

PRICING TECHNIQUES AND FRAMING EFFECTS
VERSUS CONSUMER BUYING BEHAVIOR

MASTER THESIS

for obtaining the degree

MASTER OF BUSINESS ADMINISTRATION

written by

Rochel Sarikov

submitted to

Cind Du Bois, Ph.D.

Associate Professor of Economics

Royal Military Academy of Brussels

MODUL PRIVATUNIVERSITÄT WIEN

Vienna, 1st of June 2017

AFFIDAVIT

I hereby affirm that this Master's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

The thesis was not submitted in the same or in a substantially similar version, not even partially, to another examination board and was not published elsewhere.

Date

01.06.2017

Signature

ACKNOWLEDGMENTS

I would like to express my deepest gratitude to my adviser, Cind Du Bois, Ph.D., associate professor of economics at the Royal Military Academy of Brussels, for her support and guidance, and especially for introducing me to the mesmerizing field of behavioral economics. I would also like to extend my appreciation to Dr. Karl Wöber, president of the university, as well as to the overall faculty, staff and students of the university for their ongoing support in my academic development as well as my extracurricular activities. My sincere appreciation is extended to the *Dr. Michael Häupl Förderungsfonds* advancement fund for believing in my potential in academic excellence by granting me a merit scholarship during my undergraduate studies.

I would also like to extend my deepest gratitude to my mother. Without her world-shaking encouragement, I would not have the possibility to write and hand this very final paper in. Also my grandmother, whose weekly callings have kept me goal-oriented. And lastly, to Rebekka, my dear companion, who trusted unconditionally in my abilities and gave me the confidence to master my academic as well as professional obligations.

ABSTRACT

Behavioral economics offer a variety of concepts, which are known to serve as a tool to manipulate consumer buying behavior and thus to maximize revenues. Economic theory, however, assumes that individuals are rational agents within an economy and base their choices solely on a thorough cost-benefit principle. However, through numerous behavior-influencing techniques, it is still possible to manipulate alleged rational thought processes and convert the outcome into an irrational decision. An effective way of tackling consumer buying behavior are pricing techniques and framing effects. The chosen concepts for this research paper were the decoy effect and the zero price effect.

In order to measure the effectiveness of both concepts, a four-month collection of data and observation has been effectuated in a pastry shop, which allowed to capture the direct perception, action as well as the altered willingness to pay of consumers. The delivered results were fortunately very telling for both, the decoy effect and the zero price effect.

Before introducing the decoy, the pastry shop offered the choice between a smaller and cheaper tart A as well as a larger and costlier tart B. The sales distribution was evident with a 81,6% share for tart A and a 18,4% share for tart B. After introducing a decoy tart B', which aimed at shifting sales to tart B, the sales distribution indeed varied with a decreased share of 36% for tart A, an increased share of 55,6% for tart B and a remaining share of 8,4% for the decoy tart B'. Although this particular decoy should have been seen as an absolutely irrelevant alternative, it still dominated the given frame and thus made customers purchase the tart, which was most probably not their first and foremost preference. Similarly to these yielded results, the zero price effect forced an increase in sales of 59,1% and an increase in revenues of 158,6%. It seemed to be solely a matter of bundling up a large chocolate box with a small box, then charging customers only for the larger box and giving them the smaller box for free, instead of selling both boxes separately at their corresponding price. As other experiments have tested the affection of the zero price model in the past, this study, too, highlighted the disproportional overvaluation of a free good, which blinds customers into spending more.

TABLE OF CONTENTS

Affidavit	ii
Acknowledgments	iii
Abstract	iv
List of Tables	vi
List of Figures	vii
Introduction	1
1. Literature Review	3
1.1. Behavioral Economics	—
1.1.1. Historical Context	4
1.1.2. Recent Emergence	14
1.1.3. Judgment and Choice	19
1.2. Employed Concepts	20
1.2.1. The Decoy Effect	21
1.2.2. The Zero Price Effect	23
Methodology	24
Research Question	26
2. Observation of Application	27
2.1. Quantitative Results	—
2.1.1. The Decoy Effect	—
2.1.2. The Zero Price Effect	29
2.2. Examination	30
2.2.1. The Decoy Effect	—
2.2.2. The Zero Price Effect	32
2.3. Limitations	34
Conclusion	36
Bibliography	40
Data Set	45

LIST OF TABLES

Table 1. Product palette (without decoy)	25
Table 2. Product palette (with decoy)	—
Table 3. Product palette (without zero price)	26
Table 4. Product palette (with zero price)	—
Table 5. Cross-tabulation decoy effect	28
Table 6. Cross-tabulation zero price effect	29

LIST OF FIGURES

Figure 1. Bar chart decoy effect	28
Figure 2. Bar chart zero price effect	30

“There are some situations which bear so hard upon human nature that the greatest degree of self-government [...] is not able to stifle, altogether, the voice of human weakness, or reduce the violence of the passions [...].”

– Adam Smith, *The Theory of Moral Sentiments*, 1759

INTRODUCTION

The prudent field of economic theory suggests that a rational consumer, in other words a homo economicus, will invariably base his or her purchasing decision on a carefully thought through cost-benefit principle and thus not go for a decision, which might disadvantage him or her. However, the emerging field of behavioral economics disapproves of this default theory and offers a wide range of conclusive arguments, which demonstrate that consumers tend to follow certain behavioral patterns that do not necessarily fit their alleged rational agenda.

Keen authors, such as psychologists Amos Tversky and Daniel Kahneman, as well as economists Richard Thaler and George Loewenstein, among other, have been pioneers in this revolting discipline, that represents a symbiosis of both, economics and psychology. The latter, however, has been presumed redundant during the predominant stream of neoclassical economics (Rabin, 1998). Yet, it is precisely consumer psychology that gives answers to questions, which economic theory marvels when players in a given economy act irrationally and do not follow the proposed behavior. It had been ignored, that we, as individuals, have limited cognitive abilities and, therefore, deviate from the standard economic model (Thaler and Mullainathan, 2000). Today, this economic framework has been enriched with empirical, experimental and blatant evidence that the field of behavioral economics delivers.

Now, it had been said, that in an ideal world a decision would be the result of a careful weighing of costs versus benefits, thus making the decision ultimately faultless (Loewenstein, 2014). And that, as a quintessential homo economicus, maximizing utility and self-interest would be the only plausible objective, for both demanders and suppliers. Smith (1776) wisely alluded that it is indeed self-interest and not benevolence that drives suppliers to serve demanders. Interestingly, there is a hint of a crosspoint in a particular trade between rational doing and most concepts of behavioral economics. Meaning, in order for a supplier to maximize his or her utility to the highest degree and gain profits, he or she has to make use of behavioral economics as an advantageous and pervasive toolkit. Precisely, it is the cognitive limitations and complications of irrational

decision-making that allow the suppliers to fully exploit the expenditure power and perhaps even the willingness to pay of their demanders. This demonstrates a rational versus irrational bargaining scenario, and thus, in some unwitting way, depicts that economic theory and behavioral economics could indeed find a consensus within this exchange. A prominent and manipulative tool in behavioral economics is the strategy, or rather the technique, of sophisticated pricing. Quite rightly, pricing techniques are commonly used by the most diversified suppliers across markets, centuries before these strategies have been eventually named and broken down into the theory of today. These pricing schemes confuse consumers into going against a rational decision during a purchase, leaving them unknowing yet content. Still, it is not only the price by itself that is responsible for the effectuated persuasion. The term *framing*, for instance, represents a certain way a platform of choices, or rather a set of options, is designed, which could then influence the definite choice (Tversky and Kahneman, 1981). Now, if these pricing techniques are well coordinated with their respective framing, consumers tend to choose the option that would be the most remunerative one for the seller.

In order to understand and witness this enticing execution, a framing effect and a pricing technique will be employed in this research paper, with the aim of giving quantitative evidence. These are, namely, the decoy effect and the zero price effect. The first effect, introduced by Huber, Payne, and Puto (1982), represents the importance of a well-configured *mise en scène* of options, meaning an aptly product placement. The decision of whether to choose one product over another, or vice versa, is heavily swayed by an appearing third product, a so-called decoy. The second effect points out the indispensable value of null (Shampanier, Mazar, and Ariely, 2007). A free good of any kind holds a disproportionately larger value than the most inexpensive good. By all means, it will be elaborated on how these two effects work wonders and effectively manipulate the decision-making pattern of us all, the homo behavioralis.

Before, however, demonstrating these pricing techniques and framing effects, an extensive review of literature regarding behavioral economics, its origins and foremost concepts has to be undertaken, so that the limited cognitive abilities of consumers, among other complications, can

be grasped. After a thorough understanding of the unintentionally irrational thought mechanisms of consumers and their response to given sets of choices, it will be in fact possible to conceptualize a fitting set of option (or frame) and a compelling pricing technique. Once these employed effects will be evaluated, it will become quite apparent if and how these concepts actually affect and outwit consumers into picking the product or service that the given vendor has 'nominated' in advance anyhow; thus allowing him or her to reach the ultimate objective of maximizing his or her gains.

1. LITERATURE REVIEW

1.1. BEHAVIORAL ECONOMICS

Behavioral economics should not be seen as a breakthrough discovery of the past couple of decades, considering its early genesis and heritage. And, why is that? Well, it suffices to be a layman and to be aware of the simple fact that consumer behavior, as we know it, has always been one of the key attributes, if not the foremost function, in economics since the beginning of human social interaction and, respectively, trade and commerce. However, it only *now* received a label and a grounded place at the round-table of economics. Today, it has become one of the most important, most promising and most fertile ideas in the general field of economic science, and it will, most certainly, not cease to prosper in the near future. Behavioral economics seems to be a much more complex complot of disciplines than it seemed at the beginnings of its mentions in the second half of the twentieth century. Indeed, it is primarily the symbiosis between the fields of economics and psychology that compose the subject of behavioral economics. Though, as one gets closer, it becomes enlightening that sciences such as sociology, anthropology and even biology are not remotely less relevant in detecting and examining consumer behavior (Camerer and Loewenstein, 2005, p. ii). In fact, so-called neuroeconomics, an interdisciplinary field of study, has gotten very popular over the last while. This particular subject deals with the findings of neuroscientific evidence in economic behavior and aims to deliver an improved understanding of consumer decision-making (Camerer, Loewenstein, and

Prelec, 2005).

As society moves forward, scholars, researchers and scientists will gain more and more means and capabilities to decrypt patterns that are deeply anchored within human cognition. The intentional usage of the latter adverb and adjective, 'deeply anchored', does not only suggest that labile decision-making is a subconscious and automated mechanism, but rather that this behavior represents one of the fundamental pillars and drivers within the human intellect. Hence, it would be relevant and very much helpful to understand when and by whom, meaning what author and respective literature, this root-behavior has been originally 'seized' and defined.

1.1.1. HISTORICAL CONTEXT

The great Adam Smith, notorious moral philosopher, eternal chief economist, forefather of supply and demand, sloganeer of the 'invisible hand', firm believer of the homo economicus, was, paradoxically enough, closer to the concept of irrational bargaining and the homo behavioralis than he would have perhaps assumed, or even admitted. Smith (1776) introduced in his most important work, *The Wealth of Nations*, the rational mindset of a buyer and a seller, who would act and trade based on their personal interest and greatest possible outcome. Of course, it cannot be denied that this assumption would be the optimum for most of us, since it would get the most of a bargain for each and everyone. Still, a win-win situation is hardly reachable when both parties long to maximize their utility. Hence, one of these two parties will end up suffering from a lesser paying bargain and thus, objectively seen, the trade fails to reach a bilateral avail.

The introduction of this research paper has already slightly touched upon the following phenomenon: for instance, a vendor manages to sell his or her product or service for the optimum selling price. He or she thus muscled the customer in the negotiation process, e.g. pricing scheme, or accurate framing, and severely influenced the consumer decision-making process into finally purchasing the given product or service. So, on one hand, there is Smith's homo economicus, disguised with a work apron, fulfilling his or her mission statement, and on the other hand, there is the

simple and slightly irrational consumer, equipped with Smith's rejected behavioral pattern, who has been tricked into believing that the purchase was indeed a good bargain. It seems that in most scenarios, just like in this particular one, suppliers are the homo economicus and demanders are the homo behavioralis of this world. Now, was Adam Smith wrong all along, or is his assumption, regarding cold and calculating agents, still valid to this day?

