

# Payment Histories in Digital Games – A Way To More Transparency

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**Abstract.** This paper discusses the public acceptance of the mandatory implementation of payment histories in digital games in multiple countries. The presented data in this study was collected by an online survey in July 2019. Showing a payment history inside digital games is appreciated by the majority of survey participants. Determinants that represent the increase of transparency or fairness highly influence the appreciation for a payment history.

**Keywords:** Freemium; Digital Gaming; Survey; Transparency; Loot Box

## 1 Introduction

Subject of this paper is the statistical analysis of the determinants behind the mandatory showing of a payment history in digital games of people from Germany, Hungary, South Africa, Thailand, the United Kingdom and the United States of America. Digital games in general were often disputed in the last years [1] [2] [3] [4] [5] [6] [7] [8]. In the context of this paper digital games are treated as fully digital goods in the sense of Stelzer's definition. According to Stelzer, digital goods are „immaterial ways to satisfy needs that can be developed, distributed or applied through an information system. Digital goods are products or services that can be represented, transmitted and processed in the form of binary data“ [9].

The games industry - especially the field of mobile gaming - has changed significantly in recent years. Paid offers are becoming less common [10]. There is an increase in free mobile digital games. According to Spencer free games generate the highest revenue in respective online portals (App-Store, Play Store, etc.) [10]. These games can be categorized as freemium games. "Freemium" is a term composed of the words "Free" and "Premium". In a freemium business model companies provide a substantial portion of their offer for free. Revenue is made by in-app-purchases for additional services. Thus, freemium is a combination of free and paid offers. The freemium revenue model is a form of price differentiation. The game publishing companies no longer try to sell as many copies of the games as possible. Instead, these games maximize user numbers and try to get their users to make in-app purchases. These purchases give players an advantage within the game or are cosmetic changes to the game (skins).

The global mobile gaming market in 2019 according to the global digital game analytics portal Newzoo is even bigger than the global gaming market for PC or console games [11]. The global mobile gaming market will have the volume of \$77.2 Bn in 2020 [12]. For example, according to Takahashi, the mobile games "Clash of Clans" and "Clash Royal" from publisher Supercell together generated \$2.3 billion revenue in 2016 worldwide [13].

Newspaper articles have been piling up in recent years, reporting many in-app purchases by minors and adults in a short period of time [5] [7]. In individual cases, these in-app purchases have led to very high costs. Because of this, criticism of in-app purchases increased. In 2019 the World Health Organization (WHO) officially classified video game disorder as a mental health condition [14]. According to WHO the gaming disorder occurs, when there is a "pattern of persistent or recurrent gaming behaviour in which people lose control of their gaming behaviour, give priority to gaming over other interests and activities, and continue gaming despite negative consequences, such as impairments in their family relationships, social lives, work duties or other areas [14]".

Many people see a connection between loot boxes and gambling because of the element of chance. Regulations for loot boxes are discussed by different institutions [2] and in many different parliaments [3] [15]. Some countries already have implemented regulations for loot boxes in their national law.

## 2 Literature Review

There is a public discussion about excessive usage behaviour of mobile digital games [1] [2] [3] [5] [7]. This discussion is held in many different countries all over the world and is still going on. The central research question is, is it necessary to increase transparency of digital games for consumers and what motivates people to demand an increase in transparency. This study shows, the demand for an increase in consumer transparency in digital games in multiple countries, gives a descriptive overview and discusses the results.

