

A New Theory of the Offering of Video Game Add-On Products

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1 Abstract

The video game industry has gone through significant changes since the proliferation of the internet and has gone from selling cardboard boxes to distributing games over the internet. This has spawned an entire sub-genre of add-ons, known as microtransaction and DLC, that can be bought to enhance video games. While these products have been covered by researchers and scholars, none seems to have dived deep into the different types of DLC and how they differ, and how these different types of products have affected the games they are available to. Seeking to correct this, we expand an existing framework on the video game industry by adding another dimension containing DLC products. Using real-life data obtained primarily from the largest online store for PC games, Steam, we analyze how players react to these different types of DLC. We find that surprisingly, it is not the content itself that seems to matter regarding player satisfaction, but the amount of content being offered at a given price point. Furthermore, it appears that large DLC is the most appreciated form of DLC, and that small DLC and loot boxes are negatively received by players. In addition to this analysis, we have surveyed three small Danish video game companies, to understand what their reasoning is in their choice of marketed DLC. None of these companies make large DLC however, and we theorize that the reason for this is the small size of the companies and that only the large studios have the resources to develop large DLC. Using the insights from our analysis, we propose a graphical model that maps the amount of content that is expected of a DLC or game at a given price. From plotting a specific DLC on this graph, it can be seen whether the product is likely to be favorably accepted by players or not. Although unknown factors might skewer our results, we believe that this model is worth further development. However, due to the lack of financial data from game companies, our paper is primarily looking at the subject from the point of view of players and is unable to consider what types of DLC are the most profitable for game companies to develop.

2 Introduction

While video games traditionally only made money from the one-time sale of the actual game, the increase in internet speeds has opened up a myriad of possible new monetization strategies in the video game industry. Today, players can often spend money by buying additional content in their favorite video games, often in the form of more weapons, characters, and cosmetics, as well as in-game currency that can then be used to buy the same. The core video game itself might even be free, to attract as many potential customers as possible. The sales method of these items can vary a lot as well: They can be one-off purchases, or be included in a monthly subscription, or be found by chance in so-called 'loot boxes', which often has the chance to contain wildly rare and valuable items, drawing parallels to lotteries or even gambling mechanics. After widespread criticism - and in some countries, outright bans - of loot boxes in the late 2010s, the industry seems to have abandoned the idea and have progressed to more transparent business models.

Adding the option for players to purchase additional content in their favorite video games offers benefits for both the player and the video game developer. The player can become familiar with the base game after their initial purchase, or even for free in the case of some games. If the player finds the game to their liking, DLC and in-game items offer the player to expand their gameplay experience, in a much larger and more flexible way than what was available before the emergence of the internet-based video game industry. This concept is unique to the video game industry and is a highly complex subject with several different kinds of products available for purchase, each with its characteristics.

While examining the details of auxiliary products to video games might be considered a niche area, DLC reached a market value of \$28.9 billion in 2021 (WePC, 2021), warranting a study of the

area. Despite this fact, however, no paper with a focus on video game loot boxes, DLC, or other purchasable in-game products specifically appears to exist. To remedy this shortcoming of the literature, we take a deep dive into the market for virtual add-on products and goods for video games. Thus, this paper will study loot boxes and other purchasable in-game products, such as DLC, and their implications on video games. Additionally, this paper will:

- Study the different types of add-on products to video games, their characteristics and differences,
- Based on empirical data, is there any one type of video game add-on product that might be better than others for video game developers to create?
- Attempt to bring about a theoretical framework that can serve as an addition to current frameworks in the video game industry, which will be based on our research,
- Study the appeal these in-game items (such as loot boxes, DLC, and so on) bring to developers, as well as players.

To answer these questions, we describe in detail each different type of add-on products in existence today, as opposed to previous literature that put everything together in the same category. After defining these differences, we use these distinctions to collect data on a select number of video games and their add-on products, which are analyzed to reveal if some types of add-on products are more favorably received by consumers than others. Using this analysis, we propose an addition to an existing theoretical model of the video game industry (in other words, we develop our own add-on product), which we compliment using responses to a questionnaire collected from three smaller Danish video game studios.

2.1 Explanations and Definitions of Terms

Video game terminology is broad and covers a wide array of sometimes extremely similar, yet different concepts. While not always one hundred percent technically correct, we categorize these concepts into the terms below to ease understanding and reduce repetition of terms.

Base game - The actual game itself and is required to purchase any further items. The game might have a one-time retail price, a recurring monthly price (sometimes in addition to a retail price) or be completely free to play.

Triple-A game / AAA game - Large-scale games developed by mostly huge development teams, often from the biggest gaming companies. The usual price is \$60-\$70.

Indie game - Games developed by smaller, and often independent teams or individuals. The usual price is anywhere between \$0 and \$40.

DLC / DownLoadable Content - Anything a customer can buy to compliment the base game, such as DLC and skins. Except for a few rare occasions, DLC requires the base game and does not function if the player does not own the base game¹. DLC is often in the form of “microtransactions”, such as the purchase of small items inside video games, but to avoid repetition of terms, DLC will often be used in this paper as the umbrella term that includes all products that can be purchased to compliment base games.

In-game items - DLC which affects, enhances, or expands the gameplay. This includes big expansion packs containing large additions to the base game, but also smaller in-game items such as

¹Examples of exemptions to this include the Company of Heroes franchise, whose expansion packs does not require the base game to be played.

characters (with their own, unique abilities or properties), weapons, equipment, vehicles, pets, cards, maps, in-game money, boosters for experience points or power, and so on.

Cosmetics - DLC that only has a cosmetic effect and does not alter the actual gameplay. Examples include character skins (that do not come with new abilities), weapon skins, visual effects, voice lines, stickers, hats, clothes, tags, dance moves, and so on.

In-game currency - Many games have a virtual currency that can be bought for real money, to be spent on buying in-game items such as cosmetics. They are commonly found in smartphone games, but also exist for PC and console games, such as Fortnite. Going by a myriad of different names across different games, such as gold, credits, V-bucks, or similar, they arguably serve as an abstraction layer to mask the real cost of in-game items, since their price never equals one-to-one to that of a real currency. Furthermore, bulk discounts make it cheaper to buy a lot of currency at once.

Loot box - a virtual treasure chest that gives the player a random piece of DLC. Usually costs real money to obtain, or open. It is usually called something else depending on the game, such as battle packs, cases, supply drops, cards, and similar. The point of loot boxes is the chance to obtain rare items. In some games, loot boxes are offered in time-limited “series”. Loot boxes from an older series that is not “produced” anymore may become very valuable.

Steam - Created by *Valve Software*, Steam is the world’s largest online store for buying, downloading, and playing PC games, but also offers numerous other features related to gaming. Being the market leader, we base our study on data obtained from Steam. While base games, expansion packs and DLC can be bought on Steam, loot boxes are always bought inside the individual game. In some cases, DLC is also bought inside the game.

2.2 The History of Add-Ons to Video Games

To gain an understanding of the increasingly complex video game market, we here outline the development of add-on products to video games, from the early sales of expansion packs sold in cardboard boxes in retail stores, to the current internet-based platforms where an abundance of conceptually different products is available. The years indicated for each section are approximate estimations of when each type of add-on became commonplace in western PC gaming markets.

2.2.1 Expansion Packs for the Most Popular Games (1990 - 2005)

DLC trace their roots back to “expansion packs”, which were add-on content to an already released game that had proved itself successful. Expansion packs broadly expanded the base game with a brand-new story, maps, characters, weapons, and enemies. The size of these additions was usually around 50% to 80% of that of the full game. Expansion packs came into existence as the result of the development cycle of video games: After a development team had shipped a game, the programmers began working on coding the next game. However, until the programmers had created the next-gen game engine and tools, the artists in charge of creating game assets - such as 3D models, 2D art, maps, sounds, and so on - had no platform for which to create content. Thus, while waiting for the game engine to be ready, they spent their time making an expansion pack for their old game.

Back when it was only possible to distribute video games on physical media, such as CDs and DVDs, additional content to already released games was most prevalent on the PC platform. Due to the weak hardware and lack of internet connectivity in old game consoles, only an extremely limited amount of expansion packs was released for consoles before the PlayStation 2 and Xbox². Since PCs

² Examples for earlier expansion packs to console games include *Grand Theft Auto: London 1969* for the original PlayStation, and *Sonic & Knuckles* for the Sega Genesis

had more memory and storage than consoles to store more data, games could more easily be enhanced by installing additional content. After the release of the online-focused PlayStation 3 and Xbox 360, DLC is now equally prevalent on all platforms.



Figure 1 - Before the Advent of Online Distribution of Video Games: After the release of Diablo II (released in 2000 for 60\$), a single expansion pack (released in 2001 for 35\$) was developed. Source: Blizzard

The fact that only a small selection of the most popular video games received expansion packs is due to the fixed cost of producing, transporting, and stocking video game discs. This imposed a lower limit on the amount of content provided by expansion packs, as it could never be feasible to market physical boxes that only provided a small number of items, such as a single character skin. Additionally, as the possible audience is exclusively people who already own the base game, only the most popular games could justify producing a second retail product to be stocked alongside the original game in stores. All these factors combined chose to create an expansion pack almost as significant and risky as creating a full game, as significant resources needed to be invested to create the amount of content necessary.

2.2.2 DLC: A Larger Selection of Smaller Items (2006 - Present)

The advent of delivering full-size video games digitally over the internet, beginning with *Half-Life 2* and the launch of Steam - today the market-leading online storefront for games - on PCs in 2004, as well as the release of the PlayStation 3 and the Xbox 360, opened up for producing and selling much smaller additions to video games, as the fixed cost per digital item sold is practically zero. This removal of the transaction cost gradually changed the industry as a whole. Video game companies no longer had to produce and sell full-size games, which would make most of its sales immediately after release and could not bring in any more money from existing players, even if they kept playing the game for many years. With the new generation of internet-connected games, smaller items could continually be developed for existing games, creating a cash flow throughout the entire lifecycle of the game, while at the same time prolonging the life of the game as players could get new content year after year.

The screenshot shows the Steam store page for **Buy Borderlands 3**. The base game is priced at 59,99€ with an **Add to Cart** button. Below it, under the heading **PACKAGES THAT INCLUDE THIS GAME**, are two bundles:

- Buy Borderlands 3: Super Deluxe Edition** (79,99€) including Borderlands 3, Digital Deluxe Extras, and Season Pass. It has a **Package info** button and an **Add to Cart** button.
- Buy Borderlands 3 Ultimate Edition** (98,87€) including Super Deluxe Edition, Season Pass 2, and Gold Weapons Skins Pack. It features a **-14%** discount, a **Bundle info** button, and an **Add to Cart** button.

At the bottom, the **CONTENT FOR THIS GAME** section lists 16 individual DLC items with their prices:

Item Name	Price
Borderlands 3: Season Pass 2	29,99€
Borderlands 3: Season Pass	49,99€
Borderlands 3: Designer's Cut	14,99€
Borderlands 3: Psycho Krieg and the Fantastic Fustercluck	14,99€
Borderlands 3: Bounty of Blood	14,99€
Borderlands 3: Guns, Love, and Tentacles	14,99€
Borderlands 3: Moxi's Heist of the Handsome Jackpot	14,99€
Borderlands 3: Amara Final Form Pack	9,99€
Borderlands 3: Moze Final Form Pack	9,99€
Borderlands 3: FL4K Final Form Pack	9,99€
Borderlands 3: Zane Final Form Pack	9,99€
Borderlands 3: Toy Box Weapons Pack	4,99€
Borderlands 3: Retro Cosmetic Pack	4,99€
Borderlands 3: Gearbox Cosmetic Pack	4,99€
Borderlands 3: Neon Cosmetic Pack	4,99€
Borderlands 3: Gold Weapon Skins Pack	4,99€

At the bottom right of the DLC list, there is a total price of 219,84€ and an **Add all DLC to Cart** button.

Figure 2 - By being able to distribute content over the internet, DLC for a total value of 220€ is available today for Borderlands 3 (costing itself 60€). Source: Steam

However, the history of DLC has not been without player outrage at companies being too eager to make some easy additional sales. One of the first examples of modern DLC, which immediately also became one of the first scandals regarding DLC, is “Horse Armor” for *The Elder Scrolls IV: Oblivion*, released in 2006. Costing \$2.5, the armor merely increased the health of the player’s horse, in addition to the visual elements of the armor. As the DLC did not add any new

gameplay element, it was criticized as merely being a fee to boost your character (or more correctly, your horse), and it was feared that it would begin a trend of paying real money to do more damage, have stronger abilities, and similar - simply making the game easier for you while not adding any new gameplay. Thankfully, the backlash against the horse armor seemed to have reached the developers of *Oblivion*, as the DLC that followed it were proper expansions with new areas and storylines and were even sold at a lower price.

Another historical curiosity is the controversy that existed around the so-called “on-disc DLC”. As the idea of DLC is that it is additional content that is created after the completion of the base game and distributed over the internet, the discovery that some games shipped with DLC already present on the disc itself, but only usable after purchase, sparked outrage against many video games. While an executive from Electronic Arts argued that the on-disc data were technical “scaffolding” required to support future downloadable content (Orland, 2015), some users found ways to access DLC on multiple games without buying (and therefore downloading) them, giving rise to the notion that game companies locked out parts of the finished game, requiring players to spend additional money on content stored on a disc they had already bought (Usher, 2018). Thankfully, this practice seemed to have ended around 2013, likely due to the decline in sales of physical game discs.

2.2.3 Loot Boxes and Battle Passes (2010 - Present)

Loot boxes are the monetized form of a concept that has long been a staple of some genres of video games: While playing the game, the player might come upon, or be rewarded with, a chest full of loot, in the form of weapons and equipment, most of which is worthless or only above average in value and rarity. But there is also a small chance for an exceedingly rare item to be contained in the chest, and players will hunt for these chests to find these items.

Modern loot boxes function in much the same way, only instead of being a chest found deep in a dungeon in-game, loot boxes are bought for real money in the game's online store. Variations on the exact mechanic exist across various games: Sometimes you simply buy the box, other times you are randomly gifted a box but have to buy a key to open it, and sometimes the appearance is akin to a slot machine. The loot you can win is no longer restricted to equipment, but are often skins or other visual enhancements, allowing you to show off to other players.



Figure 3 - A Loot Box from the game Overwatch, sold for around one dollar. Note the shiny graphical effects and intricate design. Source: Blizzard

Loot boxes in video games originated in games from Japan and China in the mid-2000s and began spreading to western games soon after. The revenue potential quickly became apparent to game developers: The Japanese free-to-play mobile game *Puzzles & Dragons*, one of the first to monetize

this mechanic, made one billion dollars in revenue, and the American game *Team Fortress 2* saw a twelve-time increase in players after adding loot boxes and making the game itself free in 2010, three years after its release (Hood, 2017). As the percentage of high-profile video games adopting loot boxes grew during the 2010s, so did player outrage at the perceived greed showcased by video game studios, culminating with 2017's, *Star Wars Battlefront II*, where powerful in-game abilities, such as reducing the damage done to your character, were only realistically obtainable through loot boxes - a concept known as “pay-to-win”, where you can gain an unfair advantage over other online players by spending real money (Purchase, 2017). The publisher of *Battlefront II*, Electronics Arts, infamously tried to defend their \$80 game on the social news site Reddit by calling the option to unlock *Darth Vader* through loot boxes as “*providing players with a sense of pride and accomplishment*”, a comment that became the most downvoted in Reddit's history, at 668.000 downvotes (EACommunityTeam, 2018).

Not only players are skeptical of loot boxes, and the practice has been under scrutiny by researchers, consumer protection agencies, and lawmakers. Loot boxes have often been compared with gambling, due to the slot machine-like nature of paying a small amount of money over and over again in the hopes of winning the jackpot. The excitement of opening a loot box is further heightened by the fact that it is often followed by flashy animations and dramatic reveals of the winnings. It is a fully intentional choice by game developers to use the same psychological tricks that casinos employ to keep customers playing and paying, by creating a “variable-rate reinforcement schedule” inside their video games (Richardson, 2015). In some games, loot boxes are sporadically given to the player for free, for example for every ten matches played, in an attempt to get them hooked on buying more. Stories of gambling addictions have popped up online, with people admitting to spending more than \$10.000 on loot boxes across several games, and others having to ask game developers to disable their ability to buy loot boxes entirely (Kelly, 2019).

The similarity with gambling and the dangers of addictions that follow, in video games that children are known to play is the primary reason that loot boxes have received negative attention from outside gaming circles. As a result, several countries have outright banned loot boxes entirely. Just like Japan was the first country in which loot box-like mechanics were developed, so was Japan the first country to ban such mechanics in 2012 (Straub, 2020). This was followed by Chinese restrictions in 2016, and in 2018 both the Netherlands and Belgium found loot boxes to constitute gambling and banned them in 2018 (Haydn, 2019). The UK is currently considering a ban (BBC, 2020), but the Danish Gambling Authority has found that loot boxes do not meet the criteria for gambling (Spillemyndigheden, 2017).

Despite the controversy around loot boxes, they seem more popular than ever. A study found that 71% of the top 463 popular games on Steam in 2019 contain loot boxes (Zendle, Meyer, & Ballou, 2020), and revenues are expected to reach £35 billion by 2022 (Delaney, 2021). Even so, some high-profile games have changed their use of loot boxes or outright moved away from them entirely. The previously mentioned controversy around *Star Wars Battlefront II* resulted in a complete revision where loot boxes can no longer be purchased with real money, and they will only contain cosmetics (as opposed to gameplay items as before). This was followed by the complete lack of loot boxes in *Battlefield V* (developed by the same company as *Battlefront II*), even though the previous game in the series, *Battlefield 1*³, contained loot boxes. Likewise, the rival game series of *Battlefield*, the *Call of Duty* franchise replaced loot boxes with a “battle pass” system in *Modern Warfare*⁴, where players purchase access to a time-limited “season” in which they can unlock cosmetics by playing the game. With other games also utilizing a battle pass system, such as the insanely popular *Fortnite*,

³ *Battlefield 1* is named so due to taking place in World War I, even though it was released between *Battlefield 4* and *5*.

⁴ Released in 2019, *Call of Duty: Modern Warfare* should not be confused with 2007’s *Call of Duty 4: Modern Warfare*

video games might be moving away from a chance-based system of buying treasure chests with random items, to a more transparent system of having both to pay and play to get a determined number of items.



