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Escalation and Well-being

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Abstract

Escalation is a key characteristic of many consumption behaviors that has not received the theoretical attention it deserves. The aim of this paper is to propose both a definition and a theoretical treatment of escalation in consumption. We shall define escalation as the attempt to engage in consumption acts that are "more intense" on a measurable quantitative or qualitative, objective or subjective, scale (more difficult ski slopes, stronger drugs, harder sex, better restaurants, riskier games, etc.), even if, previously, the subject preferred less intense consumption behaviors. Further, this evolution in preferences also occurs if the budget constraint does not change. We will find endogenous and exogenous theoretical microfoundations for escalation in models of hedonic adaptation, desire for novelty, acquisition of consumption skills, rising aspirations, positional effects, and envy. However, we will also discuss the possibility that the tendency to escalate is a specific innate behavior inherent to human nature. Finally, we will propose a preliminary theoretical formalization of such behavior and indicate the possible implications of taking escalation into adequate consideration.

JEL code: B52, D11, D90, D91, I31

Keywords: Escalation, hedonic adaptation, consumption skills, envy, innovativeness, positional effects, aspirations

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Introduction

Escalation in consumption is a key characteristic of human behavior that has received no attention from economists. The only concept of escalation that economists have studied is the "escalation of commitment", i.e., a course of action where subjects ignore the evidence of the negative outcomes of behaviors in which they have invested resources in the past and, instead of cutting off these behaviors, decide "to commit more effort and resources into making that course of action pay off" (Staw 1981, p. 577). On the contrary, economists have overlooked a completely different and far more important case of escalation, namely, escalation in consumption.

Probably this lack of interest depends upon the circumstance that escalation has never been considered as an autonomous theoretical construct with a role in economic theorizing: escalating behaviors have not been recognized as such but been discussed within other categories, for example, addiction, without a thorough understanding of their specificities. Furthermore, escalation appears at odds with traditional economic theory and, in particular, with the assumption of monotonic preferences: another circumstance that might explain why it is neglected. In any case, independent of the causes, the circumstance that almost no reference to escalation in consumption can be found in the economic literature implies that this concept lacks a univocal definition and a general theoretical treatment. Thus, the precise aim of this paper is to propose both a definition and a theoretical treatment of escalation.

Broadly speaking, escalation in consumption refers to a particular behavior of subjects who become progressively less satisfied by the consumption path they have started on, and escalate to different consumption choices which they had previously discarded and give them more intense sensations: more difficult ski slopes, stronger drugs, harder sex, better restaurants, riskier games, etc. In general, we can recognize escalation in consumption paths which do not simply ensure subsistence, and many contributions from behavioral economics have described these consumption paths, albeit (with the exception of D'Orlando 2010 and 2011) without ever giving them the name of escalation.

Once escalation is defined and understood that it is present in a number of specific as well generic consumption behaviors, it is appropriate to study its causes, i.e., to find its microfoundations. Mainstream economic theory faces great difficulties in dealing with escalation, even if the concept of decreasing marginal utility can constitute a first attempt for taking into account at least some aspects of the phenomenon. However, to build a better theoretical framework for systematizing escalation, one has to refer to some psychology-based behavioral economics principles and models. In particular, within the possible endogenous (i.e., independent

of others' behavior) causes of escalation, one can find hedonic adaptation, innovativeness, desire for novelty, acquisition of consumption skills, and rising aspirations; whereas, within its possible exogenous causes, one can find positional effects and envy. However, although these behavioral economics constructs can contribute to a thorough explanation of the phenomenon, it is also possible to consider escalation as an innate behavior which is strictly inherent to human nature, rather than as a phenomenon which simply operationalizes these constructs.

In this paper, building on the above-listed principles and models, we propose a model which outlines a preliminary formalization of escalation in consumption. The most relevant conclusion concerning the model is that escalation can be considered as a fully rational behavior, since subjects can maximize their intertemporal well-being by continuously escalating to higher grade consumption behaviors. On this basis, it is possible not only to better understand the causes and consequences of the phenomenon, but also to design specific policy strategies, and/or behavior suggestions, for increasing well-being. From this viewpoint self-esteem, envy and positional effects can be considered as important stimuli for escalation and therefore as important devices that can be used to increase well-being.

The paper is organized as follows. Section 1 defines escalation and describes the main characteristics of the concept, together with the main circumstances in which it happens. Section 2 discusses the endogenous causes of escalation by focusing attention on the psychologically founded constructs, as well as theoretical models of hedonic adaptation (habituation), desire for novelty, rising aspirations, and acquisition of consumption skills. Section 3 discusses the exogenous causes of escalation by centering on positional effects and envy, while also exploring the possibility that escalation is only a consequence of an innate tendency inherent to human nature. Section 4 proposes a preliminary model for systematizing escalating behaviors. Lastly, Section 5 sums up the main results and implications of the analysis and concludes the paper.

1. What is escalation and when does it occur?

While escalation has been studied only in relation to certain markets and goods (see, e.g., D'Orlando 2010 and 2011), its relevance is rather general, and one can recognize it in a wide variety of consumption behaviors. Escalation occurs when over time people show a growing interest in stronger, harder, faster, riskier goods, substances or behaviors. The key concept here is "more intense sensations": escalation is not simply a desire for novelty, i.e., a desire for consuming a different good or undertaking a different behavior; rather, it requires a shift from goods, substances and behaviors which give the consumer "less intense sensations", to goods, substances or behaviors which give her/him "more intense sensations". People begin consuming

the basic good or undertaking the basic behavior, and are satisfied by such a good or behavior. But, after a while, they become less satisfied by this good or behavior, which as time passes leaves them with less well-being, and begin to become more interested in other goods or behaviors, which are stronger, harder, riskier, faster.

It follows that escalation happens for consumption acts and behaviors[1] which are of the same or similar kind, alternative to each other (fast or slow car, blue or red ski slopes, harder or softer sexual acts, etc.), and that can be vertically differentiated, i.e., goods or consumption behaviors for which a "scale of intensity" can be built. This "scale of intensity" is not necessarily an index of quality; simply put, it classifies goods or behaviors on the basis of some generally (and somehow socially) agreed cardinal or ordinal measure of intensity, whether continuous (such as the average rating for a restaurant) or discrete (such as the color indicating the difficulty of a ski slope,[2] or stars or dots to classify restaurants and hotels). This index can be obtained by considering objective, measurable quantitative characteristics of the good or the behavior (such as horse power or speed for sport cars), or on the basis of some less objective, but generally agreed, subjective, qualitative characteristics (such as the difficulty of a ski slope), even if, in many cases, the judgment that subjects make on the characteristics of goods or behaviors can even be fully subjective (such as the quality of a wine). In all these cases, as a generally agreed scale of intensity exists, or can be built, or is at least theoretically conceivable, it is possible to classify the good or the behavior on the basis of such a scale. Inevitably, objective quantitative classifications will more likely be generally agreed by people than subjective qualitative scales. Nonetheless, our world is dominated by quantitative scales based on subjects' judgment on fully subjective qualitative characteristics: Michelin stars for restaurants, different colors for ski slopes, dots for wine quality etc.

The key element, which as we shall see makes traditional theoretical analysis incapable of adequately systematizing escalation, is that the subject facing a choice between less and more

[1] It is not so easy to distinguish between consumption acts and consumption behaviors. Here, we use the term "consumption acts" when the subject buys a good (e.g., a new car) or a service (e.g., a ski pass) of a particular type: the fastest sports car on the market, a six-month ski pass etc. We use the term "consumption behaviors" when the subject buys a good or a service and uses it in a specific way among the many possibilities: driving faster rather than slower in the new sports car, skiing on red rather than black slopes with the same six-month ski pass, etc. In some cases, consumption acts are uniquely linked to a single specific behavior, while, in other cases, they are linked to a plurality of possible alternative consumption behaviors. Although escalation can be discussed with reference to both consumption acts and consumption behaviors, in what follows, we will mainly focus our attention on consumption behaviors.

[2] In this paper, we will extensively use examples based on the difficulty of ski slopes. Worldwide, this classification is represented by colors, but these colors may vary from country to country. Here, we will use the following classification: green for the easiest slopes, blue for easy slopes, red for medium difficulty slopes, and black for the most difficult slopes.