Well, it would be interesting to note that it was no other than Smith (1759) himself, who came up with a series of psychological concepts, issued in his lesser-known opus *The Theory of Moral Sentiments*, which consists of many ideas that are recited in today's lexicon of behavioral economics. Widely seen as a critical turning point, these concepts depict an individual, who holds behavioral traits that are in absolute contradiction to Smith's suggested self-interested and non-emotional agent from *The Wealth of Nations*. One of the foremost citations, as cited in the foreword of this research paper, demonstrates his proposed default setting of human behavior to the fullest: "There are some situations which bear so hard upon human nature that the greatest degree of self-government [...] is not able to stifle, altogether, the voice of human weakness, or reduce the violence of the passions [...]." In other words, even if one would know what the rational (or right) thing to do would be, one would still be overrun by emotions, and thus act irrationally in a given scenario. Truly, this statement does not seem like it would come from the pen of the great Adam Smith, the vanguard of classical economics. And that is why to this day there is a lasting uncertainty in terms of a rightful interpretation. In the German-speaking community of economic sciences, for instance, it is quite common to call this dilemma 'das [the] Adam-Smith-Problem' (Ashraf, Camerer, and Loewenstein, 2005, p. 131), and it is seen as a fiercely controversial subject matter, as it is not evident if Smith sees two opposite agents, or rather one agent with two alternating behavioral patterns. And, should the two opuses be read as one magnum opus, or should *The Theory of Moral Sentiments* and *The Wealth of Nations* be seen as two separate works? In the wider, more international community, however, this alleged problem has been devaluated by stating that there must not be the slightest room for misinterpretations and that the conflict is rather based on mere ignorance (Raphael and Macfie, 1976).

Howsoever, the relevancy in this case is not necessarily what Smith desired to reveal, but rather that Smith has been one of the primal authors, who has been logged, stating the foundation of behavioral economics as we know and study it today. For instance, the concept of the so-called loss-aversion, which will be elaborated further down, describes how individuals seem to weigh losses more than gains (Kahneman and Tversky, 1979). So, losing a ticket for a ball game would be much more upsetting, than winning that same ticket in the first place, even if the value of the item is equal. This phenomenon is one of the most discussed issues in the field of behavioral economics and is not as straightforward, or superficial, as it may seem to be at first. Today, loss-aversion helps behavioral economists (and their clients or collaborators) understand how individuals, and even primates (Chen, Lakshminarayanan, and Santos, 2005), would react to certain scenarios, be it in an economic context or not, and then how to *frame* these certain scenarios. As previously mentioned, an accurate framing of options, where one of them is heavily based on loss-aversion, will influence the individual into choosing the other(s). But please mind, three centuries earlier, Smith (1759) wrote the following words: “[...] we suffer more [...] when we fall from a better to a worse situation, than we ever enjoy when we rise from a worse to a better.” The latter citation represents the exact (if not the first) definition of the loss-aversion syndrome. And, on a more philosophical note, Smith reasoned: “Pain [...] is, in almost all cases, a more pungent sensation than the opposite and correspondent pleasure.”

Besides loss-aversion, there are other dominant and widely anchored concepts in behavioral economics that find their roots in *The Theory of Moral Sentiments*. Another one of these phenomena is overconfidence. Thaler (2000) provides a pellucid example by pointing out that investors of all kind, who seem to be confident in their abilities, would not blink an eye and deliberately make trades, even if there would be a poignant lack of accurate market information. This example, by the way, illustrates some of the anomalies present in financial markets. However, before elaborating on this behavioral trait further down, it would be relevant to note that Smith (1759) exposed this human 'weakness' with much apropos, again. In his words, “[...] the chance of gain is by every man more or less over-valued, and the chance of loss is by most men under-valued [...].” Overconfidence

should not be solely perceived as a trait in a game of winning and losing, but above all in the everyday life of individuals. It is widely common to overestimate one's plans, or underestimate the lengthiness of tasks; both of these delusions are termed planning fallacy (Buehler, Griffin, and Ross, 1994) and will be specified along with the so-called optimism bias.

Another mentioned concept, which stands afar from the ethics of homo economicus, is the concern for the welfare of others, namely altruism. Once again, Smith's connotation to this concept is indeed philosophical. In one of the passages, which have been dedicated to the subject of selflessness, he underlined the ever-present fear for others: "What are the pangs of a mother, when she hears the moanings of her infant, that, during the agony of disease, cannot express what it feels?", and further, "In her idea of what it suffers, [...] forms, for her own sorrow, the most complete image of misery and distress." Yet, Smith (1759) suggested that individuals do not seem to express any empathy with unfortunate individuals, who are plain strangers, by giving the hypothetical example of an European, who would neither worry nor care that an earthquake on the other side of the world would erase the entire Chinese population. And, "if [the European] was to lose a finger to morrow, he would not sleep to-night; but, provided he never saw [the Chinese], he will snore with the most profound security over the ruin of a hundred millions of his brethren." The latter citation comes indeed closer to Smith's suggested self-interested and rational agent from *The Wealth of Nations*. According to Smith, this radical separation between altruism, on one hand, and egoism, on the other hand, is due to the so-called 'impartial spectator'. In other words, this unbiased beholder is endowed with reason and aims to balance out emotional and non-emotional conduct. Smith was thus well aware of irrationality, although he firmly believed that rationality was still generously incorporated within human behavior, particularly when it comes to economic contexts.

However, the pool of injudicious behavioral conducts proposed by Smith does not end there. *The Theory of Moral Sentiments* unfolds a number of further concepts that are yet to be outlined and tested. Besides the aforementioned phenomena of loss-aversion, overconfidence and altruism, three principal ideas in behavioral economics, there are subjects such as fairness, trust, and consumption, which hold economic connotations.

Moreover, 'unexploited ideas' such as 'the desire to be well-regarded by posterity', 'negative reactions to being misjudged', 'mistaken belief in the objectivity of tastes', and 'sympathy for the great and rich' are some of Smith's additional notions, which are rather philosophical, though implicate quite interesting economic components (Ashraf, Camerer, and Loewenstein, 2005, p. 140). Perhaps the two most noteworthy (and somewhat relevant) examples of these four suggestions would be, firstly, the 'mistaken belief in the objectivity of tastes', and secondly, the 'sympathy for the great and rich'.

The first notion deals with the circumstance that, in the words of Smith (1759), “few men [...] are willing to allow, that custom or fashion have much influence upon their judgments concerning what is beautiful [...]” Meaning, most individuals tend to think that their own preference is commonly shared by others and that their taste, and even opinion, is perfectly true. The term 'naïve reality' describes exactly this misbelief and was initially introduced by Ross and Ward (1996). In sales and marketing, for instance, the assumption that a customer will have the same taste as his or her product or service provider could easily backfire. An example would be a gift-giving campaign that is presumed to work well, yet would be ultimately ineffective, if the chosen gift fails to cater the customers' preferences. The same goes for negotiations and arguments in general. Individuals tend to believe that there is a common ground with their counter party during negotiations and assume that the views and sentiments are shared by both parties. It often turns out that, unfortunately, there is no actual consensus, as opposed to what individuals believe beforehand. It becomes evident that in the case of behavioral economics, and particularly framing effects (Kahneman and Tversky, 2000), a misestimation in preferences can promptly thwart the previously mentioned product or service provider's plans.

The second notion, being one of the core influences of today's most common marketing activities, represents the way we, as a society, portray the bold and the beautiful, the rich and the famous. Smith's (1759) illustration of why we sympathize 'for the great and rich' is worth quoting in full: “When we consider the condition of the great, in those delusive colours in which the imagination is apt to paint it, it seems to be almost the abstract idea of a perfect and happy state. It is the very state which, in all our waking

dreams and idle reveries, we had sketched out to ourselves as the final object of all our desires. We feel, therefore, a peculiar sympathy with the satisfaction of those who are in it. We favour all their inclinations, and forward all their wishes. What pity, we think, that any thing should spoil and corrupt so agreeable a situation!” So, since we long for this state of wealth and fortune that 'the great and rich' seemingly live with, we wish to know more about these lives and share altogether a great fondness for the favored few. In the area of marketing, for instance, the term 'celebrity endorsement' is defined as the usage of a celebrated persona in order to brand or advertise a given product or service. In the same way manufacturers of fine chinaware and brilliant numismatists fought for the recognition from nobles and royals centuries ago, the companies of today continue to ask celebrities to bring products or services closer to potential customers.

Although Smith rather concentrated on the ethical conduct in *The Theory of Sentiments* and not on the bald economic conduct, as exposed in *The Wealth of Nations*, he still depicted and predicted irrational behavioral patterns that can be very well seen as root causes for most economic activities. It could be unhesitatingly said that behavioral economics, as we know, study and use it today, is in no small part due to his breakthrough writings. Also, it is not a coincidence that Colin Camerer and George Loewenstein, revolutionists and great contributors to the field of behavioral economics, wrote, in collaboration with Nava Ashraf, the insightful article *Adam Smith, Behavioral Economist* in 2005. In their words, “Adam Smith's actors [...] are driven by an internal struggle between their impulsive, fickle and indispensable passions, and the impartial spectator”, and further, “[his] world is not inhabited by dispassionate rational purely self-interested agents, but rather by multidimensional and realistic human beings.” However, as primal as the works of Adam Smith may be, a few more considerable moral philosophers and (again) classical economists have indeed mentioned and challenged some of the principal concepts of behavioral economics.

A couple of decades after the published moral insights of Adam Smith, a further philosopher and dissident, namely Jeremy Bentham, made a spring on some of the prominent behavioral models, most notably framing effects, and offered more elaborate and tangible arguments. Bentham, who

was of British descent, is widely regarded as the founder of utilitarianism, a theory that suggests that the ideal decision, or best action, would be the one that maximizes utility. Evidently, this utility concept is incorporated within the above mentioned utility-maximizing homo economicus that stems from classical economics. However, it should be noted that Bentham did not see the expanding of utility with an egoistic connotation *per se*, but rather as the mere achievement of a content state, or better, happiness. In 1789, Bentham composed *The Principles of Morals and Legislation* in which he outlined the significance of utilitarianism by introducing the thought that “[n]ature has placed mankind under the governance of two sovereign masters, pain and pleasure, [and] it is for them alone to point out what we ought to do, as well as to determine what we shall do.” By bringing forth the sentiment of pain and pleasure, his statement holds a very philosophical note and envisions that individuals sum up all pleasure resulting from a particular action, and subtract the pain that all stakeholders experience in that same action.

Although Bentham's proposed utility function (or 'hedonistic calculus') laid, understandably, one of the cornerstones of neoclassical economics, the latter's economists got promptly rid of his many emotional connotations (Loewenstein, 2000, p. 426). During the prevalent stream of neoclassical economics, emotional states, and thus psychology, served reportedly no purpose and were never to be confused, or blended, with economics. Psychology, as studied and practiced today, was quite simply not a discipline at the time. Indeed, economists “moonlighted” as psychologists back then (Camerer and Loewenstein, 2005, p. 5). After all, it was them, who analyzed and predicted human behavior, even though it did not necessarily represent the actual conducts that were (and still are) expressed in a complex economy and world, in general. At the time of Bentham's revelations, however, emotional motivation did play a crucial role in decision-making. Just as Adam Smith prefigured some of the foremost concepts of behavioral economics, Bentham too engrossed his mind with, perhaps unwittingly, irrational conducts.

Short and crisp, Bentham (1843, p. 307) stated that “[m]ankind in general appear to be more sensible to grief than pleasure from an equal cause.” His statement boldly depicts the leitmotif of the persistent loss-

aversion. And further, “[...] a loss which would diminish the fortune of an individual by one quarter, would take more from his happiness than would probably be added by a gain which should double it.” Interestingly, Bentham assumed that the fear of loss is largely due to endowments individuals hold. In other words, the loss of a possession is felt much more firecely, precisely because of it being a *possession*.

Similarly to loss-aversion, the endowment effect deals with the fact that individuals give greater value to things once they have established ownership (Kahneman, Knetsch, and Thaler, 1991, p. 193) and do certainly not wish to give these particular goods away, but rather preserve and enhance them. Here, too, Bentham (1843, pp. 306-310) suggested that “[e]very thing which I actually possess, or which I ought to possess, I consider in my imagination as about to belong to me for ever.” And further, that “[men] not only keep what they have acquired, but still further increase its amount.”

