

RANDOM REWARD MECHANISMS (LOOT BOXES): BEHAVIORAL ECONOMICS AS A REGULATORY SOLUTION IN BRAZILIAN LAW

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ABSTRACT

The paper seeks to reflect on ways to create an effective regulation by understanding the aspects of random reward mechanisms in video games, also known as loot boxes. Players acquire digital assets of a game through microtransactions, and pays with in-game currency or real money. Among these digital assets, several games also offer loot boxes, which are systems of "surprise boxes" with a certain price but whose reward is unknown to the player (and is only revealed when the box is purchased and opened). A simple way of selling a digital asset has serious implications for players, mainly due to the similarity with gambling in making the reward relegated to chance. Also, adults and children players are encouraged to exhibit addictive behaviors, spending time and money without any control. Brazilian law does not have enough apparatus to protect consumers from these practices and banning loot boxes from the market does not seem to be the solution, as similar mechanisms could arise even worse. This way of marketing digital assets hides the real transaction costs and makes consumers make decisions based on heuristics, and that's why the Behavioral Economic Theory can offer better solutions to protect players.

KEYWORDS

Loot Boxes, Regulation, Gambling, Behavioral Economics, Brazilian Law

1. INTRODUCTION

The concept of loot boxes, also known as random reward mechanism (RRM), has become increasingly prevalent in the videogame industry, with many games offering them as a means of obtaining virtual goods with in-game currency or real money. While loot boxes can provide a sense of excitement, realization and unpredictability, according to studies cited in this research, there are growing concerns about their impact on consumers, particularly children, and their potential to encourage vicious and gambling-like behaviors.

Brazil has legal tools that can help subsume loot boxes within the legal system. First, it is necessary to discuss whether loot boxes are or not gambling, because the practice of gambling is prohibited in the country, although it has recently found flexibility with betting websites and apps.

If loot boxes not being considered gambling, which is prohibited by law, it is possible to use the Consumer Protection Code (Código de Defesa do Consumidor), the Internet Legal Framework (Marco Civil da Internet) and the General Data Protection Law (Lei Geral de Proteção de Dados). All of this may not be enough to protect consumers from the vulnerabilities brought about by the virtual environment, and especially children. Therefore, this work proposes a complementary way to study regulation in Brazil.

Behavioral economics, as a field of study, is concerned with the ways in which human behavior deviates from the idealized assumptions of traditional economic models. It assumes that people are influenced by psychological biases and emotional factors, and that these influences can impact decision-making. In the context of loot boxes, understanding the psychological factors that contribute to their appeal can help inform the development of effective regulations to protect consumers.

In previous research, the legal instruments available to the Brazilian legal system to protect consumers were studied. However, during a previous research, it was identified that the current legal apparatus was not enough to protect consumers from harmful behavior and the solution was found in the Behavioral Economic Theory.

2. LOOT BOXES: DEFINITION AND IMPLICATIONS

Loot boxes have been widely studied by professionals from the most diverse areas in recent years, being identified as a problem that goes beyond the technical field of developing a game. There are studies in psychology, psychiatry, sociology and law that seek to understand the effects of this system on players and the social and legal implications.

In recent years, the video game industry has adopted a new way of monetizing game assets: microtransactions, also known as IAP (*in-App purchases*). In video games, microtransactions consist in purchase of virtual goods, using virtual currency or real world money, and then traded for a virtual good, which can be any asset, including loot boxes. (King, Delfabbro, 2018; Neely, 2018). By themselves, microtransactions already have the controversy of operating in a non-transparent system of supply and demand based on personalized ads based on data and an artificial scarcity.

Loot boxes consist of a reward delivery system within the game, usually represented by a chest or crate that will be opened, which gives the player a selection of random items (King; Delfabbro. 2018) with uncertain value. It can be owned by gameplay or waiting time or by microtransactions, by real-world money or in-game currency. This is the initial cost, according to economic theory.

Despite the name referring to a “box”, they can have other formats. Hence the proposal for a more appropriate name, such as random reward mechanism (Xiao, 2022) or random reward machines (Nielsen, 2019). Both nomenclatures are technically correct and should be used for legislative technical purposes, although loot boxes are the more popular term in the game industry.