Games are no longer just products. They changed to services. People use games over a longer period of time and the game publishers keep updating the game. In 2014 Oscar Clark has discussed this phenomenon in his book "Games as a service. How free to play can make better games" [16]. In 2014 Dimitar Draganov has published his book "Freemium mobile games - Design & Monetization" [17]. He discussed how game design can keep people interacting with a game over a longer period of time and how to convert players of a game into paying customers. Tim Fields published his book "Mobile & Social Game Design - Monetization, Methods and Mechanics" in 2014 [18]. He also discussed effects of game design on converting players into customers. Field's book focuses on key performance indicators. According to Fields, if there is a low ratio of daily active users relative to monthly active users then the game has a problem getting players back into the game. In 2015 Fowelin published a general article about how and why game publishing companies use freemium as a monetization for their games [19]. The research method was qualitative and quantitative. The author sees freemium as a competitive strategy or a marketing tool. Schwidessen has published a study in 2018 about the classification of loot boxes [20]. He discussed the element of chance from loot boxes and under which circumstances a loot box can be classified as gambling according to German law. Krainbring and Röhl also published a study about loot box classification in 2018 [21]. In their study the authors argue that a change in law and jurisdiction in many countries is very likely to happen in the near future. Laustetter published his study about the difference of gambling and skill-based games in 2012. In his study he discussed different ways to calculate the element of chance of a game [22].

### 3 Research Method

The research method of this study is empirical. In July 2019 an online survey in social media was done. The survey was promoted with ads in social media (Facebook and Instagram). The survey was done in Germany, Hungary, South Africa, Thailand, the United Kingdom and the United States of America. The presented data in this study are relevant for mobile and stationary digital games. 248 people from Germany, 302 people from Hungary, 168 people from South Africa, 238 people from Thailand, 229 people from the United Kingdom and 127 people from the United States participated in this survey. The survey was split into two groups for mobile and stationary digital gaming and asked its participants for their usage behaviour of in-app or in-game purchases. The presented data in this study show the survey responses concerning the statement “I would appreciate showing my payment history inside the game”.

For this study there were questions and statements in the survey. The participants could respond to these questions with “Yes”, “No”, “Prefer not to say”. Participants could respond to statements with answers from one to seven. One stands for “Do not agree at all” and seven stands for “Completely agree”. A pre-test has been done in June 2019 with seven persons. During pre-test attention was paid to get a balanced gender ratio. Four men and three women participated in the pre-test. There is a possible bias for people who do not use social media. Running ads inside games is not possible in many cases. The social media bias is a bias that couldn't be avoided. Running ads on social media randomly show ads to people who have an interest in gaming. Ads have been targeted specifically to each country or region.

### 4 Findings and Discussion

A possible regulation of loot boxes, that is not yet widely discussed is the mandatory implementation of user's payment history inside a game. With a payment history, users of digital games will be able to see, how much money they already spent on a game over time. In-App or In-Game purchases often have a small price, but some players often purchase virtual items inside a game. Players could lose the overview over their spending behavior. This regulation could help to increase transparency. The participants of the survey were asked about their opinion to the statement “I would appreciate showing my payment history inside the game”. The figure 1 shows the responses of survey participants to the relevant statement.

Both groups strongly agree to the statement “I would appreciate showing my payment history inside the game”. To get further information about the determinants of the agreement to the statement about payment history, a regression analysis has been made. The variable underage is equal to one if survey participants were 17 years or younger at the time, they filled out the survey and equal to one if they are 18 years or older. Relevant statements for this regression were “I would appreciate it, if all virtual items that are in a loot box are available at least once in a while in the game shop for a fixed price”, “I would appreciate that probabilities of items in loot boxes are shown”, “Game-deciding items, heroes, etc. should NOT be offered for sale within a game”, “Once I spend money on In-App / In-Game purchases, I easier make additional purchases within the game”, “(Mobile) games are a short-term pastime in between for me”, “Showing loot box probabilities would make me spend less on in-app purchases” and “I like to play for several hours at a time”. If a survey participant responded to one of these statements with a five, six or seven the respective variable is equal to one and zero other ways. Based on these question and statements the dummy variables “underage”, “Lootboxcontentshop”, “ShowingLBprob”, “Gamedeciding”, “OnceIspendmon”, “Shorttermpastime”, “ProbLBless” and “SeveralHours” have been

generated. If a survey participant responded to one of these statements with a five, six or seven the respective variable is equal to one and zero otherways. A positive response (five, six or seven) for the statement “I would appreciate showing my payment history inside the game” of the survey participants is used as dependent variable and the other dummy variables are the independent variables in the following regression. The following table 1 shows the results for linear regressions for the five countries in this study and the overall average. A linear regression has been chosen, because it resulted in higher values of R<sup>2</sup> compared to a Logit or Probit model.

