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How nudges and marketing, frame time preference “for your own good”: a behavioral model

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Marketing and nudges rely on choice framing to « do you good »: whether encouraging you to indulge in the pleasures of a pastry (marketing) or to save for retirement (nudges). What sets them apart? This article makes a threefold contribution in understanding their differences. First, it shows that marketing and nudges differ in their interpretation of “your interest”. Marketing emphasizes *immediate* gratification and succumbing to temptation, while nudges prioritize our *future* well-being. Second, this difference manifests itself in the role of *time preference*. Marketing exploits our lack of self-control to influence behavior, whereas nudges help individuals resist the lure of immediate rewards. In doing so, nudges overcome deep-rooted behavioral and neural mechanisms. Finally, the article develops a behavioral model common to marketing and nudges that shows how they use similar behavioral tools to promote and mitigate time preference, respectively.

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Introduction

Just as candy is intentionally placed at the checkout counter of a grocery store to encourage purchase (and consumption), an accessible, well-lit, clean staircase encourages people to take the stairs instead of the elevator. The first example of choice framing is called marketing, while the second is called a nudge. What makes them different?

The AMA defines *marketing* as “the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, marketers, and society at large” (Gundlach and Wilkie 2009). In this article, we focus on persuasive marketing techniques of *choice framing* that involves organizing options and framing the decision environment to influence choice. For example, the localization of items on shelves influences consumer attention and purchase decisions (Chandon et al. 2009; Gidlöf et al. 2017). Similarly, the framing of a promotion in terms of percentages or cents (DelVecchio et al. 2007) or of a product outage – out of stock, sold out, or unavailable – (Peterson et al. 2020) influences consumer choice. By carefully framing the choice, marketing urges us to buy that cake, watch those videos endlessly on the sofa, and give in to the temptation to buy.

Nudges, on the other hand, organize choices to help us *resist* chocolate, tobacco, and alcohol, to *exercise*, and to *save* for retirement. Nudges are subtle interventions or techniques that aim to influence people’s decisions and behaviors in a predictable way while respecting their freedom of choice (Sunstein 2018b; Thaler and Sunstein 2008). They represent a departure from the way economists study choice and decision-making, both in terms of their *theoretical hypotheses* and their *tools*. Drawing on principles from behavioral economics and psychology, nudges take advantage of cognitive biases, heuristics and social influences (Hansen 2016). They typically involve small changes to the decision-making environment, or in the way choices are presented to make certain options more appealing, salient, or easier to choose without eliminating alternatives.

The microdonation nudge is a compelling example. Barriers such as limited financial resources, aversion to administrative procedures, and forgetfulness often impede charitable giving (Castillo et al. 2021). Reducing the social distance between donors and recipients has traditionally been an effective approach to encouraging giving. Indeed, individuals have been shown to be more likely to contribute to causes related to the misfortunes of their friends or relatives (Small and Simonsohn 2008) or when there are similarities between themselves and the victims or the cause (Loewenstein and Small 2007). The microdonation nudge represents a significant departure from this principle. It suggests that consumers round up their purchases to the nearest dollar and donate those few cents to an organization (Kelting et al. 2019). This nudge encourages frequent microdonations rather than periodic contributions of larger amounts. There is no long-term commitment, no need for administrative formalities, and the effort required is minimal. The associated costs (money, time, mental burden) are minimal, and micro-donors feel satisfied and proud of their gesture.

The use of nudges is now widespread, and their applications are myriad. Two classes of nudges can be distinguished based on their intended *beneficiaries*. Some nudges, such as the microdonation nudge described above, are designed to induce *pro-social* behavior. Governments and associations use them to encourage blood donations (Stutzer et al. 2011) and flu vaccinations (Patel 2018). Others are designed to guide people toward decisions that are in *their* best interest and consistent with their long-term goals and well-being as judged by themselves (Thaler and Sunstein 2008). These *pro-self* nudges are used to help people

quit smoking, reduce alcohol consumption, exercise, or lose weight (Vlaev et al. 2016).