Figure 4 - The newest development in DLC, where you pay for the ability to earn items by ranking up while playing the game for a limited time. Source: Activision

3 Literature Review

With video games becoming more and more prevalent as a means of entertainment, a great number of papers have been written on the topic, including general explanations of the subjects of DLC and loot boxes, such as Tomić (2017), Tyni & Sotamaa (2011), and Jett et al. (2015). Lee et al. (2015) describe both the philosophical and practical challenges regarding DLC (as well as user-created “mods”), such as questioning whether a game can be said to be a “complete work” when it can be changed through DLC and thus whether players can be said to be playing the same game, the difficulty separating DLC from their base games (see the “on-disc DLC” debacle above), and difficulties accessing data on obsolete physical media such as floppy discs and optical media. To reconcile some of these issues, the authors propose a model that atomically separates and defines each piece of content, creating a large map for each game of all the available configurations for it.

Taking a look at the business philosophy behind DLC is Lizardi (2012), who critically describes the “perpetual cycle of commodification”; how DLC provides a steady cash flow throughout the game’s lifecycle, and how DLC becomes a “cyclical return” of a continuous stream of new maps and items that players can look forward to. Likewise critical is Hart (2020), who describes some player’s rejection of microtransactions.

The subject of loot boxes has also had particular scholarly focus, mainly in the form of papers painting loot boxes in a negative light by linking them to gambling (Drummond and Sauer, 2018; Zendle and Cairns, 2019; Zendle et al., 2019; Griffiths, 2018; Macey and Hamari, 2018; Drummond et al., 2020). While the majority of papers look at the risks of gambling mechanics, some authors dismiss these concerns as a “moral panic”, arguing that the correlation between loot boxes and

gambling as found by Drummond and others are in a scale too small - average spending of thirteen dollars for “problematic” loot box buyers - to call for bans just yet (Etchells, 2021).

Close to our paper is Wu et al. (2013) and their analysis of nested network effects in free-to-play online games. Taking a look at the popular business model of offering a game for free to build up the largest possible customer base to sell DLC to, the authors mathematically evaluate the functions of customer’s valuations of games and accessories (cosmetic items). They describe a “positive network effect”, where the purchase of a weapon or other item necessitates the existence of other players to use the purchase on, while a “negative network effect” happens when too many players buy the same item, lowering its rarity and therefore perceived utility. They conclude that high profitability occurs with a high positive network effect and low negative network effect, and the price for games having these mechanics should be zero.

Despite all of these papers describing the concept of DLC and other add-on products for video games, we are not aware of any paper that examines the topic in detail and maps out the different types of DLC and each of their characteristics or make any attempt to empirically analyze data on actual DLC products and draw any conclusions on the topic. Since the video game industry has grown as big as it has, and since DLC is such an encompassing umbrella term for a lot of different products, we believe this gap in the literature needs fulfillment.

4 Theoretical Framework

We build upon an existing conceptual framework of “*Value creation in the video game industry*”, developed by Marchand and Hennig-Thurau (2013), which take an academic look at the entire industry that has developed around video games. Marchand and Hennig-Thurau lament the lack of academic focus on video games, compared to other forms of entertainment such as movies and music - a highly puzzling fact since the game industry is now larger than both the movie industry and the North American sports industry *combined* (Witkowski, 2020).

The framework maps out the ecosystem of the gaming industry and the relationships between the involved constituents surrounding video games. The industry is divided into two main areas: The vertical path of the “gaming environment” that consists of the video game developers who provide the actual game content at the top, and the players (Game Consumer) at the bottom. The horizontal path connects these two constituents, through the different game platforms where the games are played (such as game consoles, or Steam for PC games), as well as the rest of the environment surrounding the industry.

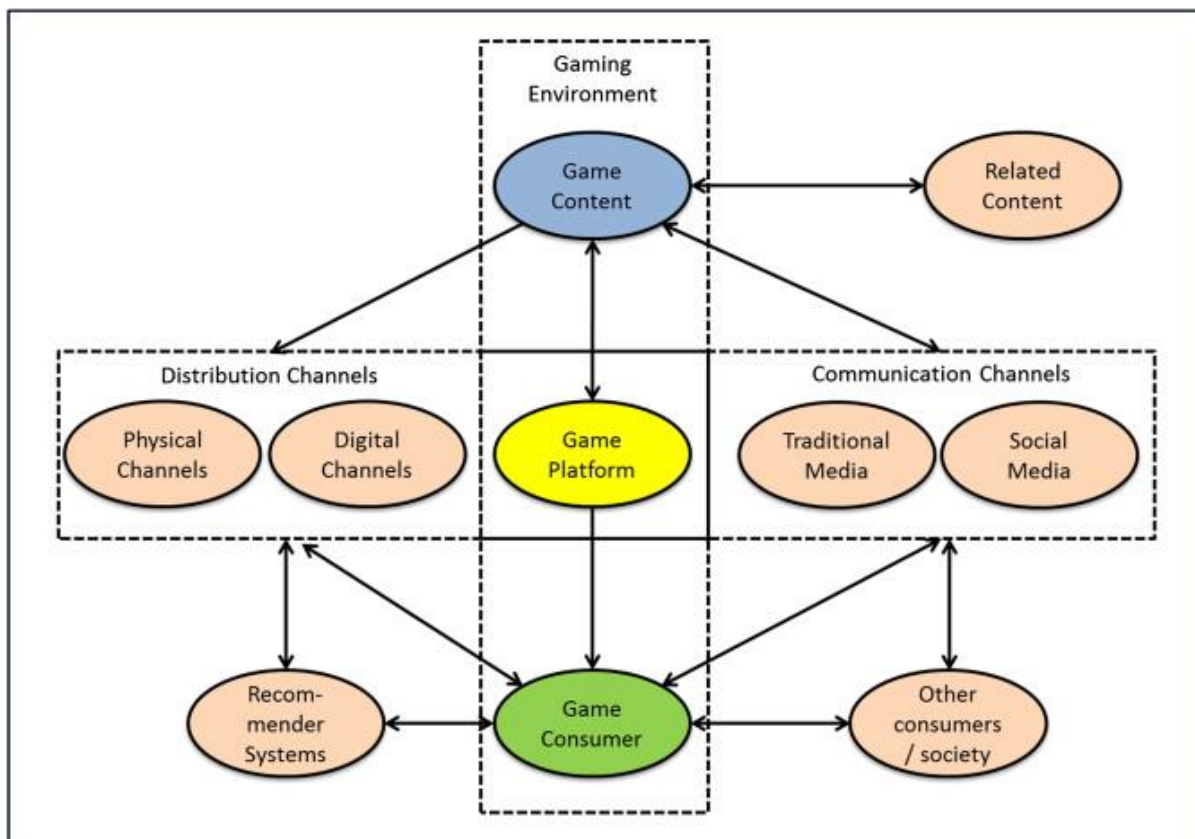


Figure 5 - Conceptual framework for value creation in the video game industry (Marchand & Henning-Thurau, 2013)

Marchand and Hennig-Thurau have a focus on the game platform in their framework, while we take the perspective of the game providers and game consumers in our study. We obtain our quantitative data from a single game platform, Steam, which, besides primarily being a Digital Channel in the framework, over time has grown to also include Recommender Systems and Social Media. It should be noted that “Related content” in the framework is *not* DLC and expansion packs, but spin-off products (such as toys, movies, merchandise, and similar).

Published just before loot boxes became widespread video games, the framework does not have any focus on the dynamics of DLC or any of the other products that are available today to complement video games, except for a short mention of free-to-play games that give “freebies” of in-game items to build up network effects around the game. This allows us to go in-depth with these new products, which have different characteristics than the standard model of selling one video game

title at a time. While in itself not an extension to the framework, it brings it up to date with the current market situation.

To expand on a general-purpose video game framework, we list the different types of DLC and each of their characteristics in the table below. We outline six different characteristics, which are:

Methods of acquisition - how the DLC is obtained. Larger DLC can most often only be bought with real money, while small DLC can also be bought with in-game currency or won from loot boxes.

Amount of content - how much content the game offers, or a piece of DLC adds to the game. This is highly problematic to assess, however, and as this is the most critical characteristic in regard to this paper, we will explain this characteristic in detail:

Time versus quality - Since video game mechanics take on so many forms, there are several different ways to measure the “size” of a game or DLC, none of which is truly objective. One metric could be the hours of entertainment the game offers, and this is often mentioned in regard to single-player games that have a story-driven campaign with an ending to the game. In these cases, the amount of time it takes to beat the game will often be held up against the price.

Fun - If the “length” of the game can be said to be the quantity, how do you value the quality of a game? Since video games can be considered to be art (Smuts, 2005), it is impossible to say how much enjoyment, that is, quality, a given player obtains from playing the game - or put simply, how fun the game is. The time measure is even more difficult for open-world games or multiplayer games, where there is no end to be reached. Here, only the quality of the game can be considered.

Gameplay added from DLC - For DLC, the amount of content they add to a game might both be measured in how much of the two measurements above they add if the DLC is a continuation of the storyline. However, as many DLCs enhance the base game by adding new items and mechanics

that can be used in the base game as well, the amount of these additions also counts towards the size of the DLC.

Cosmetics and loot boxes - Might be included in the base game, with more available from DLC. This is the easiest measurement to quantify - for example, a DLC might add five weapon skins and ten character skins. However, some players do not care about cosmetics at all and will value the “size” of such DLC as zero.

Lock-in - Mostly applicable to small DLC such as items and skins, this defines to what degree the DLC has a lock-in effect on the player. Since DLC cannot be transferred between games, any DLC bought is “wasted” if the player abandons the game and begins playing a new game, where they have to start all over from zero. Thus, the more the player has invested in items for a game, the less likely they are to stop playing that game. Exceptions are campaign-style expansions, such as a new piece of the story, which provides their value to the player once consumed.

Sense of urgency - some developers introduce artificial scarcity for some items by only making them obtainable within a limited time. If a player wants such an item, they are forced to buy it immediately or lose that chance forever - or in games with a virtual marketplace for the players, buy it later at exorbitant prices. For battle passes, the sense of urgency is not towards the purchase, but for the consumption.

Typical price - The typical cost of one unit from the category. Except for rare items, the price is determined by the amount of content of the DLC.

Capability for rarity - Some items, especially cosmetics, can be extremely rare and difficult to obtain. This rarity is one of the primary aspects of cosmetics in particular, and the rarest cosmetics can reach prices of hundreds of thousands of dollars (Kotwani, 2021). Most other DLCs have no rarity

as they can be freely purchased - one exception is pre-order DLC, which is only given to players who pre-order the game before release.

Category	Methods of Acquisition	Amount of Content	Lock-In	Sense of Urgency	Typical Price	Capability for Rarity
In-Game Currency	By playing the game, bought with real money	N/A	Yes	None. Might go on sale	Depends on the price of in-game items. Often has a volume discount	No
In-Game Items and Cosmetics	By playing the game, bought with in-game currency or real money, from loot boxes	Small	Small	Sometimes	Often tiny, but can reach extreme prices for rare items	Yes
Season Pass / Large DLC	Bought with real money	Medium to large	None to large	Rarely	Small to large	Only for pre-order DLC
Loot Boxes	A few given out for free, otherwise bought with in-game currency or real money	Small	Small	Sometimes	Cheap. Often has a volume discount	Yes, if seasonal
Battle Passes	Bought with real money	Several small items	During the season	Yes, seasonal	Medium	No, but might provide rare items

Figure 6 - Different types of DLC and their characteristics

DLC itself fits inside the Game Content constituent in the industry framework above, and functions identically in regard to the rest of the framework - while the distribution channel used to be physical media in the past, it has virtually shifted to entirely digital distribution through the Game Platforms operated by Valve, Epic, Sony, Microsoft, and similar. However, we do not believe that DLC can function as a separate constituent in the framework, for example, next to, or inside, the Game Content constituent. This is mainly due to two factors: Firstly, as mentioned above, DLC almost always requires the ownership of the base game to be purchased, making the existence of DLC products in the other constituents, such as the Distribution Channels, Communication Channels and Recommender Systems, a mostly irrelevant endeavor, as players expectedly have little interest in DLC for games they do not own. Indeed, some Distribution Channels, such as Steam, have an option to hide DLC when browsing the store, as these are not relevant to anyone but owners of the base game.

However, while individual pieces of DLC are irrelevant to non-owners of the base game, our second factor is that DLC undoubtedly casts a shadow over the base game itself, giving way to a second dimension of the framework. When looking for a new game to play, or when players consider buying a specific game, they will come across articles on DLC for that game on websites and other media in the Communication Channels. If these articles paint a negative light, for example lamenting loot box mechanics in the game, the prospective customer might be put off buying that game even if they might have enjoyed the base game alone without buying the available DLC. Likewise, while Steam has separate store pages for most DLC on which players can write their reviews, reviews for the base game will also be affected by the general sentiment on the DLC for the game - an example that we will look at below is the removal of loot boxes from *Middle Earth: Shadows of War*, which slightly improved the ratings of the game.

This paradox makes DLC, in all its forms and shapes, difficult to place in Marchand and Hennig-Thurau's framework - DLC itself is both obscured from most of the constituents in the framework as the target audience is owners of the base game, yet at the same time, DLC affects the overall impression of a base game, or an entire franchise, from opinion-laden articles and reviews written by game journalists and players. These effects are hard to define and measure, but a consensus of players might be found by looking at the actual reviews written by players, as we will do in this paper. If more empirical research could be performed on this subject, preferably with data on sales numbers and revenues, the framework could be developed and refined further.

5 Methodology

Following our establishment of a framework for video game DLC and other add-ons, we gather a variety of different quantitative, and to a smaller degree, qualitative data to find out if any patterns emerge in regard to the different types of DLC we have identified. Mainly using the Steam store as our primary source for our quantitative data, we gather a large amount of data which we analyze using a variety of data processing techniques, as visualized in the research flowchart below. Our qualitative data is used as-is, to complement our understanding of the topic.

5.1 Research Flowchart

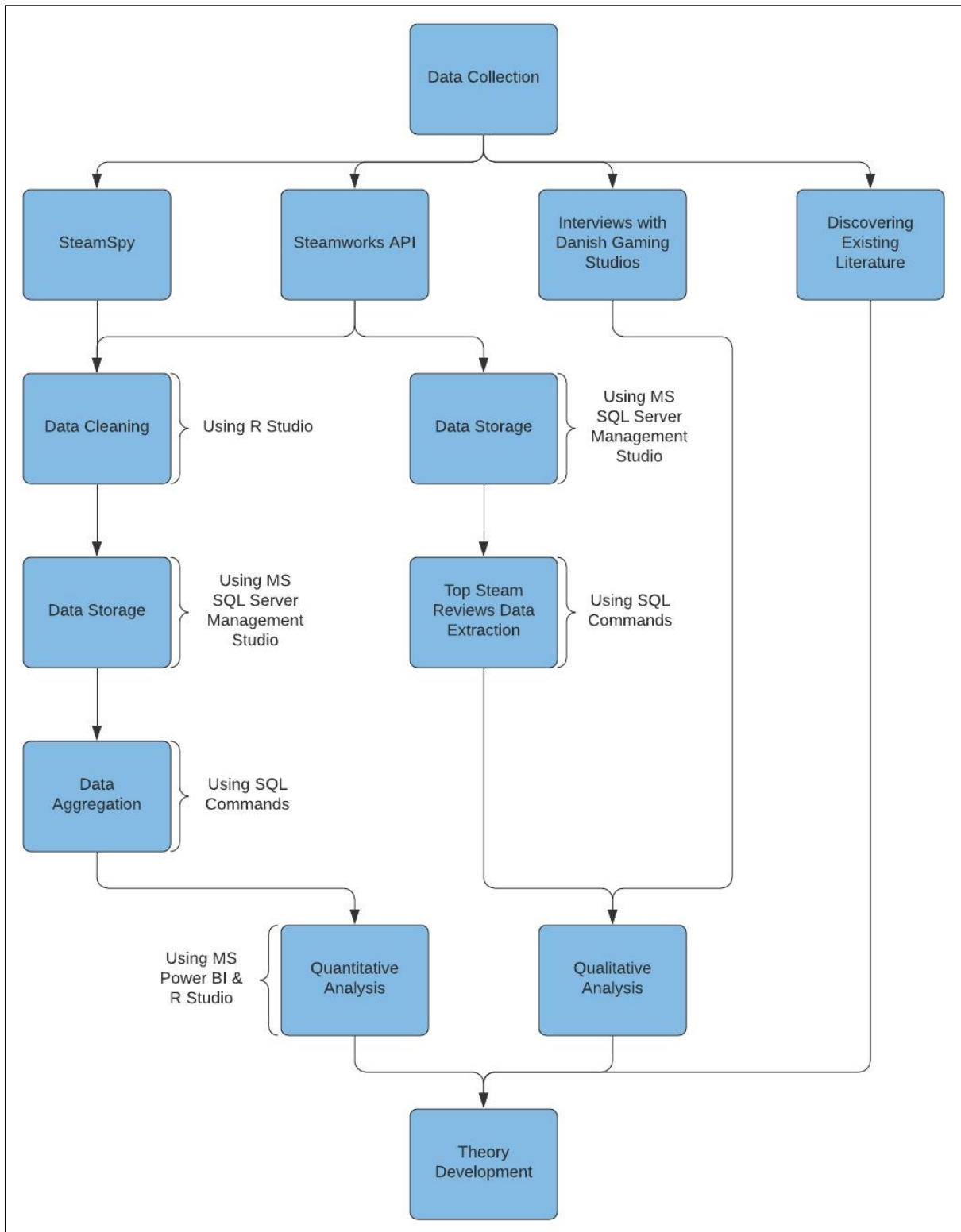


Figure 7 - Research Flowchart, depicting the steps taken to conduct this research

5.2 Quantitative Data

With our understanding of DLC in all its different shapes and sizes in place, we can attempt to gather real-world data on several games and DLC to analyze their performance and popularity. As much data are considered trade secrets, such as sales numbers and revenues, it is impossible to accurately measure the success of a piece of DLC. However, thanks to a third-party service called Steam Spy, which estimates some figures such as ownership numbers and price history, we can make some forms of analysis in conjunction with official Steam data on review scores.

5.2.1 Description of Sources

The quantitative data that is being used in this paper originates from two sources. The first part of the data comes from the Steamworks API. Steamworks provides free data for developers to use to integrate their games and other products with the Steam platform, as well as to get further insights on their products. Since the data Steamworks provides is so rich, it does not necessarily have to be used by game developers. Instead, this paper uses Steamworks for the analysis.