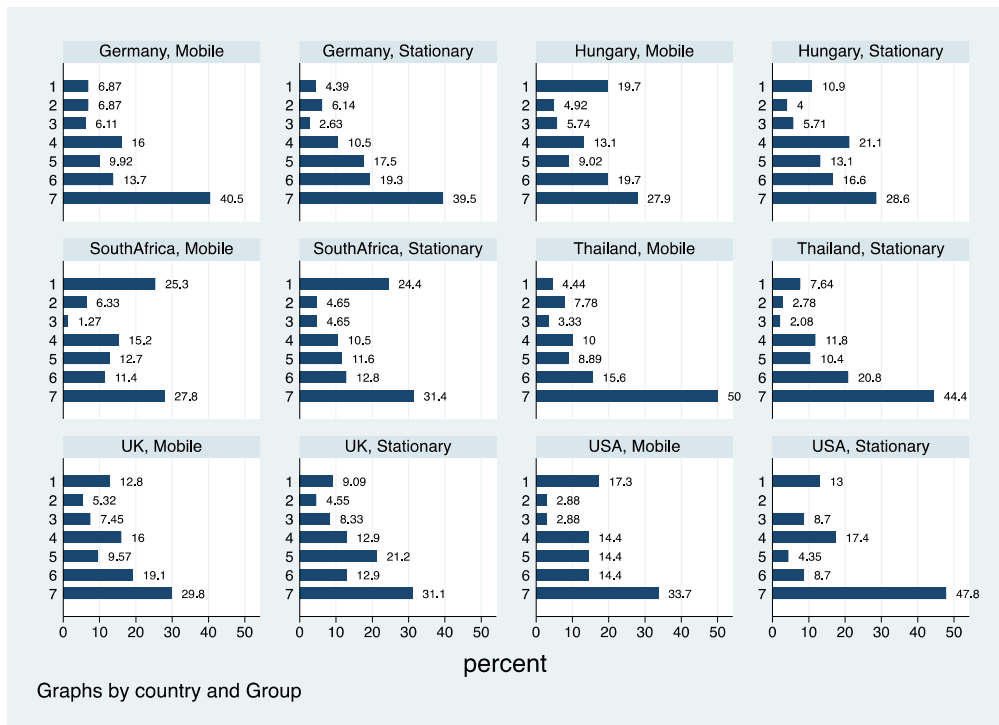


Figure 1: Survey responses in relative numbers to the statement “I would appreciate showing my payment history inside the game” (own figure)

In the overall average and in Hungary underaged people are less likely to appreciate showing a payment history inside the games that they play. Survey participants from Germany, Hungary, Thailand, UK and the overall average, who agree that the content of loot boxes should be available in the respective game shop at least once in a while for a fixed price, are more likely to have a positive attitude towards a payment history inside a digital game. People from Germany, South Africa and the overall average, who think that game deciding items should not be for sale within the game, are more likely to have a positive attitude towards a payment history. People from Hungary and the overall average, who easier make additional In-App or In-Game purchases after their first purchase are more likely to appreciate showing their payment history inside the respective game that they play. Survey participants from Germany and the overall average, who see games as a short-term pastime in between are more likely to appreciate showing a payment history inside the respective game. People from Germany and Hungary, who agree to the statement, that showing loot box probabilities would make them spend less on In-App purchases, are more likely to have a positive opinion on showing their payment history inside a game. The same applies for people from Germany, who like to play several hours at a time.