The article focuses on pro-self nudges and examines their relationship to marketing choice framing. Choice framing has long been a marketing tool to encourage purchase. It has proven effective in particular in retail strategies to influence purchase decisions by manipulating product assortment and display (Mou et al. 2018), in-store environment (Bawa et al. 1989), or sensory cues (Helmeffalk and Hultén 2017). Rather, it is only recently that economists have begun to consider the effect of how choices and information are presented on decisions (Congiu and Moscati 2020). Prior to the influential work of Kahneman and Tversky (1979) or Thaler and Sunstein (2008), economists generally did not recognize the potential effect of price or product display on consumer purchasing decisions. Now, with nudges, are economists simply rediscovering well-known marketing techniques? If not, what are the differences between choice framing in marketing and nudges – other than the fact that marketing is a whole and ancient field of research, while nudge theory is a specific and rather recent theory? These questions are important in the academic debate as there seems to be some confusion and differing interpretations of the terms “nudges” and “marketing”. Some authors, such as Cheung et al. (2021) and Singler (2015), define “nudge marketing” as the use of choice framing for marketing purposes, primarily focused on increasing sales. In contrast, others (Guerrassimoff and Thomas 2015; Kraak et al. 2017; Lee et al. 2020) describe “nudge marketing” as choice framing that prioritizes the best interests of the individuals being nudged, often promoting healthier or more sustainable consumption.

The nudges vs. marketing classification of choice framing is also relevant for practitioners. Nudges have gained a positive reputation as catalysts for virtuous actions while respecting individual autonomy and choice (Sunstein 2017, 2018a; Sunstein et al. 2019). Not surprisingly, companies are tempted to use them to increase their sales. However, when Zara offers to *recycle old clothes* while you shop, the question is whether this is really a nudge or more of a marketing strategy.¹ Similarly, is a choice framing that encourages the purchase of a smartwatch as a means to exercise – using features such as step counting, heart rate monitoring, and sleep quality assessment – really a nudge? Misrepresenting some marketing strategies as nudges carries some risks. It can backfire on the company if consumers feel manipulated or coerced into buying a product by misleading nudges. Moreover, if individuals perceive that the private company is putting its financial gain ahead of the public good, trust in the nudge concept as a whole may be compromised, undermining the ability of governments to implement nudges by making their use in public policy ineffective or counterproductive.

Drawing a clear distinction between nudges and marketing choice framing is therefore an important, yet complex, task. Although both frame the choice to influence the decision, the above definitions of nudges by Sunstein (2018b), Thaler and Sunstein (2008), and Hansen (2016) emphasize three elements that can be contrasted with marketing choice framing: the *tools*, the *theoretical underpinnings*, and the *beneficiary* of the choice framing. While nudges rely primarily on choice framing, marketing encompasses a broader set of tools and techniques to influence choice: audience research, segmentation, and marketing mix (Borden 1964; Kotler 2012). Theoretical underpinnings also differ, with nudges rooted in cognitive biases and departures from standard economic theory, while marketing draws from consumer psychology and related disciplines without a normative or rational decision-making model (Kotler 2012). Finally, the beneficiary of the choice framing distinguishes (pro-self) nudges, which aim to enhance the *nudgee’s* well-being, from marketing,

which primarily seeks to increase the seller's profits (Congiu and Moscati 2022).

However, these criteria are often not sufficient to confidently classify a choice framing as a nudge or marketing. The tool criterion does not allow for a distinction between the two, as both approaches use subtle changes in the environment or messages to shape behavior. They use similar strategies, such as appealing to social norms (x% of consumers found their skin more hydrated after using the product vs. x% of your peers successfully quit smoking), setting defaults (default tacit renewal subscription vs. default allocation to a retirement fund), or emphasizing salience (highlighting candy vs staircase) to influence decision making. Moreover, regardless of their assumptions about individual rationality, nudges and marketing draw on theoretical insights from psychology. Both tap into emotional processes and recognize that people often rely on heuristics, or mental shortcuts, rather than full information processing, to make decisions. Finally, distinguishing between nudges and marketing based on the intended beneficiary of the choice framing does not provide a clear distinction either. Both claim to benefit individuals, albeit in different ways. Through a well-designed choice framing, nudges aim to promote behaviors that are in the individual's best interest (e.g. healthier habits). Marketing, on the other hand, seeks to create positive consumer experiences, such as the thrill of purchasing a new product or the pleasure of indulging in a favorite snack.