Despite loot boxes having emerged as a revenue tool in free or freemium games, big game companies and publishers increasingly began to implement them in major titles, changing the classical sales models to insert in-game purchases (Perks, 2019).

Random reward mechanisms may have three components in common (Nielsen; Grabarczyk. 2019). The first one is the eligibility condition which concerns how the player is able to trigger the random mechanism. The cost can be linked to spending on microtransactions or achieving an objective within the game. The second element is the random procedure, created by any algorithm that determines when the player can get the reward and what kind of reward. The third element is the reward itself, which consists of any element that can only be used within the game in which the crate was purchased.

According to the policy paper commissioned by the European Parliament (Cerulli-Harms et al. 2020), loot boxes have four main characteristics¹:

Table 1. Four main characteristics of loot boxes

| | |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Access and cost | It can be obtained through game development (gameplay), waiting time, time spent viewing ads or can be acquired via microtransactions. |
| Transparency and probabilities of obtaining different items | Some loot boxes return different results given similar probabilities, but there is a calculation where rare items have a low probability of dropping in rewards, while common items have a higher probability. This probability is not always informed to the player. |
| Content | The content ranges from purely cosmetic items to functional items, which affect gameplay, and in all cases may prove useful or valuable to players. |
| Value conversion | Rewards obtained may, in some cases, be converted into in-game currency or real currency. This is usually the predominant feature to define whether or not loot boxes are games of chance. It is also called transferability (Griffiths, 2018). |

As we can see, loot boxes and gambling are also a game of chance, according to Caillois (2017).

A new understanding by the Dutch Gambling Authority may rekindle the debate on the elements that link loot boxes to gambling (Otto, 2022). According to the decision, issued in March 2022, loot boxes are no longer considered games of chance under Dutch law if, cumulatively:

- 1) The loot boxes are part of a game whose winner is decided by skill criteria;
- 2) Loot boxes are obtained and opened within the game environment;
- 3) Loot boxes can be obtained both during the game and through microtransactions;

¹And those are way too similar to gambling.

4) The vast majority of loot boxes are obtained during the game, without there being a situation where players buy boxes on a large scale with the sole intention of selling the content received as a reward.

The decision brought new evaluation criteria to understand loot boxes that can be adopted in other countries around the world. One of them is the analysis based on the percentage of boxes that can be received during the game in relation to those that are actually purchased by the players. The other is the relationship of autonomy in relation to the game, since being merely accessory, the relationship with gambling is removed.

In Brazil, it was only in 2021 that the Associação Nacional dos Centros de Defesa da Criança e do Adolescente (ANCED) filed several public civil actions against developers and publishers, provoking the judiciary to take a position on the banning of loot boxes in the country. The process, despite being in the knowledge phase, has already received a favorable opinion from the Public Prosecutor's Office.

3. FRAMEWORK OF BRAZILIAN LAW

3.1 Brazilian's Legal Players Protection

In normative terms, there is no legislative approach to digital goods in Brazil, either in the Código de Defesa do Consumidor (general law to protect consumers, despite the lack about virtual consumption), in the Marco Civil da Internet (which regulates the use of the internet in the country and determines the transparency duty of suppliers) and in the Lei Geral de Proteção de Dados (which determines rights and duties in relation to personal data processed in Brazil). Contracts for software consumption are, as a rule, terms of adhesion, provided for in the Código de Defesa do Consumidor. However, the legal basis for certain behaviors that occur within the virtual environment requires the application of other norms, such as Decreto n. 7.962/13 which reinforces the consumer's right to information and expressly ensures the right to regret purchases via e-commerce.

Despite concerns about the effects of microtransactions, the biggest challenge in regulating online gaming and protecting virtual consumers is still the lack of consent or clarity about the classification of the legal status of certain types of in-game purchases. These are issues that deal directly with basic consumer rights provided for in the Brazilian consumer law.

In a general aspect, the Consumer Law protects the consumer against an objective misleading advertising which can be materially demonstrated, that is intentionally created to mislead the consumer. On the other hand, it says nothing about subtle or aggressive advertising that aims to suggest the consumer in order to convince him that that choice for a particular consumer good is necessary, immediate or better than the others available.

