

ACCEPTANCE OF AGE RESTRICTIONS FOR DIGITAL GAMES WITH LOOT BOXES

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(Received 22th February 2020; accepted 23th May 2020)

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ABSTRACT. Digital games often cross the line between skill-based games and gambling. This is done by using loot boxes. Loot boxes are virtual boxes with a random virtual content. Regulations of loot boxes, for example age restrictions, are often discussed by players of digital games and politicians. This study discusses the public acceptance of loot box regulations, by analyzing survey data. The conclusion of this study is, that age restrictions for digital games with loot boxes are highly welcomed in general, but not by people under age. The wish for more transparency and determinants concerning a long-term game influence the wish for age restrictions in digital games with loot boxes.

Keywords: *Freemium, Digital Gaming, Survey, Gambling, Age Restrictions, Loot Box*

INTRODUCTION

Subject of this paper is the possible regulation of age restrictions in mobile and stationary digital games. This study analyzes survey data 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 (Bauer, 2018) (Au, 2019) (Wetterau, 2018) (Pitscheneder, 2018) (D'Anastasio, 2019) (Schmieder, 2019) (Kleinman, 2019) (Lohse, 2019). 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“ (Dirk, 2000).

The digital games business - especially the field of mobile gaming - has changed significantly in recent years. Paid offers almost completely disappeared (Spencer, 2016). There is an increase in free mobile digital games. According to Spencer free digital mobile games generate the highest revenue in respective online portals (App-Store, Play Store, etc.) (Spencer, 2016). These digital games can be categorized as freemium games. "Freemium" is a term composed of the words "Free" and "Premium". In a freemium business model game publishing companies provide a substantial part of their offer for free. Revenue is made by In-App or In-Game 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 digital game publishing companies maximize user numbers and try to get their users to make In-App or In-Game purchases. These purchases give players an advantage within the game or are cosmetic changes to the game (skins).

Since 2019 the global mobile gaming market according to the global digital games analytics portal Newzoo is even bigger than the global gaming market for PC or console games (stationary digital games) (Wijman, 2019). The global mobile gaming market will have the volume of \$77.2 Bn in 2020 (Wijman, 2020). 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 (Cowley, 2017).

Newspaper articles have been piling up in recent years, reporting many In-App purchases by minors and adults in a short period of time (D'Anastasio, 2019) (Kleinman, 2019). In individual cases, these In-App purchases have led to very high costs. Because of this, criticism of In-App purchases increased in recent years. In 2019 the World Health Organization (WHO) officially classified video game disorder as a mental health condition (Rettner, 2019). According to WHO 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 (Rettner, 2019)".

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 (Au, 2019) and in many different parliaments (Wetterau, 2018) (Landtag, 2017). Some countries already have implemented regulations for loot boxes in their national law (Schuhmann, 2018).

LITERATURE REVIEW

There is a public discussion about excessive usage behaviour of mobile digital games (Bauer, 2018) (Au, 2019) (Wetterau, 2018) (D'Anastasio, 2019) (Kleinman, 2019). This discussion is held in many different countries all over the world and is still going on.

People play digital games over a longer period of time and the game publishers keep updating their games to keep them interesting. In 2014 Oscar Clark has discussed this phenomenon in his book “Games as a service. How free to play can make better games“ (Clark, 2014). In 2014 Dimitar Draganov has published his book “Freemium mobile games - Design & Monetization“ (Draganov, 2014). 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 (Fields, 2014). 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 (Fowelin, 2015). 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 (Schwidessen, 2018). 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 (Röhl, 2018). 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 (Laustetter, 2012).

The central research question for this study is: What are the relevant determinants behind the acceptance of age restrictions for digital games with loot boxes? This study shows the acceptance of age restrictions for mobile and stationary digital games with loot boxes in multiple countries and gives a descriptive overview of central characteristics and discusses relevant influences of these phenomena.

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). This study presents survey data from 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 responses concerning the acceptance of age restrictions for digital games with loot boxes.

For this study there were 16 relevant 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 in the data. 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.

FINDINGS AND DISCUSSION

A possible regulation of loot boxes, that is widely discussed are age restrictions for digital games with loot boxes. The relevant statement from the survey for this study is about age restrictions. Age restrictions for mobile and stationary digital games with loot boxes are often claimed by politicians, because many people see a similarity of loot boxes to gambling. Participants of the survey have also been asked for their age. The figure 1 shows the responses of survey participants to the statement “I would welcome age restrictions for games with loot boxes”.