Unfortunately, Steam does not provide every kind of data that this paper might need for the analysis. Steam does not provide official historical data on games' price and ownership development, the share of players by geography, or a history of events (such as game updates or deals). That is where the second part of our data collection comes in. SteamSpy is a website created by Sergey Galyonkin, who has later been hired by Steam competitor Epic Games, in which he has been able to calculate estimates of ownership, price, the geographical share of players, and other data using the official Steamworks API. On the website, the author states that the data is extracted from a limited base of Steam users and that it might not be 100% accurate – something the methodology limitation section explains. So, for a small fee, this data has also been made available for us to use in the paper.

The data from these sources cover the entire time from when the game was released on Steam until March 3rd, 2021, which was the day when all the data was acquired.

5.2.2 Steamworks API Data Collection

As explained above, the Steamworks API has been used to extract data for the Steam games of our choice – the reasons behind this choice are explained further down in the paper. Steamworks offers multiple API services, however, only one has been deemed relevant to the paper, namely, the “User Reviews – Get List” API, which has been published with relevant documentation, and whose web addresses can be found in the Bibliography section of the paper (Steamworks).

For this API to work, one has to input certain parameters. The most crucial one is the *App ID*, which is the unique identifier for a Steam product. An *App ID* can be found in the URL of a game on Steam Store. For example, if one would like to get reviews for the game “Assassin’s Creed: Odyssey” on Steam, it would be necessary to visit the game’s store page on Steam, which has the following URL:

https://store.steampowered.com/app/812140/Assassins_Creed_Odyssey/

The *App ID* can, then, be extracted from the URL, which is, in this case, 812140. Additionally, three out of four of the games (Middle-Earth: Shadow of War, Assassin’s Creed: Odyssey, and Borderlands 3) of our interest also have multiple DLC available either for free or for purchase on Steam. All these items act as standalone Steam products, and thus have unique *App IDs*.

As the Steamworks documentation for User Reviews states, additional parameters are necessary to ensure the API’s functionality:

5.2.2.1 *Filter*

In this parameter, the API user should decide in what order the reviews should be presented. The choices at hand filter the results sorted by either the review creation time, update time, or helpfulness. The recent filter has been used for the sake of this paper, with which the data has been sorted based on the date posted.

5.2.2.2 *Language*

Another parameter lets the API user decide in which language the reviews should be fetched. In the case of this paper, the *all* parameter has been used, fetching information about every single review a game has on Steam Store. So, reviews in all languages have been fetched.

5.2.2.3 *Purchase Type*

This parameter filters the reviews of users who have purchased the game directly on Steam, or somewhere else (games can be purchased elsewhere, and subsequently “activated” on Steam). Again, the *all* parameter has been passed to get all the possible reviews, which includes those players who have not purchased the game directly on Steam.

5.2.2.4 *Review Type*

An additional parameter required to pass in the GET command is the review type, which filters for whether the review has been positive or negative. The *all* parameter has been used to get both the positive and the negative reviews for a game.

5.2.2.5 *Num Per Page*

By default, one GET call returns only 20 reviews. This can be changed by passing 100 to the string, which is the maximum number of returned reviews per page.

5.2.2.6 *Cursor*

As mentioned in the official Steamworks documentation of User Reviews, one single API GET call only returns a maximum of 100 reviews. Each returned page of reviews has a *cursor* value at the bottom of the file, which needs to be passed as a parameter to the next API call, to get the next 100 results. Some of the *cursor* values need to be URL-encoded for the successful extraction of the next page (provided in Appendix A). Since some of the games we are getting information about have almost 100.000 reviews, manually entering a cursor value and sending a GET call could take days, if not months. To automate this process, a *while* loop is used, which allows us to fetch all the reviews for a game. The R code (including the while loop) to extract API data from Steamworks can be found in Appendix A. This code can be adjusted for any Steam Store product that one desires to get review information of.

Finally, since three out of four games used in this paper include multiple DLC, the code in Appendix A had to be run 31 times (four main games plus their DLCs), each with a different App ID. The more reviews a game has (such as the Assassin's Creed: Odyssey's almost 100.000 reviews), the longer it takes for the code to extract the data - the maximum time observed was up to an hour. The file returned from the API call is in JSON format.

5.2.3 SteamSpy Data Collection

As already explained, Steamworks does not provide every kind of data that is relevant for the analysis. SteamSpy uses an automatic framework that works with Steamworks API to get data about the number of Steam users and the games they own. SteamSpy offers, for example, information about each game's playtime in total or in the last two weeks, aggregated reviews information, audience, or concurrent players – data that is either irrelevant or already included in the API data we have gathered in the previous section. SteamSpy, however, also offers data on historical ownership, prices, past

events, or the geographical player base of a game on the Steam Store – data which applies to this paper. For a fee, this aggregated data has been made available to us in JSON format. The degree of granularity depends on the information. For example, the historical pricing data, ownership, or the past events data has a daily granularity, while the geographical distribution of the player base of a game has a biweekly granularity.

5.2.4 Data Cleaning

The data from the Steamworks API had to be cleaned, as, in its raw states, the data for the main game and its DLCs are separated, some of its columns are not necessary, or are nested lists, and so on. Appendix B presents a sample of the R code, which has been used to clean all the JSON files and merge them under one single JSON file representing the main game and all its DLCs. So, for example, the final state of data for the analysis of the *Borderlands 3* game includes the data for the main game, as well as data for all its DLCs.

Similarly, the data from SteamSpy also had to be cleaned, though not as heavily as the Steamworks API data, as it already comes in a quite tidy format. Appendix C displays a sample code of how this data was cleaned using R. This code resulted in a game being represented by three JSON files, which are in form of clean data – one that includes the reviews from Steamworks API, the other one that includes the past events, historical prices, and ownership, and the last one that includes the share of geographical information of the player base.

5.2.5 Data Aggregation

As already mentioned, the Steamworks reviews data provides information about every single review of a game on the Steam Store, sometimes resulting in almost 100.000 reviews per game, whereas the SteamSpy data comes already in an aggregated form. Although the R programming language is great for cleaning data and can be used for data aggregation, Structured Query Language

(SQL) has been developed specifically with data querying and aggregation in mind, and it is fairly simple to connect an SQL database to Microsoft Power BI, a data visualization tool developed by Microsoft. As mentioned above, three cleaned JSON files are representing each game. Appendix D is a sample code of how one of these files is loaded into an SQL Server in the form of a table.

Finally, after all of the JSON files were loaded (12 in total), they were merged and daily aggregated. With daily data aggregation, the data becomes more understandable and can be used for additional calculations, such as the change of positive to total reviews from day 2 to 3 (explained further in the Dataset Description section). Appendix E presents a sample code (in this case for the game Assassin's Creed: Odyssey), which brings about several complex calculations and estimates aggregated daily since the game was launched on the Steam Store, where the starting point for the date aggregation is the day when the review was updated, and not created (as the Steamworks API does not provide the history of reviews, which means that we cannot see if a user wrote a negative review first, but then changed his mind to a positive one – we can only see the most recent one). The code in Appendix E also creates a new table, which includes every kind of data from both Steamworks API, as well as SteamSpy, daily aggregated. This new complex table is then used in MS Power BI to create visualizations for the analysis.

5.2.6 Dataset Description

Four games have been chosen in this paper for the analysis. As already explained, data on these games can be obtained from the Steamworks API and present an extremely large amount of data to be analyzed. This data is useful as it must be considered accurate, as it is the official data that the Steam store has to offer. More than 250.000 Steam store reviews are thus being used and analyzed in this paper. These come from the following Steam store games:

- FIFA 21

- Assassin's Creed: Odyssey & DLC
- Borderlands 3 & DLC
- Middle Earth: Shadow of War & DLC

The reasoning behind the choice of these games lies in that all of these games have something in common: microtransactions. FIFA 21 does not have any DLC, instead, it has a controversial loot box system where players can buy soccer players. Assassin's Creed: Odyssey does not have any loot boxes; however, several DLC for the game have been released, which is also considered to be very relevant to the analysis. Similarly, Borderlands 3 also has various DLC available – there are, however, more of them to purchase compared to Assassin's Creed, and some of the Borderlands 3 DLC is offered for free. The last game our paper uses is Middle Earth: Shadow of War. This game is unique as at release, the game included a loot box system. It was, however, scrapped at a later point, which might bring about deep insights into why developers decided to do this, as well as what this decision means for the game. Additionally, the game also offers numerous DLCs to download – either for a fee or for free.

Additionally, the choice of games for this paper has also been based on the game's popularity and its rating average. Unpopular games, and/or games with an extremely high or an extremely low rating were tried to be avoided to be included in this paper. Thus, this resulted in acquiring data for mainstream games that have a slightly above average rating, as we were interested in the popular "normal". Furthermore, our selected games cover different monetization models, as we have two games with DLC (Assassin's Creed: Odyssey and Borderlands 3); one game with no DLC but only loot boxes (FIFA 21), and one game that in addition to DLC *had* loot boxes but later removed them (Middle Earth: Shadow of War).

Figure 8 showcases an example of the final table to use for the analysis and visualizations for interpretation purposes. The data observed in Figure 8 is for the game Assassin's Creed: Odyssey. It showcases many types of variables and compound calculations for Assassin's Creed: Odyssey based on reviews acquired from Steamworks API.

ReviewDate	Recommended	NotRecommended	ReviewsTotal	RunningTotalOfRecommended	RunningTotalOfReviews	RecommendedToTotalReviewsRatio	RunningRatioOfRecommendedToTotalReviews	MonthlyRatingDifference	Owners	OwnersDifference	OwnersDifferencePerCent	Price
5.10.2018	384	87	471	384	471	81,5286624203822	-81,5286624203822	285000	285000	-285000	0	59,99
6.10.2018	862	315	1177	1246	1648	73,237043305013	75,6067961165048	-8,291619089881	364000	79000	27,719298245614	59,99
7.10.2018	445	152	597	1691	2245	74,5393634840871	75,3229398663697	1,302320153586	351000	-13000	-3,57142857142857	59,99
8.10.2018	389	97	486	2080	2731	80,0411522633745	76,1625778103259	5,501788779287	280000	-71000	-20,2279202279202	59,99
9.10.2018	272	92	364	2352	3095	74,7252747252747	75,9935379644588	-5,3158775381	269000	-11000	-3,92857142857143	59,99
10.10.2018	220	68	288	2572	3383	76,3888888888889	76,027194795717	1,663614163614	275000	6000	2,23048327137547	59,99
11.10.2018	226	60	286	2798	3659	79,020979020979	76,2605614608885	2,63209013209	296000	21000	7,63636363636364	59,99
12.10.2018	163	47	210	2961	3879	77,6190476190476	76,3341067285383	-1,401931401931	450000	154000	52,027027027027	59,99
13.10.2018	223	48	271	3184	4150	82,2878228782288	76,7228915662651	4,668775259181	494000	44000	9,77777777777778	59,99
14.10.2018	219	59	278	3403	4428	78,7769784172662	76,8518518518518	-3,510844460963	298000	-196000	-39,6761133603239	59,99
15.10.2018	174	43	217	3577	4645	80,184331797235	77,0075349838536	1,407353379969	294000	-4000	-1,34228187919463	59,99
16.10.2018	142	29	171	3719	4816	83,0409356725146	77,2217607973422	2,85660387528	298000	4000	1,36054421768708	59,99
17.10.2018	131	31	162	3850	4978	80,8641975308642	77,3402973081559	-2,17673814165	301000	3000	1,00671140099597	59,99
18.10.2018	111	33	144	3961	5122	77,0833333333333	77,3330730183522	-3,780864197531	304000	3000	0,996677740863783	59,99
19.10.2018	112	28	140	4073	5262	80	77,404028886355	2,9166666666667	321000	17000	5,5921052631579	59,99
20.10.2018	102	26	128	4175	5397	79,5875	77,4582560296846	-0,3125	327000	6000	1,86915887850467	59,99
21.10.2018	113	30	143	4288	5533	79,020979020979	77,4986444966564	-0,666520979021	319000	-8000	-2,44648318042814	59,99
22.10.2018	87	16	103	4375	5636	84,4660194174757	77,6259758694109	5,445040396497	320000	1000	0,313479623824442	59,99
23.10.2018	84	14	98	4459	5734	85,7142857142857	77,7642134635507	1,24826629681	319000	-1000	-0,312000000000004	59,99
24.10.2018	90	16	106	4549	5840	84,9056603773585	77,8993856164384	-0,808625336927	317000	-2000	-0,626959247648906	59,99
25.10.2018	63	25	88	4612	5928	71,5909090909091	77,8002699053331	-13,314751286449	316000	-1000	-0,315457413249209	59,99
26.10.2018	55	21	76	4667	6004	72,3684210526316	77,7315123251166	0,777511961722	315000	-1000	-0,316455696202533	59,99
27.10.2018	87	23	110	4754	6114	79,0909090909091	77,7559699051357	6,722488038278	315000	0	0	59,99
28.10.2018	86	15	101	4840	6215	85,1485148514851	77,8761061946903	6,057605760576	323000	8000	2,53968253968253	59,99
29.10.2018	66	19	85	4906	6300	77,6470588235294	77,8730158730159	-7,501456027956	327000	4000	1,2389009287925	59,99
30.10.2018	46	10	56	4952	6356	82,1428571428571	77,9106356198867	4,495798319328	325000	-2000	-0,611620795107037	59,99
31.10.2018	56	14	70	5008	6426	80	77,9333955804544	-2,142857142857	323000	-2000	-0,615384615384618	59,99
1.11.2018	79	10	89	5087	6515	88,7640449438202	78,0813507290867	8,76404494382	331000	8000	2,47678018575852	59,99
2.11.2018	72	17	89	5159	6604	80,8988764049444	78,1193216232586	-7,865168539326	322000	-9000	-2,7190332326284	59,99
3.11.2018	44	18	62	5203	6666	70,9677419354839	78,052805280528	-9,931134469011	327000	5000	1,5527950310559	59,99
4.11.2018	67	17	84	5270	6750	79,7619047619048	78,0740740740741	8,794162826421	389000	62000	18,960244648318	59,99
5.11.2018	44	13	57	5314	6807	77,1929824561404	78,0666960481857	-2,568922305764	428000	39000	10,025706940874	59,99
6.11.2018	54	12	66	5368	6873	81,8181818181818	78,102720791503	4,625199362041	438000	10000	2,33644859813085	59,99
7.11.2018	38	12	50	5406	6923	78,0875343059367	78,0875343059367	-5,81818181818182	444000	6000	1,36986301369864	59,99
8.11.2018	40	16	56	5446	6979	80,3571428571429	78,0341023069208	-4,571428571429	449000	5000	1,12612612612613	59,99
9.11.2018	33	4	37	5479	7016	89,1891891891892	78,0929304446978	17,760617760618	395000	-54000	-12,0267260579065	59,99
10.11.2018	47	11	58	5526	7074	81,0344827586207	78,117048346056	-8,154706430569	400000	5000	1,26582278481013	59,99
11.11.2018	54	18	72	5580	7146	78,0856423173803	78,0856423173803	-6,034482758621	483000	83000	20,75	59,99
12.11.2018	47	5	52	5627	7198	90,3846153846154	78,1744929146985	15,384615384615	509000	26000	5,38302277432712	59,99
13.11.2018	41	11	52	5668	7250	78,8461538461538	78,1793103448276	-11,538461538462	528000	19000	3,7328094302554	59,99
14.11.2018	21	9	30	5689	7280	78,1456043956044	78,1456043956044	-8,846153846154	536000	8000	1,51515151515151	59,99
15.11.2018	48	9	57	5737	7337	84,2105263157895	78,1927218209077	14,210526315789	523000	-13000	-2,42537313432836	59,99
16.11.2018	26	7	33	5763	7370	78,7878787878788	78,1953867028494	-5,422647527911	463000	-60000	-11,472275334608	59,99
17.11.2018	43	9	52	5806	7422	82,6923076923077	78,2268930207491	3,904428904429	476000	13000	2,80777537796977	59,99
18.11.2018	45	10	55	5851	7477	81,8181818181818	78,2533101511301	-0,874125874126	562000	86000	18,067268907563	59,99
19.11.2018	19	2	21	5870	7498	90,4761904761905	78,287543344892	8,658008658009	558000	-4000	-0,711743772241991	59,99
20.11.2018	41	3	44	5911	7542	93,1818181818182	78,374436488995	2,705627705628	557000	-1000	-0,179211469534046	59,99
21.11.2018	624	7	631	6535	8173	98,8906497622821	79,9583996084669	5,708831580464	652000	95000	17,0556552962298	40,19
22.11.2018	2175	34	2209	8710	10382	98,4608420099593	83,8952032363706	-0,429807752323	808000	156000	23,9263803680982	40,19
23.11.2018	909	30	939	9619	11321	96,8051118210863	84,9659924034979	-1,655730188873	865000	57000	7,05445544545455	40,19
24.11.2018	688	25	713	10307	12034	96,4936886395512	85,648994515393	-0,311423181535	910000	45000	5,20231213872833	40,19
25.11.2018	624	16	640	10931	12674	97,5	86,2474356951239	1,006311360449	978000	68000	7,47252747252747	40,19
26.11.2018	431	10	441	11362	13115	97,7324263038549	86,6336256195196	0,232426303855	1012000	34000	3,47648261758691	40,19

Figure 8 - Assassin's Creed: Odyssey Final Table for the Interpretation Purposes (zoom-in for details)

5.2.6.1 Review Date

The dataset is based on a daily aggregation of the Updated column, which is called Review Date in this table. Each row represents a day from when the game was launched on Steam until March 3rd, 2021.

5.2.6.2 Recommended

This column represents the number of positive reviews on a particular day.

5.2.6.3 Not Recommended

This column represents the number of negative reviews on a particular day.

5.2.6.4 Reviews Total

This column represents the total amount of reviews a game has received on a particular day, both positive and negative.

5.2.6.5 Running Total of Recommended

This variable showcases a running total of positive reviews from the launch until a particular day. For example, on October 10th, 2018, the number (2572) represents the total amount of positive reviews from the launch until October 10th, 2018.

5.2.6.6 Running Total of Reviews

This column is the same type as the previous one. It, however, displays the total reviews, instead of only the positive ones.

5.2.6.7 Recommended to Total Reviews Ratio

This variable represents the percentage of positive to total reviews on a particular day. For example, on October 5th, 2018, there were 384 positive and 471 total reviews (87 negative ones).