"intense" consumption acts or behaviors, which are both in her/his disposability (i.e., inside her/his budget constraint), in the beginning, chooses the less intense option; but, after a while, she/he reverses her/his choice and begins consuming the most intense good, or undertaking the most intense behavior. The subject might choose whether to ski on green, blue, red or black slopes and decide to ski on green slopes; later he changes her/his choice, concluding that she/he prefers skiing on blue slopes. Later, she/he changes her/his mind again and chooses to ski on red slopes, and so on. All these choices have the same cost. Meanwhile, the subject could decide whether to consume soft or hard pornography, and chooses soft. Later, she/he decides to watch harder pornography, and so on. It is worth noting that the alternative options can also imply different monetary costs, as it happens for example when one begins with average restaurants and later escalates to better ones, the key element is the circumstance that all the choices fall within the same budget constraint: reversing the choice implies modifying the consumption basket chosen from within the same budget constraint. Put another way, escalating to superior consumption acts or behaviors is not a consequence of an income increase as stated in traditional theory. Indeed, the cases where the more intense choice was, in the beginning, outside the subject's budget constraint can also be considered as an example of escalation and explained on the basis of the same approaches, but are far less interesting and can more easily be explained by traditional neoclassical theory. However, we can say that, in this latter case, subjects try to escalate to a higher income in order to escalate to higher grade consumption behaviors.

It is important to emphasize that escalation neither manifests itself with consuming a greater quantity of a good (in general, the opposite is true) nor implies simply undertaking a different consumption behavior. Rather, escalation manifests itself with the subject becoming unsatisfied by the "old" good or behavior and beginning the consumption of a different good or the undertaking of a different behavior which gives her/him more intense sensations. It is not simply change, but change to something that is higher in an index of intensity though not necessarily more complex, more difficult, or more differentiated. Such an index of intensity may be generally agreed by the collectivity, or agreed by a subset of the collectivity (typically, subject's reference group) so that envy and positional effects play a key role, or even, in rare cases, only agreed by the subject alone.

A number of consumption acts and behaviors implicates escalation. We find escalation in drug consumers, who begin consuming soft substances but later escalate to harder ones; in diners who eat out at restaurants, who progressively prefer better restaurants; in wine consumers, who progressively escalate to better wines, or in rum consumers, who act in the same way; in skiers, who initially prefer green slopes, but, when they become more expert, choose more difficult black slopes; in consumers of pornography, who begin with soft before escalating to harder

pornography, or in those who move from magazines to movies; or in swinging couples, who start from simple exhibitionism and later escalate to harder intercourse with others.

2. The endogenous causes of escalation

It is difficult to explain escalation if one refers to standard economic theory, both within models based on the assumption of decreasing marginal utility and within the rational addiction approach. Although we will explain that this is a rather common theoretical weakness, decreasing marginal utility can only help to explain consumption change, rather than escalation to higher-grade consumption behaviors.

For what concerns decreasing marginal utility, it is certainly true that this concept might be useful in explaining why the good that a consumer is consuming or the behavior that a subject is undertaking loses importance for her/him with consumption. Hence, it can help to explain why she/he, at a certain time, becomes unsatisfied by the consumption of that "old" good and starts consuming a different good or undertaking a different behavior that gives her/him greater utility. But, in general, marginal utility decreases only in the time unit necessary to satisfy a need. When the need is satisfied, marginal utility is (close to) zero. When the need arises again, marginal utility rises again to the previous, initial level: the thirsty person who leaves a desert for the second time is just as thirsty as the first time and, for her/him, the first glass of water has exactly the same (high) utility that it had when she/he left the desert for the first time. On the contrary, after 100 green slopes, the skier never wants to see one again. The decrease in marginal utility is therefore somehow temporary, such that the bases for escalation are absent. Even if it is certainly possible to identify some aspects of escalation using marginal utility, it cannot fully explain escalation.

For what concerns the rational addiction approach (see e.g. Becker and Murphy 1988, Becker, Grossman and Murphy 1994), the main difference with respect to escalation lays in the circumstance that in rational addiction models when consuming a good the subject accumulates consumption capital, so that marginal utility of *the same* good *rises*. As a result, the subject increases over time her/his consumption of *that* good (see e.g. Becker and Murphy 1988, pp. 681-682). The reference is to *the same* good: it is the consumed quantity of that good which varies over time, there is no role for any index of intensity and there is no reference to another good. The opposite is true for escalation, since in escalation models well-being *reduces* with consumption, so that the consumer does not increase the quantity consumed of a good, but she/he begins consuming a different good, or begins undertaking a different consumption behavior, above with reference to an index of intensity. She/he does not ski for more time on red slopes but leaves red for black slopes. In general, addiction implies a greater consumption of the old addictive

substance, while escalation implies reducing the consumption of the old substance and beginning the consumption of a different and more intense one.[3] So, for the general case, albeit similarities may exist, the two approaches are quite different.

Leaving aside the traditional approach, similarities with escalating behaviors might apparently be found also in Scitovsky's works (see e.g. Scitovsky 1972 and 1992) and in the idea that well-being depends upon the evolution in consumption behaviors from consuming "defensive" goods to consuming "creative" goods. According to Scitovsky if subjects accumulate enough consumption skills they can increase their well-being by engaging in new "creative" consumption behaviors which posses the characteristics of "[n]ovelty, surprise, variety, uncertainty, and complexity" (Bianchi 2003, p. 397) and can furnish "pleasure" to the consumers, differently from mere "defensive" consumption behaviors which guarantee only "comfort", i.e. subsistence latu sensu. In particular it is "novelty", with its load of uncertainty, that challenges subjects' faculties, allowing them to learn new things and, as a result, to increase their well-being. Education for young people, and culture for the adults, represent the ways in which subjects can acquire the consumption skills that can allow them to desire change and to appreciate novelties. All the above is quite different from escalation. With few exceptions in Scitovsky's approach creative goods are *not* characterized by a higher degree of intensity, as it is in escalating behaviors. Subjects will escalate to more intense different consumption behaviors when, due to skill accumulation through past consumption, uncertainty regarding the new behaviors disappears, so that one can conclude that they are looking for something radically different from novelty or surprise. Variety and complexity might be but are not necessarily characteristics of higher intensity behaviors: Russian roulette is more intense but less complex than poker; Fontana's paintings are less complex but not necessarily less intense than figurative paintings; raw fish is less complex but more intense than cooked fish; engaging in the consumption behaviors of the reference group has nothing to do with complexity, since these behaviors can also simply imply returning to "primitive" consumption behaviors, i.e. to less complex behaviors, such as eating natural products, using the bicycle rather than the car, evolving from vegan to fruitarian eating, etc.. And specific behaviors can be considered more intense in an époque, or in a social climate, and less intense in another, remaining unchanged their complexity. Furthermore, the consumption skills necessary to escalate have nothing to do with culture, and the idea that escalation can be simply

[3] It is certainly true that in particular cases the two concepts might appear similar, but important differences remain. For example, the rational addiction approach discusses the sudden stop that may happen in consumption behaviors, "with 'cold turkey', that is, with abrupt cessation of consumption" (Becker and Murphy 1988, p. 692), and also escalation approaches discuss the circumstances that lead a subject to stop consuming a good due to habituation. But in the escalation approach the termination of consumption is rarely abrupt as it is in the rational addiction approach.

determined by complying with the behavior of a reference group is far from Scitovsky's approach. Finally, escalating behaviors can easily be disreputable behaviors, such as pollute the environment using faster cars or other antisocial behaviors, a conclusion which again is far from Scitovsky's ideas. Summing up, nowhere in Scitovsky's works is present the idea that people escalate to behaviors which are higher in intensity, where intensity is referred to as a somewhat socially agreed index. And nowhere in Scitovsky's works one can find the idea that engaging in consumption behaviors capable of generating envy in others can increase well-being. Or that envy can be a strong reason for modifying our behavior and increase our well-being. Or that also engaging in disreputable behaviors which are undertaken by our reference group can increase well-being. And so on. With the result that Scitovsky's creative goods consumption seems to be nothing else than a subset of the broader category of escalating behaviors.

However, a number of psychological principles different from the ones discussed by Scitovsky have been studied by behavioral economics and may (at least partially) contribute to building robust foundations for escalation. These foundations can be either endogenous or exogenous.

Among the endogenous foundations, we find behavioral constructs, such as hedonic adaptation, innovativeness and desire for novelty/variety, accumulation of consumption skills, and rising aspirations. However, hedonic adaptation, innovativeness and desire for novelty present a relevant drawback in that they can explain the basis of escalating behaviors, but not escalation itself. In particular, they can explain why boredom arises and why people change; but, only in some specific cases can they explain why they change to more intense consumption behaviors.[4] In other words, they represent the framework within which escalation models run; but, overall, they cannot fully explain the proper act of escalation. The opposite is true for the (controversial) aspiration treadmill, i.e., rising aspirations, as well as accumulation of consumption skills, in cases in which more intense behaviors are also more difficult.

However, it may be useful to start from the framework. In particular, we will begin discussing why a subject becomes bored by a consumption behavior (habituation) and why later she/he decides to change.