**Table 1: Regression Results**

	(1) All	(2) Germany	(3) Hungary	(4) South Africa	(5) Thailand	(6) UK
Underage	-0.065** (0.029)		-0.137** (0.062)			
Lootboxconten~p	0.166*** (0.031)	0.167*** (0.060)	0.165*** (0.057)		0.189*** (0.062)	0.234*** (0.067)
ShowingLBprob	0.224*** (0.041)	0.144* (0.077)	0.259*** (0.077)	0.226** (0.099)		
Gamedeciding	0.106*** (0.034)	0.244*** (0.074)		0.110 (0.081)		
OnceIspendmon	0.087*** (0.029)		0.129** (0.056)			
Shorttermpastime	0.052* (0.029)	0.132** (0.058)				
ProblBless		0.112* (0.059)	0.154*** (0.059)			
SeveralHours		0.163** (0.064)				
_cons	0.236*** (0.048)	0.042 (0.103)	0.218*** (0.068)	0.295*** (0.099)	0.615*** (0.053)	0.466*** (0.055)
Obs.	1000	239	273	162	234	226
R-squared	0.108	0.182	0.171	0.047	0.039	0.051

Standard errors are in parenthesis

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## 5 Conclusion and Further Research Approach

Intransparency in digital games is a problem for consumers. Showing a payment history inside games (see figure 1) can help to increase transparency for consumers. This way consumers can keep an overview over their spending behaviour. Intransparency is an important problem from consumer's point of view. Increasing transparency is useful for the consumer, but not for the game publishing companies, because they benefit from the lack of transparency. The negative impact of underaged people might happen, because they do not yet see the benefit of a payment history. Determinants that increase transparency ("Lootboxcontentshop", "ShowingLBprob" or "ProbLBless" ) or represent fairness ("Gamedeciding") highly influence the wish for a payment history.

There are no major differences between preferences of players of mobile or stationary digital games concerning a payment history. In-App purchases became popular in mobile digital games with the freemium monetization model. Today In-Game purchases become popular in stationary digital games, too.

This study gives an overview of consumer preferences based on a survey. Until today it is unknown what consumer preferences of people from other countries are. The presented data only applies for the Germany, Hungary, South Africa, Thailand and the UK in July 2019. Findings from this study cannot be transferred to other countries. There might be further regional differences in other countries. Future studies can fill this research gap. Further research of consumer preferences for possible regulations can help to find useful regulations for digital.

## References

- [1] M. Bauer, "FIFA Ultimate Team extrem: Spieler versenkt 16.000 Dollar in Karten," 2018. [Online]. Available: <https://www.computerbild.de/artikel/cbs-News-PC-FIFA-Ultimate-Team-extrem-Spieler-versenkt-16.000-Dollar-in-Karten-22148771.html>. [Accessed 1 3 2020].
- [2] C. v. Au, "Eine halbe Million Jugendliche sollen "Risiko-Gamer" sein," Süddeutsche zeitung, 5 3 2019. [Online]. Available: <https://www.sueddeutsche.de/digital/computerspiele-spielsucht-dak-studie-1.4355174>. [Accessed 1 3 2020].
- [3] S. Wetterau, "Lootboxen: Hawaii überprüft Gesetze zur Altersbeschränkung und Transparenz," Spieletipps.de, 14 2 2018. [Online]. Available: [https://www.spieletipps.de/n\\_40738/](https://www.spieletipps.de/n_40738/). [Accessed 1 3 2020].
- [4] T. Pitscheder, "EA: Jade Raymond distanziert sich von Lootboxen," Computer Bild, 12 4 2018. [Online]. Available: <https://www.computerbild.de/artikel/cbs-News-PC-Star-Wars-Battlefront-2-Lootboxen-Jade-Raymond-EA-Electronic-Arts-19349993.html>. [Accessed 1 3 2020].
- [5] C. D'Anastasio, "Player Spends \$62,000 In Runescape, Reigniting Community Anger Around Microtransactions," Kotaku, 18 9 2019. [Online]. Available: <https://kotaku.com/player-spends-62-000-in-runescape-reigniting-communit-1838227818>. [Accessed 1 3 2020].
- [6] J. Schmieder, "Wurde Fortnite designt, um süchtig zu machen?," Süddeutsche Zeitung, 11 10 2019. [Online]. Available: <https://www.sueddeutsche.de/leben/fortnite-computerspiel-gericht-1.4635286>. [Accessed 1 3 2020].
- [7] Z. Kleinman, "My son spent £3,160 in one game," BBC, 15 7 2019. [Online]. Available: <https://www.bbc.com/news/technology-48925623>. [Accessed 1 3 2020].