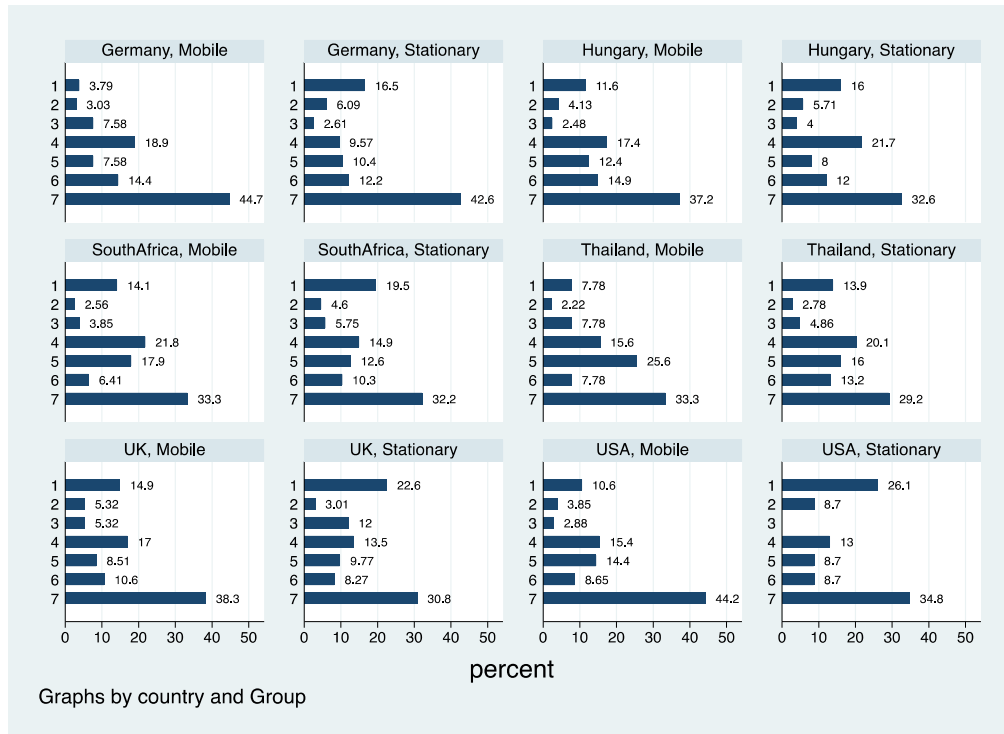


Figure 1. Survey responses in relative to the statement “I would welcome age restrictions for games with loot boxes” (own figure)

The participants agree to the statement, that digital games with loot boxes should get age restrictions. This applies with minor variations for all countries. To get further information about the determinants, that drive the acceptance of age restrictions a regression analysis has been made. The dependent variable is equal to one, if survey participants responded to the statement “I would welcome age restrictions for games with loot boxes” with a five or higher. Other ways it is equal to zero. The independent variable “underage” in this regression is a dummy variable, which is equal to one if the survey participant is 17 years old or younger and zero other ways. The independent dummy variable “Mobile” is equal to one, if the survey participant plays mobile games and zero other ways. Other relevant statements for this regression analysis are “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”, “Showing loot box probabilities would make me spend less on in-app purchases”, “I would appreciate that probabilities of items in loot boxes are shown”, “Once I felt like the game tried to push me to do an In-App / In-Game purchase”, “Game-deciding items, heroes, etc. should NOT be offered for sale within a game”, “A game gives me pleasure when there are long-term successes”, “A game gives me pleasure when there are short-term successes”, “When I decrease playing time, I feel uncomfortable”, “The collection of rare weapons and / or items is important to me“, “I’m proud of my game progress”, “Mobile games should entertain and relax”. Based on these statements the dummy variables “Lootboxcontentshop”, “ProbLBless”, “ShowingLBprob”, “Pushedbygame”, “Gamedecidingitems”, “Longtermsuccesses”, “Shorttermsuccesses”, “Decreaseplaytime”, “Rareweaponsitems”, “ProudoProgress” and “EntertainRelax” have been generated. If a survey participant responded to one of these statements with a five or above, the respective variable is equal to one and zero other ways. The independent variable “sex” is equal to 1 if the participant is male and 0 for women.