$(384/471) * 100$ gives us the result of 81.53%, which means that 81.53% of all the reviews liked the game on a particular day (October 5th, 2018 in this case).

5.2.6.8 *Running Ratio of Recommended to Total*

This column demonstrates a running ratio of a Running Total of Recommended reviews to a Running Total of Reviews until a given day. For example, by October 10th, since launch, there have been 2572 positive reviews, and 3383 total reviews (811 negative ones). $(2572/3383) * 100$ gives us the result of roughly 76%, which means that 76% of all reviews until October 10th, 2018 are positive.

5.2.6.9 *Rating Difference*

This variable showcases the change in rating from one day to another. For example, on October 6th, 2018, the change in rating from October 5th, 2018, was -8,29% (always a comparison between the current and the previous day in percentage).

5.2.6.10 *Owners*

This column displays the number of owners of a game on Steam.

5.2.6.11 *Owners Difference*

This variable shows the change in the number of owners of a game on Steam.

5.2.6.12 *Owners Difference Percent*

This column shows the change in the number of owners of a game on Steam in percentage.

5.2.6.13 *Price*

This column displays the price of the main game on Steam on a particular day in €.

5.2.6.14 *Regional Columns*

There are also omitted regional columns in the table, which contain a biweekly share of players based on their region. For example, these columns for Assassin's Creed: Odyssey show that roughly 13% of all the players of this game are from the US, 4.5% are from Russia, and so on.

5.2.7 Data Analysis

With all the quantitative data in place, graphical analysis was performed in Microsoft Power BI for the visual analysis of our data, and RStudio for multivariate time series analysis. The visual analysis simply graphs out changes in our variables, such as review sentiments, player ownership, and price, over time. The multivariate time series analysis makes use of a more advanced methodology, as it allows us to use our data to create a statistical model that can predict changes between variables, such as how much the change in the price of a given game will affect its review score over time.

5.2.7.1 *Visual Analysis*

As mentioned above, the original data has been aggregated using SQL commands in Microsoft SQL Server Management Studio. This data has been visualized to perform the visual analysis in this paper using Microsoft Power BI software. Microsoft Power BI has a handy functionality, which allows the user to load data from multiple sources, including an SQL Server Database. This function has been used to load the data into the software. Consequently, this loaded data has then been plugged into visuals in Microsoft Power BI, to graphically display chronological events and other developments for each game.

5.2.7.2 *Multivariate Time Series Analysis*

In his work *Vector Autoregressive and Vector Error Correction Models*, Lütkepohl presents Vector Autoregressive (VAR) processes, which are used to analyze time-series data, with a small or

moderate number of endogenous variables (Lütkepohl, 2004). He explains that this model is very well suited to explain multivariate time series data, but also that the data should be made as simple as possible and should not have too many different variables, as it might become more problematic for the model to explain too many complex dynamics. He also argues that in some cases, the simple univariate time series has been superior to multivariate time series, however, as this paper's objective is to discover how various events, such as the removal of loot boxes or other paid or unpaid DLCs affect how the community rates these games, the VAR model seems to be the more fitting option for our study. To make the VAR model as accurate as possible, a few adjustments to the data had to be made:

- Events that are introduced alongside the game's launch are not considered, as this would, firstly, make the model inoperable, and secondly, the paper would not have any data to compare this event to (for example, we cannot make a multivariate time series analysis on most "Season Pass #1" DLC, as those are usually released with the game's launch. Thus, there is no timeframe between the launch of the base game, and the launch of the first DLC).
- Multiple events that happen on the same day have been merged into one large event. This is, firstly, because considering too many variables would be counterproductive for our model, as Lütkepohl states that the fewer variables used in the model, the better. Secondly, it would not make sense to use these variables separately, because each event on a particular day would give us the same result as any other event that happens on the same day.
- For Borderlands 3, the "Gold Weapon Skins Pack" DLC has not been included as an event in our analysis, as including it breaks the model, making it inoperable. This is likely due to too many variables present in the data. As it is a very small piece of DLC, we do not consider this a significant loss of data.

- The last two observations of each game had to be removed, as SteamSpy had not yet recorded the price history of those events at the time of data collection.

The sample R code of Multivariate Time Series Analysis for Middle Earth: Shadow of War can be found in Appendix H. Almost identical code has been used for the remaining three games.

Regarding the model validation, all four games gave us a very low R-Square value, with some of them giving us results as low as 1%, especially with the rating as the dependent variable, which is not optimal. This is likely due to the following reasons:

- In general, the ratings of each of the games we analyzed have been quite stable during the entire period, except in a very few cases where we could observe some very minor increases or decreases of the ratings of a game whenever an event was introduced. These increases or decreases have, however, never demonstrated an extreme change in rating. Usually, the change of the rating of each game did not go beyond 5%, which can be considered very small.
- There are very likely many other variables that affect the rating and/or the count of daily reviews of a game much more than the release of DLC, and that we are not considering in this study. For example, information on the technical performance and stability of the game, high technical requirements to computer hardware that might taint the experience of players with slower computers, information on whether the player plays similar games to the analyzed one, information of the customer's age, or other background information of the player very likely affect the rating and the count of daily reviews of the game as well.

Despite the low R-Squared results, the analysis still provides very useful information, as some results provided the paper with significant results, thus implying that some events do have a certain (be it a short-term or long-term) effect on the game's rating or its count of daily reviews. The R-Squared results of the VAR model for each game are displayed in Figure 9.

As a part of the analysis, it was necessary to determine if the data used was stationary. The details can be found in Appendix H, which also includes the code to check for data stationarity. Data for each of the games used in the analysis was stationary, so no additional in-depth data cleaning was necessary. After some additional steps, the models have been fitted using the data. The summary of the model gave us the results of polynomial roots, which were all under 0, which implies that the models were stable, and we could move on.

Finally, the results of the analysis are presented as graphs extracted from the Orthogonal Impulse-Response function (IRF), which can be used in R Studio. This function allows us to simulate the introduction of an artificial shock in one of our independent variables. This shock varies, as it is scale-dependent on the variable used. What is important is that whenever this simulated shock is introduced, it allows us to see how this shock temporally affects our dependent variables. There are two kinds of shocks we created – the first one being just one initial shock, which slowly fades away, whereas the second one is the cumulative version of the shock, which means that it is maintained for the whole duration of the analysis (we chose 150 days, as we wished to see both short-term, as well as long-term effects on our dependent variable). Additionally, every graph contains two dashed red lines (confidence intervals with 95% confidence – that means that we are 95% confident that our dependent variable will have the results between these two dashed red lines), and a black line, which is the prediction of what would happen if we introduced a shock in our independent variable. Thus, the whole analysis entails 50 different scenarios, which simulate the effect of an event introduction (for example introducing a new DLC or removing loot boxes from a game) on either the count of daily reviews or rating of our game. Out of our 50 scenarios, only the most noteworthy and relevant graphs are included in the analysis, as including all of them would become too exhaustive and in some cases irrelevant, as not every event brings about a significant change in our dependent variable.

The complete collection of the graphs produced by the Orthogonal Impulse-Response function can be found in Appendix I, with respective descriptions of each of the graphs included.

Game	Dependent Variable	Independent Variable	R-Squared
FIFA 21	Rating	Price	~ 9 %
FIFA 21	Count of Daily Reviews	Price	~ 28 %
AC: Odyssey	Rating	The Fate of Atlantis, Legacy of the First Blade, Price	~ 3 %
AC: Odyssey	Count of Daily Reviews	The Fate of Atlantis, Legacy of the First Blade, Price	~ 23 %
Borderlands 3	Rating	Price, All DLCs except Golden Weapon Skins	~ 2 %
Borderlands 3	Count of Daily Reviews	Price, All DLCs except Golden Weapon Skins	~ 55 %
ME: Shadow of War	Rating	Price, All DLCs, Removal of Loot Boxes Event	~ 1 %
ME: Shadow of War	Count of Daily Reviews	Price, All DLCs, Removal of Loot Boxes Event	~ 15 %

Figure 9 - VAR Model Validation Results

5.3 Qualitative Data

To supplement our quantitative datasets, which tell us of patterns observed regarding player sentiments to various events affecting games and their DLC, we use two different sources of qualitative data to:

- Understand, in the players' own words *why* they rate the games as they do, and to
- Understand the topic from the other side of the table, by asking game developers about what type of DLC they create for their games.

The first dataset containing the texts of the top Steam reviews were obtained in the same fashion as the quantitative Steam data, while the second dataset containing our interviews and

questionnaire responses from game developers were obtained from direct contact with three Danish game companies.

5.3.1 Top Steam Reviews

The Steam store allows players to write reviews of the games they have played, as well as give either a “Recommended” or “Not recommended” score to the game, both of which will be displayed on the store page for each game. Other players can then vote if a review is Helpful, Not Helpful, Funny, or they can give it an award. The reviews voted most helpful rise to the top of the list on the web page. This is to display the most useful reviews, as popular games can easily have tens of thousands of reviews, most of which are very brief. As players vote for the reviews they find useful, we assume that the top-voted reviews contain viewpoints that the general player base agrees with and are thus representative of the general opinion of the players of the game.

The reviews have been collected from the official Steamworks API (Application Programming Interface) – detailed information on how these have been fetched, filtered, and manipulated is found in the Quantitative Data section. The reason that the Steam reviews belong under the Qualitative Data section is that the analysis will use the most popular (that is, voted most helpful) Steam reviews from each game and consider what these reviews have to say about the state of the game and the reason behind their positive or negative rating (that is, recommended, or not recommended). The program code which was used to fetch only the most popular reviews can be found in Appendix F.

For each game, the ten most popular reviews have been fetched from the SQL table. Three out of the four games analyzed have a very good balance of top positive to negative reviews (meaning that from the top ten reviews, approximately half of them are positive, and the other half are negative).

The last game's (Middle Earth: Shadow of War) top ten reviews, however, only consisted of negative reviews. Appendix G contains the top reviews.

5.3.2 Qualitative Data Obtained From Danish Game Companies

To get insight into the reasoning by game developers when deciding how to monetize their games, we reached out to several Danish game studios that have published video games targeting a broad demographics of players, that is, not games specifically made for small children, or educational games. Due to the difficulty of performing physical interviews due to COVID-19, we sent a questionnaire out by email, with an offer to conduct a video interview where the same questions would be asked. We were able to perform one video interview with a developer from a Danish game company and received two responses to the questionnaire from two other companies. As the games developed by these three companies differ in terms of DLC offered, not all questions were applicable and could thus be skipped over. To ensure the anonymity of the companies, the questions were not focused on the specifics of their games, but the business strategy employed by the company in their offerings to their games.

5.4 Limitations

Our thesis has several significant limitations in scope that must be kept in mind. Our primary limitation is the lack of access to any financial data, such as sales numbers, revenues, or profits. We can thus not determine whether a DLC has been a financial success, which is likely the primary concern of the publisher. Our quantitative data primarily consists of customer feedback, which is naturally subjective. Our only objective and absolutely reliable data is the price history of video games and DLC, as such information is historically available. However, to prevent our analysis to become overly complicated, and to avoid breaking our predictive models, we only use the price

history of base games and not DLC. We have gained additional objective data, such as the number of owners of a game or DLC, but this data consists of third-party estimates from Steam Spy, based on information gathered from public profiles of Steam customers. Since these estimates are within 10% of the correct amounts when compared with real-life figures (Bailey, 2018), we consider data from SteamSpy to be sufficiently accurate for scholarly use. However, there are inherent and obvious data errors during specific events, such as when games go on “free weekend” - these errors also appear in our graphs and have been considered in our analysis.

Our second significant limitation is that the ultimate source for all our data stems from the Steam platform. While player opinions and sentiments of games are assumed to be the same no matter which platform the game is bought on, the above-mentioned numbers of owners of a particular game only consider players who own the game on Steam, and not on competing platforms such as Epic Games Store, EA Origin or Ubisoft Connect (previously known as Uplay). As these types of data are only available for Steam, and because Steam is the clear market leader with a 75% market share (Zuckerman, 2021), we consider data from Steam as an acceptable source to analyze the topic at hand. Furthermore, we do not have reason to believe that data would be significantly different on other platforms than Steam.

Another limitation that is derived from only having Steam as a data source is that this paper almost exclusively focuses on the PC platform, which is just a smaller part of the entire video game industry. While we believe that Steam is representative of the entire PC platform, it might not be representative of the entire gaming industry, as console gaming and especially mobile gaming may have differences from the PC platform. Reasons for these differences include the historic prevalence of expansion packs for PCs and the lack of internet connectivity of old game consoles. However, we consider PC and consoles to be close to equal today, as it is largely the same games and DLC being

marketed on multiple platforms. The same is not the case for mobile platforms (smartphones, handheld consoles), so this paper might not apply to those markets.

Finally, due to the complexity and variety of video games, generalizations have had to be made for all aspects, as it is impossible to be aware of all exceptions, of which there are many, to the general patterns observed in video games and DLC. Thus, while we believe our findings are valid as an overall framework for video games, there might always be cases that go against our results, and players who have opinions that oppose the consensus we have found.

6 Analysis

In total, we have three different datasets that will be analyzed: One quantitative dataset containing a broad range of numerical data on our four chosen games, one qualitative dataset that consists of the text of ten most upvoted reviews for each of the four games, and one qualitative dataset in the form of one interview with a game developer in a Danish game company, as well as questionnaire responses (using much of the same questions as in the interview). These three datasets give us insights in three different ways:

1. How players rate the four different games, especially in response to the release of DLC or other events
2. *Why* they rate them as they do, and what they think about the games
3. How and why our surveyed game developers make use (or don't make use) of DLC and microtransactions in their games

The different datasets vary significantly in size, requiring different methods of analysis. The analysis of our quantitative dataset will be visualized primarily with two different types of line graphs: One type that displays historic data on review scores, numbers of owners, prices, releases of DLC, and so on, and one type that displays several simulations we perform based on this data, where we simulate a change in one variable (such as price) to see the effect on other variables (such as review scores).

Our two qualitative datasets are much smaller in size. The actual reviews of the games, totaling forty reviews in total, will be scrutinized for any mentions of the topics of this study, such as DLCs or loot boxes. Comments on other aspects of the game, such as graphics or the gameplay in general, are only briefly mentioned. The overall sentiments of the reviews are generally found to be

in line with the quantitative data and serve as explanations for this. Finally, our data from a small number of game developers are used to see the topic from their point of view, to understand how and why they have designed their games as they have.

6.1 Visual analysis

This section provides visualizations of reviews data provided by Steamworks and SteamSpy, which showcases how player reviews develop over time while considering important events, such as game-changing updates, loot-box system removal, the introduction of new DLC, and similar.

6.1.1 FIFA 21

The Steamworks API and SteamSpy numbers provide us with useful information. FIFA 21, if compared to other games analyzed in this section, is the game with the least number of reviews, with roughly 25.000 by the beginning of March. Nevertheless, it is still a very large amount of data that can be used for complex analysis. The likely reason behind a “lower” amount of Steam reviews is the fact FIFA is a game series that sees a release every single year. This can be observed in the data, where we see that the Steam reviews started being registered in late 2020, as, according to the Steam Store, the game was released on October 9th, 2020. Thus, FIFA 22 is expected to be released later in 2021.

Additionally, as compared to other games’ visualizations, it can be observed that FIFA 21 does not have any events on its time axis. This is likely because the game has not changed much since its release, as well as the fact that the series sees the release of a new game every year, meaning that any major changes will be made in next year’s game. However, there are still some patterns and developments that can be observed from the two visualizations. Figure 10 showcases the development of the reviews of the game. The green line is the price development, and the light blue line represents

the average rating of the game for every day. The dark blue is the running average rating of the game from its release until a certain date. That means that the last day of the graph (March 3rd, 2021) represents the average of all the ratings the game has had before this date. Figure 11 showcases three logarithmic developments – namely the running total of owners as blue, the daily number of reviews indicated with the dark blue line, and again, the price development as green.

Probably the most noticeable development in the graph is the correlation of price with other indicators, such as the number of daily reviews, and in some cases, even the daily rating of the game. At some point, the running total of owners also seems to be slightly connected to the price. The most notable point of this correlation is in late 2020 (very likely to be a Christmas sale), where the price of the game dropped to 35 € (the 35 € tag is missing due to restrictions in Microsoft Power BI), which is roughly a 40 % off deal, as the “normal” price is 60 €. This immediately resulted in a large surge of reviews, at some points even reaching more than 1000 reviews a day. The total number of owners of the game also increased significantly, to roughly 0.4 million owners within this period. The effect of the price drop in the Christmas sales can be seen in the sentiment change as well. Figure 10 exhibits a very slight, but obvious increase in the sentiment of the players of this game during the 2020 Christmas sale. This can be observed in the daily rating, which increased significantly during the sale. More specifically, the daily ratings before the sale were moving at around 65%, whereas these daily ratings increased, at some points, to an almost 90% sentiment positivity. As expected, this also increased the Total Rating, which, during the Christmas sale, seems to have jumped from a roughly 72% to 77% overall sentiment positivity.

The positive sentiment of reviews, however, did not last long, and as can be observed in Figure 10, the Total Rating seems to have kept a stable, but very slightly decreasing pace. This can be observed in the daily rating changes, which, at some points, seem to have reached 50% at some points

(February 2021). Similarly, Figure 11 shows expected figures – the number of owners over time increases, as well as the daily number of reviews on days when the price of the game is decreased.

Overall, comparing the visuals to the remaining three games in this paper, and considering that the game is one of the most mainstream games of all time, probably due to the popularity of football in the world, it can be concluded that the game has a largely negative sentiment of its Steam reviews in its player base: 72.96% is the lowest rating of all the games that are considered in this paper. Unlike other games, this game is also currently the only one that offers a loot box system, which can be considered to have impacted the reviews' sentiment of the game. On the other hand, however, it seems that the price of the game also has a large impact on how players view it – so, it can also be concluded that the players find very little value in a fully priced (60 €) game.