In the analysis of the legal provisions applicable to loot boxes in the country today, there is a problem in relation to the offer that affects freedom of choice (article 6, III and article 30 of the Código de Defesa do Consumidor), since the consumer does not know exactly what you are acquiring, as it is not the acquisition of the box itself that motivates the player, but its content and the expectation of perhaps – believing that the randomness criterion is observed – receiving an digital item of value. The structure of loot boxes creates an asymmetry in detriment of the consumer and the Brazilian law is not prepared to deal with this asymmetry because it assumes that the consumer will normally make “rational choices”, even when he is being “deceived”.

The market failure identified in the consumption of loot boxes lies mainly in the lack of information to the virtual consumer, but it impacts the consumer even before the consumption relationship, reflecting on his choice process, an area of study of behavioral economics discussed later. Other effects of this failure were widely addressed in the study when dealing with aspects of microtransactions, behavioral problems related to addiction and problematic gambling and the way in which the consumption of these assets affects different consumers.

3.2 Gambling in Brazil

In Brazil, gambling is currently prohibited by Decreto-lei n. 2980/43, also known as the Lei das Contravenções Penais. The law defined games of chance as those in which the gain and loss depend exclusively on luck. So, if random reward mechanisms were considered, in Brazil, as games of chance, they would be automatically prohibited by law.

However, there may be exceptions, taking two situations as a reference. Lotteries are prohibited in Brazil by the same law that prohibited gambling, except in the case of the exploitation of lotteries by the Government, which was authorized by Decreto-lei n. 204/67. So, any law can make exceptions for certain gambling practices, making them legal.

This is what happened with the second example: the virtual bets that became extremely popular with the Fifa World Cup. The activity has been carried out in Brazil since the enactment of the Lei das Apostas Esportivas (Lei 13.756/2018). The law regulated lotteries in the form of fixed-quota bets, creating a specific fund for the allocation of activity resources. With a series of gambling laws in progress in the National Congress, it seems to be just a bureaucratic issue to Brazil legalizing random reward mechanisms in video games that are sold in Brazil.

4. BEHAVIORAL ECONOMICS

Classical economic theories assume that all human actions are part of rational, stable and constant choices in order to allow safe and reliable forecasts and, consequently, solid regulations. (Ribeiro, Domingues. 2018). This means that, according to this theory, the consumer will make rational decisions in any circumstances, even if he is faced with an appealing advertisement, products selected from preferences shaped by algorithms or other digital marketing methods intended to stimulate purchase behavior in the virtual environment.

Realizing a flaw in this perspective, since people also make irrational consumption choices, Behavioral Economics emerged from research by Amos Tversky and Daniel Kahneman (1974). This theory, also known as behaviorism, countered the dogmatic assumption of rationality and proposed a new analytical basis for individuals' decisions, based on the idea that people may have subjective motivations for their choices and therefore not even these will be endowed with rationality and therefore, great.

Richard H. Thaler (2019) was one of the main voices for disseminating behavioral theory and defended the insufficiency of the normative model of traditional economic theory to describe the consumer choice process in the real world. In another research with Christine Jolls and Cass Sunstein (1998), they found that economic agents are rationally limited and, since they are inserted within an environment of uncertainty, the choices will depend, if and how, the information is or will be presented and willingness to take risks.

The Economic Theory of Behavior seeks to study the motivation of conscious impulses and behavior in the face of incentives to reflect on ways that the Public Power can use to help the economic agent, that is, the consumer, to make more efficient and less expensive decisions. susceptible to subjective elements (Ribeiro, Domingues. 2018. P. 462). That is why the Brazilian legal norm it's not enough to protect consumers: because it assumes human rationality.

4.1 Hidden risks, heuristics and motivations in loot boxes

The relationship between the consumer and video games goes beyond the mere entertainment perspective and breaks the boundaries created by the Huizinga's magic circle. Faleiros Júnior and Densa (2022) emphasize the exploratory nature of the application of loot boxes, since “complex algorithms that can turn electronic entertainment games into games of chance” are usually used, without the consumer knowing that he is facing a game of chance. As the authors point out, with the development of games with clear elements characteristic of gambling, companies operate in a zone of regulatory obscurity and take full advantage of it.