Table 1. Regression results

	(1) All	(2) Germany	(3) Hungary	(4) South_Africa	(5) Thailand	(6) UK	(7) USA
underage	-	-	-		-0.129**		-
	0.192*** (0.028)	0.365*** (0.073)	0.180*** (0.059)		(0.064)		0.436*** (0.096)
Mobile	0.102*** (0.027)						0.396*** (0.107)
Lootboxconten~p	0.110*** (0.029)	0.154** (0.061)	0.145*** (0.055)				0.242** (0.096)
ProbLBless	0.115*** (0.028)		0.295*** (0.056)			0.128** (0.064)	
ShowingLBprob	0.295*** (0.040)	0.331*** (0.077)	0.130* (0.073)	0.391*** (0.092)	0.637*** (0.111)	0.313*** (0.097)	
Pushedbygame	0.070** (0.029)			0.230*** (0.075)			0.297*** (0.107)
Gamedecidingi~s	0.084*** (0.032)					0.243*** (0.072)	0.204** (0.090)
Longtermsuccess	0.101** (0.041)				0.186*** (0.069)		0.672*** (0.226)
Shorttermsuccess	- 0.108*** (0.033)	-0.144** (0.063)					
Decreaseplaytime		-0.161** (0.069)					
Rareweaponsitems			0.136** (0.054)				0.192** (0.089)
ProudoProgress			- 0.182*** (0.064)				
EntertainRelax			0.151** (0.071)				-0.210* (0.125)
male					-0.262** (0.120)		- 0.291*** (0.109)
pushedbyplayer					0.139** (0.067)	- 0.172*** (0.064)	
_cons	0.132** (0.058)	0.499*** (0.085)	0.268*** (0.089)	0.100 (0.092)	0.131 (0.149)	0.061 (0.107)	-0.442 (0.279)
Obs.	1116	222	275	163	193	224	106
R-squared	0.172	0.224	0.236	0.158	0.237	0.152	0.312

Standard errors are in parenthesis

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

The table 1 shows the results for linear regressions for the six countries in this study and the overall average. A linear regression has been chosen, because it resulted in higher values of R^2 compared to a Logit or Probit model.

Underaged people from Germany, Hungary, Thailand, USA and the overall average are less likely to appreciate age restrictions for games with loot boxes. The group of mobile digital gamers are more likely to appreciate age restrictions than stationary gamers. Survey participants from Germany, Hungary, USA 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 age restrictions for games. People from Germany and Hungary, South Africa, Thailand, UK and the overall average 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 age restrictions. Participants from South Africa, USA and the overall average who at least once felt pushed by the game to make In-App or In-Game purchases are more likely to have a positive opinion on age restrictions. People from UK, USA 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 age restrictions. A positive response to the statement about long term successes inside a digital game leads to a higher probability to agree to age restrictions for people from Thailand, USA and the overall average. Short term successes on the other hand have a negative impact on the probability to have a positive attitude towards age restrictions for people from Germany and the overall average. Germans, who feel uncomfortable, when they decrease playing time, are less likely to have a positive attitude on age restrictions for digital games with loot boxes. Hungarian and American people who like to collect rare weapons or items inside digital games are more likely to appreciate age restrictions for digital games with loot boxes. Hungarians who are proud of their game progress are less likely to have a positive attitude towards In-App or In-Game purchases. Hungarians, who want that a digital game entertains and relaxes, are more likely, while Americans, who want that a digital game entertains and relaxes, are less likely to welcome age restrictions for digital games with loot boxes. Males from Thailand and America are compared to women less likely welcome age restriction in digital games. Survey participants from Thailand, who once felt pushed by other players to make In-App or In-Game purchases, are more likely to welcome age restrictions for digital games, while British survey participants, who once felt pushed by other players to make In-App or In-Game purchases, are less likely.

CONCLUSION AND FURTHER RESEARCH APPROACH

Age restrictions for mobile or stationary digital games with loot boxes are highly welcomed by consumers in general. This does not apply for people under age. The wish for more transparency (“Lootboxcontentshop” and “ShowingLBprob”) is a relevant determinant to welcome age restrictions. This also applies for determinants concerning a long-term game play (“Gamedecidingitems”, “Longtermsuccess” and “Rareweaponsitems”), too. The majority of survey participants sees it as necessary to regulate digital games with age restrictions. This is the same way gambling is regulated. People see a similarity between digital games with loot boxes and gambling.

This study gives an overview of consumer preferences based on an online 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, UK and the USA 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 exploring of consumer preferences for possible regulations can help to find useful regulations for digital games with loot boxes.

