be recovered. The question was: If this happened to you, would you pay \$10 for another ticket? The answers were: 46% YES, 54% NO. In a second version, the person goes to the theater in order to purchase the ticket at the entrance and discovers that he has lost a \$10 bill from his wallet. The question was: If this happened to you would you still pay \$10 for a ticket? In this case 88% answered YES and only 12% chose NO.

Kahneman and Tversky claimed that the difference between the responses to the two versions was intriguing. "Why are so many people unwilling to spend \$10 after having lost a ticket, if they would readily spend that sum after losing an equivalent amount of cash?" They claimed that the observed irrationality in dilemmas like the theater ticket, the calculator and jacket and similar examples, are due to a kind of faulty reasoning which they called "topical organization of mental accounts." This faulty reasoning leads people to evaluate gains and losses in relative rather than in absolute terms, although what matters in the bottom line is the absolute gain or loss.

The contribution of Kahneman and Tversky to decision theory as well as to the psychology of economic reasoning in general, is crucial and pioneering. In 2002, the Nobel committee noted that their research on human behavior was based on extensive surveys and experiments, and "have called into question the assumption of economic rationality in some decision situations."

I wish to claim that although many examples of human thinking which Kahneman and Tversky explored really indicate faulty reasoning, in some of the described cases, the answers are not necessarily irrational. The faulty or inconsistent reasoning is obvious in decision situations where the

consequences are uncertain, since people are incapable of fully analyzing complex states which involve probabilities, and rely instead on heuristic shortcuts or rules of the thumb. However, in some of the explored cases, where the results of the decision are certain and conclusive, such as the theater ticket and the calculator and jacket examples, the observed behavior can be claimed to be rational. Those examples can be explained by the model of two types of utility, where the decision is based on a combination of utility-II.

The calculator and jacket example can be explained in the following way. Indeed, a \$5 reduction is too small to justify the wasted time and fuel of a 20 minute drive in each direction. The reason that two-thirds of the respondents expressed willingness to make that drive was to avoid being a "sucker." Giving up a 33% discount means letting the store gain an unfair profit. Thus the 20 minute drive was not aimed at maximizing utility-I, but at making the customer feel good, namely, at achieving utility-II. This choice could give the person the satisfaction of not feeling exploited, and the joy of "beating the system." Such feelings can be the motivation for the effort of going to a store on the other side of town. On the other hand, a \$5 reduction from the \$125 price of the calculator is only a 4% discount, which does not provoke the sense that, by not taking advantage of the cheaper alternative, one gives the store an excessive profit. Therefore only a third of the respondents found the discount attractive enough to make the drive.

In the example of the lost ticket, it should be noted that going to the theatre belongs to the leisure sphere, and a priori does not involve petty calculations to the order of magnitude of ten dollars. The loss of the ticket and the dilemma whether to buy a new one abruptly casts the person into the economic mode, and the joy one feels being in one's leisure mode is irreversibly damaged. Thus, more than half of the respondents felt that they would not enjoy seeing the play, and answered that they would not buy a new ticket. On the other hand, if instead of losing the ticket, I lost \$10 on the way to the theater, my inclination would be to separate the two events: losing the money belongs to the economic mode, while the theater ticket, which I have not yet bought, belongs to the leisure mode. Therefore, almost 90% of the participants said that they would prefer to buy the ticket instead of giving up seeing the play.

Supporters of the irrationality theory who see the difference between the two cases as irrational, or "intriguing" provide explanations which are essentially similar to those of the two-utilities theory. For example, in the case of the lost ticket, Kahneman and Tversky (ibid.) explained the reluctance to buy another ticket in the following way:

Going to the theater is normally viewed as a transaction in which the cost of the ticket is exchanged for the experience of seeing the play. Buying a second ticket increases the cost of seeing the play to a level that many respondents apparently find unacceptable. In contrast, the loss of the cash is not posted to the account of the play, and it affects the purchase of a ticket only by making the individual feel slightly less affluent (p. 348).

This explanation is similar to our assumption that the loss of the ticket has shifted the person from the leisure mode to the economic mode. However, instead of seeing the choice of 54% of the respondents as faulty reasoning, it might be more useful to see it as a distinct kind of sound reasoning which can be investigated and gauged. The proportion of those who choose either alternative may tell us something about the balance between utility-I and utility-II under various circumstances. If the researchers had gathered more data on the participants, this could have shed light on the relative weight various socio-economic groups (or different genders, etc.) ascribe to the two utilities.

An additional example is the finding that an employee will usually be happier with a \$50 raise when his colleagues received \$40 each than with a \$60 raise while all the others got a \$70 raise (Diener & Fujita 1997; Kahneman, Krueger et al., 2006). The fact that a smaller raise makes one happier seems to be economically irrational. However, it can be explained by the assumption that factors connected to utility-II, such as the appreciation of his bosses, his professional status and his self-esteem, are more important for the employee in this case than the absolute sum of money he gets, which is related to utility-I.