Our research contributes to the ongoing debate on the distinction between marketing choice framing and (pro-self) nudge framing in three different ways. First, with the beneficiary being the chooser, the article shows that a difference between nudge and marketing lies in their *understanding* of "the chooser's interest". This question is related to the debate over the meaning of the *best interest* – known in the nudge literature as the "better off as judged by ourselves" criterion (Hansen 2016; Thaler and Sunstein 2008). The extensive literature on this topic (Lades and Delaney 2022; Sugden 2018; Sunstein 2015, 2018a) highlights its complicated and intricate nature: does ensuring that individuals are "better off" mean prioritizing their ex ante or ex post preferences (preferences before or after being framed with a green nudge)?² Their first-order or second-order preferences (disliking exercise versus wanting to enjoy it)? Their reflective or impulsive preferences (prioritizing health versus indulging in cake)? For marketing, "your best interest" is about pleasing yourself and giving in to *immediate* temptation (buying and consuming that cake or that glass of wine), whereas nudges are about "your *future* best interest" (being healthy). Marketing seems to target (though not exclusively) impulsive preferences, while nudges are more likely to target reflective preferences. However, this categorization does not fully capture the essence of their difference. We show that, to be operational, it requires a complementary criterion – implicit in particular in the reflective versus impulsive preferences dichotomy: the *role and place of time preference* ("the preference for immediate utility over delayed utility") (Frederick et al. 2002, p. 2) in the decision.³ Marketing *exploits time preference* to influence behavior (and get people to buy), whereas nudges get people to *resist the pull of immediate rewards* (and get them to save or exercise). Nudges help people *trade immediate* pleasures (eating that piece of cake) for greater *delayed* rewards (being healthy). In other words, they help people make the choices they would make *if they did not lack self-control* (Congiu and Moscati 2022; Thaler and Sunstein 2003).⁴

The third contribution of the article is to develop a *behavioral model* (see Fig. 1) common to nudges and marketing that shows how they use and combine the same behavioral tools (column 2 in Fig. 1) to achieve intermediate goals (see column 3 of Fig. 1), which ultimately lead to their final goal

(see column 4 of Fig. 1): purchase (marketing) or long-term well-being (nudges).

The remainder of the article is organized as displayed in Fig. 1. Section 1 shows what makes time preference a deep-rooted behavioral and neural mechanism. Section 2 introduces the behavioral tools used by nudges and marketing to guide decision making. Section 3 develops the common behavioral model for nudges and marketing. Section 4 concludes.

Time preference is a deep-rooted behavioral and neural mechanism

Economists have long been interested in the drivers of long-term rewards. According to Samuelson's (1937) model, intertemporal decisions are the result of a trade-off between present and delayed – but higher – utility. The longer the time horizon and/or the higher the discount rate (the rate used to determine the present – discounted – value of future outcomes) (Frederick et al. 2002), the higher the compensation required. However, the *observed* discount rate and/or compensation required for the choice of delayed payoff is high, even unrealistic (Frederick et al. 2002). A first explanation for this is that forgoing immediate consumption for a higher expected benefit in the long run is difficult because the long run (and therefore its reward) is *uncertain*. Will quitting smoking or exercising really prevent us from getting cancer or diabetes? Ellsberg (1961) shows that people are averse to *uncertainty*: the possibility that one's efforts may not produce the expected result is a source of pain, discouragement, and frustration that makes the short-term option all the more attractive. Moreover, the preference for immediate reward may also reflect an *aversion to a delayed* outcome (Rotter 2021). The work of Keren and Roelofsma (1995) compares the effects of uncertain and delayed rewards on preferences for immediate rewards. The authors find that when the immediate outcome is also uncertain, individuals show much less preference for it than when it is certain. Similarly, Rachlin, Raineri, and Cross (1991) show in their experiments that subjects discount an uncertain and a delayed reward in the same way. Choosing the long-term option requires therefore overcoming aversions and pains that are generally not taken into account when calculating the discount rate.

However, the decision to consume today rather than tomorrow is not solely the result of a short-term/long-term trade-off. A complementary approach emphasizes the *suffering* caused by *giving up immediate* consumption, regardless of whether we can have more tomorrow. It focuses on the displeasure and the suffering experienced in giving up present consumption in isolation (giving up this cigarette). For Senior (1836), cited by (Frederick et al. 2002), it is one of the most painful efforts of the human will.⁵ Our pain-avoidance behavior again favors the short-term option.

Neuroscience adds a final brick to the edifice that supports the fact that delaying gratification is an almost unbearable choice. Recent evidence suggests that, unlike immediate rewards, delayed rewards do not always *activate the neural reward system*. McClure et al. (2004) show that only immediate reward activates the limbic system, while delayed reward activates the areas of the cortex associated with deliberation and planning processes. The findings of Luo et al. (2009) support this view. According to the authors, when subjects are faced with two rewards (one immediate, the other delayed) between which they are indifferent, the neural excitation is greater for the immediate reward. The present and the future do not seem to be fighting on equal terms. The challenges that nudge and marketing face are not similar: while giving in to temptation is immediately rewarding, the path for nudges is more challenging because postponing or abstaining from consumption does little to activate people's reward circuitry.