Apropos, the latter citation illustrates Bentham's view on how the ultimate wish for most individuals would be to augment their wealth, and thus to advance their happiness, by stating that “[t]o get money is what most men have a mind to do: because he who has money gets, as far as it goes, most other things that he has a mind for” (1787, p. 157). However, Bentham figured that the true value of happiness is not necessarily reachable through wealth alone, or in his words “[...] each man is occupied either in the acquisition of wealth (the instrument of enjoyment) or in some actual enjoyment, which, in the eyes of the only competent judge, is of more value” ([Bentham, n.d.] Quinn, 2016).

Furthermore, Bentham alluded to the so-called status quo bias, a principal concept of behavioral economics, which elaborates why individuals tend to avoid change, in general (Kahneman and Tversky, 1982; Samuelson and Zeckhauser, 1988). Bentham (1843, p. 311) underlined this phenomenon by stating that “[h]e ought to maintain the distribution which is actually established.” What is more, Quinn (2016) emphasized Bentham's perceptible distress “between the conservative commitment to respecting established expectations, and the utilitarian commitment to reform of those expectations to deliver new benefits.”

However, Bentham suggested a particular concept, which happens to

be of utmost importance for the continuous study of behavioral economics, and particularly to the subject of this research paper. The so-called choice architecture, a term by Thaler and Sunstein (2008), is the hypernym for the framing as well as decoy effect, and essentially deals with the many sophisticated manners of how options are propounded to individuals. Indeed, it was Bentham (1795) who came up with a framing solution to a tax issue regarding the inheritance of properties. His illustration is worth quoting in full: “Try the experiment upon a hungry child: give him a small cake, telling him after he has got it, or even before, that he is to give back part of it. Another time give him a whole cake, equal to what was left to him of the other and no more, and let him enjoy it undiminished – will there be a doubt which cake afforded him the purest pleasure?” Even in this example, Bentham's theory of utility merged into practice, for the second frame of the cake is dominated by pleasure (100%) and does not comprise any pain (0%). At the time (and today more than ever), the mere conversion of a setting resulted in the false belief that the chosen option will be regarded as the one with the greatest benefit, or most favorable outcome. Therefore, in-between numerous intermediaries and decades, the quantitative findings of this research paper, which will be undertaken and presented further below, will be substantially based on Bentham's forecast on irrational behavior.

Throughout the subsequent decades, the facets and notions of behavioral economics diminished considerably. Classical as well as neoclassical economists continued to persistently ignore the possibility of psychological traits being crucial for models of economic behavior (Loewenstein, 2000, p. 431). Psychology was regarded as too unsteady and groundless, and all proposed (emotional) inputs were rather intangible and thus not relevant for a blunt and formal economic model. Although it may sound understandable at first, the frigid evaluation of economic behavior is and would still be vague and ultimately inefficient without the involvement of human emotions. Nonetheless, there were a few more mentions, regarding the complex and emotional nature of human decision-making in economic contexts. These were made by not necessarily lesser-known economists, such as Francis Edgeworth, Alfred Marshall, Thorstein Veblen, and even John Maynard Keynes.

In *Mathematical Psychics*, Edgeworth (1881) invented a box-diagram, known today as the modernized 'Edgeworth-Boley box', which includes two individuals in a bargaining scenario and the respective outcome. He then added a model that showed how the *social* utility of the first person was affected by the second person's payoff, or vice versa (Camerer and Loewenstein, 2005, p. 5). This model, or scenario, is known as the ultimatum game and describes how most individuals will reject an offer (e.g. a portion of the first person's payoff) that they perceive as unfair. In 1982, this theoretic model was turned into practice by Güth, Schmittberger, and Schwarze, making it one of the first and most telling experiments that evaluates bargaining behavior, and particularly the concept of social preferences, utility and fairness (Arrow, 1958). Perhaps the most memorable and striking statement, regarding the many recorded outcomes of the ultimatum game, has been stated by Camerer and Loewenstein (2005, p. 27): “A responder who rejects an offer is spending money to punish somebody who has behaved unfairly.” This action illustrates the gravity of irrationality that is held within. How can an individual bitterly decline *any* amount that is larger than zero? Naturally, in hindsight, it is a lot easier to judge accordingly. However, most of us, as players in a complex economy, will probably let emotion disturb reason and thus influence action.

Further on, Marshall's works in the years of 1890 and 1919, namely *Principles of Economics* and *Industry and Trade*, dealt with the fundamentals of neoclassical economics, yet, in a less formal manner, expressed that consumers, as economic agents, are not necessarily reasonable and calculative (as economic theory would suggest), but rather learn and relearn with every trade and circumstance.

Veblen, for instance, was said to focus on the “significance of habits, rules and codes of conduct on how economies work” (Earl, 2005, p. 3). Also, in *The Theory of the Leisure Class*, Veblen (1899) expressed that economic behavior is rather based on a complex constellation of more than one science, namely anthropology, sociology, and psychology. However, as Earl (2005, p. 3) states, the many proponents of neoclassical economics demanded “to free the discipline from any dependence on other social sciences and to make it mathematically rigorous and self-contained.”

Lastly, Keynes, whose economic insights are regarded as one of the

most revolutionary of the twentieth century, wrote *A Treatise on Probability* (1921), *The General Theory of Employment, Interest, and Money* (1936), and *The General Theory of Employment* (1937). Leaving the many purely economic theories aside, these works were indeed hinting quite a few psychological traits in terms of decision-making. As Almeida (2013) suggests, Keynes emphasized the psychological notions of imagination and cognition, and even observation as drivers of decision-making. The latter notion of observation represents the way individuals observe others and imitate the acknowledged behavior (Bandura, 1971). This is a typical trace when it comes to so-called uncertainty (one of the most crucial situations individuals find themselves in; elaborately studied in behavioral economics). Further, in the words of Dequech (1999, pp. 415-416): “[Keynesian uncertainty expresses] situations in which at least some essential information about further events cannot be known at the moment of decision because this information [...] cannot be inferred from any existing data set.”

This phenomenon of uncertainty, along with other Keynesian inputs such as rigidity and money illusion, suggested that Keynes (1936) and his predecessors truly refuted the imposition of rationality, and thus distanced their legitimate theories more and more from the standard models of neoclassical economics.

1.1.2. RECENT EMERGENCE

The 'official' emergence of the field of behavioral economics, however, occurred only a couple of decades later, namely in the second half of the twentieth century. As Camerer and Loewenstein (2005, p. 6) point out, “many coincidental developments led to the emergence of behavioral economics”, referring to the many sociologists and economists (e.g. Herbert Simon's *A Behavioral Model of Rational Choice* [1957], and Tibor Scitovsky's *The Joyless Economy: The Psychology of Human Satisfaction* [1977]), who started to understand the importance of psychological measures and to accept that the concept of utility should perhaps be seen as a descriptive model of decision-making under uncertainty. Simon (1957, p. 198) and his theory of so-called bounded rationality distinctively underlined

the need for a rational mind where there is none: “The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behavior in the real world – or even for a reasonable approximation to such objective rationality.”

Slowly but surely, economists agreed to the intervention of psychology in economics, and recent developments in psychology, especially cognitive psychology, delivered insights into how an individual memorizes, solves problems and makes decisions. From a more psychophysiological point of view, the brain of this individual seems to not necessarily be stimulus-responding, as assumed, but rather information-processing, as Camerer and Loewenstein (2005, p. 6) explain. It then became evident that economics and psychology will have to merge to some extent, or at least to collaborate, in order to reach a common objective, namely to produce relevant and accurate economic models, and predict human (consumer) behavior. To the surprise of all, it were no other than a few experimental psychologists, who were willing to make the first step and to interfere within the rigid economic science by introducing concepts, which have now substantially changed the study and evaluation of human behavior, particularly in economic contexts.

During the sixties and particularly the seventies, far away from the American community of economists, two Israeli cognitive psychologists, namely Amos Tversky and Daniel Kahneman, were teaching at the Hebrew University of Jerusalem and fine-tuning some theories, which eventually changed the way human decision-making is now perceived and examined. Little did they perhaps know that their works would lead to a widespread branch of economics and open paths to many further findings (referring to neuroeconomics as a promising and substantial example). Apart from their first breakthrough in 1974 explaining how heuristics stand afar from statistical principles, Tversky and Kahneman's (1979) so-called Prospect theory, deservedly with a capital 'p', represents a sophisticated insight into the erroneous theory of the rationale-driven expected utility, which deals with the behavior of anticipating the best possible outcome in any given scenario. Being descriptive rather than normative, the theory is based on psychological axioms, particularly resting upon adaptive psychophysical

methods and experiments. In other words, their theory illustrates that individuals in general tend to choose options, which do not necessarily reflect their best interest.

Although received with great skepticism, more and more psychologists as well as innovative economists dared, raised their hand and contributed to the stream of behavioral economics. Along came Richard Thaler, George Loewenstein, Colin Camerer, Matthew Rabin, Dan Ariely and other significant economists, who were eager to revolutionize economic theory in the subsequent years.

Thaler, beside being known together with legal scholar Cass Sunstein for their best-seller book *Nudge: Improving Decisions About Health, Wealth, and Happiness* (2008) regarding the prank-playing irrational behavior of human beings (see nudge and choice architecture), has made quite an impact with one of his first insights into the psychological mind of an economic agent in *Toward a Positive Theory of Consumer Choice* (1980) and in its updated and extended version in 1999. He was the first economist to highlight that individuals consistently underweight opportunity costs; a manner which is very much inconsistent with economic theory. Also, the renowned sunk cost fallacy, in which individuals ignore sunk costs of a given undertaking due to optimistic behavior, or emotional attachment, is one of Thaler's (1999) examples for the phenomenon of the aforementioned loss-aversion (and the status quo bias). Another inconsistency, particularly in financial markets, was perceived when looking at the trading behavior of investors; many of them shared the same level of negative reaction because of losses that occurred from short-term investments; meaning, they fail to look at the bigger (long-term) picture of trading stocks (Thaler and Shefrin, 1981; Thaler et al., 1997). Evidently, the latter syndrome is part of the loss-aversion issue, however, Thaler added the myopia aspect making it the so-called myopic loss-aversion, or short-run self, which is one of the dual-self models, the other being the long-run self. Thaler (1985) also introduced the concept of mental accounting, which elaborates on why individuals enjoy the quality of a trade, and its transaction as a whole, rather than the value of the acquired good or service itself. Again, economist Richard Thaler was considered brave at the time for 'outing' the inevitable belonging of emotionality in economic behavior; however, through his works many more

economists and psychologists started to come together in order to reveal behavioral patterns and their root causes.

Similarly, George Loewenstein contributed significantly to the liaison of the two disciplines, economics and psychology. His presence in the field of behavioral economics is overwhelming; meaning, Loewenstein should be considered as the (modern) father of behavioral economics because of his widespread 'surveillance', support and collection of most of the literature and findings in this field. An example would be his widely cited work on behavioral economics, namely *Advances in Behavioral Economics*, which he wrote together with Colin Camerer, as well as in parts with Matthew Rabin (2005). However, before his digestible works for the common man, Loewenstein coined terms such as hedonic adaptation (Frederick and Loewenstein, 1999), the risk-as-feelings hypothesis (Loewenstein et al., 2001), the very important concept of time discounting (Frederick, Loewenstein, and O'Donoghue, 2002), projection bias (Loewenstein, O'Donoghue, and Rabin, 2003), and the so-called hot-cold empathy gaps (Loewenstein, 2005), which explains that individuals tend to underestimate their current mood state at the moment of a decision-making process (e.g. patients who have to face a decision regarding treatment right after they are told about their diagnosis). Today, Loewenstein enriches the online platform of behavioral economics community, www.behavioraleconomics.com, with his insightful commentaries, findings and day-to-day examples in which the many concepts are actually employed (see foreword in *The Behavioral Economics Guide 2014*).

Colin Camerer, a long-time collaborator of George Loewenstein, and no lesser-known economist, has dedicated most of his work to the small yet imposing niche of (behavioral) game theory in behavioral economics. Instead of underlining the various real-life situations in which irrational behavior is predominant, Camerer (1997) focused on ultimatum games and the power of social utility, where players of a game show their social intention towards the other player(s) and respectively evaluate fairness. Another contribution that took place more than a decade ago was the announcement that neuroscience is a crucial source of aid to the field of economics, and thus the emerging field of neuroeconomics arose (Camerer, Loewenstein, and Prelec, 2005).