FIFA 21

● Daily Rating ● Total Rating ● Price

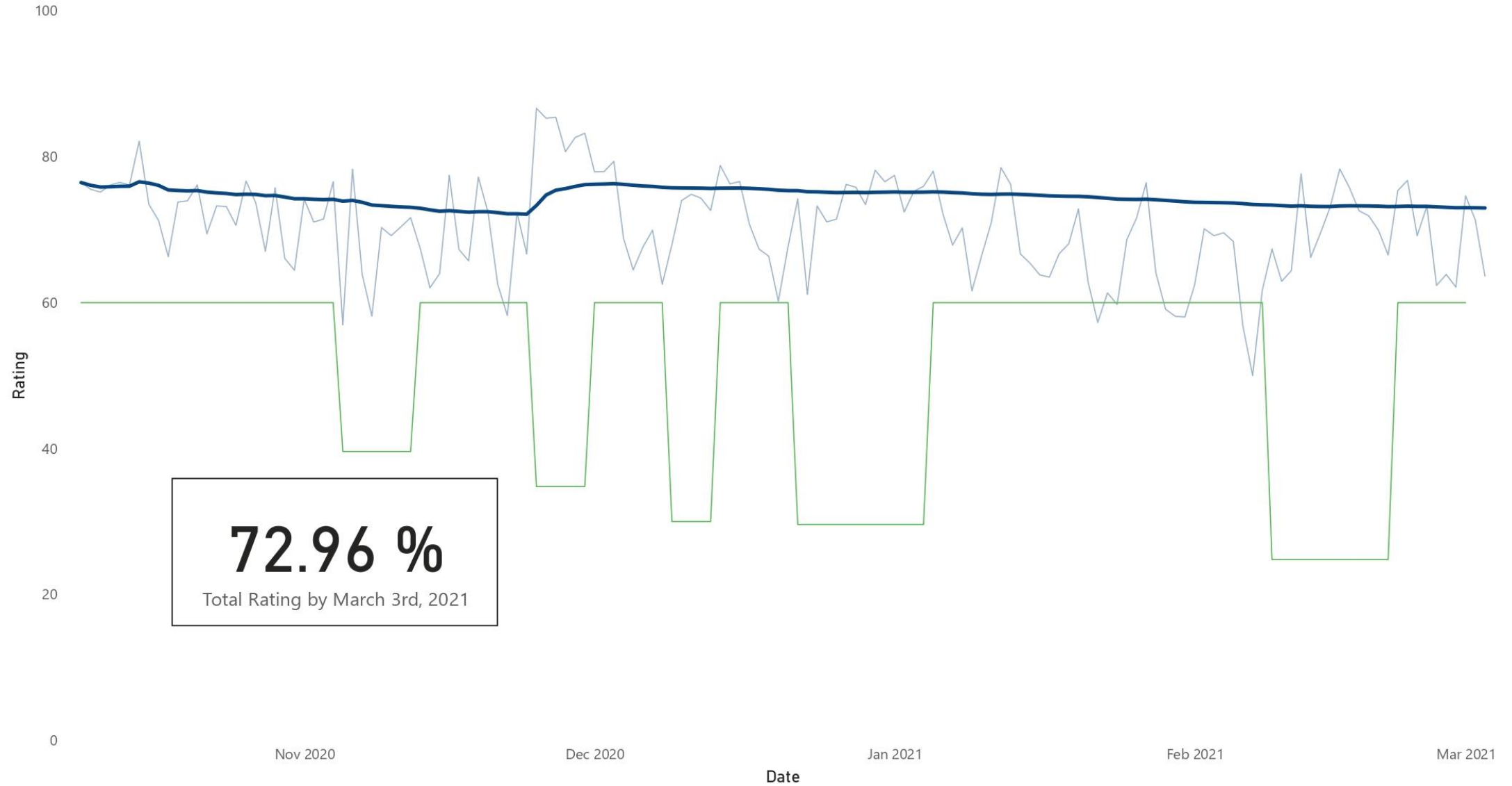


Figure 10 - FIFA 21 Price, Daily & Total Rating

FIFA 21

● (log) Daily Reviews ● (log) Owners ● (log) Price

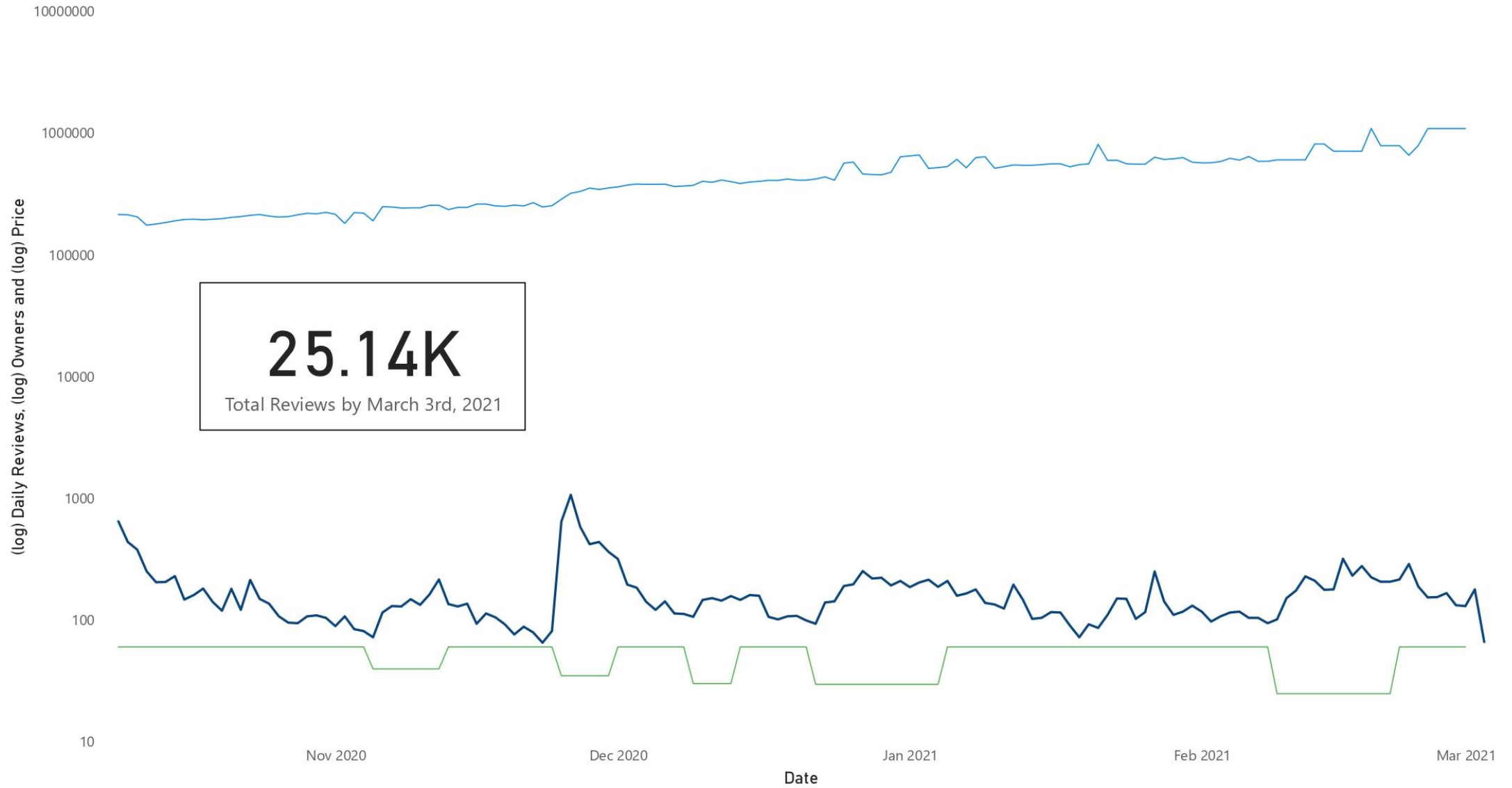


Figure 11 - FIFA 21 Logarithmic Price, Daily Reviews & Owners Development

6.1.2 Assassin's Creed: Odyssey

Assassin's Creed: Odyssey was developed and published by Ubisoft and can be considered to be a very contrasting game to FIFA 21. It does not have a loot box system implemented at all and only offers three DLCs for a fee (one of them being the Season Pass, which is a combination of the other two DLCs). Similar to FIFA 21, the developers have a strategy of regularly releasing a new Assassin's Creed game, however, not on a fixed yearly basis like FIFA. Besides, every Assassin's Creed game has a different setting with a different story, unlike FIFA, which only consists of playing football. Similar to FIFA, however, is that the game does offer microtransaction. It does not contain a loot box system; however, players can purchase skins and other cosmetics.

Figure 12 shows a time series visual that also showcases the most notable events that happened after the game was released – namely the release of its two main DLCs. As the figure shows, the Season Pass was released together with the game, which promised instant access to the upcoming future DLCs. Thus, the *Legacy of the First Blade* DLC was released on December 4th, 2018, followed by *The Fate of Atlantis*, which was released on April 23rd, 2019. Some patterns can be observed, too. The sentiment of the game was around 85% positive before the release of the first DLC. After *Legacy of the First Blade* was released, there is no observable short-term effect on the sentiment of the reviews, however, the game, mostly in January, received many, very negative feedbacks, sometimes falling to 35% positivity of the review sentiment, which is also observed in a drop of Total Rating from roughly 85% to 80%.

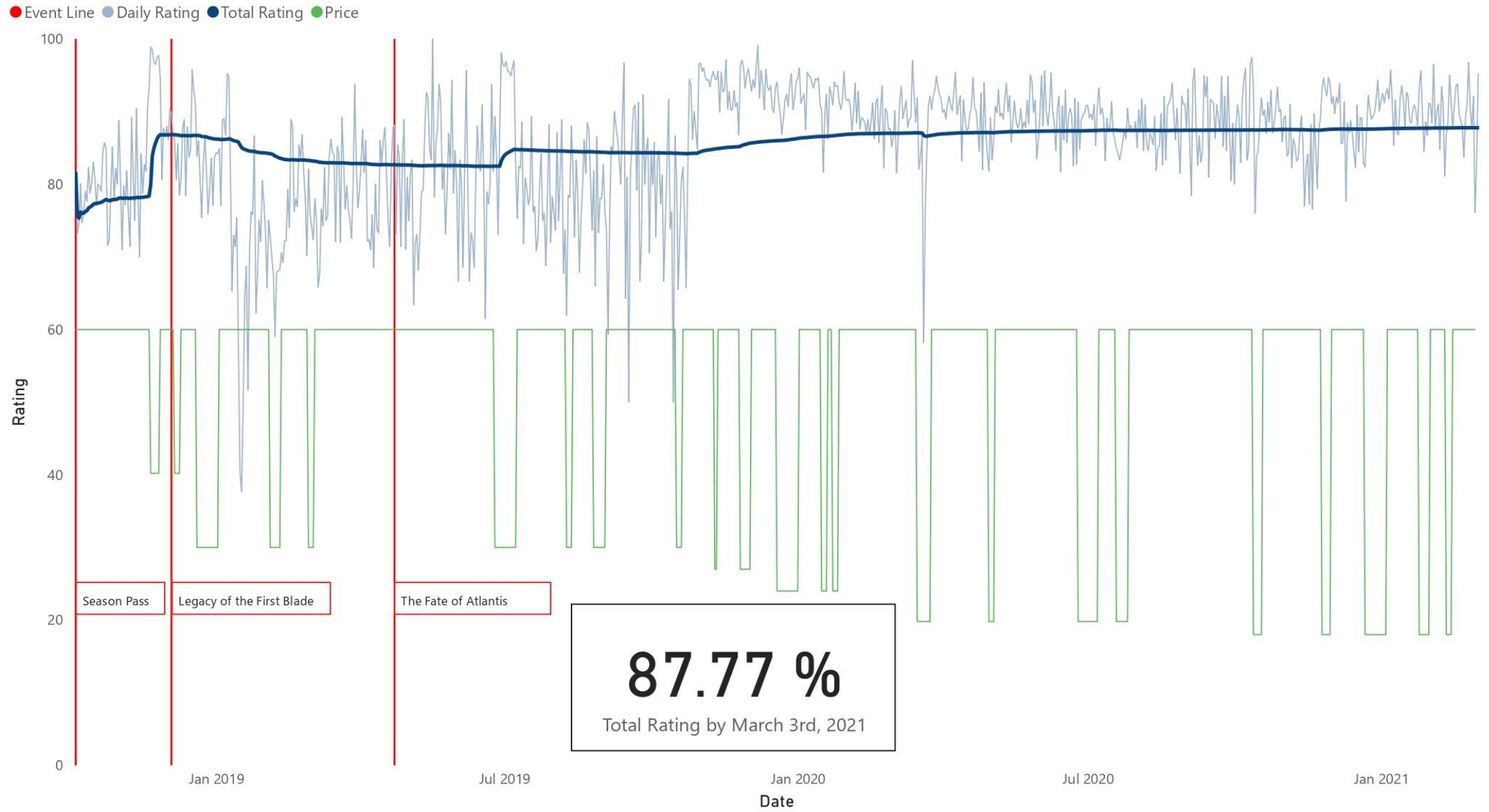
Note that there is a sudden and extreme increase in the review sentiment just before the release of the *First Blade* DLC. This is most likely due to an update released in November 2018 that substantially reworked the mechanics of the skill system of the game, following complaints from players (Steam News Hub, 2018). As changes like these are not DLC, but general updates that change

the game for everybody, they are out of the scope of our analysis, even though they show up in our data. Similarly, the release of The Fate of Atlantis DLC does not seem to exhibit any immediate short-term effect on the sentiment of the reviews, however, in the long-term, the game has maintained a very slightly growing trend of review sentiment, growing from roughly 81% to almost 88% by the March 3rd, 2021.

Similar to FIFA 21, the figures exhibit a rather strong correlation between the price and its reviews. The first extremely significant example can be observed shortly before January 2019, where the price of the game seems to have dropped to 40 €, which can be assumed to have been a part of the Christmas sale. The second extremely significant example can be seen during July 2019, which can be assumed to have been a Summer sale. There are many other similar observable cases when the price of the game dropped, and at the same time, the number of reviews (and their positivity) increased. On some of the days during the Christmas sale 2018 and the Summer sale 2019, the game received more than one thousand daily reviews. Another observable pattern is the running total of owners. For example, the number of owners during the Christmas sale 2018 went from roughly 600.000 to almost a million. Similar patterns can be observed during any time the game's price was reduced.

Overall, if the visuals are compared to the remaining three games of this analysis, and at the same time considering that this is one of the most mainstream games during this time, it can be concluded that the game has been doing extremely well, as, by March 3rd, 2021, it has managed to get almost 100.000 reviews, with 87.77% of them being positive. This can be assumed to also be because the game does not include any surprise mechanics, such as loot boxes, and only offers minor microtransaction products, such as cosmetics or gold to progress faster in the game. Then again, the figures show that a price decrease might play a large role in whether a customer likes the game or not, as a fully priced game might not present a great value to the customer.

Assassin's Creed: Odyssey



87.77 %
Total Rating by March 3rd, 2021

Figure 12 - Assassin's Creed: Odyssey Events, Price, Daily & Total Rating

Assassin's Creed: Odyssey

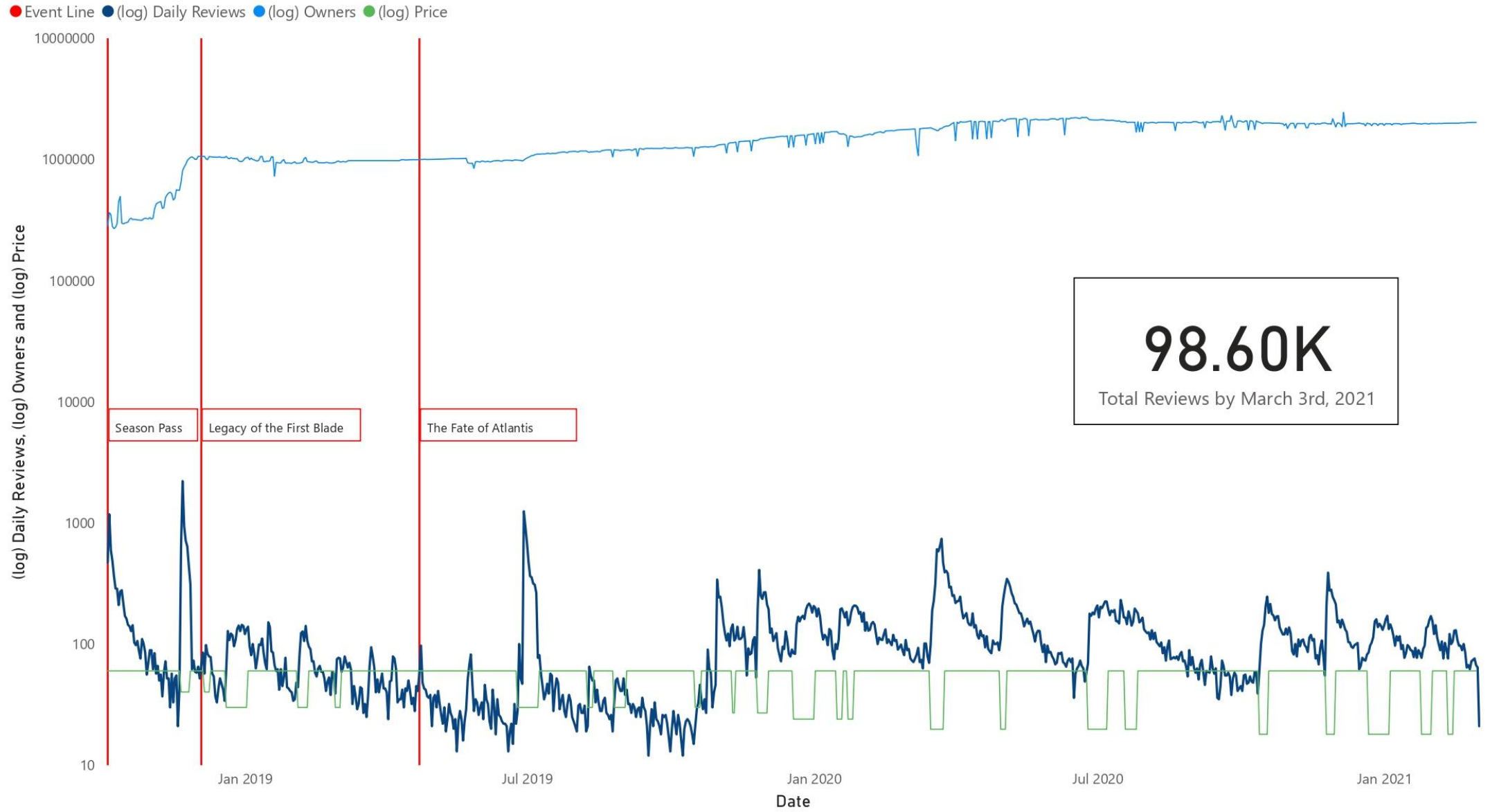


Figure 13 - Assassin's Creed: Odyssey Events, Logarithmic Price, Daily Reviews & Owners Development

6.1.3 Borderlands 3

Borderlands 3, developed by Gearbox Software and published by 2K, was released on March 13th, 2020, and can with a very high likelihood be considered to be very similar in many ways to Assassin's Creed: Odyssey. They both are games without loot box mechanics, and these two games can thus be compared with each other. Besides, they also share a very similar principle in regard to microtransactions. The most notable events in the history of this game have been highlighted in the following graphs. As opposed to Assassin's Creed: Odyssey, Borderlands 3 offers a large number of DLCs for players to purchase. The figures below exhibit various interesting observations.