[4] Hedonic adaptation, innovativeness and the desire for novelty/variety can by alone explain escalation if the consumption behavior actually undertaken includes yet *all* the less intense ones, as in the case of skiing on red slopes (which, in general, also includes skiing on stretches of the slope that are easier and could be considered as blue and green slopes), engaging in harder sexual acts (which include softer ones), etc. In these cases, one can only escape boredom and/or habituation by engaging in more intense consumption acts or behaviors. However, for this to happen, the subject must have escalated in the past, i.e., he has already experienced *all* less intense behaviors, such that only more intense behaviors remain as novelties. In other words, in such a context, past escalation is the cause of future escalation.

2.1 Hedonic adaptation

The first behavioral economics construct that can help to explain escalation, and in particular to explain why people become bored by repeating a consumption behavior, is hedonic adaptation. Subsequent to the seminal contribution from Brickman and Campbell (1971), recent theoretical contributions on hedonic adaptation in economics include Clark and Oswald (1994), Clark (1999), Di Tella et al. (2003), Clark et al. (2004), Stutzer (2004), Layard (2005), Oswald and Powdthavee (2006), D'Orlando and Ferrante (2008 and 2009), and D'Orlando, Ferrante and Ruiu (2011).

Hedonic adaptation is founded on the empirical finding that people adapt to life events: "[l]ife events such as marriage, loss of a job, and serious injury may deflect a person above or below [her/his] setpoint, but in time hedonic adaptation will return an individual to the initial setpoint" (Easterlin 2003, p. 1). In the same way, consuming a different good, or undertaking a different consumption behavior, increases well-being in the first stage; but, later, the consumer suffers habituation and her/his well-being returns to the baseline level. Thus, if a subject aims to remain above the baseline, she/he has to change the good that she/he consumes or the behavior that she/he undertakes.

The existence of a baseline level of well-being towards which actual well-being tends to return is a crucial characteristic of the hedonic adaptation approach. Subsequent to the controversial paper by Brickman et al. (1978), strong empirical evidence on hedonic adaptation has been reported in psychological journals (see, e.g., Diener et al. 1999, Frederick and Loewenstein 1999, Oswald and Powdthavee 2006), even if it is still disputed as to whether or not adaptation is complete or incomplete, i.e., whether life shocks have a permanent effect on the long-period level of agents' well-being: some authors maintain that, as subjects can approach but never attain their baseline level of well-being, an irreversible loss would persist for negative life events, and an irreversible gain for positive life events.[5]

2.2 Innovativeness, desire for novelty and accumulation of consumption skills

Other behavioral economics constructs which can facilitate an explanation of escalation are innovativeness and desire for novelty or variety (see, e.g., Scitovsky 1972 and 1992, Hirschman 1980, Bianchi 2002, Chai 2012), which drive the consumer to become bored with the good that she/he has consumed or the behavior that she/he has engaged in for a certain period of time and hence to search for different ones. While, in the hedonic adaptation approach, the emphasis is on the reasons that cause a subject to cut off the "old" consumption behavior (or the consumption

[5] For a discussion on the theme of complete or incomplete adaptation and the setpoint hypothesis, see Easterlin (2003) and Lucas et al. (2003).

of the "old" good), due to rising boredom, here, the emphasis is on the reasons that cause a subject to change to the "new" behavior (or to the consumption of the "new" good).

In particular, innovativeness is a behavioral construct which has received great attention in the literature (Robertson 1971, Rogers and Shoemaker 1971, Midgley 1976, Midgley and Dowling 1978). This concept represents the willingness and ability of a subject to adopt novel goods, services or ideas before or independent of other members of her/his social system. Since it can be seen as the willingness of a consuming population to adopt an innovation, innovativeness is necessary to make an otherwise static marketplace dynamic. Indeed, if nobody was willing to accept and purchase novel goods or services, "consumer behavior would consist of a series of routinised buying responses to a static set of products" (Hirschman 1980, p. 283). It follows that, without innovativeness, escalation would only be possible through the imitation of others' behaviors and inevitably tend towards zero in the long run, when all others' behaviors will be imitated.

Regarding the possible causes of innovativeness, while some studies assume that this attitude is given for each individual in different degrees, thus considering it as a sort of genetic constant, others suggest that it is correlated to social variables, such as education, occupational status and urbanization (Rogers and Shoemaker 1971).

However, innovativeness is only a prerequisite for escalation, a necessary but not sufficient condition, since it can explain the desire for change, without which escalation cannot exist. That said, it cannot explain why our skier decides to escalate to more difficult slopes and not, for example, why she/he decides to leave skiing for skateboarding.

Novelty seeking and variety seeking are similar behavioral constructs which represent the propensity to seek out new and potentially discrepant information or to vary the choice between already known stimuli (McClelland 1955, Maddi 1961, Rogers 1962, Acker and McReynolds 1967, Farley and Farley 1967, Cattel 1975). Some reasons which might explain why individuals are willing to seek information have been discussed in the literature on this theme (Hirschman 1980) and are particularly important to any explanation of escalation. In this respect, the first aim of these behaviors is to store data that can become useful for future consumption behaviors, even though, right now, they are not, since future consumption problems are unknown today, but likely to occur tomorrow. A second purpose is to collect data to improve consumption performances, that is, to accumulate consumption skills (for example, the ability to ski).

Indeed, for certain goods or consumption behaviors, through continuous consumption or continuously engaging in a specific consumption behavior, people i) acquire information on consumption alternatives that they did not possess when they made their first consumption

choice, and/or ii) acquire the skills necessary to engage in different, more intense consumption behaviors, and/or iii) acquire the skills necessary to extract more well-being from these behaviors. Hence, skills are accumulated through past consumption of less intense goods or through undertaking less intense consumption behaviors [6] When people become able to undertake the new consumption behavior and know that they can extract more well-being from the new, rather than from the old, consumption behavior, they change.[7]

Therefore, from such a perspective, the desire for variety/novelty arises, since new information gives us different (greater) expectations on well-being deriving from alternative choices and/or because of an increase in the well-being derived from alternative choices, and not from a reduction in the well-being derived from current choices, as in the hedonic adaptation scenario. Put another way, we can justify why a subject chose x^1 instead of x^2 on the basis of a lack of information about the capacity of x^2 to enhance well-being and/or the impossibility of extracting enough well-being from consuming x^2 (or even to undertake that behavior), due to insufficient training. More information and/or more training will hence reverse the contribution of consumption behaviors to well-being and reverse the choice.

In the particular case in which more intense consumption behaviors also require more skills (i.e., if they are more difficult to undertake, as in the case of black and red slopes), skill accumulation can explain escalation; otherwise, it can only explain change.

2.3 The aspiration treadmill

The so-called "aspiration treadmill", first proposed by Kahneman (1999), can be added to the list of the possible endogenous causes of escalation. This construct is quite controversial, since later Kahneman himself (Kahneman 2008) reached the conclusion that the empirical proof of the treadmill was inconclusive. However, we use the treadmill for the (different) scope of explaining escalation; and, since this choice also requires a different definition of the construct, the limits of its original version appear less relevant.

The aspiration treadmill was first proposed to explain why people in the richest countries do not claim to be much more satisfied than people in poorer countries. According to Kahneman (2008, p. 1): "Californians are accustomed to a pleasant life and come to expect more pleasure than the

[6] Consumption skills were discussed in depth by Scitovsky (1992). Scitovsky's approach has been extensively applied in the theoretical analysis of happiness (see, e.g., Bianchi 2007), art (see, e.g., Chartrand 1987, Hutter and Shusterman 2006), sport (see, e.g., Gratton and Taylor 2000), fashion (see, e.g., Corneo and Jeanne 1999), tourism (see, e.g., Richards 2001), and gastronomy (see, e.g., Richards 2002).

[7] Inevitably, escalation happens if the new information increase expected well-being derived from alternative consumption behaviors: nothing prevents us from receiving bad news and seeing our expected well-being undermined. In this case, escalation does not happen.

unfortunate residents of other states. Because they have a high standard for what a life should be, Californians are not more satisfied than others, although they are actually happier." In other words, better life conditions modify what one considers to be essential for a good life, increasing one's aspirations: if the subject finally succeeds in winning a ski race, she/he will then want to win her/his country's skiing championship, a target that, until the day before, the subject did not even consider to be a possibility. When she/he finally wins her/his country championship, she/he next wants to win the world championship.