The so-called round table of behavioral economics consists also of economist Matthew Rabin, whose works have a strong emphasis on time inconsistencies. O'Donoghue and Rabin (1999) argued that individuals tend to favor pay-offs, which are closer to the present time, rather than pay-offs, which are in the future time. This preference thinking is called present bias and, in other words, illustrates that individuals are generally biased towards the present time. Another timely bias that Rabin inspected together with Loewenstein and O'Donoghue (2003) was the aforementioned projection bias, which deals with the assumption that preferences will remain the same over time. It would be interesting to note that Rabin (1998; Koszegi and Rabin, 2008) consistently underlined the importance of psychology in the study of economics. This intersection, named 'economic psychology', highlights that “[w]hile standard economics assume that each person maximizes stable and coherent preferences given rationally-formed probabilistic beliefs, psychological research teaches us about ways to describe preferences more realistically, [...] and about ways it is misleading to conceptualize people as attempting to maximize stable, coherent, and accurately perceived preferences” (Rabin, 1998, p. 11).

Lastly and more relevantly for the focus of this research paper, Dan Ariely, behavioral economist of the people, who talks to large audiences at many *TED* conferences (2008; 2009; 2011; 2012; 2015) and shares with them the flaws of everyday consumer behavior, deals mostly with concepts used in trade and commerce (besides his devoted studies of time inconsistencies and the vicious circle of procrastination [Ariely and Wertenbroch, 2002]). Three leading examples would be the decoy effect (Ariely and Wallsten, 1995), placebo effects (Shiv, Carmon, and Ariely, 2005) and the zero price effect (Shampanier, Mazar, and Ariely, 2007), which affect consumer buying behavior and trick consumers into purchasing a good that has not 'revealed' its true value, or rather falsifies its value to appear more attractive. Both, the decoy effect and the zero price effect will be elaborated further down the literature review in order to clarify what tools the study will use for the experiment(s) in this research paper.

So, the emergence during the second half of the twentieth century and its fruitful development around the millennium has indeed forced standard economics to include the many studies and proven concepts of

behavioral economics into its theory, in order to make better predictions and achieve better results in the market. Now, for the sake of clarity, the following chapter will present the two foremost concepts, or categories, in behavioral economics, which hold all ideas, of which some, inevitably, have already been explained to a certain extent. In other words, all concepts of behavioral economics are filtered into these two categories.

1.1.3. JUDGMENT AND CHOICE

In short, the two foremost concepts in behavioral economics have primarily been found, designed and developed by the aforementioned psychologists and economists (among other important contributors). All of the ideas, phenomena, effects and models that the field of behavioral economics holds are generally classified under two main concepts, namely judgment and choice. The first concept deals with the process of how individuals estimate probabilities, whereas the second concept deals with the process of how individuals differentiate and choose between given options (Camerer and Loewenstein, 2005, p. 9). The concept of choice, though, depends on the effectively made judgment prior to the decision, resulting in the interdependency of these two categories.

Regarding judgment, individuals tend to ask themselves what the likelihood of an event is and will base their decision on their assumption. Common questions such as “How tough will the grading on my final paper be?” and “Will I find a job right after my graduation?” are all examples of the concept of judgment. In terms of these two examples, the assumption of the likelihood will form the decision of either putting more or less effort into the final paper, or if there will be a need to specialize in a given subject, where the likelihood of finding a corresponding job will increase.

Regarding choice, individuals tend to base their decision on their previously made assumption, which is strongly influenced by one or more references (see availability bias, hindsight bias and curse of knowledge bias) they have received prior to their judgment process; to the contrary of standard economic theory, which suggests that individuals are immune against references (Slovic, 1995). Also, in a more economic context, the choice and even preference of consumers is in most cases well manipulated

by the way options are presented to them. The product one chooses to buy at the end of the day would not have been necessarily chosen if the set (or frame) of options would be a different one. Hence, this research paper will focus on the second concept, namely (manipulated) preferences, or in other words, choice architecture, a poignant term coined by Thaler and Sunstein (2008). This choice architecture comprises both, the decoy effect as well as the zero price effect, and will further down reveal how *framing* a product palette will eventually affect consumer buying behavior.

1.2. EMPLOYED CONCEPTS

The exact study and understanding of consumer psychology plays a crucial role in getting the customer on the hook. Next to the many general concepts that have been cited in this literature review, a few promising concepts taken from the magical toolkit of behavioral economics will be employed, applied and observed in order to measure their effective psychological influence on consumer buying behavior, giving this research paper a practical purpose. Framing effects and pricing techniques are the two termini that drive suppliers all around the markets of this world and give them the almost always safe opportunity to increase their sales; without even having to force their customers. Indeed, this does sound utopical, not only to capitalists, but to any merchant out there.

In terms of framing effects, it is fascinating to acknowledge the mere underestimation of the power of context. Individuals, and particularly consumers, find themselves in decision-making processes in which the outcome would most probably change drastically every time the context would be slightly modified, rejecting the theory of persistent preferences. One of the most remarkable framing effects, next to the so-called 'anchoring' experiments of Tversky and Kahneman (1974; 1981), was delivered by Ariely, Loewenstein and Prelec (2005) in which a group of postgraduate students were asked if they would buy a valuable product for a price equal to the last two digits of their social security number. Now, because of this artificially set frame, students with higher numbers were on average prepared to buy the mentioned product for a price similar to their last two digits, whereas students with lower numbers payed on average significantly

less. They were not necessarily prepared to pay an amount close to their actual judgment and preference, but rather an amount similar to the 'anchor' value. Indeed, frames, and the deciding context they create, matter more than anyone would have assumed. Similarly, the decoy effect, as the name already suggests, transforms its decoy to a solid point of reference and thus forces the inevitable change of preference.

One of the very first pricing techniques that comes to mind is perhaps the ninety-nine cents tail behind every single price nowadays. Although everyone will highlight with great confidence that this pricing scheme is only there to fool consumers, it still ends up fooling them too. Why? Because even if consumers know that, for instance, a bag of potatoes that costs 4,99 euros is obviously significantly closer to 5,00 euros rather than to 4,00 euros, it is the number *four* that is visualized and thus their mind cannot help but remember and focus solely on this smaller number that just happens to have a much larger font size than the ninety-nine cents next to it. Frankly, this is probably one of the more simpler, or even shabbier, pricing techniques in comparison to the more sophisticated zero price effect. However, it still works wonders to this day and will continue to mislead customers with its *trompe l'oeuil* appearance.

Whether framing effects or pricing techniques, whether the decoy effect or the zero price effect, there is not much of a difference in their nature and objective. Both aim to persuade consumers into making the choice that favors the counter party, and ultimately, both were designed to drive revenues.

1.2.1. THE DECOY EFFECT

Consider the following example: Jonathan, a movie aficionado, approaches the popcorn counter at the local cinema to buy some popcorn right before the screening starts. He faces an offer that consists of popcorn basket A weighing and costing less than popcorn basket B. Although Jonathan is not that hungry and does not have necessarily deep pockets, considering that he is a struggling drama student, he still wishes for some snacks along the movie. That is why he tends to probably go for the first option, popcorn basket A, but right before his decision is made, another

popcorn basket is introduced, basket C, costing more, but not necessarily weighing much more than popcorn basket B. Jonathan steps back from the counter and, without much effort, realizes that the best value for money offers popcorn basket B. Unfortunately, neither the fast-paced movie nor the salty popcorn made his evening. Although fortunately enough, Jonathan will stay in the dark about falling for the manipulating decoy effect.

This phenomenon, also named the asymmetric dominance effect, was first introduced by Huber, Payne, and Puto (1982) and represents “an obvious violation of the normative axiom of independence of irrelevant alternatives” (Ariely and Wallsten, 1995, p. 224). In layman terms, individuals with already set preferences are not as indifferent to additional alternatives as they might think. The introduction of a third alternative, which has similar qualities, but a higher price compared to the other two options, has an immediate effect on the final purchasing decision. This *decoy* puts the choice, which was the most undesired choice at first, into context and converts it into the most desired choice of the overall set. Numerous experiments throughout the years have delivered similar results and reached the same conclusion about the magic of an asymmetrically dominant alternative (see Simonson and Tversky, 1992; Payne, Bettman, and Johnson, 1992; Tversky and Simonson, 1993). Ariely and Chajut (1991) produced one of the most straightforward studies, in which one group had to choose between two microwaves, A and B, and a second group had to choose between three microwaves, A, B and A'. The first group chose primarily microwave B (60%) as opposed to microwave A (40%), whereas the second group chose primarily microwave A (56%) as opposed to microwave B (36%) and microwave A' (8%), considering A' was the decoy microwave that had similar features but was slightly costlier. Again, the allegedly fixed choice preference was deceived as soon as an alternative put the choices into context. This framing effect is consistently used by most industries in most markets, from newspapers, such as the eyeopening *The Economist* subscription experiment (Ariely, 2008), up to the widely spread field of tourism and hospitality (see Josiam and Hobson, 1995), as well as a strategic tool in game theory (Colman, Pulford, and Bolger, 2007). Still, however effective a decoy may be, Huber and Puto (1983) underlined that if the target industry and its respective market are in a state of maturity, the

effect is assumed to be less penetrative. Yet, considering a state of emergence, the decoy effect is assumed to be more penetrative, since consumers do not hold the power of full information and “are in the process of forming brand preferences“ (Huber and Puto, 1983, p. 40).

1.2.2. THE ZERO PRICE EFFECT

Consider the following example: Samuel, a local baker, fills his display case with many pastries and baked goods early in the morning. While stocking up the crunchy croissants, he notices some leftover pieces of pie, though refuses to throw them away, since they are still edible. Speaking from experience, Samuel knows that customers love free leftovers, but this time it does not please his business sense to give them away for nothing in return. He then decides to make his customers an offer they could not possibly refuse. Instead of charging the usual low price, he sets up a fixed combo of one exquisite pastry plus one leftover piece of pie and shifts the cost of the piece onto the cost of the exquisite pastry. When the first customers entered his bakery, Samuel suggested they should try one of his exquisite pastries plus get a *free* piece of delicious pie. They loved the offer, did not hesitate to grab the goods and thanked him for his generous ways.

Shampanier, Mazar, and Ariely (2007) delivered with the zero price model, and its mass effect, one of the most used concepts of behavioral economics. Once again, this effect violates the linear assumption that with every cost reduction there will be a *proportional* increase in demand. Although it is comprehensible that the demand will increase as soon as the cost descends to the value of null, “the extent of the effect is intuitively too large to be explained by this simple economic argument“ (Shampanier, Mazar, and Ariely, 2007, p. 743). Their experiment demonstrates how a good that is advertised as 'free' is perceived as much more valuable in relation to an inexpensive good. A free praline is disproportionately more attractive relative to a praline for 0,14 dollars, than a praline for 0,01 dollars is relative to a praline for 0,15 dollars. According to economic theory, a rational agent should perceive a price difference of 0,14 dollars always equally (Shampanier, Mazar, and Ariely, 2007). Individuals, and particularly consumers, tend to be overwhelmed by the power of *null* and overvalue the

literally priceless good(s). When considering the aforementioned behavioral concept of loss-aversion (or affect heuristic), it may become evident why the zero price effect works; it has no cost and thus no downside (Finucane et al., 2000). Individuals are not at loss in this scenario and, in the words of Adam Smith, do not experience any *pain*. They expect nothing but pure gains and do not seem to perceive that they are undergoing irrational actions. Queuing up for hours with several hundred people waiting in line for a *free* good (see yearly cheesecake tasting at Marriott Hotel Vienna [www.preisjaeger.at, 2017]), or having to order an additional product in order to reach the minimum amount to get *free* shipping for an online purchase, are two of the foremost examples of the inescapable attraction of zero and simultaneously depict the severely irrational behavior.

However, the root cause of the zero price effect is not necessarily as straightforward as it may seem. There is still a limitation of social nature that hinders individuals to fully exploit the price of null. Heyman and Ariely (2004) explained how social norms can play an intercepting role in the expected demand and supply curve for a zero price. Considering the results of their study, most individuals who were willing to pay, or had to pay, for a candy, bought several candies, whereas most individuals who were given candies for free, took only one candy. The transaction is thus perceived as a gift rather than a monetary trade, that is why social norms apply to this scenario (Fiske, 1992). Individuals tend to be appreciative of the free candy and do not exploit the opportunity of taking more free candies, due to a present social barrier (Heyman and Ariely, 2004). Hsee et al. (2003), on the other hand, derive the cause for the zero price effect from the so-called mapping difficulty (see anchoring heuristic, Tversky and Kahneman, 1974), which explains why individuals tend to have a hard time converting their expected utility of a “hedonistic consumption into monetary terms” (Shampanier, Mazar, and Ariely, 2007).