Firstly, a slightly rough start for the game can be observed. This could be due to many reasons, even outside the scope of the data that is available to us – such as technical instabilities of the game at launch. Overall, however, the rating of the game did not seem to fall under 75% at the beginning, which can still be considered to be a success. Shortly after the game was released, the rating of the game seemed to have increased, despite the “regular” price tag of 60 €, which can be observed in Figure 15.

As the game evolved, various events and paid DLCs have been added to it. This can be seen on the timeline figures, where DLCs such as “Guns, Love, and Tentacles”, or “Bounty of Blood” have been added to the game over time. Some of these can be considered to be DLCs with a large amount of content, such as new worlds or maps, whereas some of them can be deemed to offer only minor changes or additions to the game, such as skins or other cosmetics. Overall, however, it can be observed that the introduction of these new events and paid DLCs have not significantly affected the way players perceive the game – whether positively or negatively; except in late 2020, when multiple new DLCs was introduced, such as “Season Pass 2”, or “Amara Final Form Pack”.

The introduction of these new DLCs has brought about a very slight, however still observable drop in the overall sentiment of the game. Figure 14 shows that shortly after these six events released, at some points the daily rating dropped as low as to around 35%, which can indeed be considered to be very low, thus dragging the total rating of the game slightly under 80%, which is, considering that the game had so many reviews at this point, quite a significant downturn. In the long term, however, it seems that this has no real effect overall. Additionally, a similar, however less visible pattern can be observed when the “Psycho Krieg and the Fantastic Fustercluck” DLC was released. The daily reviews went as low as around 60%, and the total rating indicator also suffered to some extent.

Similar to other games, the price seems to have a significant effect on the number of reviews the game receives daily. Every time the price of the main game decreases, the number of daily reviews increases. This can be mostly observed in Figure 15, especially in late 2020, which seems to be the Steam store Christmas sale, where the number of reviews increased tremendously, well above 1000 ratings at some points. As expected, the number of total owners also increases more during a price drop, if compared to days where the game was fully priced. The Christmas sale seems to affect the positivity of reviews as well. This can mostly be observed in late 2020, some days after the last set of DLC was released, where the reviews surged above 90% on certain days, thus bringing the total score back on its original track after the release of the more “unsuccessful” set of DLCs.

Overall, the game reached almost 75.000 ratings with the rating positivity of 82.3% by March 3rd, 2021, which can be considered to be good, however not as good as Assassin’s Creed: Odyssey, probably given the fact that the game offered more “empty” content than its competitors, such as paid DLC that only include skins or expensive DLC with low content. The price/reviews positivity ratio seems to remain the same across all the games, that is, the players seem to value the game more if the game is not fully priced.

Borderlands 3

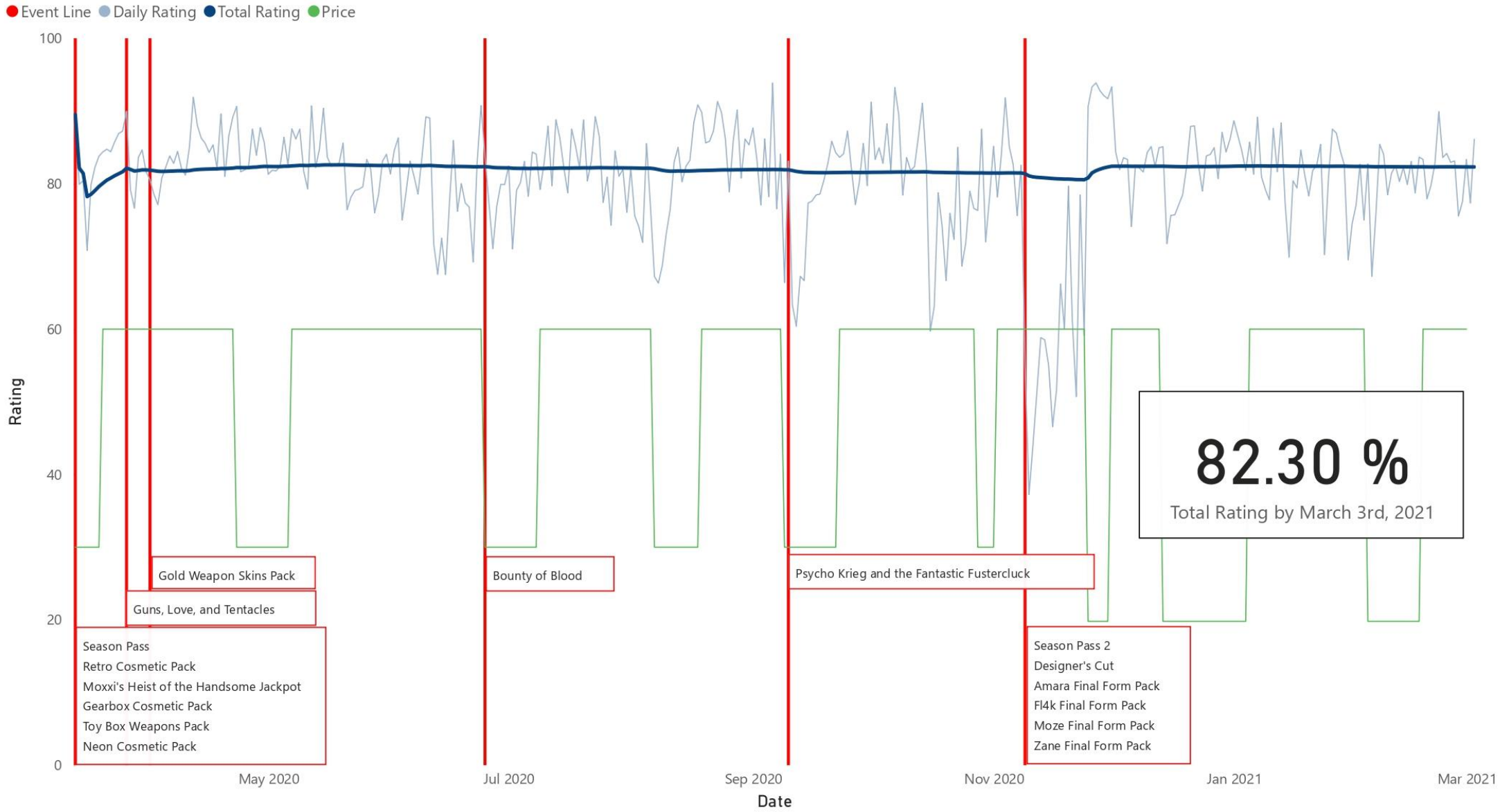


Figure 14 - Borderlands 3 Events, Price, Daily & Total Rating

Borderlands 3

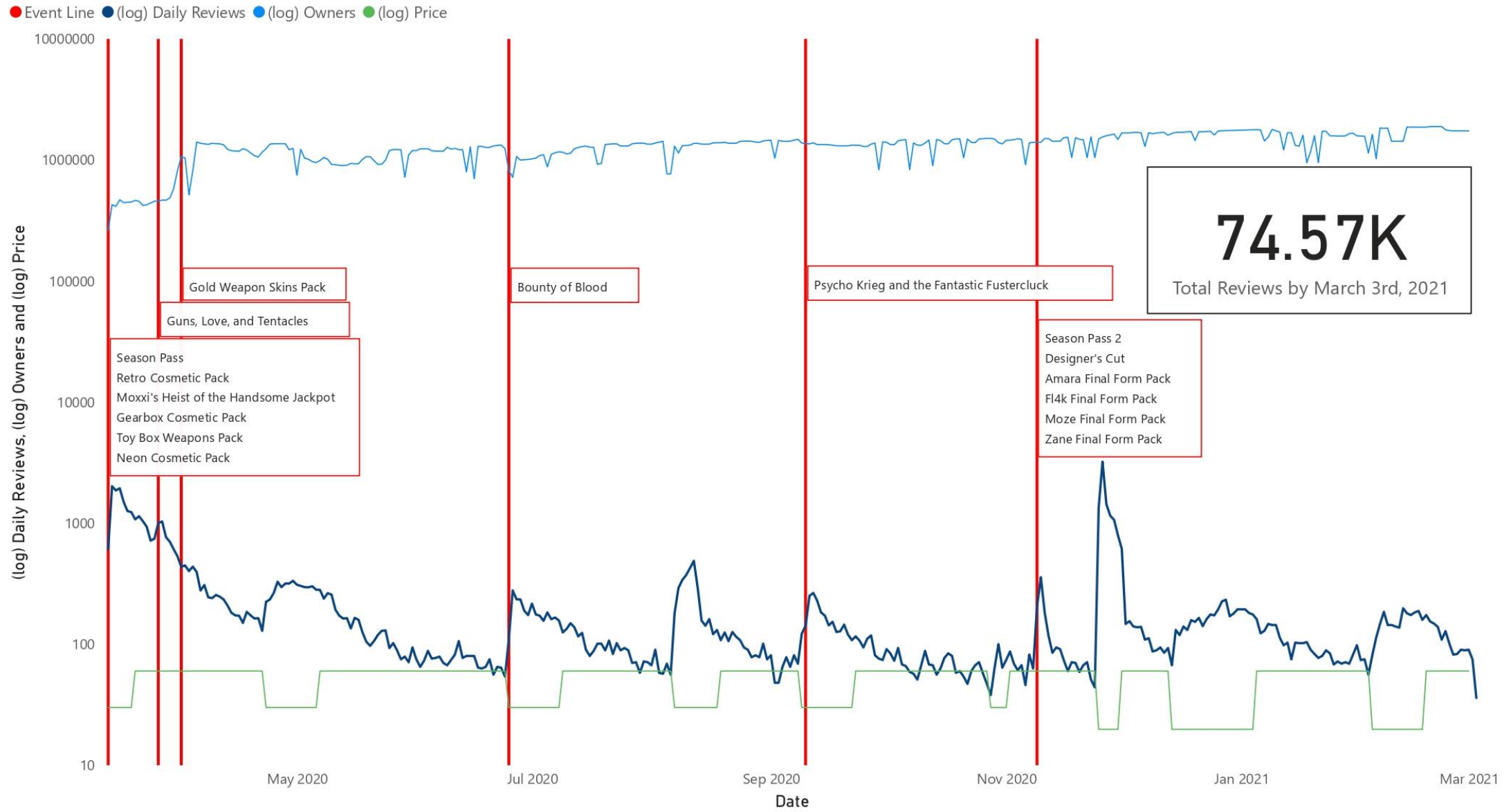


Figure 15 - Borderlands 3 Events, Logarithmic Price, Daily Reviews & Owners Development

6.1.4 Middle Earth: Shadow of War

The last, and likely the most curious game to be analyzed in this paper is Middle Earth: Shadow of War, which was developed by Monolith Productions and published by WB Games. The game has had its presence on Steam since October 10th, 2017, which makes it the game with the longest Steam presence from all the games analyzed in this paper. The most interesting events in the game's lifecycle have been marked on the time-series timeline in the figures below. Over its lifespan, the game has implemented various free and/or paid DLCs and patches, where some of them offer more content than others. The reason that this game is the most curious game to analyze is that the game used to have a loot box system. After some time, however, developers of the game decided to scrap the system.

The first thing to be observed in the paper are the similarities that have already been observed in the previous games – that is, as Figure 17 showcases, every time there is a price drop of the game on the Steam store, the number of reviews surges, especially during Decembers, which are very likely due to the Christmas sale on Steam. As expected, the number of owners of the games rises steadily over time.

The game seemed to have a slightly rough launch – probably due to similar reasons as the ones stated in the visual analysis for Borderlands 3 - the game likely suffered from bugs and other launch issues shortly after its release. The first interesting event seems to be the second event on our timeline, the Slaughter Tribe Nemesis expansion, where the ratings of the game skyrocketed for a short time, bringing the overall rating of the game up to almost 80%. Other events, such as the Outlaw Tribe Nemesis expansions, and other subsequent events, seem to have a (very slightly) negative impact on the game reviews.

Probably the most interesting event that can be observed here is the removal of the loot box system, in which developers decided to completely scrap having loot boxes in the game. What is interesting to see here is that there seems to be no immediate effect on the game shortly after the removal. Besides, there have been no other major events introduced in the game after this one. What is interesting, however, is how the rating of the game developed in the long term. At some points on and after January 2019, several surges of positive reviews of the game can be observed. Additionally, the game started getting relatively good reviews mainly around January 2020 and afterward. Such effects are quite difficult to interpret, especially since no other events are happening at this time, except for changes in the price, which occasionally is discounted down from its base price of €50. What could, however, be indirectly associated with this positive rate of reviews is the past implementation of the loot box system removal – thus, it could be argued that this event could have had a significantly positive effect on the reviews in the long term.

Overall, the game seems to follow a very similar pattern as all the other games that have been analyzed in this section. The price seems to have a significant effect on the number of reviews the game receives, and it can also be observed that some events have short-term, and possibly also long-term effects on the overall rating of the game.