According to Whitson and Simon (2014), unlike a game of chess, an electronic game like Call of Duty has rules determined by the algorithm which are not shared with the player, but create a feeling of freedom to act and make choices when, in fact, there is a complex data inference to understand the consumer's profile and create mechanisms for their actions to occur within what is expected. This is a reflection of the language of immersion and engagement provided by games.

According to the authors, “the more immersed you are in a video game, the less you will be concerned about the conditions that produced that experience”. This represents one of many factors that make it difficult for players to understand the risks of microtransactions.

There are resources that use heuristics and reinforce consumption, and, despite being lawful, they transit through the abusiveness provided for in the consumer law by compromising the dissemination and accuracy of information, labeling and veracity of the offer. They are known as nudges and they are framing, anchoring and

bundling (Faleiros Junior; Densa. 2021). This is why current Brazilian law fails to fully protect consumers from random reward mechanisms in video games.

Framing, or “price framing”, creates the idea that individuals' choices are influenced according to the way the problem is presented. Just as the rarity of game items is artificially created, here there is an inauthentic definition of price as a way to influence the consumer regarding an advantage that, in fact, does not exist. This becomes even more serious when, by purchasing in-game currency, players lose track of the real value of the goods being purchased through microtransactions.

The anchoring effect, created by Tversky and Kahneman (1974), concerns the way in which people tend to base their choices on irrelevant information. According to the authors, with this, decisions are made from typically insufficient adjustments, called anchors, so that different starting points produce different estimates, although all are biased. In addition to anchoring in artificially stipulated prices, the studies used showed that, at least in principle, players spend money on loot boxes not for the act of purchase itself, but based on the expectation of being able to receive a surprise item that is rare or considered desired. The motivation is based on a created expectation, that the purchase of the loot box will confirm the receipt of a desired digital asset.

Bundling consists of a grouped sales technique, in an offer, of a set of services or products as a package, with the apparent advantage over the separate acquisition of goods. It is similar to the combined sale, but it differs since the products can be purchased individually. In the context of microtransactions and loot boxes, in-game stores often offer a value for the purchase of a box, and another substantially advantageous value for consumers who want to purchase a set of boxes. All of the practices listed enhance the environment of uncertainty and undermine the clarity of the consumer.

Also, there's a transparency problem. In a study of reward probabilities carried out by Chen et al (2019), it was found a lack of transparency in disclosing the allocation of reward probabilities. With that, if on the one hand the developer informs the consumer that the chance of receiving a certain rare item is 1%, the real chance is 0.0005% and, without knowing this, the wrong information brings a false sense of loss – or reduced sense of loss – and turns out to be another driving factor in the repetitive purchase of loot boxes.

As we have seen, it is intrinsic to the very concept of loot boxes: uncertainty and unpredictability. People are naturally drawn to unpredictable outcomes, as they can provide a sense of excitement and anticipation. This is known as the "endowment effect" (Tversky; Kahneman. 1974), which is the idea that people value items more highly simply because they own them. In the case of loot boxes, this can lead to players spending more money in the expectation of obtaining valuable virtual items. Another psychological factor is the concept of "near misses" (Tversky; Kahneman. 1974). This refers to the phenomenon where people feel that they have come close to winning a prize, but just missed out. This can increase the motivation to keep playing, as players feel that they are close to obtaining the desired outcome.

All of these are common practices in the digital asset market and even in electronic games. Brazilian law does not have enough resources to protect players when the problems go beyond the lack of supply and the false sense of transparency.

4.2 The appeal and impact of loot boxes on players

The uncertainty and unpredictability of loot boxes can have negative consequences for players, particularly for children who may not have the maturity or judgment to understand the risks involved. No wonder, academic and political concern has grown around the effects of these random reward systems on players.

Research has shown that exposure to loot boxes can increase the likelihood of problem gambling behaviors, and that children who play games with loot boxes are more likely to develop gambling-related issues later in life. Although there are not many studies about it, it can also affect an elderly population that is highly vulnerable in the virtual environment.

There are several studies that link the consumption of loot boxes with typical symptoms of gambling addiction disorders. Griffiths (1995) presented one of the pioneering studies that linked loot boxes with gambling, in addition to identifying that electronic games attract younger people due to their familiarity with technology. Hing et al (2022) reviewed about sixteen studies on the relationship between loot boxes and gambling, and found that purchases with random reward mechanisms is significantly associated with spending on gambling, indicating an important convergence in both behaviors.