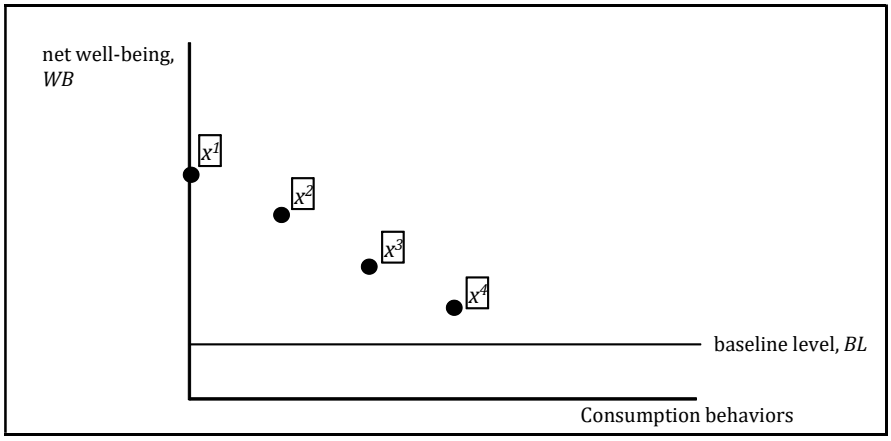
Even if, as we said above, the empirical data seem incapable of justifying the use of the aspiration treadmill for discussing the happiness paradox, i.e., for the original scope pursued by Kahneman, the treadmill can be used for a different scope, namely, to justify escalation. It could be argued that, in the beginning, a subject might consider some consumption behavior to be too difficult, or too intense, for her/him to be undertaken. She/he has just learned skiing and is not even thinking about winning (or even participating in) the world ski championship. But, when the subject achieves some small successes, she/he begins to expand her/his aspirations, to the point where consumption behaviors, which she/he previously considered to be outside her/his choice set, have now enter this set. Furthermore, the aspiration treadmill reduces the well-being derived from low-level consumption behaviors when one increases her/his aspirations.

2.4 Putting together the different approaches

Altogether, hedonic adaptation, innovativeness, novelty and variety seeking, and the accumulation of consumption skills[8] can explain escalation as follows. At time 0, the subject makes a choice that she/he considers as preferable on the basis of the combination of information and skills that she/he possesses. If the options are those represented in Figure 1 (x^1, x^2, x^3 and x^4), the best choice is to consume the good/undertake the behavior x^1 which gives the consumer the highest level of net well-being (we shall formalize this choice in Section 4 below). Thus, the subject chooses x^1.

[8] We will address the aspiration treadmill at the end of this section.

Figure 1



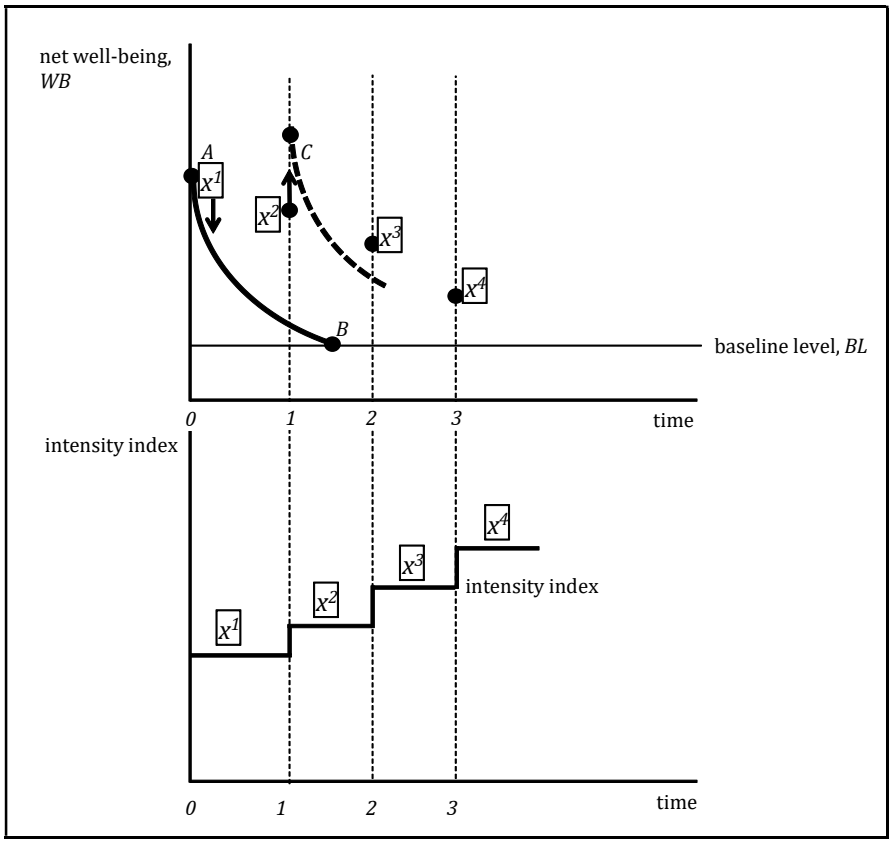
Immediately, a process of habituation begins. This process reduces well-being derived from the initial choice; meanwhile, the accumulation of new information and consumption skills, through actual consumption, increases the expected well-being derived from the alternative choices (and/or makes the subject capable of undertaking these alternative consumption behaviors). Thus, the subject changes. The process is described in the first graph of Figure 2. In the beginning (Point A), the consumer is satisfied by the good x^1 that she/he is acquiring, or the behavior x^1 that she/he is undertaking, which is capable of pushing her/him above the baseline level of well-being and also above the level of well-being expected from the alternatives. Later, however, she/he becomes bored by x^1 and suffers from habituation, such that well-being slowly returns to the baseline (Point B). In the meantime, she/he acquires information on the alternatives and accumulates consumption skills, which increase well-being derived from these alternatives, for example, x^2.[9] For the consumer, it is hence fully rational to change her/his behavior, to consume a different good or undertake a different behavior, in this case the good/behavior x^2, capable of pushing again her/his well-being above the baseline and above the well-being that she/he can obtain when consuming x^1 (Point C):[10] blue slopes instead of green, faster cars, harder pornography, all goods/behaviors

[9] In the cases in which information and skill accumulation drives the well-being coming from the alternatives (x^2 in this case) above the level of initial (i.e., before habituation) well-being coming from the initial choice (x^1 in this case), the main cause of escalation is information and skill accumulation; otherwise, the main cause of escalation is boredom, i.e., hedonic adaptation. Both outcomes are possible.

[10] To make the graphic representation easier to read, we are making the implicit assumption that, in the first phase, accumulation of new information and of consumption skills only impacts x^2, and not x^3 and x^4: skiing for a long time on green slopes enables us to ski on (and extract more well-being from) blue slopes, but not to ski on red or black slopes. However, our main conclusions are not based on this assumption.

she/he could also consume/undertake at time 0, but that she/he had discarded. However, as habituation starts over again, well-being that can be extracted from x^2 reduces, whereas information and skill accumulation increases the well-being that one expects she/he can extract from the alternatives, so the subject will have to change again, and so on, without there ever being an end. The only way in which a consumer can steadily remain above the baseline level of well-being is to continuously change the good she/he consumes or the behavior she/he undertakes.

Figure 2



In general, economic theory can explain the shift from consuming x^1 to consuming x^2, in the case of a consumer who had previously preferred x^1 to x^2, only on the basis of a change in the relative cost or in the relative contribution to well-being of the two goods. If the cost remains unchanged, the consumer will shift from x^1 to x^2 only if the relative contribution to well-being of x^1 falls with respect to that of x^2 (or, but it is the same thing, if the relative contribution to well-being of x^2 rises with respect to that of x^1). This is exactly what happens in the above-described scenario: consumption generates habituation which reduces the relative contribution to well-being of x^1; skill

accumulation makes the consumer capable of (consuming x^2 and) extracting more well-being from consuming x^2. As a result, consumers' choice to shift to consuming x^2, whose relative contribution to well-being has increased, becomes a rational choice.

Therefore, escalation is a complex phenomenon which can be explained by combining theoretical explanations of why people lose interest in less intense consumption behaviors (innovativeness, desire for novelty, hedonic adaptation, and habituation) and theoretical explanations of why people, over time, increase the well-being they can extract from more intense consumption acts (skill accumulation through past consumption).

But, why do people escalate, rather than simply change? Furthermore, why do people initially choose x^1 and later escalate to the more intense consumption behavior x^2 also in situations where they know, from the beginning, the well-being furnished by x^2, possess enough skills to extract this well-being and more intense consumption behaviors are *not* more difficult?[11] A first possible explanation of escalation in such a circumstance can be proposed by adding the aspiration treadmill to our analysis (more general explanations will require a discussion on the exogenous causes of escalation).