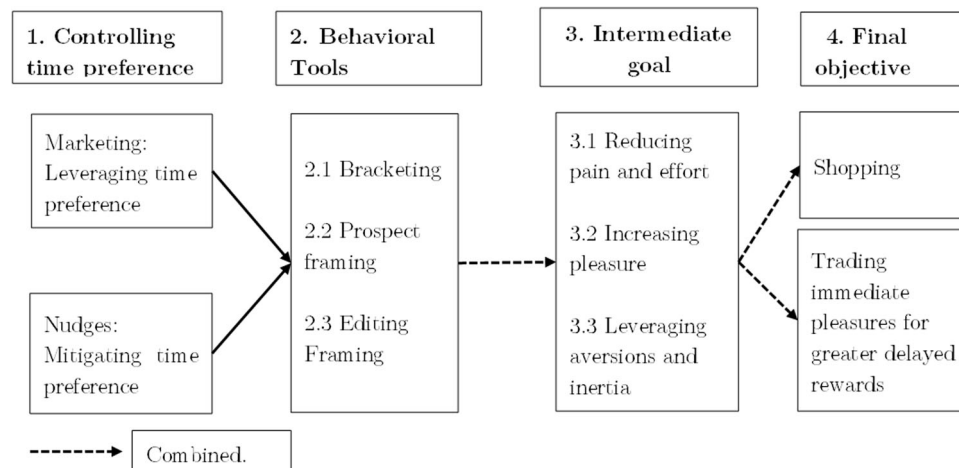


Fig. 1 The behavioral model. In this figure, the behavioral model shows how nudges and marketing use and combine the same behavioral tools (column 2) to achieve intermediate goals (column 3), which ultimately lead to their final goal (column 4): purchase (marketing) or long-term well-being (nudges).

A choice framing that steers choice toward the long-term option requires overcoming the uncertainty inherent in the long-term choice, activating the reward circuitry, and reducing the frustration associated with forgoing immediate pleasure. Nudges address all of these challenges, making them a methodological breakthrough. The behavioral model developed below describes how nudges and marketing use the same behavioral tools to achieve rather antagonistic goals.

Behavioral tools of choice framing

Nudges and marketing combine three behavioral tools to influence time preference (see Fig. 1): prospect framing (2.1), choice bracketing (2.2), and editing framing (2.3). They draw on the findings of behavioral economics, particularly prospect theory (Kahneman and Tversky 1979).

Prospect framing. Individuals evaluate situations relative to a reference point that translates the outcome of the decision into a gain or loss. Different reference points can lead to different decisions (De Martino et al. 2006; Kahneman et al. 1991).⁶ In the specific case of time preference, framing means choosing the reference point (presence or absence, cake visible or hidden) that is most likely to push the individuals toward the target behavior (immediate or delayed consumption) or discourage them from deviating from it.

The law of approach and avoidance states that “we move toward pleasure and away from pain” (Sharot 2017, p. 61). In neural terms, this means that our brains are wired to *act* in pursuit of pleasure or gain, whereas displeasure, danger, or loss tend to paralyze us into *inaction* (Guitart-Masip et al. 2012; Sharot 2017). To persuade people to *act* in the direction of the target behavior, the brain mechanisms that control movement suggest dressing up the target behavior with a *gain*. Highlighting the dangers of the current behavior would only reinforce inertia (much like a rabbit in the headlights of a car). To this end, prospect framing suggests choosing a reference point such that *engaging* in the target behavior (e.g. quitting smoking) will result in a (monetary) *gain*. On the other hand, to *discourage* the individual from taking *action* (e.g. turning away from the current virtuous behavior of sobriety), it is more effective to emphasize the *losses* that would result from abandoning the behavior (days of sobriety, self-esteem, badges). This prevents the individual from changing course by inhibiting the brain’s motor circuitry. Another way is to make the alternative behavior repulsive and

emphasize its dangers (e.g., no future pension). In both cases, the decision is framed in such a way that *action* is associated with *loss*.

Choice bracketing. Choice bracketing is the process of forming sets of individual choices (Read, Loewenstein, Rabin, et al. 1999). The consequences of choices that belong to the set are considered in the decision. The consequences of choices on decisions outside the set are not considered. If the set consists of a small number of choices (e.g., the decision to smoke one cigarette and its minimal health consequences), the decision is narrowly bracketed. If, instead, the set consists of 7,300 decisions to smoke a cigarette and the consequences of those 7,300 cigarettes on the person’s health, then the decision is said to be broadly bracketed.⁷ A bracketing effect occurs when the decision (to smoke or not smoke a cigarette) differs depending on whether the decision is narrowly or broadly bracketed. Narrow bracketing encourages enjoyment of the cigarette because it removes the deterrent effect of the risk. In contrast, broad bracketing and consideration of the negative health consequences of smoking may encourage quitting (or discourage starting). In this example, the bracketing influences the decision.