Some studies found that teenage gamblers are more likely to engage in gambling activities and those who spend money on loot boxes are more likely to have problem gambling behavior. This can lead to problems

such as indebtedness, alcohol dependence and exposure to gambling content on social networks, facilitating access and fostering addiction (Delfabbro, 2009; Zendle, Meyer, Over, 2019; Zendle, Cairns, 2019).

Barton et al (2017), in a systematic literature review of more than 50 researches published between 1991 and 2015, found that slot machine players and other forms of electronic gambling, even in the face of near misses and disguised losses the wins, presented high value to the victory. Put another way, the researchers concluded that “winning” is not the only way players get excited about consuming electronic gambling items.

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Not surprisingly, many countries have banned loot boxes in games. Belgium (Kansspelautoriteit, 2018), Germany and the Netherlands (Zendle; Cairns, 2019) understood that this system violated national rules on gambling. In the United Kingdom, the Gambling Commission of the House of Commons stated, in 2019, that loot boxes were a form of gambling, depending on how they were offered. Seeking to mitigate the randomness factor, the Chinese government required, in 2016, that electronic game developers start disclosing the perception probabilities of possible items in loot boxes, a practice that is also required in the country for casinos (Perks, 2017). It indirectly recognized the strong similarity denied by countries such as North America (ESRB, 2020).

5. HOW BEHAVIORAL ECONOMICS CAN HELP UNDERSTAND LOOT BOXES AND BUILD AN APPROPRIATE REGULATION TO PROTECT PLAYERS

The regulation of loot boxes aims to cause a smaller impact on the market, as agents will know the limits of action in creating random reward mechanisms, and there will be greater security for consumers. The problems pointed out go beyond informational asymmetry: they demand behavioral and contextual analysis of consumers of electronic games.

In this way, the Brazilian consumer law can be revised to cover its own rules on virtual consumption inspired by COPPA (Children's Online Privacy Protection Rule), in the USA, or The Digital Markets Act in Europe. In other words, it is suggested that specific provisions on virtual consumption, algorithmic transparency, rights to review or cancel transactions made during a certain period of time and protection of the virtual consumer be added to the law.

In addition, the Ministry of Justice, the administrative body responsible for creating policies in favor of consumers, can trigger game companies that market their products in the country to provide information on the consumption of assets of random reward mechanisms and ask what measures are adopted to effectively protect Brazilian consumers.

Also, it can create manuals and establish parameters suggesting that companies adopt measures such as periodic spending limits, minimum age, history of spending on amounts in in-game currency and real money and spending control tools, have tax benefits, for example.

They can also limit that the rewards obtained in the loot boxes cannot be sold (in or out of the game), restricting transferability, and that the player can exercise the right of repentance, within a time limit, if he wants to recover the money spent on these mechanisms. In addition, in a joint effort with other authorities, tax benefits can be offered to companies that present a certain degree of compliance with consumer protection parameters.

These are measures based on the assumption that the player, within the game environment, is normally not in a position to make rational consumption choices and therefore needs greater protection to circumvent possible psychological and financial damages.

6. CONCLUSION

Classical Economic Theory assumes that players will make rational decisions under any circumstances, so they will not be influenced by random reward systems, visual and sound stimuli, and advertisements shaped by algorithms that are intended to stimulate buying behavior. On the contrary, the Behavioral Economic Theory assumes that the player, in an environment of uncertainty, may make irrational decisions influenced by heuristics, without having sufficient elements to identify the existing hidden risks. Therefore, the adoption of this theory to guide the regulation of these mechanisms may provide greater protection to consumers.

In addition to the aforementioned legislation being applicable to microtransactions and other aspects related to the trade of digital goods within electronic games in Brazil, there are regulatory gaps that weaken consumer relations and make consumers even more vulnerable, subject to predatory and abusive practices and the harmful consequences of consumption.

Thus, considering the evidence presented and analyzing the normative context of both loot boxes in the world and gambling in Brazil, measures were proposed for regulation based on informational asymmetry and Behavioral Economic Theory as a way to intensify consumer protection.

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