Once rising aspirations are taken into full consideration, we must acknowledge the possibility that, suddenly, due to the success derived from undertaking the "old" consumption behavior, within subjects' set of possible choices, there appear to be other higher-level alternatives, which the subject had previously discarded having considered them too extreme. These alternatives are characterized by higher levels of intensity and higher well-being, since by definition rising aspirations implies wanting "more". As such, escalation can be the result.

It is certainly possible to include rising aspirations within the already discussed concept of skill accumulation and information acquisition; but, we believe that such a choice would not allow the specificity of the process to be grasped: the subject knew, from the first moment, the existence of this option (for example, harder sexual acts) and the attached level of well-being, as well as that she/he was fully capable of undertaking such a behavior. Hence, it is not a problem of a lack of skills or information, it is a problem of judgment: she/he discarded the consumption act since she/he considered it too extreme. Later, after having engaged in similar but less extreme (for example, sexual)

[11] As we discussed above, if more intense consumption behaviors generate more well-being, while being more difficult to be undertaken, accumulation of consumption skills can fully and exclusively explain escalation.

acts, she/he feels ready to include the new consumption behavior within her/his choice set.

However, independent of the possibility of including the aspiration treadmill within the skill/information accumulation approach, we know that this theoretical construct is quite controversial. Thus, we have to evaluate whether other, possibly more robust, causes for escalation exist. Indeed, these more robust causes exist and can be found in some exogenous forces. These exogenous determinants have a key role: reducing both the well-being that one can extract from less intense consumption behaviors and increasing the well-being one can extract from more intense consumption behaviors, they lead to true escalation and not simply change.

3. The exogenous causes of escalation: envy, positional effects and the innate tendency to escalate

It is commonly acknowledged that, in many cases, consumption behaviors are influenced by consumption choices made by others. This is also true for escalating consumption behaviors. In particular, positional effects and envy (i.e., the escalation process of others) can be considered to be among the exogenous causes of escalation.

3.1 Positional effects and envy

In this respect, it is worth considering the symbolic meanings of consumption, which have been investigated since the 1950s: according to Levy (1959, p. 118), "people buy products not only for what they can *do*, but also for what they *mean*". The same authors have also examined the concept of congruence between people's lifestyle and the meaning of products they purchase (Gardner and Levy 1963). This literature might explain another determinant of escalation, that is, if one needs to keep her/his social position.[12]

When discussing the possibility that social position or, more generally, social interaction, plays a role in escalation, the theoretical interest inevitably must focus on concepts such as envy,

[12] Other studies have in turn discussed the topic in terms of the tension between utilitarian and hedonic theory (Westbrook and Black 1985, Batra and Athola 1990, Babin et al. 1994, Strahilevitz and Myers 1998, Voss and Spangenberg 2003, Carpenter and Fairhurst 2005) or between vices and virtues, as the roots of purchasing certain goods (Wertenbroch 1998). For example, a product such as a plant could be bought for a hedonic reason (it smells or looks pleasant) and/or a utility reason (it provides oxygen). Maslow (1940) studied the topic by focusing on the way in which people set up their priorities and determine their aims. Pooler (2003) further argued that, once lower-order needs are satisfied through shopping, higher-order needs emerge, which must be satisfied as well.

positional effects, preferences for status, conspicuous consumption, etc.[13] In these cases, subjects' well-being depends upon their position in a somewhat defined economic hierarchy, and hence on others' behaviors, income or wealth. Although most studies emphasize the well-being losses derived from these positional effects (see, e.g., Frank 2005), we will discuss the possibility that these concepts can on the contrary increase well-being by generating escalation. We will focus in particular on envy.

According to Goel and Thakor (2005, p. 2256), "the inclusion of envy in an individual's preferences means that the individual cares not only about his own absolute consumption but also about how his consumption compares with that of a reference group; he gains utility when his consumption exceeds his reference group's, and loses utility when his consumption falls below the reference group's". However, the different definition proposed by Parrot and Smith better fits our purpose by referring more to quality than quantity of consumption: according to these authors, envy "occurs when a person lacks another's superior quality, achievement, or possession and either desires it or wishes that the other lacked it" (Parrot and Smith 1993, p. 906).[14]

Economic theory of envy has highlighted some aspects about this concept, such as: characteristics for products to elicit envy; the similarity of the initial social condition of being envious and envied; the difference between constructive and destructive envy. In all of them, implicitly or explicitly, a key role is played either by consumed quantities or by an index of preference which identifies goods and behaviors that generate envy.

Among the characteristics necessary for products to elicit envy, researchers underline reference group effects and conspicuous consumption (Bearden and Etzel 1982) which more likely affect luxury goods. Visibility and audibility are also necessary to provoke envy, since it is difficult to be envious of something that is not noticed. Finally, the more difficult it is to own a product, the more it may elicit envy in those people who do not possess it; thus, exclusivity appears to be another important condition of envy.

Furthermore, a subject appears to be frustrated when she/he envies something that another subject possesses. This frustration has important implications for escalation in consumption. The subject could try to level the difference between her/him and the other and to eliminate the frustration in two ways: by making efforts to reach the other position (constructive or benign or

[13] A review of the economics literature on envy can be found in Chaudhuri (1985), Hammond (1989), Mui (1995) and Kolm (1995).

[14] In most cases, studies on envy have focused on the quantitative level of consumption rather than on the escalation to more intense consumption behaviors (see, e.g., Grolleau, Mzoughi and Sutan 2006). On the contrary, here we consider envy as a cause of the escalation to higher-level consumption behaviors, not as a cause of escalation to more consumption.

white envy) or to make the other loose her/his possession (disruptive or malicious or black envy) (Corneo and Jeanne 1999, Belk 1985, Grolleau, Mzoughi and Sutan 2006). While the first kind of envy is said to foster economic growth by increasing consumers' spending and purchasing rates, the second appears to reduce subjective well-being and life satisfaction. The two kinds of envy are not mutually exclusive and seem to coexist frequently.

According to Van De Ven, Zeelenberg and Pieters (2010), the actual type of envy depends on the perceived deservingness of the other's advantage. The same authors conducted an experiment, which revealed a more complex theoretical frame, as follows:

1. When the advantage derived from the possession of a good or service is perceived as deserved, the envious person has a greater willingness to pay to purchase that good or service and level the difference, hence her/his "envy premium" is higher.
2. When the good or service is perceived as not deserved, the envious person may take two different paths: a) a destructive path aimed at destroying the other's possession (for instance, sabotaging the other's car) or b) a differentiation path aimed at finding alternative options (purchasing a motorcycle) which would also show a high willingness to pay and envy premium, although not directed toward that good or service but toward a similar one.

As far as escalation in consumption is concerned, only the paths in 1) and 2b) seem to be relevant motivations in explaining change towards higher-level goods or consumption behaviors. Let us consider a subject who possesses a fast car. If her/his neighbor buys a faster car, the first subject may decide to make an effort to purchase the same car (1) or she/he may prefer to purchase a similar car or a motorcycle (2b). The third alternative (2a), which in extreme cases may lead to the sabotage of the neighbor's new car, would not be linked to escalation in consumption.

Envy could also foster escalation in the case of conspicuous consumption, or positional consumption, i.e., when people increase consumption because they *desire to be envied* (or admired or esteemed). For instance, Veblen ([1899]1970, p. 32) considers the "desire to excel in pecuniary standing and so gain the esteem and envy of one's fellow-men" one of the main "incentives to acquisition and accumulation". No relevant difference distinguishes this latter case, which we can name as active envy, from the standard case of passive envy: in both cases, envy might reduce well-being derived from the currently undertaken consumption behavior and increase well-being deriving from the alternative. For what concerns the reduction in well-being due to the currently undertaken consumption behavior, in the case of active envy, this happens if the subject suddenly understands that her/his behavior is incapable of generating enough envy in others. Meanwhile, in the case of passive envy, this happens if the subject suddenly understands that her/his behavior is different from that undertaken by the reference subject (or group), and hence it is less

valuable than previously considered. For what concerns the increase in well-being due to alternative consumption behavior, in the case of active envy, this happens if the subject suddenly understands that the alternative behavior is capable of generating envy or admiration in others. Meanwhile, in the case of passive envy, this happens if the subject understands that the alternative behavior is that undertaken by the reference subject (or group); for this reason, it is more valuable than previously considered.

Finally, envy can also impact on the well-being generated by the currently undertaken consumption behavior in a different way, i.e., (at least partially) compensating for habituation. This is true given that, until the time when others succeed in escalating to the subject's higher-level consumption behavior, the subject will continue undertaking a consumption behavior at a higher-than-average level, i.e., continue generating envy in others. This circumstance increases well-being by preventing (at least partially) the reduction caused by hedonic adaptation: my car is still the fastest on the highway, I pass all other cars and I am always, every day, happier and happier by generating envy in their drivers who unsuccessfully try to resist. Habituation will hence slow down, at least until others succeed in reaching the subject's consumption level.