When choosing between two options, people naturally tend to bracket their choices to focus on only part of the choice (Read et al. 1999; Simon 1990). However, bracketing can also be used intentionally to bias a decision toward one option over another. Bracketing can be applied to intertemporal decisions (i.e., whether each decision is made one at a time, independently of other decision, or by considering the consequences of all the possible decisions), as well as to simultaneous or sequential choices (i.e., choices among several alternatives presented one after another or simultaneously). Intertemporal utility maximization is a good example of broad bracketing. Decisions based on wealth variations or relative wealth, on the other hand, are narrowly bracketed. Each choice is made in isolation rather than in terms of absolute wealth. Similarly, myopic decisions are the result of narrow bracketing.

Editing framing. The edition of outcomes refers to how individuals process multiple outcomes, x and y , by integrating them $v(x + y)$ or separating them $v(x) + v(y)$, where v is the value function. Thaler (1985) suggests that if individuals behave according to prospect theory, they will feel better about separating gains (e.g., a salary and a bonus) than about integrating them. In contrast, losses (e.g., insurance costs and monthly loan payments) should be integrated rather than separated to be less painful.⁸ The

way editing framing influences decision making is explained by the shape of the value function (Kahneman and Tversky 1979): concave for gains and convex for losses, with a steeper slope for losses than for gains. Editing framing uses a separating or integrating operation depending on the goal: to promote the target behavior, editing framing is designed to induce a separation of the gains resulting from the target behavior and an aggregation of its costs. On the other hand, the behavior to be *avoided* is framed to induce an aggregation of the gains and a separation of the associated pains.

Bracketing can be used to influence the tendency to aggregate or separate outcomes. Narrow bracketing of choices (e.g., having as many choices as cigarettes to smoke) promotes segregation of outcomes. Similarly, by focusing attention on the present moment, narrow bracketing makes the effort involved (e.g., training daily for a run) seem smaller than it really is.

A behavioral model of time preference management

The behavioral model describes how nudges and marketing use intermediate goals (lowering the cost of the target behavior, making it straightforwardly rewarding, and leveraging pain avoidance behavior) to overcome our tendency to seek immediate gratification and to exacerbate impatience and lack of self-control, respectively (see columns 1 and 3 in Fig. 1).

Making the target behavior as painless as possible. The framing of choice has proven highly effective in reducing the pains (monetary payment or effort and renunciation of pleasure) and making them less apparent. It also manages to sometimes turn them into pleasurable experiences.

How marketing framing reduces the pain associated with payment. Marketing uses choice framing to reduce the pain associated with payment, which can hinder sales. To this aim, delaying the pain to a later date by offering staggered or deferred payments can be effective. Similarly, deferred debit cards allow customers to spend money even if they do not have the funds at the time of purchase. Staggered and deferred payments are a *narrow framing* of choices that isolates the time of consumption from the time of payment. In people's minds, the pleasure of consumption and the pain of payment are dissociated (the pleasure of the purchase is immediate, while the pain of the price is deferred) which increases the likelihood of consuming.

Even better, marketing has succeeded in turning payment into *pleasure* through well-designed *prospect framing*. Promotions increase consumer's transactional utility by increasing the pleasure of getting a great deal.⁹ Still using prospect framing, a brand can also create an anchoring effect by displaying a suggested price that becomes a reference price in the minds of consumers. The benefits of this framing are twofold. A selling price lower than the suggested price gives the consumer the impression of a bargain (transactional utility). In addition, when associated with high-quality or social status, a high reference price is pleasurable (Plassmann et al. 2008; Völckner and Hofmann 2007).

In the same way, by highlighting the amount of the discount next to the price, *editing framing* tricks the consumer into experiencing payment as a gain. The segregation of gains and losses highlighted by Thaler (1985) suggests that when the gain (rebate) is not enough to completely compensate for the loss (initial price), individuals choose to mentally separate the gain from the loss to feel the pleasure of the gain, and not just the displeasure of a reduced loss. *Editing framing* can also be effective to facilitate a purchase decision. In the USA and Canada, the price excludes sales tax, which is added and paid at the checkout. The framing has two key effects. The pre-tax price increases the

likelihood of purchase by showing a higher pleasure/expense ratio. Moreover, the amount paid at the checkout aggregates the loss (price + tax), which reduces the pain.