REFERENCES

- Au, C. v. (5. 3 2019). *Eine halbe Million Jugendliche sollen "Risiko-Gamer" sein.* (Süddeutsche Zeitung) Abgerufen am 1. 3 2020 von <https://www.sueddeutsche.de/digital/computerspiele-spielsucht-dak-studie-1.4355174>
- Bauer, M. (2018). *FIFA Ultimate Team extrem: Spieler versenkt 16.000 Dollar in Karten.* Abgerufen am 1. 3 2020 von <https://www.computerbild.de/artikel/cbs-News-PC-FIFA-Ultimate-Team-extrem-Spieler-versenkt-16.000-Dollar-in-Karten-22148771.html>
- Clark, O. (2014). *Games as a service - How free to play design can make better games.* Focal Press Taylor and Francis group.
- Cowley, R. (15. 2 2017). *Supercell sees revenues grow to \$2.3 billion in 2016 thanks to success of Clash Royale.* (Pocketgamer) Abgerufen am 1. 3 2020 von <https://www.pocketgamer.biz/news/65090/supercell-financials-2016/>
- D'Anastasio, C. (18. 9 2019). *Player Spends \$62,000 In Runescape, Reigniting Community Anger Around Microtransactions.* (Kotaku) Abgerufen am 1. 3 2020 von <https://kotaku.com/player-spends-62-000-in-runescape-reigniting-communit-1838227818>
- Dirk, S. (2000). Digitale Güter und ihre Bedeutung in der Internet-Ökonomie. *WISU - Das Wirtschaftsstudium*, S. 835-842.
- Draganov, D. (2014). *Freemium Mobile Gaming - Design & Monetization.* CreateSpace Independent Publishing Platform.
- Fields, T. (2014). *Mobile & Social Game Design.* CRC Press Taylor & Francis Group.
- Fowelin, C. J. (2015). Freemium in the Mobile Applications Market.
- Kleinman, Z. (15. 7 2019). *My son spent £3,160 in one game.* (BBC) Abgerufen am 1. 3 2020 von <https://www.bbc.com/news/technology-48925623>
- Landtag, L. d. (2017). *Jugendschutz bei Computerspielen ausweiten.* Von https://fw-landtag.de/fileadmin/user_upload/DA_Jugendschutz_bei_Computerspielen_.pdf abgerufen
- Laustetter, D. C. (2012). Die Abgrenzung des strafbaren Glücksspiels vom straflosen Geschicklichkeitsspiel. *JR*, S. 507-513.
- Lohse, P. C. (20. 8 2019). How instability in virtual economies of mobile digital games drives and ruins profit. *Context Aware Systems and Applications.*
- Pitscheneder, T. (12. 4 2018). *EA: Jade Raymond distanziert sich von Lootboxen.* (Computer Bild) Abgerufen am 1. 3 2020 von <https://www.computerbild.de/artikel/cbs-News-PC-Star-Wars-Battlefront-2-Lootboxen-Jade-Raymond-EA-Electronic-Arts-19349993.html>
- Röll, D. K. (8 2018). Zur glücksspielrechtlichen Bewertung von Beutekisten (Lootboxen). *European Journal of Gambling Law*, S. 235-241.
- Rettner, R. (28. 5 2019). *Video Game Addiction Becomes Official Mental Disorder in Controversial Decision by WHO.* Abgerufen am 27. 4 2020 von <https://www.livescience.com/65580-video-game-addiction-mental-health-disorder.html>
- Schmieder, J. (11. 10 2019). *Wurde Fortnite designt, um süchtig zu machen?* (Süddeutsche Zeitung) Abgerufen am 1. 3 2020 von <https://www.sueddeutsche.de/leben/fortnite-computerspiel-gericht-1.4635286>
- Schuhmann. (8. April 2018). *Mein MMO.* Von <https://mein-mmo.de/gaming-firma-strafe> abgerufen
- Schwiddessen, S. (19. 9 2018). Lootboxen nach deutschem Glücks- und Jugendmedienschutzrecht. *Computer und Recht*, S. 512-526.
- Spencer, G. (20. 7 2016). (Macstories) Abgerufen am 1. 3 2020 von <https://www.macstories.net/stories/exploring-the-app-stores-top-grossing-chart/>
- Wetterau, S. (14. 2 2018). *Lootboxen: Hawaii überprüft Gesetze zur Altersbeschränkung und Transparenz.* (Spieletipps.de) Abgerufen am 1. 3 2020 von https://www.spieletipps.de/n_40738/

- Wijman, T. (18. 6 2019). *The Global Games Market Will Generate \$152.1 Billion in 2019 as the U.S. Overtakes China as the Biggest Market*. (Newzoo) Abgerufen am 1. 3 2020 von <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/>
- Wijman, T. (8. May 2020). Von <https://newzoo.com/insights/articles/newzoo-games-market-numbers-revenues-and-audience-2020-2023/> abgerufen