Summing up, envy can impact on escalation in the following ways:

i. It reduces (and/or accelerates the reduction of) the well-being generated by the currently undertaken consumption behavior if different from that undertaken by the reference subject (or group), or if this behavior is recognized as no more capable of generating envy on others.

ii. It increases (and/or accelerates the increase of) the well-being generated by the alternative consumption behavior if this alternative is that undertaken by the reference subject (or group) or if this alternative is recognized as capable of generating envy in others.

iii. It slows down habituation if the consumption behavior actually undertaken is of a higher-than-average level, as long as others do not succeed in escalating to it.

iv. It allows the spread of information from the reference subject (or groups) to the envious subject (or to the subject who wants to be envied) on goods or behaviors that she/he had previously discarded not considering them as capable of generating enough well-being, independently from the circumstance that these behaviors can generate active or passive envy, and that now she/he has revaluated.

3.2 Escalation as an innate human behavior

It remains for us to discuss the possibility that escalation, in lieu of being the result of a combination of a number of different psychological constructs, is a specific innate behavior

inherent to human nature. This might be testified by numerous examples in which human beings try to overcome others also in the event that such a behavior cannot generate a concrete reward.

Indeed, the possibility certainly exists that subjects' desire to escalate is linked to the human innate desire to excel, to surpass others, to be the first in any ranking, to win every race. A large share of our society, from amateur sports to politics, is based on this innate desire to excel, and in order to excel the existence of a somehow measurable ranking is necessary. However, even if such a behavior were an actual characteristic of human beings, it would be hardly differentiable with respect to behaviors characterized by the search for self esteem or the attempt to generate envy in others, i.e. obtain "others' esteem". In particular, a subject might wish to escalate to higher-intensity consumption behaviors, since she/he wants to demonstrate her/his superiority over other people, i.e., she/he wants to be envied. Conversely, the subject might wish to escalate to higher-intensity consumption behaviors since she/he wants to demonstrate to her/himself that she/he is capable of undertaking an higher-intensity consumption behavior, for a self-esteem motivation or, as one might say, to generate envy over her/himself. Inevitably, the first motivation, i.e., generating active envy, seems more commonplace than the second, i.e., generating self-esteem.

3.3 Summing up: all the possible causes of escalation

Summing up, we can divide the causes of escalation into three main categories: those that reduce the well-being derived from currently undertaken consumption behavior; those that increase the well-being derived from higher-intensity alternative consumption behaviors; and those that can generate escalation by alone (and, furthermore, if added to other causes).

Among the theoretical constructs capable of reducing the well-being arising from the currently undertaken consumption choice, we can find: i) boredom caused by hedonic adaptation; ii) passive envy caused by the acknowledgment that the reference subject or group consumes a different good or undertakes a different consumption behavior. Ceteris paribus, these circumstances can generate a modification in consumption behaviors, a prerequisite for escalation, but not escalation by alone.

Among the theoretical constructs capable of increasing the well-being arising from alternative consumption behaviors, we can find: i) accumulation of consumption skills, that allows the subject to extract more well-being from previously discarded consumption choices; ii) accumulation of consumption skills, that allows the subject to consume a good or undertake a consumption behavior that she/he could previously not consume or undertake due to insufficient training; iii) novelty and variety seeking, that allows the subject to acquire more information on different consumption choices, thus (in the case of good news) increasing the

expected well-being coming from alternative goods and/or consumption behaviors - in this case, the well-being associated with the alternatives does not change over time, it was the subject that, in the beginning, suffered from incomplete information. Ceteris paribus, also these circumstances can generate a modification in consumption behaviors, a prerequisite for escalation, but not escalation by alone.

Finally, among the theoretical constructs that can generate escalation by alone, and furthermore if added to other constructs, we find: i) boredom caused by hedonic adaptation in cases in which all less intense consumption behaviors are already included in the actually undertaken consumption behavior, so that only higher-intensity behaviors remain; ii) accumulation of consumption skills in the case in which more intense consumption behaviors are also more difficult to be undertaken, that allows the subject to consume a good or undertake a consumption behavior which she/he could previously not consume or undertake, due to insufficient training; iii) rising aspirations, that allow the subject to include, within her/his choice set, consumption behaviors that, before undertaking the current consumption behavior, she/he considered too extreme and outside this set; iv) passive envy caused by the acknowledgment that the reference subject or group consumes a specific good or undertakes a specific behavior, which, in the beginning, the subject had considered inadequate, but that now she/he has revaluated and considers higher in intensity due to the circumstance that the reference subject or group consumes or undertakes it - in this case, the well-being associated with the alternatives has changed over time; and, in the beginning, the subject did not suffer from incomplete information; v) the desire to generate active envy (or a natural tendency to escalate in order to generate active envy); vi) the desire to generate self-esteem (or a natural tendency to escalate in order to generate self-esteem).

4. A preliminary formalization

Within the framework depicted above, escalation can be formalized as follows.

Suppose that, at t=0, the subject enjoys a level of well-being which corresponds to her/his baseline level $\overline{BL}$.[15] She/he now has to decide whether or not to buy a good/undertake a consumption behavior. Furthermore, she/he has to decide which good to buy or which consumption behavior to undertake from among the many possible alternatives of the same kind (which car?, which slope?). The subject's time-horizon is T, i.e., she/he thinks that she/he will be able to consume the good, or undertake the behavior, for a maximum of T days (or years, or

[15] Here, we consider well-being as consumer's overall satisfaction on a daily basis, and the baseline level is the overall satisfaction derived from the activities (other than consuming the good) the consumer is already engaged with. It should be borne in mind that well-being is different from the marginal utility of (a dose of) the good.

whatever time unit is involved). *T* might also correspond to the subject's entire life expectancy; but, in general, it will be a smaller amount of time, mostly depending on the kind of good that she/he is buying or the kind of consumption behavior she/he is undertaking. We will assume that *T* is uniquely determined by the characteristics of the good or consumption behavior. If x^1 is the good, the service or the consumption behavior, we will also assume that either the subject pays the price for it at time t=1 and continuously consumes it for the entire time span from t=1 to *Tx1* (where *Tx1* is the time horizon for good/behavior x^1), or the subject repeats the payment of the price for it in each period from t=1 to *Tx1* and continuously undertakes the consumption behavior for the entire time span from t=1 to *Tx1*. The price may also include psychological costs (as in the case of social stigma derived from some consumption behaviors, for example, swinging couples) and opportunity costs.[16] Furthermore, we suppose that the subject *considers* consuming good x^1, or undertaking behavior x^1, to be incapable of generating (negative or positive) future effects for her/his levels of well-being from the end of the time horizon onward.

A rational subject will acquire the good (or the service) or undertake the consumption behavior x^1, if by doing so she/he will increase her/his net well-being for the entire time span and if this increase is greater than what she/he can obtain by acquiring another good of the same kind of, but alternative to, x^1 (faster cars or slower cars), or by undertaking another consumption behavior of the same kind of, but alternative to, x^1 (blue or red ski slopes), i.e., if[17]

$$\sum_{t=1}^{Tx1}\frac{1}{(1+\gamma)^{t-1}}\overline{BL}+\sum_{t=1}^{Tx1}\frac{1}{(1+\gamma)^{t-1}}WBx_t^1-\sum_{t=1}^{Tx1}\frac{1}{(1+\gamma)^{t-1}}Cx_t^1>\sum_{t=1}^{Tx1}\frac{1}{(1+\gamma)^{t-1}}\overline{BL} \tag{1}$$

and

$$\sum_{t=1}^{Tx1}\frac{1}{(1+\gamma)^{t-1}}\overline{BL}+\sum_{t=1}^{Tx1}\frac{1}{(1+\gamma)^{t-1}}WBx_t^1-\sum_{t=1}^{Tx1}\frac{1}{(1+\gamma)^{t-1}}Cx_t^1>\sum_{t=1}^{Txi}\frac{1}{(1+\gamma)^{t-1}}\overline{BL}+$$
$$+\sum_{t=1}^{Txi}\frac{1}{(1+\gamma)^{t-1}}WBx_t^i-\sum_{t=1}^{Txi}\frac{1}{(1+\gamma)^{t-1}}Cx_t^i \qquad \forall i \tag{2}$$

In relations (1)-(2), x^i, with $\{i:0<i\le N\}$, represents N different goods, or consumption behaviors, of the same kind but alternative to each other; $\sum_{t=1}^{Tx1}\frac{1}{(1+\gamma)^{\tau-1}}\overline{BL}$ is the (discounted) sum of gross well-being that the consumer assumes she/he will get independently of consuming

[16] Psychological costs, such as social stigma, can be considered as the opposite of envy, and have an opposite impact on the dynamic we are describing.