M E T H O D O L O G Y

In order to test the effectiveness of the decoy effect and of the zero price effect, a pastry shop will be used as a mean of employment and observation. Fortunately, the pastry shop has reached a fairly stabilized level

of customer fluctuation and sales in its last couple of years of operations, which will enable the study to gather significant and non-biased data for both, the decoy effect and the zero price effect.

For the observation of the decoy effect, a choice between two tarts will be given in a first time period (t1), and, later on in a second time period (t2), the choice between three tarts, including the decoy, will be given. This will allow for a direct and transparent comparison between both frames. Considering, that both time periods are in the spring season, there should not be any deviance in terms of seasonality and fluctuating demand. Tart A is for two servings and costs 5,00 euros. Tart B is for four servings and costs 10,00 euros. As already noticeable, this offer is perfectly proportional and thus solely preference and need should define the purchase decision. However, the decoy tart B' is for six servings but costs 20,00 euros. Although consumers should see that there is no proportional value for money in the third option, and should therefore ignore this irrelevant alternative, this decoy might still have an effect on the ultimate purchase decision. For the sake of clarity, **Table 1** and **Table 2** below visualize both product offers.

Tart	Servings	Price
A	2 pax	€ 5,00
B	4 pax	€ 10,00

Table 1. Product palette (without decoy)

Tart	Servings	Price
A	2 pax	€ 5,00
B	4 pax	€ 10,00
B'	6 pax	€ 20,00

Table 2. Product palette (with decoy)

For the observation of the zero price effect, a choice between two chocolate boxes will be given in a first time period (t1), and, later on in a second time period (t2), solely one option of a (promotional) combo of two chocolate boxes will be given. Again, the spread in time periods will allow for a direct and transparent comparison between both offers, considering that both time periods are in the spring season, in which there should not

occur any deviance in seasonality and fluctuating demand. Chocolate box C is large and costs 10,00 euros, whereas chocolate box D is smaller and costs 3,00 euros. Again, this offer is perfectly proportional and thus solely preference and need should define the purchase decision. The second offer, however, consists of a combination of both chocolate boxes, in which the larger box is priced as 13,00 euros and the smaller box is given for free. And again, considering a rational buying behavior, consumers should disregard the second offer and focus solely if they would need a smaller or a larger chocolate box for whatever occasion. For the sake of clarity, **Table 3** and **Table 4** below visualize both offers.

Box	Size	Price
C	Large	€ 10,00
D	Small	€ 3,00

Table 3. Product palette (without zero price)

Box	Size	Price
C+D	-	€ 13,00 (€ 13,00 + € 0,00)

Table 4. Product palette (with zero price)

Note: Although the second offer consists only of one option, namely buying chocolate box C and getting chocolate box D for free, results should still be straightforward as the sales volume alone (in comparison to the accumulated sales volume of the offer in t1) would give a clue if the zero price effect has been indeed effective.

The data has been forwarded into IBM SPSS, a professional software for statistical purposes, with the aim of generating an accurate computation and visualization of evidence.

RESEARCH QUESTION

Do pricing techniques and framing effects, and thus the zero price effect and the decoy effect, have an affect on consumer buying behavior? Are both effects able to maximize revenues? How do both effects influence the buying pattern? Are both effects disturbing the rational purchasing

process and turning the ultimate purchasing decision into an irrational decision? Which effect works best? And, which effect can be disregarded? If a significant change in buying behavior is observed, would this solely be based on one of the effects? Or, do these effects have limitations?

This research paper aims to design a framework in which the decoy effect as well as the zero price effect can be employed and evaluated. This issue and its research questions are dictated by the need to keep this study comparable to those done in the past as well as to test the effectiveness of both concepts.

2. OBSERVATION OF APPLICATION

After a four-month collection and observation of sales data, it is now possible to retrieve the results that both, the framing effect and the pricing technique, generated. It should be noted at this point that the observed four months were during mid to high season in terms of sales, particularly for the pastry shop (i.e. high season occurs during the winter months, whereas low season occurs during the summer months). This means that the observation and corresponding analysis cannot be biased and thus *ceteris paribus* is assumed, hence no external events or circumstances of any kind should influence the presented results.

2.1. QUANTITATIVE RESULTS

2.1.1. THE DECOY EFFECT

In the first two months, the collected data depicted the sales frequencies of tart A and tart B as well as of the decoy tart B' in the subsequent two months. 500 relevant purchases were recorded during the 'no offer' time period (t1), where 408 (81,6%) purchases were made for tart A and 92 (18,4%) were made for tart B. 250 purchases were recorded during the subsequent 'offer' time period (t2), where 90 (36%) purchases were made for tart A, 139 (55,6%) were made for tart B and 21 (8,4%) were made for the decoy tart B'.

Table 5 below categorizes, as a cross-tabulation, all made purchases

and their corresponding share(s), whether (decoy-)offer or no offer. Also, for the sake of clarity, **Figure 1** below depicts, as a bar chart, the effective distribution of purchased tarts.

			Tart			Total
			A	B	B'	
Setting	Offer	Count	90	139	21	250
		% within Setting	36,0%	55,6%	8,4%	100,0%
		% within Tart	18,1%	60,2%	100,0%	33,3%
		% of Total	12,0%	18,5%	2,8%	33,3%
No Offer	Count	Count	408	92	0	500
		% within Setting	81,6%	18,4%	0,0%	100,0%
		% within Tart	81,9%	39,8%	0,0%	66,7%
		% of Total	54,4%	12,3%	0,0%	66,7%
Total	Count	Count	498	231	21	750
		% within Setting	66,4%	30,8%	2,8%	100,0%
		% within Tart	100,0%	100,0%	100,0%	100,0%
		% of Total	66,4%	30,8%	2,8%	100,0%

Table 5. Cross-tabulation decoy effect

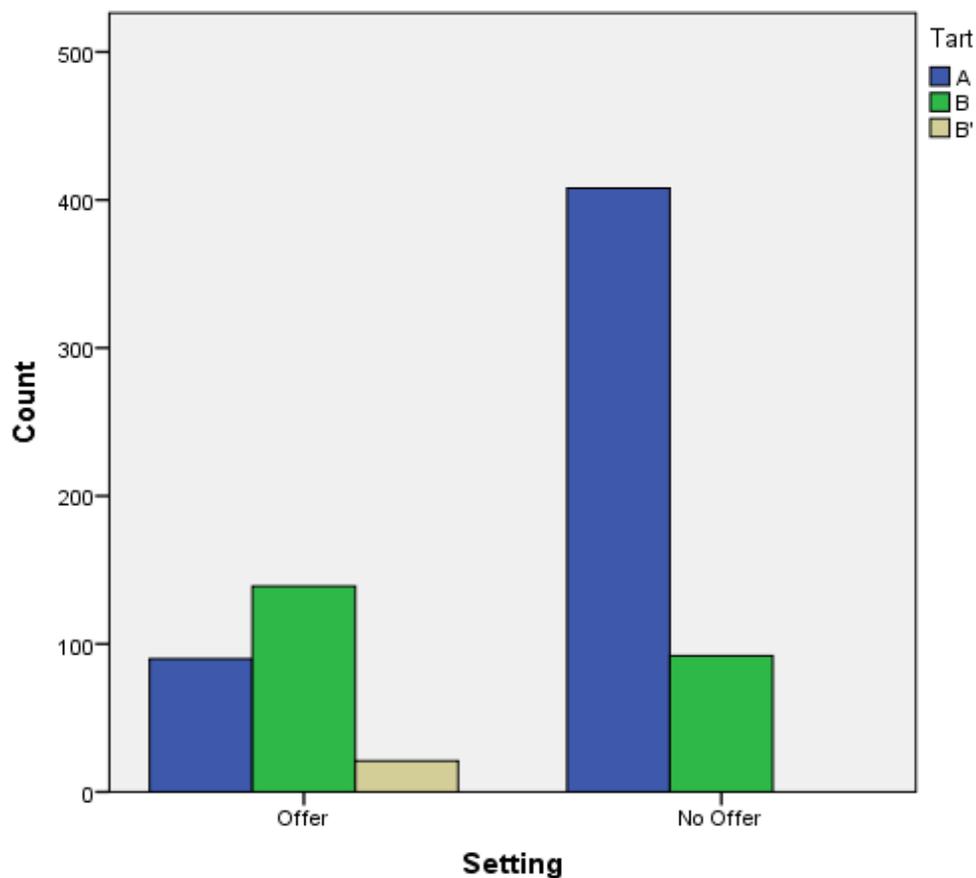


Figure 1. Bar chart decoy effect

2.1.2. THE ZERO PRICE EFFECT

In the first two months, the collected data depicted the sales frequencies of box C and box D as well as of both boxes C+D in the subsequent two months. 220 relevant purchases were recorded during the 'no offer' time period (t1), where 157 (71,4%) purchases were made for box C and 63 (28,6%) were made for box D. 350 purchases were recorded during the subsequent 'offer' time period (t2), where evidently all 350 (100%) purchases were made for the box combination C+D.

Table 6 below categorizes, as a cross-tabulation, all made purchases and their corresponding share(s), whether no offer or (zero price-)offer. And again, for the sake of clarity, **Figure 2** below depicts, as a bar chart, the effective distribution of purchased boxes.

			Box			Total
			C	D	C+D	
Setting	No Offer	Count	157	63	0	220
		% within Setting	71,4%	28,6%	0,0%	100,0%
		% within Box	100,0%	100,0%	0,0%	38,6%
		% of Total	27,5%	11,1%	0,0%	38,6%
	Offer	Count	0	0	350	350
		% within Setting	0,0%	0,0%	100,0%	100,0%
		% within Box	0,0%	0,0%	100,0%	61,4%
		% of Total	0,0%	0,0%	61,4%	61,4%
Total	Count	157	63	350	570	
	% within Setting	27,5%	11,1%	61,4%	100,0%	
	% within Box	100,0%	100,0%	100,0%	100,0%	
	% of Total	27,5%	11,1%	61,4%	100,0%	

Table 6. Cross-tabulation zero price effect

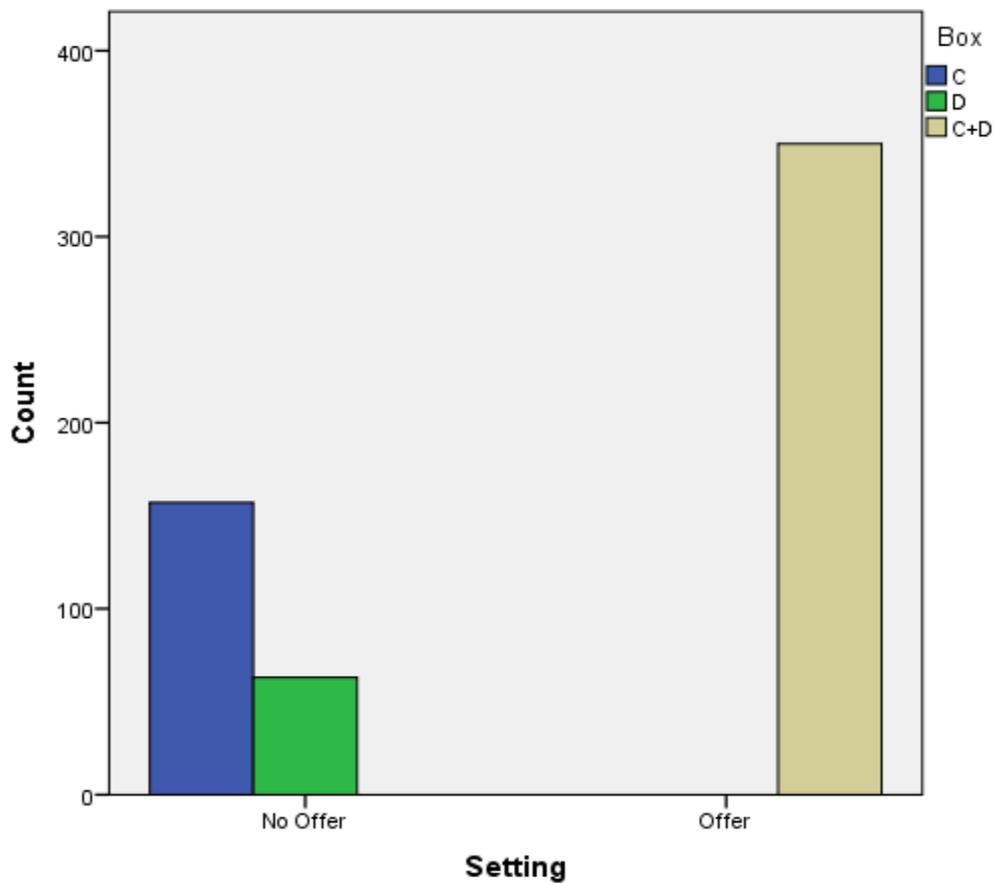


Figure 2. Bar chart zero price effect

2.2. EXAMINATION

2.2.1. THE DECOY EFFECT

When studying the results from the implementation of the decoy effect, it becomes quite poignant how underestimated, and perhaps underused, this concept is. Before however focusing on the strengths of this concept, the cross-tabulation in **Table 5** revealed that out of 500 purchases, a little more than 400 (408; 81,6%) were small tarts (tart A; 2 servings; 5,00 euros), whereas only about one-fifth (92; 18,4%) were larger tarts (tart B; 4 servings; 10,00 euros). As a matter of fact, this does not conclude to anything, except that tart A is simply smaller, cheaper and plainly more 'approachable' and thus more prominent than the larger and costlier tart B. Also, it depends on the occasion and reason for the purchase, meaning, statistically speaking, it is generally the case that single, or smaller, products are bought more often than multiple, or larger, products. This is due to most consumers buying goods primarily for themselves and *secondarily* for their