# 7. Applications of the Model

To conclude, the two-types-of-utility model can explain some types of behavior which seem irrational from a narrow point of view that takes into account only the economic-oriented utility. This model not only has theoretical implications but practical applications as well, for example in the field of marketing and sales promotion. As Kahneman and Tversky demonstrated in the calculator and jacket example, the impact of reductions on the consumer involves not only cost-effective factors but psychological factors as well. The effects of discounts and price differentiation on consumer behavior is the subject of extensive study today which can benefit from the two utilities model. This is true for other areas of marketing as well. The main objective of marketing efforts, such as advertisement, is to persuade consumers to spend money on unessential products and services, since vital necessities do not require advertising. Marketing should therefore rely on stimulating Utility-II, which is based on psychology more than on essential wants.

Another example of the relevance of the model is related to the unwillingness of people to pay taxes. If all tax-payers paid their due taxes willingly, taxation revenue in many countries would be much higher than it is now, and many of the problems of the prosperous society, such as the increasing inequality, could be solved. According to several researchers, the optimum point on the graph of government revenue as a function of the tax rate (the Laffer curve) could be as high as 70% of the total tax rate (Trabandt & Uhlig, 2011). However, taxes are usually perceived as decreasing the tax-payer's personal utility. Thus wealthy tax-payers often use various means of tax evasion, such as tax havens or pressure on politicians in order to advance tax-reducing legislation. In light of the aversion towards

paying taxes, it might be helpful if raising money for public needs could be done in additional ways which would increase the personal utility of the tax payer by enhancing utility-II.

Lotteries organized by governments present a way to get money for public purposes without using coercion, by exploiting the fact that some people are tempted by the chance to win, although the probability to collect a big prize is tiny, and the total expected revenue of participating in a lottery is negative. Despite the allegations that lotteries, as well as other forms of gambling, are immoral, and that they actually transfer money from the poor to the wealthy since, in general, poor people spend more money on lotteries than rich people (Martin & Yandle, 1990), lotteries represent an important source of money for public needs in many countries (Grote & Matheson, 2011).

It might be worthy to adopt additional ways of conveying money from individuals to public purposes which rely on aspects of utility-II by using the thrill of gambling. For example, the investment in high-tech startups is actually a kind of a gamble, since about ninety percent of the startups fail. Yet people invest money in start-ups in the hope that some of them will succeed. Governments can offer investment opportunities in public projects which would be planned in such a way that if they succeeded, the investors would gain much more than the invested, in a similar way that it is done in private high-tech starts-ups.

A third example relates to the planning of welfare systems. For decades, the design of welfare policies relied on lists of needs which took into account objective necessities, such as food and healthcare, which can be classified as associated with utility-I. These lists, however, ignored important aspects of life that contribute to wellbeing, such as self-respect, the sense of belonging and the aspiration to attain fulfillment. These needs, which belong to the top three levels in Maslow's pyramid, can be ascribed to utility-II. Since the flourishing of the domain of happiness economics, policy-makers and designers pay more attention to subjective criteria when weighing alternative strategies or tools (Bronsteen, Buccafusco & Masur, 2013). Institutions such as schools, universities, hospitals, and retirement homes are evaluated not only by objective criteria, such as the academic achievement of the students (schools, universities), the health of the inmates (hospitals and retirement homes) or by input-output calculations, but also by subjective criteria, namely the level of satisfaction of the customers. A recognition of the separate roles of the two types of utility can be useful in this area as well.

### REFERENCES

Batley, R., 2008. "On Ordinal Utility, Cardinal Utility and Random Utility". *Theory and Decision*, <u>64</u>, pp 37–63. Bronstein, J., Buccafusco, C., and Masur, J.S., 2013. "Well-Being Analysis vs. Cost-Benefit Analysis", *Duke Law Journal*, <u>62</u>, 1603-1689.

China, K-S & Fuc, C., 2014. "Integrated evidential reasoning approach in the presence of cardinal and ordinal preferences and its applications in software selection". *Expert Systems with Applications*, <u>41</u>, pp 6718–6727.

Diener, E., 1984. "Subjective Well-Being". Psychological Bulletin, 95, 542-575.