[17] According to standard economic theory, when choosing from among alternative activities and/or goods, the consumer will engage in the behaviors and/or buy the goods which maximize her/his intertemporal net well-being. Later, we will also discuss the behavior of ultra-naïve consumers who only consider their short-term well-being.

x^i for the entire time span from t=1 to $Tx1$; $\sum_{t=1}^{Tx1}\frac{1}{(1+\gamma)^{\tau-1}}WBx_t^1$ is the (discounted) sum of gross well-being that the consumer assumes she/he will get from x^1 in each of the $Tx1$ units of the time span, if she/he buys the good or undertakes the behavior x^1; $\sum_{t=1}^{Tx1}\frac{1}{(1+\gamma)^{t-1}}Cx_t^1$ is the (discounted) sum of the costs that the consumer will have to pay in each of the $Tx1$ units of the time span, if she/he buys the good or undertakes the behavior x^1 (in the case of an ex ante unique payment, $Cx_{t=1}^1=\overline{Cx^1}$ and $Cx_{t\neq1}^1=0\ \forall t$), with these costs including psychological costs, such as social stigma, and opportunity costs; $Tx1$ is the time horizon for good/behavior x^1; finally, $\frac{1}{(1+\gamma)^{t-1}}$ is the discount factor (γ is the subjective time preference: the greater γ is, the more the consumer prefers current to future consumption). The same holds for any x^i.

A naïve consumer will assume that, in each of the Txi units of the time span, the well-being WBx_t^i that she/he gets from each good or consumption behavior x^i will be constant, whereas a fully rational consumer will know that the well-being that she/he can extract from x^i will decrease over time, due to hedonic adaptation and passive envy. A fully rational consumer will also know that $WBx_t^{i\neq1}$ (with $\{i:1<i\leq N\}$) will change in different ways, due to skill accumulation and, again, envy. For the sake of simplicity, we will assume that consumers are naïve.[18]

Thus, if 1) and 2) hold, the consumer will buy the good/undertake the behavior x^1. By purchasing this good/undertaking this behavior, the consumer's well-being actually rises above its baseline level. For example, on the first day of consumption (t=1), her/his net well-being $NWBx^1{}_{t=1}=\overline{BL}+WBx_{t=1}^1-Cx_{t=1}^1$ may correspond to Point A in Figure 3. Now, a dynamic process of habituation starts. Slowly, the novelty of the good she/he has bought disappears, and her/his net well-being begins declining due to hedonic adaptation and envy. The dynamics of this decline may be represented by the following difference equation:

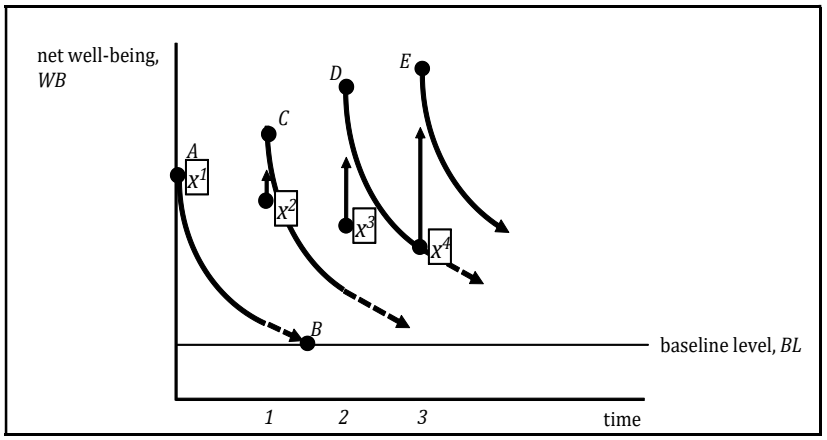
$$NWBx_t^1=NWBx_{t-1}^1-\lambda_t^1\cdot\alpha_t^1\cdot\left(NWBx_{t-1}^1-\overline{BL}\right) \tag{3}$$

With $\{t:1<t\leq Tx1\}$; $NWBx_{t=1}^1=\overline{BL}+WBx_{t=1}^1-Cx_{t=1}^1$; $0<\alpha_t^1<1$ and $\alpha_t^1=1$ if $NWBx_{t-1}^1\leq\overline{BL}+\varepsilon$, with ε close to zero, to account for the circumstance that people consider

[18] Assuming that consumers are naïve does not affect the main conclusions of the model, since, as we shall see below, sophisticated consumers and naïve consumers will behave in similar ways.

the baseline level of well-being to be reached when they are close enough to it, so that the dynamic is not asymptotic; $\lambda_t^1 = 1$ each time unit (e.g. day) the consumer buys the good or engages in the behavior, and $\lambda_t^1 = 0$ each time unit she/he does not consume the good or engage in the behavior. Finally, $NWBx_t^1$ represents net well-being in *t*. For the sake of simplicity, let us assume that our representative consumer consumes the good or undertakes the behavior every time unit, such that $\lambda_t^1 = 1 \; \forall t$. In such a framework, in each time unit *t*, the consumer's net well-being is given by the previous time unit net well-being derived from consuming the good $NWBx_{t-1}^1$, minus the progressive loss of well-being derived from habituation $\alpha_t^1 \cdot \left(NWBx_{t-1}^1 - \overline{BL} \right)$. Over time, the well-being tends toward its baseline level $\overline{BL}$.

Figure 3



It is worth noting that, in reality, it can easily happen that such a dynamic ends abruptly and the subject falls instantaneously to the baseline level of well-being due to social interaction, i.e., envy: yesterday, our neighbor bought an incredibly fast new car and we were immediately dissatisfied with our fantastic but slower car… Exogenous shocks are indeed quite common if we add envy to the model. In any case, even if we do not consider shocks, inevitably, the well-being that a subject can extract from consuming x^1 falls towards the baseline and, sooner or later, it will reach it.

However, as we have discussed in the preceding sections, in the meantime, habituation occurs alongside training, skill accumulation, increasing aspirations, etc., such that the subject becomes progressively aware of the possibility of extracting more well-being from more intensive choices,

which had been previously discarded, for example x^2. This dynamic might be represented by the following difference equation:[19]

$$WBx_t^2 = WBx_{t-1}^2 + \lambda_t^1 \cdot \beta_t^2 \cdot WBx_{t-1}^2 \tag{4}$$

Further, in this case, a positive shock (envy, again) might suddenly enhance well-being and jeopardize the dynamic.

In the absence of exogenous shocks, if well-being derived from the less intensive good or behavior (x^1) has diminished, and well-being derived from the more intensive good or behavior (x^2) has increased, it can easily happen that, at a certain time (Z), before habituation has carried well-being to the baseline,

$$\sum_{t=1}^{Tx2} \frac{1}{(1+\gamma)^{t-1}} \overline{BL} + \sum_{t=1}^{Tx2} \frac{1}{(1+\gamma)^{t-1}} WBx_t^2 - \sum_{t=1}^{Tx2} \frac{1}{(1+\gamma)^{t-1}} Cx_t^2 > \sum_{t=Z}^{Tx1} \frac{1}{(1+\gamma)^{t-1}} \overline{BL} + \\ + \sum_{t=Z}^{Tx1} \frac{1}{(1+\gamma)^{t-1}} WBx_t^1 - \sum_{t=Z}^{Tx1} \frac{1}{(1+\gamma)^{t-1}} Cx_t^1 \tag{5}$$

In such a circumstance, it is convenient for a rational consumer to shift from the old good or behavior (x^1) to the more intensive new good or behavior (x^2), i.e., escalate, since she/he can obtain an increase in intertemporal well-being by purchasing the more intense good or undertaking the more intense behavior, in turn reaching Point *C* in Figure 3.[20]

Meanwhile, an ultra-naïve consumer who considers only her/his short-term well-being will escalate, in this case, when:

$$\overline{BL} + WBx_t^2 - Cx_t^2 > \overline{BL} + WBx_t^1 - Cx_t^1 \tag{6}$$

On the contrary, when continuing to buy the "old" good or undertake the "old" behavior, net well-being would have continued its descending path towards Point *B*.

However, habituation also applies to this second consumption behavior, meaning that, from *C*, a new dynamic starts, and the consumer once again begins falling back towards the baseline level, and so on, consumption behavior after consumption behavior.

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[19] Skill accumulation impacts on the well-being that the subject can extract from x^2, but skill accumulates through the consumption of x^1, so λ refers to x^1.