family, friends and guests. Hence, the results seem to please the general predictions, since the buying behavior follows the standard economic pattern of 'the lower the price, the higher the demand', and thus, 'the *cheaper*, the merrier'.

Yet, since the introduction of the decoy, namely the largest tart B' (6 servings; 20,00 euros), a strong shift occurred in the recorded sales data. Who would have thought that an alternative, which is disproportional in terms of its price compared to its size, making it entirely irrelevant, would have such a menacing impact on overall sales. Although only 250 purchases were recorded in the subsequent two months, only 90 (36%) were the cheaper tarts A, whereas more than half (139; 55,6%) were tarts B, which were double the size, but also double the price. Only 21 (8,4%) decoy tarts B' were purchased, along with its frustrating value for money. However, the latter number of purchases can be perhaps explained by the need of buying a larger tart, which would make the decision, in some twisted way, rational again, as the consumer fulfills his or her preference and need in this decision making process. As for the other two tarts, the winner is evidently tart B, although when considering both time periods together, tart A has been purchased more times. Still, in terms of proportions, the decoy effect truly made its affect, and forced consumers into buying tart B, which was 10,00 euros (-50%) cheaper, and made them forget about tart A. And even though most consumers probably did not even need to buy tart B, since it is too large or for any other the reason, they still thought it holds the best value for money (indeed it does, considering the given *frame*). Therefore, they cannot and will not resist on missing this opportunity, which they think is a great deal. If an outsider would look at this scenario, he or she would immediately be aware of the undergone framing effect. Similarly to the many studies done in the past, including the work of Ariely and Chajut (1991), this study, too, highlights the power of context and what it can do, not only in terms of revenue maximization, but also in terms of manipulating pseudo rational thinkers into making a de facto irrational decision.

Ironically enough, the confidence of consumers is reenforced by thinking that such a purchase is based on their rationally thought-through cost-benefit principle. Remember Jonathan at the popcorn counter, confident with his decision of paying less and getting more popcorn, not being aware

of the exploiting shift in preference. Still, neither Jonathan, nor the paying customers in the pastry shop are to blame, but rather their mere perception and general attitude of focusing on what is, almost literally, on their plate. Individuals focus solely on the set of options laid before them. Once the frame is fixed, they consider the proposed options carefully and start to compare them with one another. Though, with a decoy in the set, the trade-off ends up well unbalanced and most choices end up being the option with the seemingly strongest benefits.

In monetary terms, the pastry shop has made a revenue of 2.960,00 euros (i.e. 920,00 euros for tart B) during the first, decoy-less, time period and 2,260,00 euros (i.e. 1.390,00 euros for tart B) during the second time period. At first sight, the numbers show that the effectively made revenue was higher without the decoy, which would leave the decoy effect ineffective. And this would be the case, if revenues would not be seen proportionally. Meaning, the decoy offer reached almost the same level of revenue during the decoy-less offer, while only having *half* the transactions. Most importantly, labor costs, among other fixed and variable costs, for 250 transactions are nowhere near as intensive as for 500 transactions, making the bottom-line appreciative at the end of the day.

Even though the decoy effect demonstrated its persuasive power, some limitations, such as the increased need of buying the decoy product, may have occurred in this study, eventually distorting some results, although not significantly. The chapter on limitations will elaborate on these external biases.

2.2.2. THE ZERO PRICE EFFECT

Similarly to the decoy effect, the two periods, with and without the zero price, delivered a discrepancy in terms of purchase volume. On one hand, there were 220 purchases made, of which almost 160 (157; 71,4%) were made for the larger box C and about one-fifth (63; 28,6%) was made for the smaller box D. Whereas on the other hand, the zero price combination of box C and D, the latter being given as a free gift, amounted to a total of 350 purchases. Assuming *ceteris paribus*, the presented sales figures say it all with a catapulting increase of almost 60% (59,1%) in only a

couple of months.

Indeed, there was only one option to choose from, namely to pay for box C (13,00 euros) and get box D (0,00 euros) additionally, but it does not represent a limitation, since the standard assumption would be a decrease in sales, due to the lack of options as well as the generally higher perceived price of box C (even though consumers might not be aware of the price increase of 3,00 euros from one day to the other). Yet, as the observation displays, the increase in purchases was most probably due to the zero price effect. The magic of a free *and* valuable good is almost indisputable and, in this case study, blinded most customers from questioning themselves why they would even need to purchase a higher priced box in the first place, considering it does not fit their first and foremost preference. Again, this effect violates the very principles of economic theory by tricking alleged rational agents into making a higher expenditure, where there is no definite need for such behavior.

Like in the case of the zero price effect, customers cannot and will not miss an opportunity of receiving a free good. For them, this bargain is a great deal, which will enhance their confidence as well as their alleged understanding and sense of negotiation. Remember Samuel and his sweet-tooth offer that happened to be irresistible, making his customers pay more for an exquisite pastry in order to receive a leftover piece of pie for free. Although, in some aspect, most customers may perhaps realize that the price for the main good is higher than elsewhere, the chance of acquiring a free good (a gain instead of a loss) cannot be simply ignored. Likewise, although most customers may perhaps realize that the *actual* price of the free good is most probably low (and by all means affordable), they will still overvalue the free good and make the final purchase. As explained in studies of the zero price model, including the work of Shampanier, Mazar, and Ariely (2007), the stimulus of a zero price is much more penetrating, forces individuals to be overwhelmed by the aspect of no cost, hence no downside, and makes them ultimately pay for the 'free' good.

In monetary terms, the pastry shop has made a revenue of 1.759,00 euros (i.e. 1.570,00 euros for box C and 189,00 euros for box D) during the first, zero price-less, time period and 4.550,00 euros during the second time period. These figures alone suggest that the employed pricing technique had

an effective impact on revenues, underlined with a radical increase of almost 160% (158,6%). Who would have thought that a simple shift in cost, or rather the way two goods are priced and presented, can generate such a drastic upturn in sales.

Nevertheless, some limitations, such as a misjudged willingness to pay, may have occurred and eventually influenced the outcome of this particular study, although only marginally. These unforeseen circumstances will be considered in the subsequent chapter on limitations.

2.3. LIMITATIONS

Consider the medieval anecdote in which a talentless tailor makes up a non-existent cloth and sways his king that the cloth is made of the finest silk and is therefore fully transparent. After putting the weightless robe on, the king went out onto his balcony to greet his cheerful crowd of peasants that welcomed him with the utmost respect. It was not long until a simple child saw what nobody seemed to see. He pointed to the balcony and laughed out loud about the king standing shamelessly *naked*.

The child in this anecdote is a metaphor for the revolutionizing field of behavioral economics. Not long ago, economic theory seemed flawless, or at least was undisputed in terms of (quasi) accurate market predictions. It was almost impossible and neither scholarly nor socially acceptable to question classical as well as neoclassical economics, until behavioral economics started to point out some deficits and shortcomings. In general, the major flaw of standard economic theory was the disregard of human behavior and its unpredictability. With the aid of psychology, behavioral economics worked out solutions, which started to remove most inaccuracies to some extent. Unfortunately, like classical as well as neoclassical economics, behavioral economics, too, reaches some limitations. Although the study of consumer (buying) behavior is in constant development (e.g. neuroeconomics), it still remains a cumbersome subject. The employed effects in this study are not excluded from such an unpredictable behavior and therefore face several restrictions, which might have influenced the outcome in both testings.

In terms of the decoy effect, the foremost limitation that comes to mind is the pervasion of a rational decision-making process. Meaning, even though a decoy is introduced and, as in most cases, is not regarded as an indifferent and irrelevant alternative, in some cases individuals *do* disregard the decoy and focus on their preference. The smallest and cheapest tart A was still chosen over tart B multiple times, although the decoy tart B' suggested that tart B offers the most for the least. Also, what if the mere need is to purchase a larger tart for more servings, whether it is tart B for four servings, or tart B' for six servings. It is difficult to filter how many purchases of B were due to the decoy, and thus due to the irresistible bargain, or due to pure preference of choice. It is solely the strong tendency and effective increase in revenues that assumes the power of the decoy effect. In addition, customers, who bought the decoy tart B', needed most probably the tart for a special occasion that requires more servings; however, they might not feel frustrated because of a failed bargain, but rather have a higher willingness to pay, due to perceiving a higher value. Again, the study does not provide what the distribution of the purchasing purpose is. A time-consuming live questionnaire might crystallize some purposes. Then again, a detailed set of questions will most definitely reveal the decoy effect, or at least grant customers some additional time to reflect upon their decision. Another limitation, particularly in regard to sales, is the fact that the increase in revenues depends also heavily on the art of selling. The framing effect alone is obviously powerful enough, yet some customers might remain 'stubborn' and stay with their first impulsive preference, or, customers might not even be aware of the lucrative bargain in the first place. In this case, a driven salesperson would try to *nudge* the customers' reflection. In an online shop, for instance, the nudge could be to highlight a particular product, suggesting that it holds the best value for money. Still, no matter how eyeopening the decoy effect might be, it should not be seen or employed as an absolute changer of minds, but rather as an enforcer.

In terms of the zero price effect, the several natures of limitations are fairly similar. The strongest emphasis, however, should be on the misjudged willingness to pay of value-driven customers. It is not necessarily engraved in stone that customers urge to buy the expensive box C only to receive an additional free gift (box D). To the contrary, they may need to buy this

larger box, whether for themselves or most probably as a gift for whomever. Also, perhaps the price they are willing to pay is set at 13,00 euros or more. If they value and cherish the box enough, they might pay even more; even if a free gift would come along or not. In this case, the additional box D is merely seen as a bonus (or goodwill). Evidently, this limitation is not set for the entire range of zero price effects, but rather for this particular scheme, where the cost of the zero price good is simply shifted onto the main good. Another limitation, which has already been mentioned, is the effective sales tactic that might enhance revenues generated by the zero price combination. Meaning, more than ever, this pricing rearrangement allows the salesperson to stimulate and reenforce the perceived overvaluation of the free good. In terms of set of options, it could be argued that because of the lack of other options, customers were perhaps 'forced' into purchasing the zero price combination, if, for instance, they were in a hurry to buy a gift for a dinner invitation. However, it should be also noted that the pastry shop offered various chocolate boxes of all sizes and prices, making the assumption that customers were 'forced' into buying the proposed combination void. Despite its eventual limitations, the zero price effect promises to remain a prominent and steadily effective sales and marketing tool. A kind of immunity against limitations, to some extent, offers a collaboration between the zero price effect and the endowment effect. If, for instance, the free good comes along in a physical and non-perishable form, e.g. a noble wooden crate, it will most probably result in a binding affect. The established ownership will then eventually seed overvaluation and presumably enhance brand awareness.