Middle Earth: Shadow of War

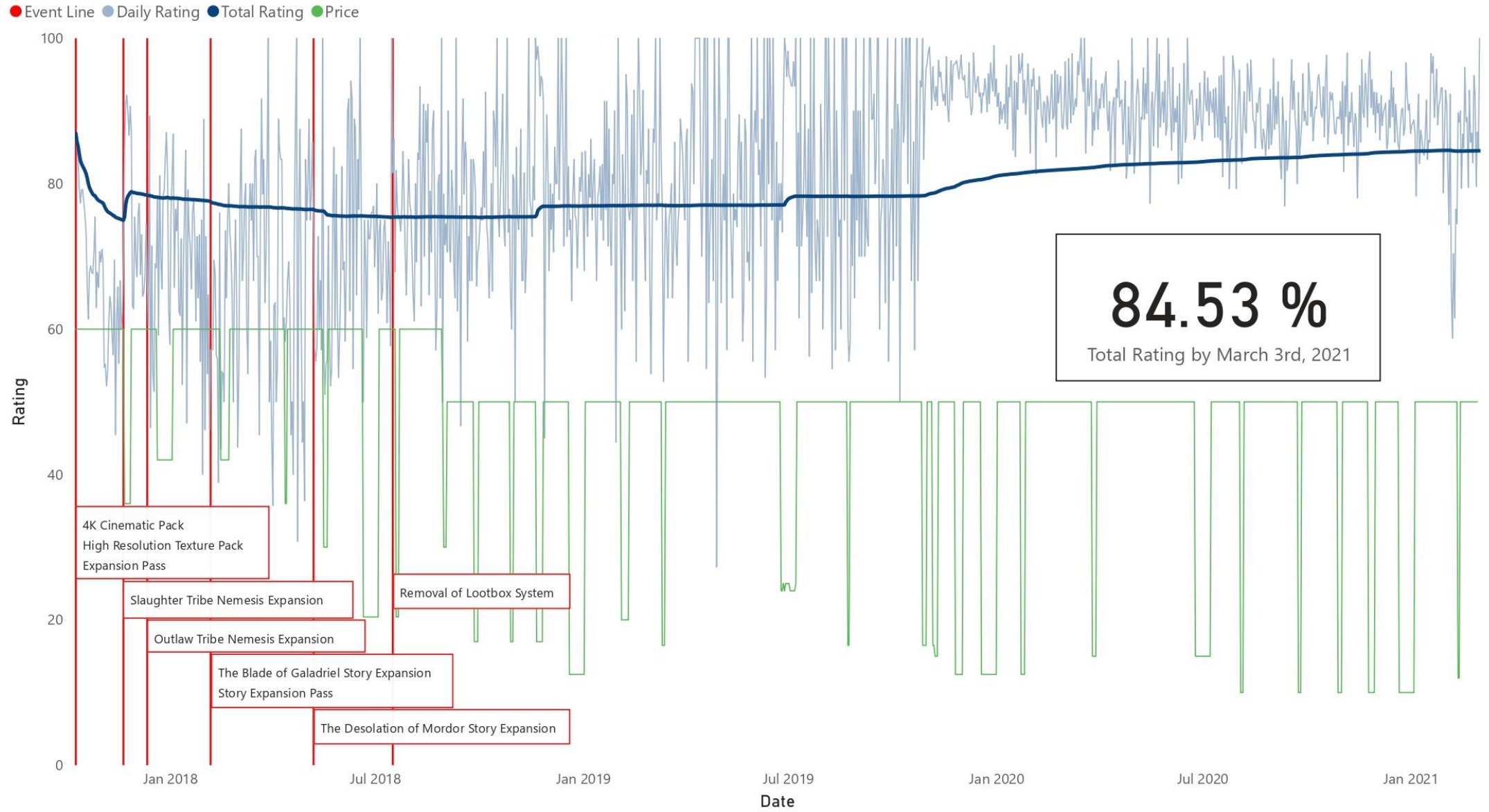


Figure 16 - Middle Earth: Shadow of War Events, Price, Daily & Total Rating

Middle Earth: Shadow of War

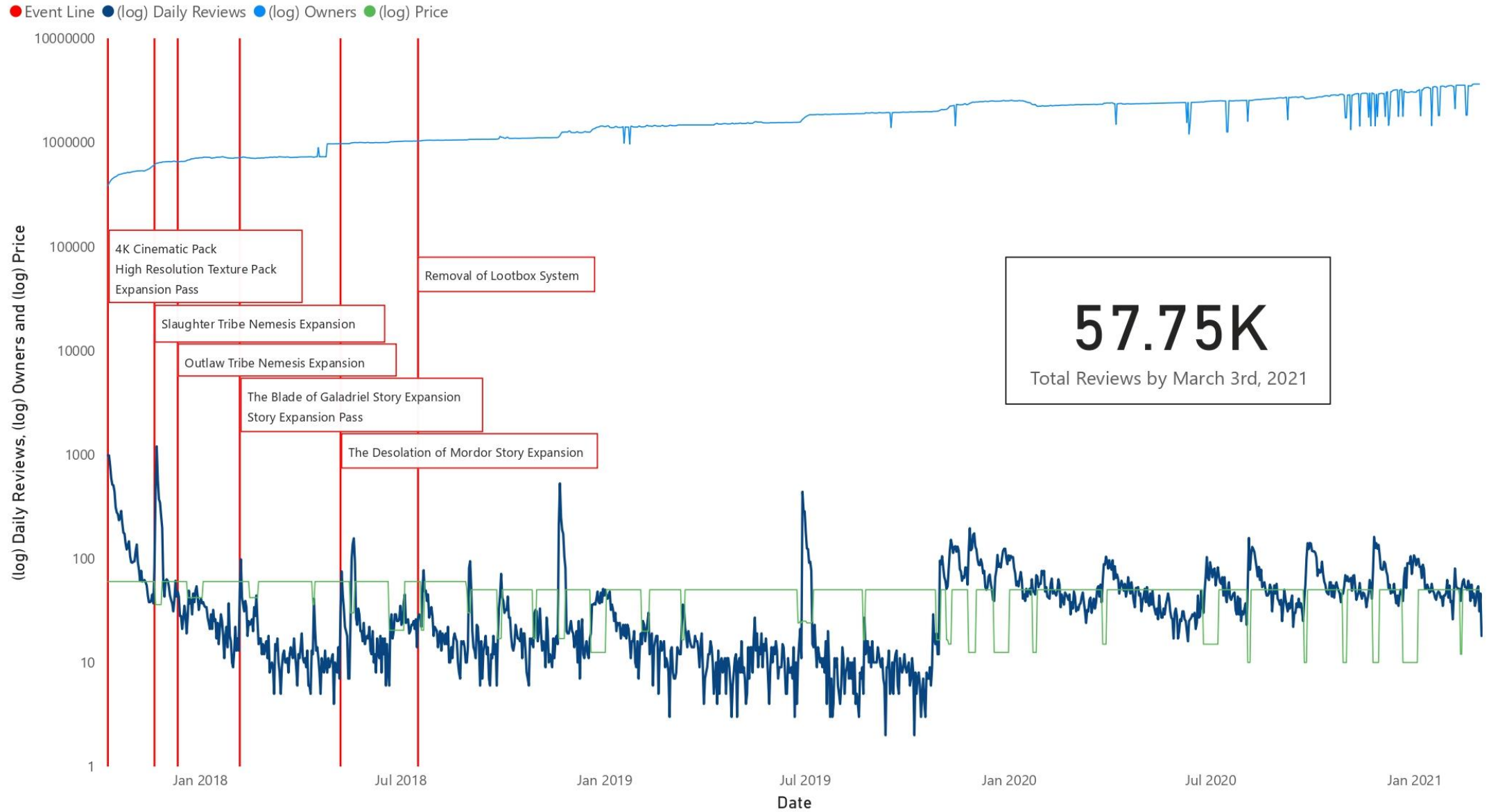


Figure 17 - Middle Earth: Shadow of War Events, Logarithmic Price, Daily Reviews & Owners Development

6.2 Multivariate Time Series Analysis

6.2.1 FIFA 21

FIFA 21 does not have any DLCs to purchase in the Steam Store, thus, this game is the simplest one in terms of its data used in the VAR model, as it only looks at the effect of introducing a higher price on the game's rating and its count of daily reviews. The R-Squared value for the VAR Model with the Count of Daily Reviews as the dependent variable is 28%, which means that 28% of what we see in the development of Count of Daily Reviews could be explained by the price (as it is the only independent variable used in this analysis for this game). The R-Squared value of 9% has been validated from the VAR model, where the dependent variable was the Daily Rating of the game, which means that around 9% of the development of rating can be explained with price, which is not high, but it does show a certain effect, explained below.

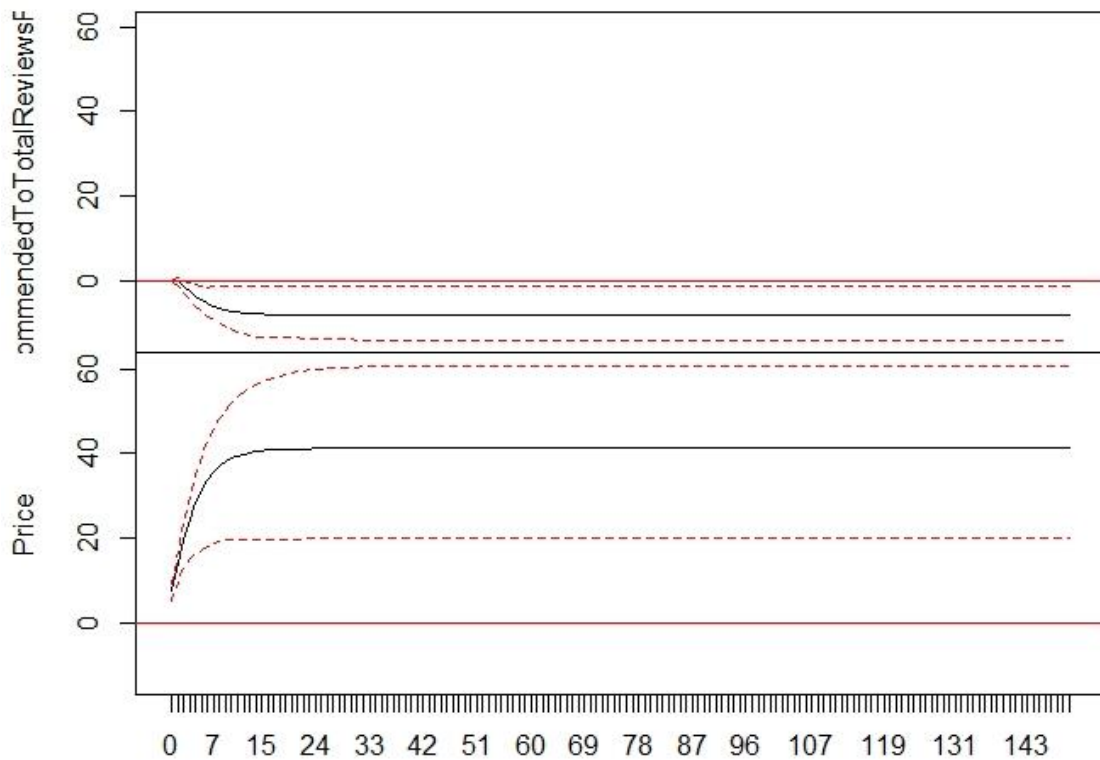


Figure 18 – A Cumulative Shock in Price (lower figure) and its Temporal Effect on Game Rating (upper figure)

Figure 18 showcases the first simulation of our analysis. An artificial shock (or increase) in the price of the game has been introduced in the lower part of Figure 18 over 150 days. This artificial shock in price is interpreted such that we artificially increased the price of the FIFA 21 game on Steam from 0 to €40 to see the effect of a price increase on the rating of the game. Figure 18 can be interpreted such that if we introduce this shock to the price of the game, it has a significant negative effect on the overall rating of the game, both in the short-term, as well as the long-term (as the confidence intervals are both below the 0 line).

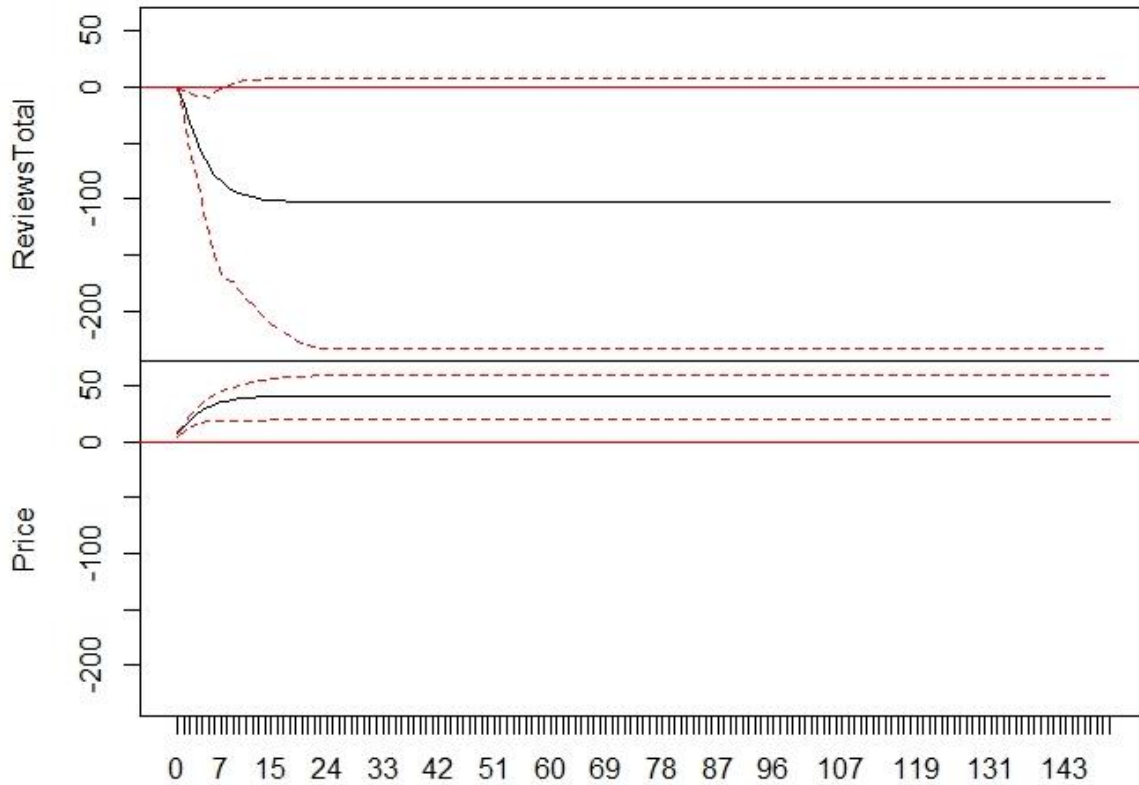


Figure 19 – A Cumulative Shock in Price (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

Figure 19, similarly, introduces the same kind of a shock to the price as in the previous example. The dependent variable here, however, is the Count of Daily Reviews, which is in the upper figure (called ReviewsTotal). Surprisingly, such an introduction of a cumulative shock in price only has a significant negative effect on this variable in the short-term, as the confidence intervals cross the 0 line later on.

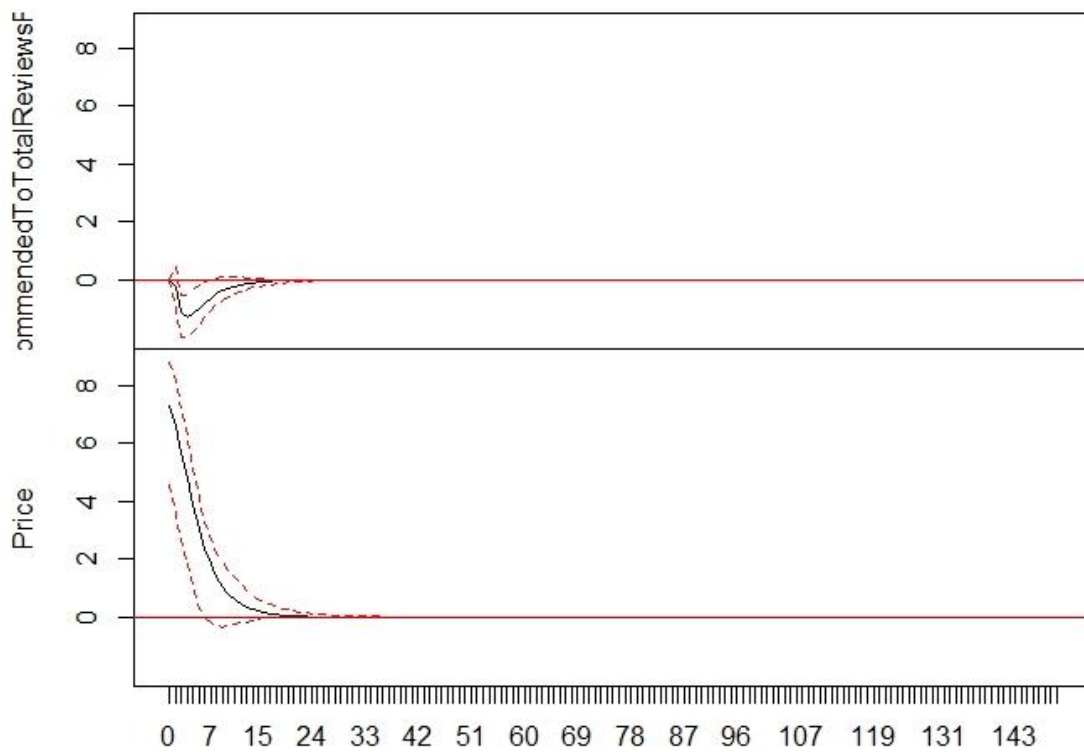


Figure 20 - A Single Shock in Price (lower figure) and its Temporal Effect on Game Rating (upper figure)

Figure 20 only presents a single shock in price – compared to the cumulative version of shock in price in the previous figures, the price is increased only once, and then it falls back to 0 over time. We can see the effect of this in the upper part of the figure, which showcases a negative effect on the rating of the game.

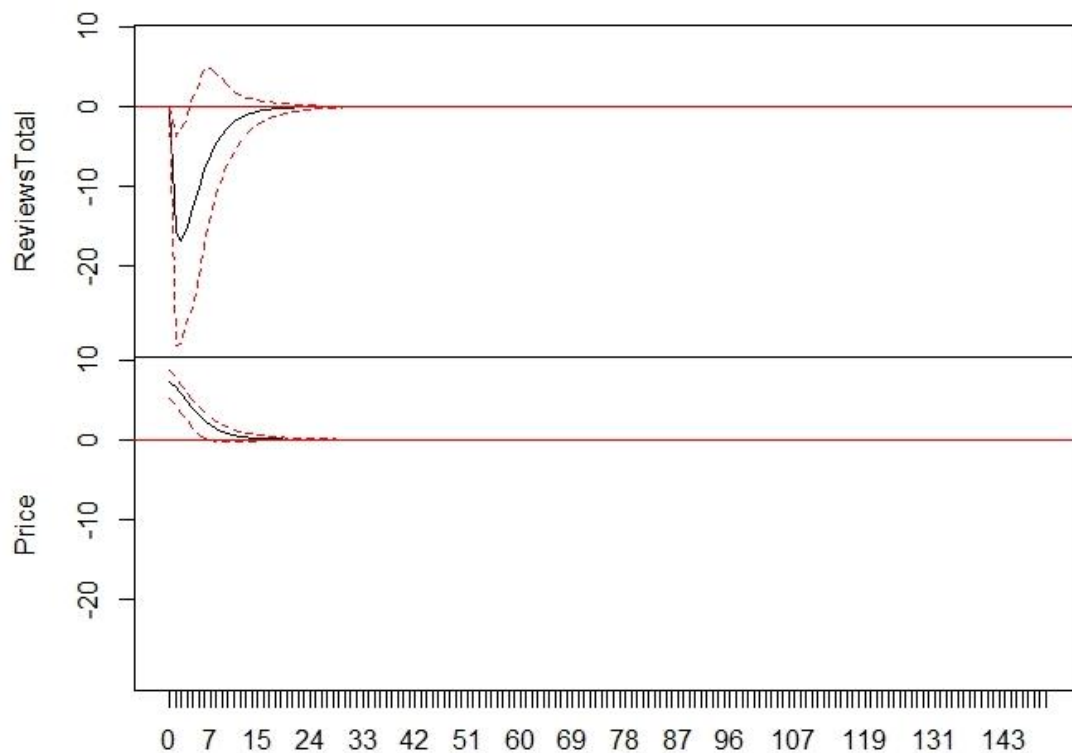


Figure 21 - A Single Shock in Price (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

Finally, Figure 21 also showcases just a single shock in price, which then clearly affects the Count of Daily Reviews in the short-term significantly.

To sum up, a few conclusions can be drawn from the multivariate time series analysis for FIFA 21. The impulse response function of our VAR model shows us that any price increase (be it a single or a cumulative shock) does affect the Rating of the game, as well as the Count of Daily Reviews it receives, in both cases negatively. That means that if we increase the price, it does harm the rating of the game in most of the cases (sometimes only short-term, as demonstrated in the graphs).

6.2.2 Assassin's Creed: Odyssey

Assassin's Creed: Odyssey's VAR analysis becomes a bit more complex, as it offers two purchasable DLCs, whose releases are marked as events on our timeline. The R-Squared value results

are, similarly to FIFA 21, very low, which means that there are probably other factors that could explain both of the dependent variables (Rating and Daily Count of Reviews).