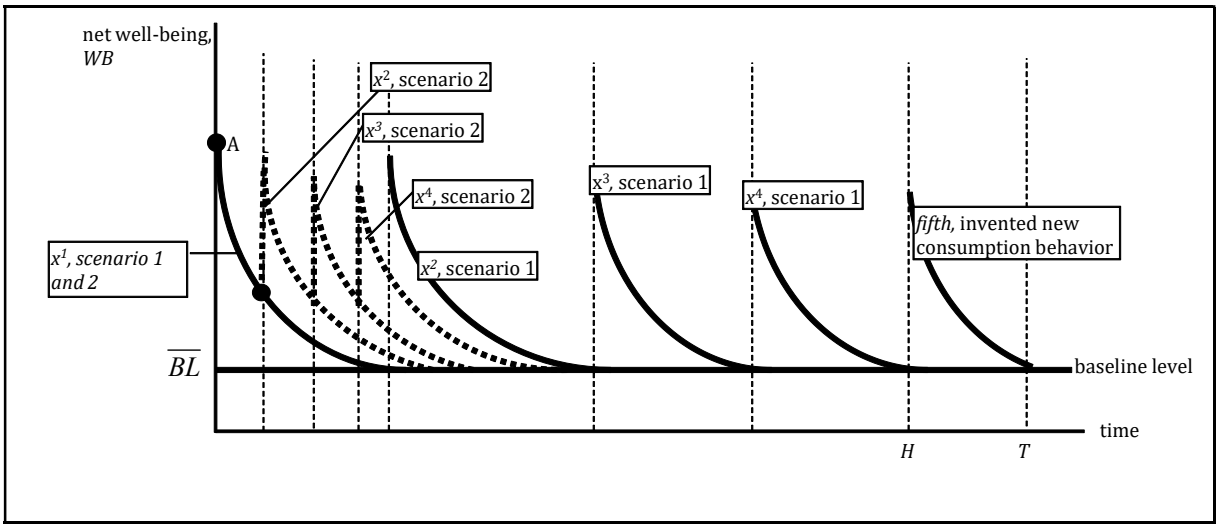
[20] It is worth noting that, in Figure 3 skill accumulation, rising aspirations and envy are assumed to more than compensate for the initial difference in levels of well-being, net of habituation (i.e., before the depletion caused by habituation), of the different goods/behaviors. If skill accumulation and envy do not fully compensate for the initial difference in levels of well-being, Point *C* will have a lower ordinate than Point *A*, and Point *D* will have a lower ordinate than Point *C*; if skill accumulation and envy exactly compensate for the initial difference in levels of well-being, Point *C* will have the same ordinate as Point *A*, as will Point *D*. In both cases, nothing would change in the logic of the model.

On the basis of the above considerations, a crucial implication emerges: by escalating, subjects maximize their intertemporal well-being. For a subject, it is perfectly rational to begin by consuming the less intense good, or undertaking the less intense consumption behavior; then, when hedonic adaptation and envy have reduced well-being derived from less intense consumption behaviors, and skill accumulation, envy and rising aspirations have enhanced the well-being derived from more intense consumption behaviors, there is a shift to more intense consumption behaviors. As a consequence, by escalating she/he maximizes her/his intertemporal well-being. Any different consumption path would generate less aggregate well-being.

However, the number of disposable higher-level accessible consumption alternatives has a relevant impact on consumers' behavior. Indeed, in the presence of a great number of higher-level consumption alternatives, a subject's best behavior would be to escalate as soon as Condition 5 is realized. On the contrary, when accessible alternatives are small in number, it is convenient to leave habituation do its job and reach the baseline level before escalating. The point is clarified in Figure 4 below, in which the assumption is made that there are only four possible consumption behaviors within the subject's life expectancy time span: x^1, x^2, x^3 and x^4. In "Scenario 1", the subject leaves escalation to do its job and reaches the baseline before escalating; in "Scenario 2", the subject escalates as soon as Condition 5 is realized, i.e., as soon as the sum of (discounted) well-being deriving from consumption behavior x^{j+1} becomes greater than the sum of (discounted) well-being derived from consumption behavior x^j. It is immediately clear that the sum of the areas representing cumulative well-being below the solid curves (which depict Scenario 1) is greater than the sum of the areas below the dot curves (which depict Scenario 2);[21] and that, by following the dot curves, the baseline level is reached sooner than by following the solid curves. In Figure 4, it is also made clear that, if anyone could invent a fifth consumption behavior and generate envy in others, envious people might escalate and fill the gap which exists between the end of the exploitation of consumption behavior x^4 (Point *H*) and the end of the time span considered here (Point *T*). In other words, people could reduce the time in which, having undertaken all the disposable consumption behaviors, they stay at the baseline level of well-being.

Figure 4

[21] This result is straightforward, since $\sum_{t=0}^{T} WBx_t^j > \sum_{t=0}^{T-Z} WBx_t^j$ if $Z>0$.



It is particularly important to emphasize the role played by envy and social interaction in the above described dynamics. Since well-being increases (or at least does not return to the baseline) when subjects change their consumption behaviors, and more often they change longer they stay above the baseline, positional concerns can boost well-being by boosting change. By imitating others' behaviors, by suffering passive envy, by observing the behaviors of the reference group, subjects are brought to change their behavior. Envy can hence be considered as one among the most powerful possible instruments capable of boosting change, and hence of increasing well-being.

In any case, continuously changing consumption choices by undertaking more intense behaviors, i.e. escalating, is fully rational and maximizes intertemporal well-being. Failing to do so, for example, due to budget constraints, leaves subjects with frustration and dissatisfaction, but these cannot be considered as consequences of escalation or of envy: on the contrary, they are consequences of failing to escalate. If the budget constraint allows for escalating, escalation is still the maximizing solution. Furthermore, the greater number of alternative consumption behaviors leading to escalation exist, the more frequently escalation occurs, the better. Policy interventions aimed at bounding escalation, such as de-growth policies, or limiting the number of escalating behaviors, inevitably undermine well-being.

5. Conclusions

In the previous sections, we have shown that, while escalation is an important behavior with numerous empirical recurrences, it has been virtually ignored by economic theory. We have proposed a definition of escalation, based on subjects' desire to engage in more intense

consumption behaviors, i.e. in consumption behaviors which give subjects more intense sensations, and have linked its manifestation to a number of psychological principles and models, such as accumulation of consumption skills, hedonic adaptation, envy, positional effects, conspicuous consumption, rising aspirations, and the desire for novelty/variety. In particular passive envy is a strong stimulus to change to more intense behaviors and hence exert a positive influence over well-being. We have also proposed a formal model which demonstrates that escalating is a fully rational behavior which maximizes subjects' intertemporal well-being. Put another way, people need to escalate.

Furthermore, more often people escalate, greater is the well-being they get. We believe that this is the main conclusion of taking escalation into adequate consideration, since all other implications are somehow a consequence of this principal conclusion.

The implications of the above conclusion mainly concern subjects' choices, which can be considered as microeconomic strategies, and government choices, which can be considered as economic policy strategies.

For what concerns microeconomic strategies, subjects who aim to maximizing well-being should knowingly transform consumption acts that satisfy a need, such as eating or wearing clothes, into consumption behaviors which can leave a space for escalation, such as eating in Michelin one-two-three-stars restaurants or wearing enviable clothes. In this way, the number of possible escalating behaviors increases, together with well-being. Furthermore, subjects should always search for alternatives to their consumption behaviors, imitating others' behaviors or inventing new behaviors for themselves. In addition, training should be a constant practice, independent of its costs.

Regarding economic policy strategies, first of all, the government should avoid public policies aimed at preventing escalation and envy, as well as policies that limit, in any way, the number of disposable more intense behavior alternatives, which have the relevant drawback of reducing intertemporal well-being. The diffusion of information, as well as training policies, must also be adequately designed, since this can allow people to immediately identify and undertake specifics behaviors in order to extract the maximum possible level of well-being, from the higher-level option, a circumstance that prevents escalation: if one begins skiing on black slopes without trying green, blue and red beforehand, she/he will soon be hit by boredom and fall to the baseline without the potential to escalate, due to the absence of higher-degree alternatives. Consistently, public intervention policies should not furnish people with all possible novelties at once, i.e., they should not push subjects towards the most intense consumption path at first, since, in a short time, habituation will send them to the baseline, where they will stay forever. On the contrary, policies aimed at maximizing well-being should let escalation happen by introducing

novelties, letting people escalate, letting habituation happen, letting people return to the baseline and then introducing other novelties, and so on.

However, both our study and our model represent only a preliminary, highly simplified discussion and the formalization of a complex and almost overlooked theme. In particular, a more detailed study of the formal properties of the model, together with the identification of other possible causes of escalation, appears necessary.

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