Armenta, C. N., Ruberton, P. M., Lyubomirsky, S. 2015. "Psychology of subjective wellbeing". In Wright, J. D. (Ed.), *International encyclopedia of the social and behavioral sciences* (2<sup>nd</sup> ed.; pp. 648-653). Oxford, UK: Elsevier. <u>http://sonjalyubomirsky.com/files/2012/09/Armenta-Ruberton-Lyubomirsky-2015.pdf</u>

- Diener, E., Fujita, F. (1997). "Social comparisons and subjective well-being". In B. Buunk & F. Gibbons (eds.), *Health, coping and well-being: Perspectives from social comparison theory*, (329-357). Mahwah, NJ: Erlbaum.
- Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi. D., Oishi, S. and Biswas-Diener, R. 2010. "New Wellbeing Measures: Short Scales to Assess Flourishing and Positive and Negative Feelings". *Social Indicators Research*, <u>97</u>, pp 143–156.
- Gowdy, J. & Mesner, S., 1998, "The Evolution of Georgescu-Roegen's Bioeconomics". *Review of Social Economy*, <u>56</u> (2), pp 136-156 (p. 140: Utility theory). http://homepages.rpi.edu/~gowdyj/mypapers/RSE1998.pdf
- Grote, K., Matheson V., 2011. "The Economics of Lotteries: A Survey of the Literature". Economics Working Paper 16, College of the Holy Cross http://crossworks.holycross.edu/econ\_working\_papers
- Harbaugh, W. T., 1998. "What do donations buy? A model of philanthropy based on prestige and warm glow". *J. of Public Economics*, <u>67</u>, 2, pp. 269–284
- Kahneman, D., 1994. "New Challenges to the Rationality Assumption" Journal of Institutional and Theoretical Economics, 150, 18-36.
- Kahneman, D. & Krueger, A.B. (2006). Developments in the measurements of subjective well-being. *Journal of Economic Perspectives*, 20, 3–24.
- Kahneman, D., Krueger, A.B., Schkade, D., Schwarz, N. Stone, A. 2004. "Toward National Well-Being Accounts". American Economic Review, 2004, <u>94</u>, 429-434.
- Kahneman, D., Krueger, A.B., Schkade, D., Schwarz, N., Stone, A.A. (2006). Would you be happier if you were richer? A focusing illusion. *Science*, 312, 1908-1910.
- Kahneman, D., and Tversky, A. (1984). "Choices, Values, and Frames". American Psychologist, 39, 341-350.
- Keynes, J. M., 1933. Essays in Persuasion. London: Macmillan. (p. 365)
- Kirsh, Y., (2016). "Unemployment and Job Creation in a Prosperous Economy." The Open University of Israel Institute for Policy Analysis, Working paper series No. 36 – 2016. Available at SSRN: https://ssrn.com/abstract=2827204
- Lyubomirsky, S., Sheldon, K.M., Schkade, D. (2005). "Pursuing happiness: The architecture of sustainable change". *Review of General Psychology*, 9, 111-131.
- Madden, D., 2010. "Ordinal and cardinal measures of health inequality: an empirical comparison". *Health Economics*, <u>19</u>, pp243–250.
- Martin, R., Yandle, B., 1990. State Lotteries as Duopoly Transfer Mechanisms. Public Choice 64, 253-264.
- Ng, Yew-Kwang, 1985. "Some Fundamental Issues in Social Welfare", in G. Feiwel, ed., *Issues in Contemporary Microeconomics and Welfare*, London: Macmillan, 435-469.
- Otero-López, J. M., Pol, E. V., Bolaño, C. C., Mariño, M. J. S. (2011). "Materialism, life-satisfaction and addictive buying: Examining the causal relationships." Personality and Individual Differences, <u>50</u>, pp 772– 776.
- Saen, R. F., 2006. "A decision model for technology selection in the existence of both cardinal and ordinal data". *Applied Mathematics and Computation*, <u>181</u>, pp 1600–1608.
- Sandvik, E., Diener, E., & Seidlitz, L. (1993). Subjective well-being: The convergence and stability of self-report and non-self-report measures. *Journal of Personality*, 61, 317-342.
- Seligman, M., (2002). Authentic Happiness. Ch. 1 & 3. New York: Simon & Schuster.
- Sheldon, K.M., Lyubomirsky, S. (2004). "Achieving sustainable new happiness: Prospects, practices, and prescriptions". In A. Linley, S. Joseph (Eds.), *Positive psychology in practice* (pp. 127-145). Hoboken, NJ: John Wiley & Sons.
- Stiglitz, J.E., 1987. "Pareto efficient and optimal taxation and the new new welfare economics". *Handbook of Public Economics*, 2, pp 991–1042. <u>http://www.nber.org/papers/w2189</u>
- Sugden, R. (1982). "On the economics of philanthropy". The Economic Journal, 92, 366, pp. 341-350.
- Trabandt, M., Uhlig, H., 2011. "The Laffer Curve Revisited". J. of Monetary Economics. <u>58</u>, 305–27. http://www.sciencedirect.com/science/article/pii/S030439321100064X
- Tuchman, B., 1984. The March of Folly. New York: Knopf/Random House.