- [8] P. C. Lohse, "How instability in virtual economies of mobile digital games drives and ruins profit," *Context Aware Systems and Applications*, 20 8 2019.
- [9] S. Dirk, "Digitale Güter und ihre Bedeutung in der Internet-Ökonomie," *WISU - Das Wirtschaftsstudium*, pp. 835-842, 2000.
- [10] G. Spencer, Macstories, 20 7 2016. [Online]. Available: <https://www.macstories.net/stories/exploring-the-app-stores-top-grossing-chart/>. [Accessed 1 3 2020].
- [11] T. Wijman, "The Global Games Market Will Generate \$152.1 Billion in 2019 as the U.S. Overtakes China as the Biggest Market," Newzoo, 18 6 2019. [Online]. Available: <https://newzoo.com/insights/articles/the-global-games-market-will-generate-152-1-billion-in-2019-as-the-u-s-overtakes-china-as-the-biggest-market/>. [Accessed 1 3 2020].
- [12] T. Wijman, 8 May 2020. [Online]. Available: <https://newzoo.com/insights/articles/newzoo-games-market-numbers-revenues-and-audience-2020-2023/>.
- [13] R. Cowley, "Supercell sees revenues grow to \$2.3 billion in 2016 thanks to success of Clash Royale," Pocketgamer, 15 2 2017. [Online]. Available: <https://www.pocketgamer.biz/news/65090/supercell-financials-2016/>. [Accessed 1 3 2020].
- [14] R. Rettner, "Video Game Addiction Becomes Official Mental Disorder in Controversial Decision by WHO," 28 5 2019. [Online]. Available: <https://www.livescience.com/65580-video-game-addiction-mental-health-disorder.html>. [Accessed 27 4 2020].
- [15] L. d. f. W. i. b. Landtag, "Jugendschutz bei Computerspielen ausweiten," 2017. [Online]. Available: [https://fw-landtag.de/fileadmin/user\\_upload/DA\\_Jugendschutz\\_bei\\_Computerspielen\\_.pdf](https://fw-landtag.de/fileadmin/user_upload/DA_Jugendschutz_bei_Computerspielen_.pdf).
- [16] O. Clark, Games as a service - How free to play design can make better games, Focal Press Taylor and Francis group, 2014.
- [17] D. Draganov, Freemium Mobile Gaming - Design & Monetization, CreateSpace Independent Publishing Platform, 2014.
- [18] T. Fields, Mobile & Social Game Design, CRC Press Taylor & Francis Group, 2014.
- [19] C. J. Fowelin, *Freemium in the Mobile Applications Market*, 2015.
- [20] S. Schwiddessen, "Lootboxen nach deutschem Glücks- und Jugendmedienschutzrecht," *Computer und Recht*, pp. 512-526, 19 9 2018.
- [21] D. K. a. M. Röhl, "Zur glücksspielrechtlichen Bewertung von Beutekisten (Lootboxen)," *European Journal of Gambling Law*, pp. 235-241, 8 2018.
- [22] D. C. Laustetter, "Die Abgrenzung des strafbaren Glücksspiels vom straflosen Geschicklichkeitsspiel," *JR*, pp. 507-513, 2012.