Both, the decoy effect and the zero price effect, face some sort of hindering and even though these limitations make it difficult to filter and restrain unwanted external influences, they tend to disturb the collected data only marginally. In other words, the results generated by both concepts are indeed accurate, and particularly telling, with some smaller exceptions that need to be kept in mind.

CONCLUSION

The ultimate objective of this study was to demonstrate how the allegedly rational behavior of economic agents, as dictated by economic

theory, breaks its pattern and falls into an irrational conduct. More specifically, this research paper employed and evaluated a framing effect and a pricing technique, namely the decoy effect and the zero price effect, two concepts that were used to help underline the one-eighty-degree shift in the decision-making process of most consumers.

After the almost prehistoric beginnings of behavioral economics, ironically enough, with the fathers of classical economics, Adam Smith and Jeremy Bentham, its fast-paced emergence and development was lead by Amos Tversky and Daniel Kahneman, among other, and occurred in the second half of the twentieth century. Today, this discipline consists of a wide pool of scholars, striving to develop pending concepts that might explain, or break down, the complex ways of human economic behavior. Particularly for the purpose of this research paper, one behavioral economist, namely Dan Ariely, has contributed immensely to the understanding of every day conduct. For both, the decoy effect and zero price effect, he was one of the leading researchers, if not *the* leading researcher, and made an illuminating example of how the homo economicus seems to fail on a regular basis.

The decoy effect, which tends to sway consumers into picking an option that falsely seems to hold the best value for money, has been successfully employed in a pastry shop for a duration of two months and generated significant results at the end of its observation. Prior to this test phase, the pastry shop offered the choice between two tarts, a smaller and cheaper tart as well as a larger and costlier tart, for a duration of two months, in order to have a stable and comparable pattern. During the first two months, the majority of customers (i.e. 408 out of 500) purchased the smaller and cheaper tarts. However, when the decoy tart was introduced in the subsequent months, the tables turned and the majority of customers (i.e. 139 out of 250) purchased the larger and costlier tarts. Evidently, the irrelevant decoy had quite an impact on the ultimate sales mix. In other words, the framing effect forced the sale of the larger and costlier tart to increase with over 50% (51,1%) and the sale of smaller and cheaper tart to decrease with almost 80% (77,9%), although the number of total purchases decreased to 250. The decoy thus made the first option less appealing, although, statistically speaking, it should be still the number one purchased product, since consumers tend to primarily buy for themselves. The results

argued otherwise and gave a telling example of how a well adjusted framing effect can turn a rational preference into an irrational choice.

The zero price effect, which lures consumers with the magic of null and lets them overvalue the free good, has been, too, successfully employed in a pastry shop for a duration of two months and generated perhaps even more significant results than the decoy effect at the end of its observation. Prior to this test phase, the pastry shop offered the choice between two chocolate boxes, a smaller and cheaper box as well as a larger and costlier box, for a duration of two months, in order to have a stable and comparable pattern. During the first two months, the majority of customers (i.e. 160 out of 220) purchased the larger and costlier box, leaving the small and inexpensive box behind. With the introduction of the zero price effect in the subsequent months, the cost of the smaller box was shifted onto the cost of the larger box and the smaller box was then given for free. Although one might argue that the set of options was therefore restricted, since there was only one combination to choose from, the price was still less affordable, as it comprised the costs of both, the smaller and the larger box. Surprisingly, a significant increase of almost 60% (59,1%) in sales and, more importantly, a sky-rocketing increase of over 150% (158,6%) in revenues were the result of this thought-through pricing technique. Leaving eventual limitations, such as an increased demand due to externalities of any kind, aside, the outcome of this particular testing indisputably underlines the power of the zero price. Again, the assumed rationale-driven agent unwittingly lost his or her rationale by overvaluing a free good and was subliminally provoked to pay more, although he or she most probably did not expected to do so prior to the zero price setting.

Both concepts have made a lasting impact and have been considered as a fixed implementation into the product palette of the pastry shop. Next to the fact that both, the decoy effect (proportionally) and the zero price effect (effectively), contributed to the sharp maximization of revenues, it is far more important for the purpose of this research paper to understand how *pliable* consumer buying behavior really is. Even more from a philosophical than an economic point of view, human emotions are incredibly vulnerable to any exposed external factors and tend to be unknowingly manipulated with the utmost ease in a heartbeat; particularly in a sophisticated setting of

a framing effect or a pricing technique, as it was depicted in this study.

Behavioral economics has not only been a symbiosis of both, economics and psychology, or at least not anymore, but rather a complex construct of many disciplines stemming from the most diversified areas. More and more scholars find themselves involved in the study of behavioral economics, since, at the end of the day, it is purely the study of human behavior. And, with a continuously updated and improved understanding of how humans behave, and more specifically, what their basis for *judgment* and *choice* is, the transparent behavior of consumers will become a source of full exploitation by their counter parties. Now, any behavioral economist, or any choice architect, should help consumers, or individuals in general, make the 'right' decision(s) and thus, in micro and macro, benefit society. And, as most behavioral concepts serve as a foundation for manipulating judgment and choice, it would be of utmost importance to use the many insights for *benevolent* purposes.

BIBLIOGRAPHY

- Almeida, F. (2013). *A psychological perspective of Keynes' approach to decision-making*. Paraná: Universidade Federal do Paraná.
- Ariely, D. (2008, December). *Are we in control of our own decisions?* Speech presented at TED2008.
- _____. (2008). *Predictably Irrational: The Hidden Forces That Shape Our Decisions*. New York: Harper Collins.
- _____. (2009, February). *Our buggy moral code*. Speech presented at TED2009 The Great Unveiling. Long Beach, California.
- _____. (2011, March). *Beware conflicts of interest*. Speech presented at TED2011 The Rediscovery of Wonder. Long Beach, California.
- _____. (2012, October). *What makes us feel good about our work?* Speech presented at TEDxRiodelaPlata. Buenos Aires, Argentina.
- _____. (2015, March). *How equal do we want the world to be? You'd be surprised*. Speech presented at TED2015 Truth and Dare. Vancouver, Canada.
- Ariely, D., & Chajut, E. (1991). *Group Size Influences Choice in the "Asymmetric Dominance Shift" Phenomenon*. Unpublished manuscript, retrieved from Ariely and Wallsten (1995).
- Ariely, D., Loewenstein, G., & Prelec, D. (2003). Coherent Arbitrariness: Stable Demand Curves without Stable Preferences. *Quarterly Journal of Economics*. Vol. 118, pp. 73-105.
- Ariely, D., & Wallsten, T. (1995). Seeking Subjective Dominance in Multidimensional Space: An Explanation of the Asymmetric Dominance Effect. *Organizational Behavior and Human Decision Processes*. Vol. 63(3), pp. 223-232.
- Ariely, D., & Wertenbroch, K. (2002). Procrastination, Deadlines, and Performance: Self-Control by Precommitment. *Psychological Science*. Vol. 13, pp. 219-224.
- Arrow, K. (1958). Utilities, Attitudes, Choices: A Review Note. *Econometrica*. Vol. 26(1), pp. 1-23.
- Ashraf, N., Camerer, C., & Loewenstein, G. (2005). Adam Smith, Behavioral Economist. *Journal of Economic Perspectives*. Vol. 9(3), pp. 131-145.

- Bandura, A. (1971). *Social Learning Theory*. Chicago: Aldine Atherton.
- Bateman, I., Munro, A., & Poe, G. (2008). Decoy Effects in Choice Experiments and Contingent Valuation: Asymmetric Dominance. *Land Economics*. Vol. 84(1), pp. 115-127.
- Bentham, J. (1789). *An Introduction to the Principles of Morals and Legislation*. London: J. Debrett.
- _____ (1795). *Supply without Burthen; or Escheat vice Taxation: Being a proposal for a saving of taxes by an extension of the law of escheat, including strictures on the taxes on collateral succession comprised in the budget of 7th December 1795*. London: J. Debrett.
- _____ (1843). *The Works of Jeremy Bentham*. 11. Vols. Published under the superintendence of his executor, John Bowring. Edinburgh: Tait.
- Buehler, R., Griffin, D., & Ross, M. (1994). Explaining the “planning fallacy”: Why people underestimate their task completion times. *Journal of Personality and Social Psychology*. Vol. 67(3), pp. 366-381.
- Camerer, C. (1997). Progress in Behavioral Game Theory. *Journal of Economic Perspectives*. Vol. 11, pp. 167-188.
- Camerer, C., & Loewenstein, G. (2005). *Advances in Behavioral Economics*. Princeton University Press. Princeton.
- Camerer, C., Loewenstein, G., & Prelec, D. (2005). Neuroeconomics: How neuroscience can inform economics. *Journal of Economic Literature*. Vol. 43, pp. 9-64.
- Camerer, C., Loewenstein, G., [& Rabin, M. (Ed.)] (2011). *Advances in Behavioral Economics*. Princeton: Princeton University Press.
- Chen, K., Lakshminarayanan, V., & Santos, L. (2005). *The Evolution of Our Preferences: Evidence from Capuchin Monkey Trading Behavior*. Working paper. Yale.
- Colman, A., Pulford, B., & Bolger, F. (2007). Asymmetric Dominance and Phantom Decoy Effects in Games. *Organizational Behavior and Human Decision Processes*. Vol. 104, pp. 193-206.
- Dequech, D. (1999). Expectations and Confidence under Uncertainty. *Journal of Post Keynesian Economics*. Vol. 21(3), pp. 415-430.
- Earl, P. (2005). *Behavioral Economics and the Economics of Regulation*.

Briefing Paper for the New Zealand Ministry of Economic Development.

- Edgeworth, F. (1881). *Mathematical Physics: An Essay on the Application of Mathematics to the Moral Sciences*. London: C. Kegan Paul & Co.
- Finucane, M., Alhakami, A., Slovic, P., & Johnson, M. (2000). The affect heuristic in judgments of risks and benefits. *Journal of Behavioral Decision Making*. Vol. 13(1), pp. 1-17.
- Fiske, A. (1992). The four elementary forms of sociality: Framework for a unified theory of social relations. *Psychological Review*. Vol. 99, pp. 689-723.
- Frederick, S., & Loewenstein, G. (1999). Hedonic adaptation. In *Well-being: The foundations of hedonic psychology*, pp. 302-329. Russell Sage Foundation. New York.
- Frederick, S., Loewenstein, G., & O'Donoghue, T. (2002). Time discounting and time preference: A critical review. *Journal of Economic Literature*. Vol. 40, pp. 351-401.
- Güth, W., Schmittberger, R., & Schwarze, B. (1982). An experimental analysis of ultimatum bargaining. *Journal of Economic Behavior & Organization*. Vol. 3(4), pp. 367-388.
- Heyman, J., & Ariely, D. (2004). Effort for payment: A tale of two markets. *Psychological Science*. Vol. 15(11), pp. 787-793.
- Hsee, C., Yu, F., Zhang, J., & Zhang, Y. (2003). Medium maximization. *Journal of Consumer Research*. Vol. 30(1), pp. 1-14.
- Huber, J., Payne, J., & Puto, C. (1982). Adding Asymmetrically Dominated Alternatives: Violations of Regularity and the Similarity Hypothesis. *Journal of Consumer Research*. Vol. 9, pp. 90-98.
- Huber, J., & Puto, C. (1983). Market Boundaries and Product Choice: Illustrating Action and Substitution Effects. *The Journal of Consumer Research*. Vol. 10(1), pp. 31-44.
- Josiam, B., & Hobson, J. S. P. (1995). Consumer Choice in Context: The Decoy Effect in Travel and Tourism. *Journal of Travel Research*. Vol. 34, pp. 45-50.
- Kahneman, D., Knetsch, J., & Thaler, R. (1991). Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias. *Journal of Economic Perspectives*. Vol. 5(1), pp. 193-206.

- Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*. Vol.47, pp. 263-291.
- _____ (1982). The Psychology of Preference. *Scientific American*. Vol. 246, pp. 160-173.
- Keynes, J. (1921). *A Treatise on Probability*. Cambridge: Macmillan.
- _____ (1936). *The General Theory of Employment, Interest and Money*. Cambridge: Macmillan.
- _____ (1937). The General Theory of Employment. In *The Collected Writings oh John Maynard Keyes*. Vol. 14. Cambridge: Macmillan.
- Koszegi, B., & Rabin, M. (2008). Choices, Situations, and Happiness. *Journal of Public Economics*. Vol. 92(8-9), pp. 1821-1832.
- Loewenstein, G. (2000). Emotions in Economic Theory and Economic Behavior. *The American Economic Review*. Vol. 90(2), pp. 426-432.
- _____ (2005). Hot-cold empathy gaps and medical decision-making. *Health Psychology*. Vol. 24(4), pp. 49-56.
- _____ (2014). [Foreword by George Loewenstein and Rory Sutherland]. In A. Samson (Ed.), *The Behavioral Economics Guide 2014 (with a foreword by George Loewenstein and Rory Sutherland)*. Vol. 1, pp. vi-xviii.
- Loewenstein, G., O'Donoghue, T., & Rabin, M. (2003). Projection bias in predicting future utility. *Quarterly Journal of Economics*. Vol. 118(4), pp. 1149-1187.
- Loewenstein, G., Weber, E., Hsee, C., & Welch, N. (2001). Risk as feelings. *Psychological Bulletin*. Vol. 127(2), pp. 267-286.
- Marshall, A. (1890). *The Principles of Economics*. London: Macmillan.
- _____ (1919). *Industry and Trade*. London: Macmillan.
- Mullainathan, S., & Thaler, R. (2000). *Behavioral Economics*. Working paper (no. 7948) for the National Bureau of Economic Research (NBER). Cambridge.
- O'Donoghue, T., & Rabin, M. (1999). Doing It Now or Later. *American Economic Review*. Vol. 89, pp. 103-124.
- Payne, J., Bettman, J., & Johnson, E. (1992). Behavioral Decision Research: A Constructive Processing Perspective. *Annual Review of Psychology*. Vol. 43, pp. 87-131.
- Preisjaeger.at (2017, March). *Marriott Hotel Gratis Cheesecake Tasting am*

25. März 2017, 6 Euro/Stück sparen.

- Rabin, M. (1998). Psychology and Economics. *Journal of Economic Literature*. Vol. 36(1), pp. 11-46.
- Ross, L., & Ward, A. (1996). Naive Realism in Everyday Life: Implications for Social Conflict and Misunderstanding. *Values and Knowledge*, pp. 103-135.
- Samuelson, W., & Zeckhauser, R. J. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty*. Vol. 1, pp- 7-59.
- Scitovsky, T. (1977) [1992]. *The Joyless Economy: The Psychology of Human Satisfaction and Consumer Dissatisfaction*. USA: Oxford University Press.
- Shampanier, K., Mazar, N., & Ariely, D. (2007). Zero as a Special Price: The True Value of Free Products. *Marketing Science*. Vol. 26(6), pp. 742-757.
- Shiv, B., Carmon, Z. & Ariely, D. (2005). Placebo effects of marketing actions: Consumers may get what they pay for. *Journal of Marketing Research*. Vol. 42(4), pp. 383-393.
- Simonson, I., & Tversky, A. (1992). Choice in Context: Tradeoff Contrast and Extremeness Aversion. *Journal of Marketing Research*. Vol. 29, pp. 281-295.
- Slovic, P. (1995). The Construction of Preferences. *American Psychologist*. Vol. 50, pp. 364-371.
- Smith, A. (1759) [1976]. *The Theory of Moral Sentiments*. D. Raphael and A. Macfie, eds. [The Glasgow Edition]. Liberty Fund.
- _____. (1759) [1981]. *The Theory of Moral Sentiments*. D. Raphael and A. Macfie, eds. Indianapolis.
- _____. (1776) [1981]. *An Inquiry into the Nature and Causes of the Wealth of Nations*. R. Campbell and A. Skinner, eds. Indianapolis.
- Thaler, R. (1980). Toward a Positive Theory of Consumer Choice. *Journal of Economic Behavior and Organization*. Vol. 1, pp. 39-60.
- _____. (1999). Mental Accounting Matters. *Journal of Behavioral Decision Making*. Vol. 12, pp. 183-206.
- Thaler, R., & Shefrin, H. (1981). An Economic Theory of Self-Control. *Journal of Political Economy*. Vol. 89(2), pp. 392-406.
- Thaler, R., & Sunstein, C. (2008). *Nudge: Improving Decisions about*

- Health, Wealth, and Happiness*. Yale: Yale University Press.
- Tversky, A., & Kahneman, D. (1974). Judgement under Uncertainty: Heuristics and Biases. *Science*. Vol. 185, pp. 1124-1131.
- _____ (1981). The Framing of Decisions and the Psychology of Choice. *Science*. Vol. 211, pp. 453-458.
- Tversky, A., & Simonson, I. (1993). Context-dependent Preferences. *Management Science*. Vol. 39, pp. 1179-1189.
- Quinn, M. (2016). Jeremy Bentham, 'The Psychology of Economic Man' and Behavioural Economics. *Oeconomia*. Vol. 6(1), pp. 3-32.
- Veblen, T. (1899). *The Theory of the Leisure Class*. New York: Penguin Books.

DATA SET

GET

```

FILE='C:\Users\Rochel\Desktop\master.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
CODEBOOK Palette [n] Purchase [n]
  /VARINFO POSITION LABEL TYPE FORMAT MEASURE ROLE VALUELABELS
  /OPTIONS VARORDER=VARLIST SORT=ASCENDING MAXCATS=200
  /STATISTICS COUNT PERCENT MEAN STDDEV QUANTILES.
  
```

Codebook

[DataSet1] C:\Users\Rochel\Desktop\master.sav

Palette

		Value	Count	Percent
Standard Attributes	Position	1		
	Label	Setting		
	Type	Numeric		
	Format	F8		
	Measurement	Nominal		
	Role	Input		
Valid Values	1	Offer	250	33,3%
	2	No Offer	500	66,7%

Purchase

		Value	Count	Percent
Standard Attributes	Position	2		
	Label	Tart		
	Type	Numeric		
	Format	F8		
	Measurement	Nominal		
	Role	Input		
Valid Values	1	A	498	66,4%
	2	B	231	30,8%
	3	B'	21	2,8%

```

GET
  FILE='C:\Users\Rochel\Desktop\master.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
CROSSTABS
  /TABLES=Palette BY Purchase
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT ROW COLUMN TOTAL
  /COUNT ROUND CELL
  /BARCHART.

```

Crosstabs

[DataSet1] C:\Users\Rochel\Desktop\master.sav

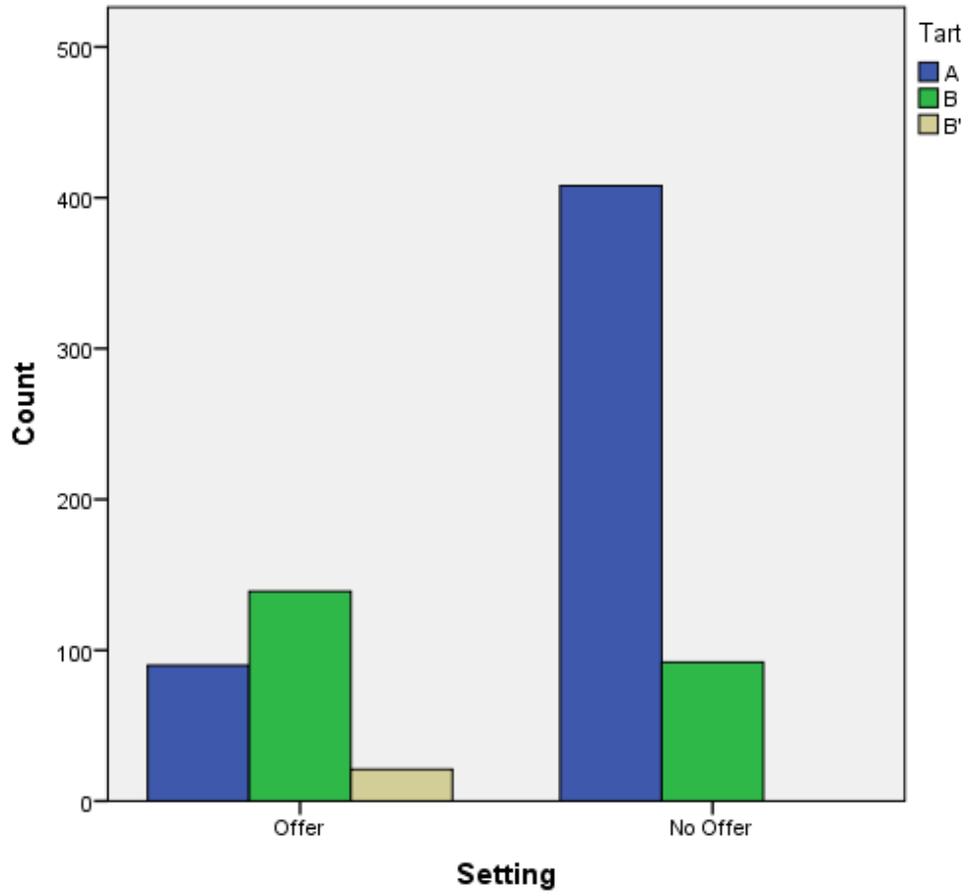
Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Setting * Tart	750	100,0%	0	0,0%	750	100,0%

Setting ^ Tart Crosstabulation

			Tart			Total
			A	B	B'	
Setting	Offer	Count	90	139	21	250
		% within Setting	36,0%	55,6%	8,4%	100,0%
		% within Tart	18,1%	60,2%	100,0%	33,3%
		% of Total	12,0%	18,5%	2,8%	33,3%
No Offer	Count	Count	408	92	0	500
		% within Setting	81,6%	18,4%	0,0%	100,0%
		% within Tart	81,9%	39,8%	0,0%	66,7%
		% of Total	54,4%	12,3%	0,0%	66,7%
Total	Count	Count	498	231	21	750
		% within Setting	66,4%	30,8%	2,8%	100,0%
		% within Tart	100,0%	100,0%	100,0%	100,0%
		% of Total	66,4%	30,8%	2,8%	100,0%

Bar Chart



```

GET
  FILE='C:\Users\Rochel\Desktop\master2.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
CODEBOOK Palette [n] Purchase [n]
  /VARINFO POSITION LABEL TYPE FORMAT MEASURE ROLE VALUELABELS
  /OPTIONS VARORDER=VARLIST SORT=ASCENDING MAXCATS=200
  /STATISTICS COUNT PERCENT MEAN STDDEV QUANTILES.

```

Codebook

[DataSet1] C:\Users\Rochel\Desktop\master2.sav

Palette

		Value	Count	Percent
Standard Attributes	Position	1		
	Label	Setting		
	Type	Numeric		
	Format	F8		
	Measurement	Nominal		
	Role	Input		
Valid Values	1	No Offer	220	38,6%
	2	Offer	350	61,4%

Purchase

		Value	Count	Percent
Standard Attributes	Position	2		
	Label	Box		
	Type	Numeric		
	Format	F8		
	Measurement	Nominal		
	Role	Input		
Valid Values	1	C	157	27,5%
	2	D	63	11,1%
	3	C+D	350	61,4%

```

GET
  FILE='C:\Users\Rochel\Desktop\master2.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
DESCRIPTIVES VARIABLES=Palette Purchase
  /STATISTICS=MEAN STDDEV MIN MAX.

```

```

CROSSTABS
  /TABLES=Palette BY Purchase
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT ROW COLUMN TOTAL
  /COUNT ROUND CELL
  /BARCHART.

```

Crosstabs

[DataSet1] C:\Users\Rochel\Desktop\master2.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Setting * Box	570	100,0%	0	0,0%	570	100,0%

Setting * Box Crosstabulation

			Box			Total
			C	D	C+D	
Setting	No Offer	Count	157	63	0	220
		% within Setting	71,4%	28,6%	0,0%	100,0%
		% within Box	100,0%	100,0%	0,0%	38,6%
		% of Total	27,5%	11,1%	0,0%	38,6%
Offer		Count	0	0	350	350
		% within Setting	0,0%	0,0%	100,0%	100,0%
		% within Box	0,0%	0,0%	100,0%	61,4%
		% of Total	0,0%	0,0%	61,4%	61,4%
Total		Count	157	63	350	570
		% within Setting	27,5%	11,1%	61,4%	100,0%
		% within Box	100,0%	100,0%	100,0%	100,0%
		% of Total	27,5%	11,1%	61,4%	100,0%