Nudges help reduce the immediate pain associated with the target behavior

To mitigate the pains, nudges frame the perspective to reduce the suffering of renunciation: To help individuals resist temptation, nudges play on the presence/absence of the desired item. By physically hiding what tempts us, nudges change the reference point. The *default* is now the *absence* of the desired item and, as a result, the absence of suffering. Hiding or avoiding exposure to enticing items (cakes in the cupboard) and blocking personalized advertisements help individuals resist temptation. *Visibility* can instead be used to stimulate the consumption of healthy products, for example by placing them at the checkout of supermarkets in place of the sweets currently promoted. Reduction in the size of plates, meal trays and glasses can also be part of a frustration reduction strategy. For a given amount of food, the sight of a full plate is much more satisfying than a half-empty one (Van Ittersum and Wansink 2012). Again, *prospect framing* consists in translating the point of reference towards a standard (e.g., small plate size) which eliminates the appearance of a loss, a lack or a privation and instead suggests an opulence.

The great ingenuity of nudges also comes from *narrow bracketing* which allows a focus on the present and reduces the suffering associated with effort. Effort looks bearable if it only lasts a day, a week or even a month. The "Dry January" event is based on this idea. Participants are asked to abstain from alcohol for the entire month. Narrow framing makes abstinence not permanent, which encourages people to consider it. At the end of the month, the results on well-being, weight and the wallet encourage participants to carry on their effort and continue reducing alcohol consumption after January (de Visser et al. 2016). In addition, nudges can translate a drastic and disproportionate effort into several intermediate objectives in order to make it bearable and concrete. The out-of-reach objective of running a marathon is broken down to make it achievable and therefore rewarding. Narrow framing is designed so that the individual takes a short-term approach. Narrow framing is a "one day at a time" practice.

Making the target behavior immediately rewarding. Although the act of buying is inherently pleasurable, choice framing can amplify the satisfaction and make the purchase irresistible. The approach is less intuitive and the task more difficult for nudges whose goal is to induce a costly behavior.

Editing framing: multiplying the sources of pleasure and immediate rewards. According to Lancaster's characteristics theory (1966), people value all the attributes of a good. Successful marketing is about creating the appearance of an abundance of product attributes: the latest robot grates carrots, onions, leeks, zucchini, and turns them into chips, spaghetti, puree. This framing encourages separate consideration of each attribute in the utility function which is valuable because satisfaction increases with the number of attributes considered. When it comes to nudges, however, turning effort into pleasure is a challenging problem. Many nudges leverage *editing framing* by multiplying the measures of individual success. It has been eased by the popularity of mobile apps. Their positive feedbacks, the congratulations, the encouragement, and the badges induce pleasure by stimulating pride and self-esteem on a daily basis (Eisenberger et al. 2011). Similarly, the many measures of effort and therefore of success (e.g., number of cigarettes not smoked, number of days without smoking, money saved, calories burned, miles travelled,

number of steps taken, impact on sleep, heart rate) are all sources of gratification that will reinforce the behavior and encourage its adoption over time (T. Luo et al. 2021; Naslund et al. 2017).

Framing the perspective: making visible the return on investment of small efforts. Prospect framing induces a reference value such that the target behavior is pleasurable and beneficial. The reference value is the behavior that is to be stopped. For example, quitting smoking results in a monetary benefit (money saved) that increases with the number of days of abstinence. Several elements reinforce the effects of this framing. First, acting toward a goal is both pleasurable and rewarding. In addition, the tendency to create mental accounts can be used to enhance the effect (Thaler 1999). Mentally allocating the savings to a pleasurable expense rather than to current expenses (food, taxes, bills) may be sufficient to induce individuals to adopt the target behavior. Also, relying on anticipatory utility, individuals can be asked to imagine what they will do with the money saved (Knutson et al. 2001, 2007; Knutson and Greer 2008). Finally, feedback can be presented as a rewarding challenge. Rather than relying on loss aversion, this approach draws on the concepts of gamification, the unexpected, and surprise, so that the gain provides satisfaction to the individual (Mamede et al. 2021).

A narrow bracketing on pleasure to ensure pains and failures are less apparent. Narrow framing is also an effective tool for emphasizing the benefits of the target behavior and facilitating its adoption. This framing narrows the individual's perspective to focus on specific attributes of the object, its brand image, its values. By using an abundance of success measures combined with narrow framing, nudges avoid discouragement by not overly punishing accidents along the way. Despite giving in to the temptation of a few cigarettes, the reduction in consumption, health benefits, and financial savings would remain substantial and visible on the app.

Leveraging pain avoidance behavior, impulsivity, and lack of self-control. The inclination of individuals to avoid pain and negative emotions can trigger the adoption of the target behavior as well as it can prevent individuals from turning away from the target behavior. Loss aversion (e.g., losing points, badges, rewards) and fear of disappointment may encourage them to persevere in their efforts.

Marketing: an appropriate prospect framing exacerbates the pain associated with the renunciation of consumption

Triggering impulsivity to leverage aversion to frustration through stimulation of the five senses: While marketing is careful not to trigger loss aversion (i.e. paying for the purchase), which would have a detrimental effect on the purchasing decision, the same cannot be said of the aversions (regret, uncertainty) and sufferings (frustration, renunciation) that drive the consumer to purchase. To weaken consumer resistance, marketing creates environments that stimulate all five senses. Bakeries diffuse – sometimes artificial – smells of pastries just out of the oven. Ambient music engages our ears and affects consumption behaviors (Andersson et al. 2012; Biswas et al. 2019). Marketing has understood that closeness and physical proximity go hand in hand with desire (Woelbert and Goebel 2013). Targeted products are placed at the checkout or at the head of the aisles to encourage impulse buying. This *prospect framing* makes physical exposure to the product the reference situation. It highlights a suffering, a lack or a loss as long as the consumer has not decided to buy the product. Presence of product can also be implemented mentally. Commercials are meant to make consumers envision themselves

with the product, anticipate the pleasure of its consumption, and eventually give in to temptation. Hassabis and Maguire (2009) have shown that mental constructions of past, future or imagined events activate common brain areas. Therefore, the anticipation of reward or consumption could activate the same brain areas – the reward circuit – as consumption itself (Bray et al. 2010).

Regret aversion: immediacy and temporary offer. Advertising leverages impulsivity and the urge to give in to temptation. Resisting creates a frustration we avoid by making a purchase. Still using *prospect framing*, marketing techniques take advantage of regret aversion as well. When browsing a hotel website, pop-ups cautioning that “only three rooms are left” or that “12 people are currently looking at the same ad” have no other purpose than to hasten the purchase decision. These are modern versions of traditional sales techniques warning us that other people are showing interest in the apartment we have just visited. The aversion of individuals to any form of suffering (loss, regret, uncertainty) leads them to adopt a pain-avoidance behavior: buying.

Nudges and monetary loss aversion: making the cost of current behavior salient. A loss provides a greater disutility than the utility provided by a gain of the same value (Tversky and Kahneman 1992). Therefore, using *narrow bracketing* and *perspective framing*, a nudge can be more effective by highlighting the monetary costs associated with the current behavior (e.g., smoking). The non-smoker situation is used as the reference point to underline the losses and dangers incurred by the smoker. A calculator provides, for each smoker profile, the financial expenditure per week, month, year. This framing of perspective can also be used to highlight the dangers of the behavior to be changed: for example, illustrating the health risks associated with smoking by showing images of cancers of the mouth. The resulting negative emotions are intended to deter the behavior insofar as loss aversion and anxiety trigger an avoidance behavior. Moreover, the *prospect of loss* is also effective in maintaining a status quo or habit. Individuals will persist in their efforts if giving up causes them to lose hard-won badges, applause, and other incentives and rewards from their community. To make new behaviors sustainable, nudges based on fear or dislikes can be remarkably effective.

Conclusion

The behavioral model presented in this article highlights the common tools of nudges and marketing while emphasizing their contrasting goals. It points out that one of the differences between pro-self nudges and marketing is their understanding of “what is good for you”. Pro-self nudges are specifically designed to help individuals prioritize *long-term well-being* over short-term gratification when making decisions. In contrast, marketing choice framing seeks to induce *immediate pleasure* through the act of buying and consuming. This difference is reflected in the challenges and motivations that nudges and marketing face. Marketing exploits the brain's ingrained mechanisms of time preference and lack of self-control to make individuals *succumb* to temptation. In contrast, nudges *strengthen* individual willpower and self-control, which requires overcoming attraction to immediate rewards, aversion to immediate effort, and lack of interest in long-term rewards. However, both use framing to modulate the pleasure/pain trade-off in a way that promotes the desired behavior. They minimize the negative aspects (either the monetary cost or the effort or resistance to temptation) associated with the target behavior (either a purchase or health), while providing immediate gratification that activates the brain's reward circuitry.

By drawing on the two meanings of “your own good” and providing a unified framework for analyzing the underpinnings of choice framing, the behavioral model helps to qualify a choice framing as a nudge or as marketing. According to our model, a choice framing that encourages the purchase of a smartwatch (to exercise) qualifies as marketing. Indeed, wearing a smartwatch that counts our steps is not necessary, let alone sufficient, to exercise. Instead, the choice framing induces purchase and encourages the search for immediate pleasure by reducing the suffering associated with the guilt of inactivity. In contrast, a choice framing that encourages taking the stairs instead of the elevator or riding a bike instead of driving a car qualifies as a nudge. It prioritizes long-term goals (health) over immediate pleasure or convenience by minimizing the costs associated with the target decision.

Understanding the behavioral mechanisms that influence our susceptibility to temptation or our ability to resist it is valuable as it increases our overall awareness of these processes. A first possible extension of this work could be to explore ways to *counter* or avoid *marketing choice framing* so that individuals can resist impulse buying if they choose to do so. This could range from shopping on a full stomach, shopping online from a list of products rather than in a store to avoid impulse buying, or to deleting cookies from our browsing history to avoid being reminded of products we have seen and may have been tempted by. A complementary extension might be to study how individuals can *use* choice framing to *self-nudge* (e.g., *choosing* to eat meals on small plates and to hide cakes in the cupboard) to promote long-term choices. Such an approach would be beneficial on several levels. By “self-organizing” their choices, individuals would be empowered to determine what is beneficial to them. It would also make behavior changes their own by fostering self-commitment and self-binding (Beauvois and Joule 2010). This would ultimately help make these new behaviors sustainable (Bhattacharya et al. 2015; Goldhaber-Fiebert et al. 2010) and self-nudges *effective*. Indeed, a single instance of taking the stairs is not enough to be healthy and nudges do not always have lasting effects (Mertens et al. 2022): sustained effort is challenging, and individuals often return to their previous eating and physical activity habits over time (Allcott and Rogers 2014; Brandon et al. 2017; Ferraro et al. 2011; Frey and Rogers 2014). Self-nudging could help lead to lifelong behavior change (e.g., consistently choosing the stairs over the elevator whenever possible) and make nudges effective.

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Notes

- <https://www.zara.com/fr/en/help-center/ClothesCollectionProgram>
- An informational nudge providing you with the average energy consumption of a similar household in your neighborhood can induce you to save energy and improve your welfare ex post, without you necessarily wanting to save energy ex ante.
- Reflective preferences often involve *long-term* considerations (saving for retirement, exercising, and eating well to stay healthy). In contrast, preferences associated with impulsivity or lack of self-control are more likely to be about *immediate* gratification (eating that cake, indulging in that purchase).
- Thaler and Sunstein’s (2008) story about cashews serves as an illustration of a nudge designed to mitigate the effects of our impulsive behavior and limited self-control. In this scenario, the guests feel a sense of relief when the cashews are taken to the kitchen because now they can resist the temptation to consume them all at once. Similarly, a nudge that uses a default savings value to save more tomorrow is designed to control the impulsive spending tendencies of individuals who are often tempted by various opportunities for immediate indulgence (Sunstein 2015, 2018a).
- In the same way, according to Rae (1834), the limited capacity of individuals for self-restraint inhibits the ability to defer consumption.
- In a prescient experimental example (Tversky and Kahneman 1981), the U.S. is preparing to fight an Asian disease that could kill 600 people. Subjects are asked to

express their preferences between two alternatives, A and B. The authors show that the subjects’ preference depends on the way the outcomes are formulated. Option B (riskier) is preferred if the outcome is expressed as the number of *deaths* caused by the disease. However, A is preferred over B if the outcome is expressed as the number of people *cured* by the treatment.

- Following the example made by Read et al. (1999), 7300 is the equivalent of a pack of cigarettes a day for 10 years.
- In other words, it will be more satisfying for an employee to receive a salary and then a bonus than to receive both at the same time: $v(\text{salary})+v(\text{bonus})>v(\text{salary}+\text{bonus})$. On the contrary, when it comes to expenses, it will be less painful to pay the loan and the credit insurance together than separately: $v(\text{insurance}+\text{credit payment})<v(\text{insurance})+v(\text{credit payment})$.
- Thaler (1999) defines transactional utility – as opposed to acquisition utility – as the satisfaction that consumers derive from paying less than the fair price they have in mind. *Acquisition utility*, or *consumer surplus*, refers instead to the pleasure derived from the acquisition of a good below the consumer’s willingness to pay. Thaler distinguishes therefore between willingness to pay and fair price (for example, the production cost).

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The sole author is responsible for all aspects of the article.

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The author declares no competing interests.

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