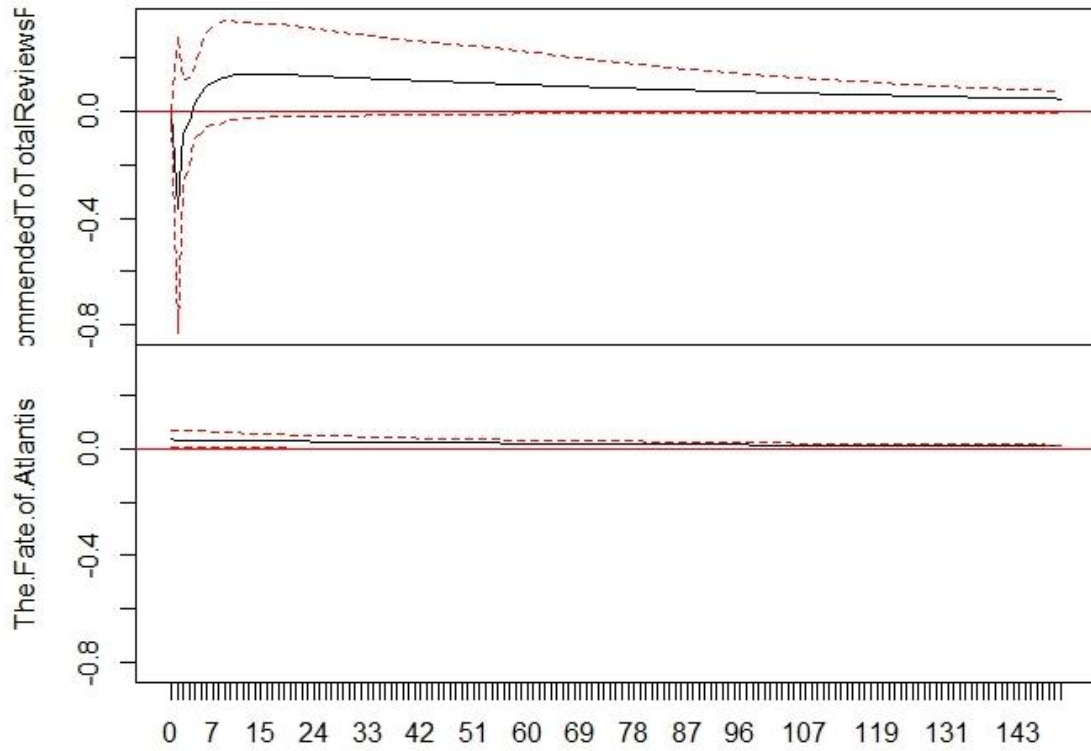


Figure 22 - A Single Shock in the DLC 'The Fate of Atlantis' (lower figure) and its Temporal Effect on Game Rating (upper figure)

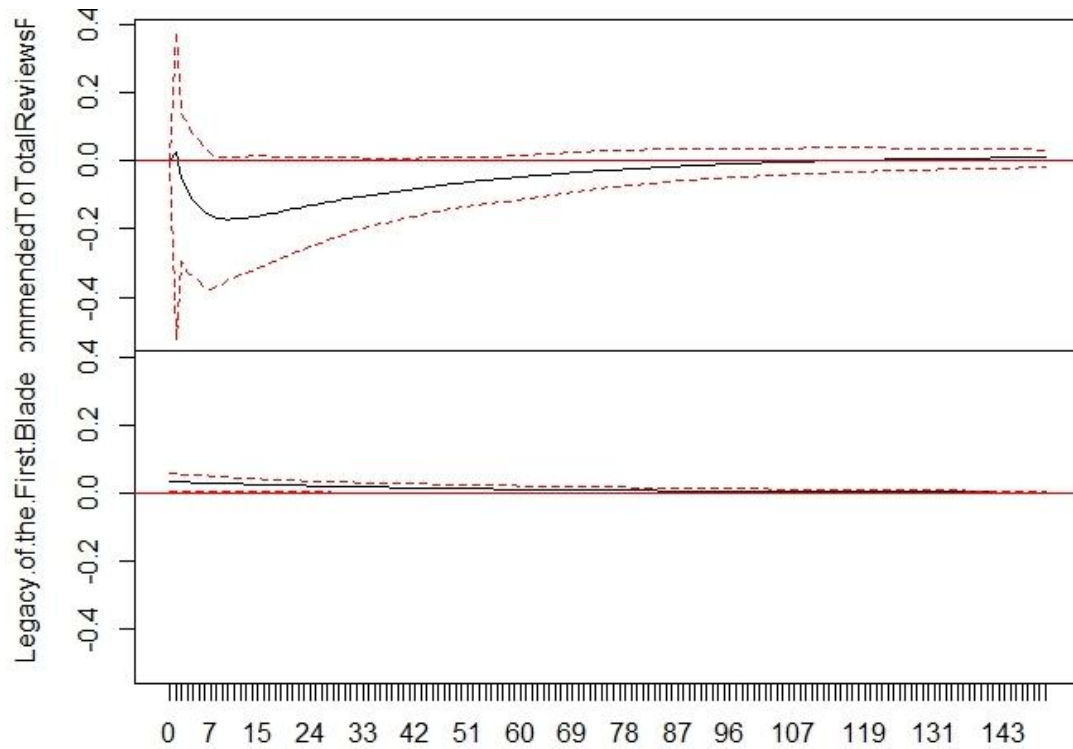


Figure 23 - A Single Shock in the DLC 'Legacy of the First Blade' (lower figure) and its Temporal Effect on Game Rating (upper figure)

Figures 22 and 23 are probably the most interesting figures to look at in the VAR analysis of this game, especially if they are compared. Firstly, it is important to look at the lower graphs in both of the figures. It is essential to understand that the lower graphs in each of the figures represent a single introduction of each of the DLCs, namely The Fate of Atlantis (Figure 22), and Legacy of the First Blade (Figure 23). The upper graphs in each of the figures represent the reaction of the Rating if a shock from one of these DLC is introduced (that is – one DLC is introduced into the game). Although the dashed red confidence intervals at some points are crossing the zero line, a very interesting pattern can be observed from looking at these two figures. Figure 22 introduced The Fate of Atlantis and is simultaneously showing us that it has mostly a positive overall effect on the rating of the whole game, whereas Figure 23 introduces Legacy of the First Blade DLC and is simultaneously showing that the overall effect it has on the rating of the game is mostly negative. This is interesting because these two figures allow us to see that these two DLCs, despite being very

similar in many aspects, have a contrasting effect on the rating of the game – that is, one DLC is viewed mostly positively, whereas the other DLC is viewed mostly negatively by the players. These two DLC are priced very similarly, however, the amount of content they offer differs significantly. The effects of this can be, thus, seen in the figures above.

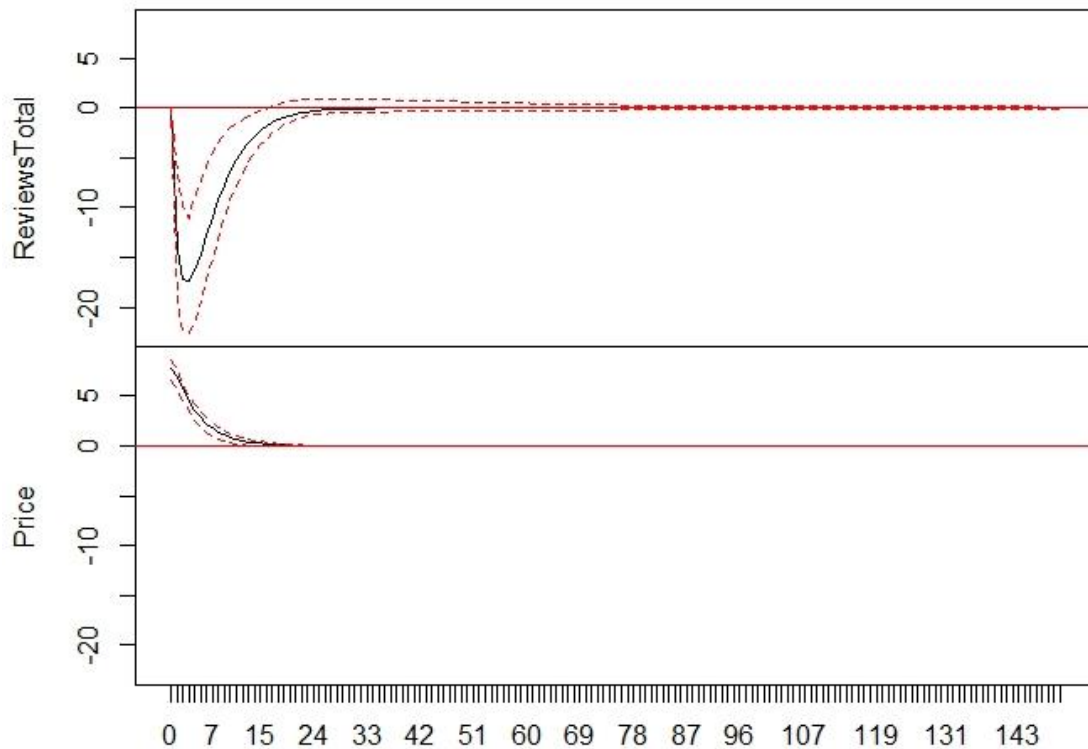


Figure 24 - A Single Shock in Price (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

Another very interesting figure that could be extracted from the VAR model is the effect of raising the price on the Count of Daily Reviews. Figure 24 shows that if the price is increased by 6-7 €, it has a very significant negative effect on the Count of Daily Reviews (upper graph) that the game receives. This is interesting but also expected, as the figure allows us to see that if the price is high, the number of reviews, especially in the short term will decrease.

The rest of the Impulse-Response function figures for this game can be found in Appendix I.

6.2.3 Borderlands 3

Similar to Assassin's Creed: Odyssey, Borderlands 3 offers a range of purchasable DLCs that were considered in this analysis. The most notable observations are elaborated upon below.

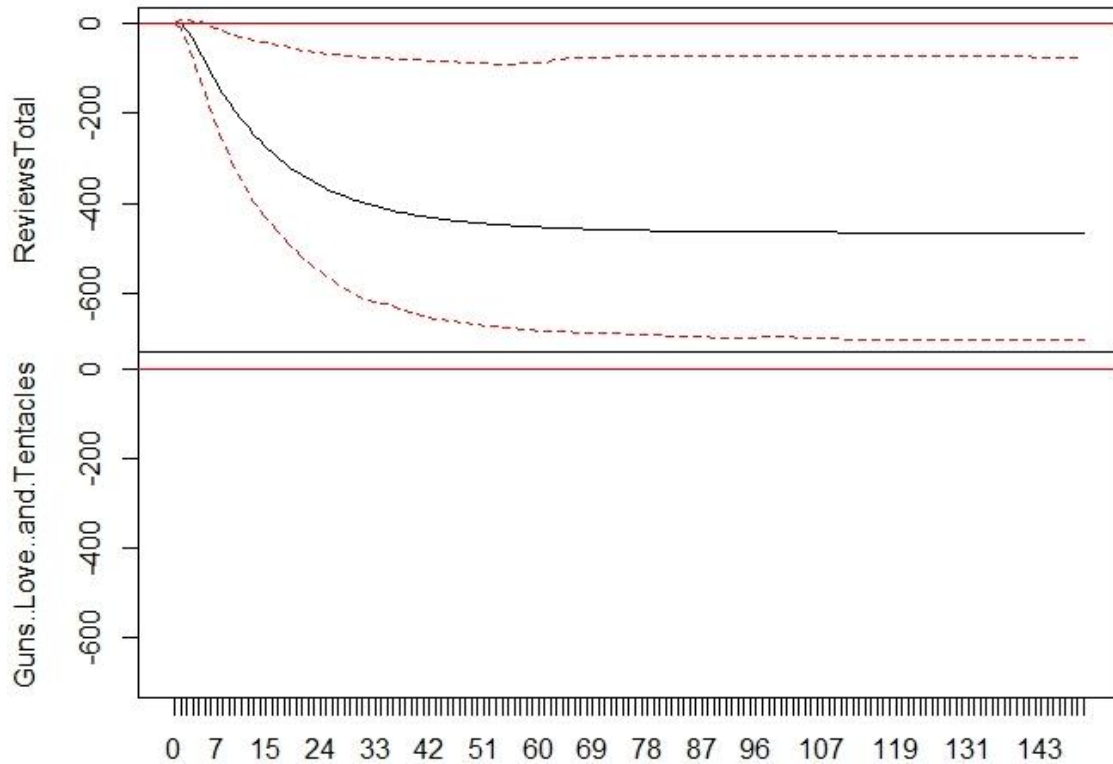


Figure 25 - A Cumulative Shock in 'Guns, Love, and Tentacles' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

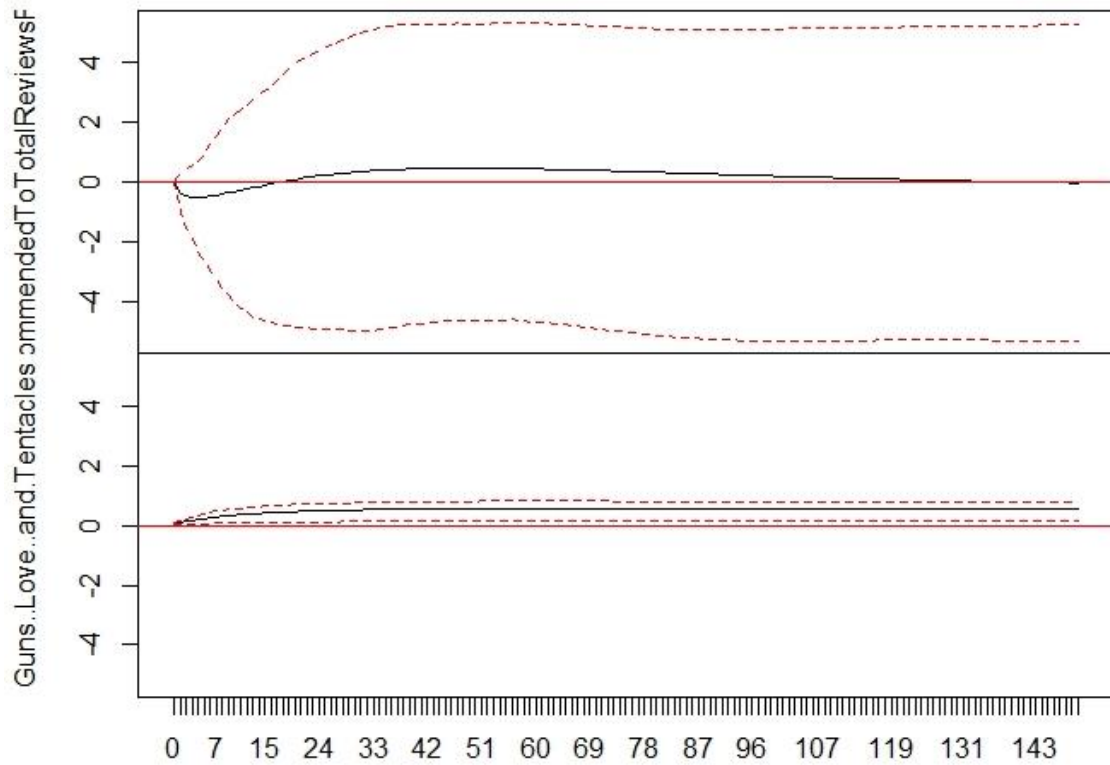


Figure 26 - A Cumulative Shock in 'Guns, Love, and Tentacles' DLC (lower figure) and its Temporal Effect on Rating (upper figure)

Figure 25 introduces the DLC Guns, Love, and Tentacles and keeps it present for the whole 150 days considered in this analysis. This significantly affects the Count of Daily Reviews negatively, as can be observed in the upper graph of Figure 25. Interestingly, however, there seems to be no effect at all on the Rating of the game, as observed in Figure 26. This could likely be because of a very low interest in actually purchasing the DLC.

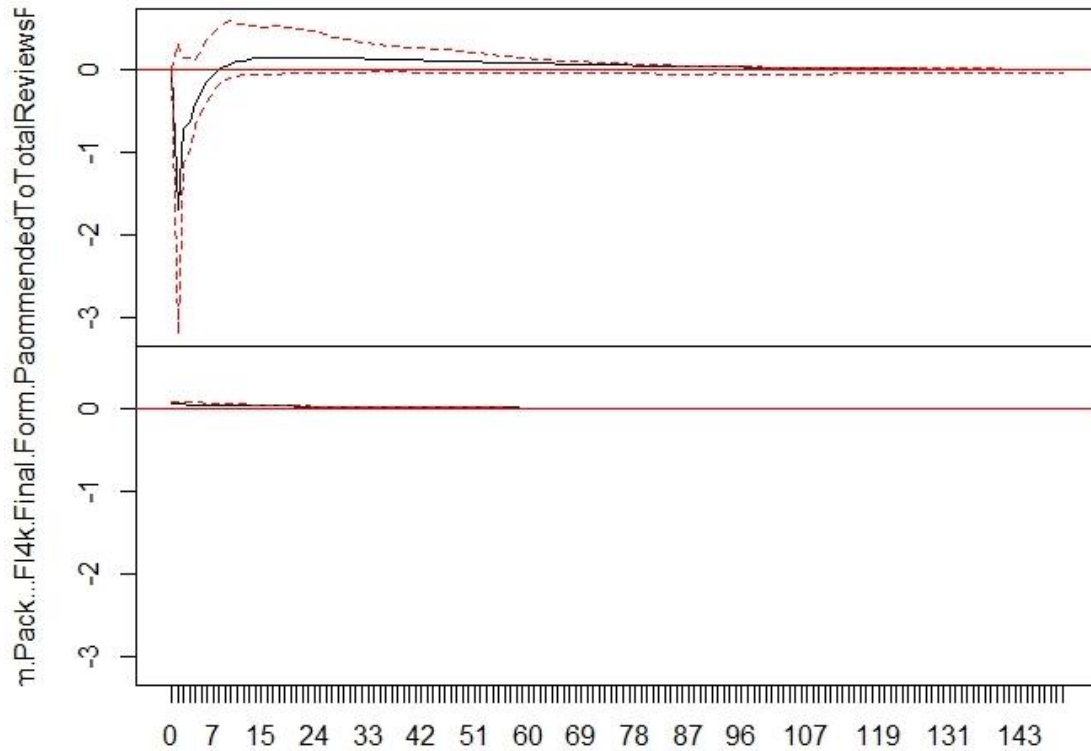


Figure 27 - A Single Shock in a Set of DLCs (Season Pass 2 + Designer's Cut + Amara Final Form Pack + F14k Final Form Pack + Moze Final Form Pack + Zane Final Form Pack) (lower figure) and its Temporal Effect on Rating (upper figure)

Figure 27 is another interesting point, as it introduces multiple different DLCs at the same time, which, even though the confidence red dashed lines cross the zero line, has mostly a positive effect on the Rating of the game. It should be noted, however, that this positive effect is mostly observed in the long term only. In the short term, however, such an introduction seems to mostly harm the rating of the game. This pattern is perhaps explained by player dissatisfaction at the amount of content the DLCs provide for their price at release, leading to a short-term decrease in ratings. Over time, as the DLC goes on sale and more players obtain them at reduced prices, these players might leave more positive ratings as they feel like the DLC is providing good value at the reduced prices. The DLCs can thus be considered to be good additions to the base game, especially as players are now able to buy a “Super Deluxe Edition” or even an “Ultimate Edition” that contains the game plus multiple DLCs at a discount.

The rest of the figures for this game can be found in Appendix I.

6.2.4 Middle Earth: Shadow of War

Middle Earth: Shadow of War is an interesting game in regard to this analysis, as it removed the loot box system sometime after the launch of the game. In addition, it is similar to other games covered in this analysis, as it also includes paid, as well as unpaid DLCs that have been used in the multivariate time series analysis.

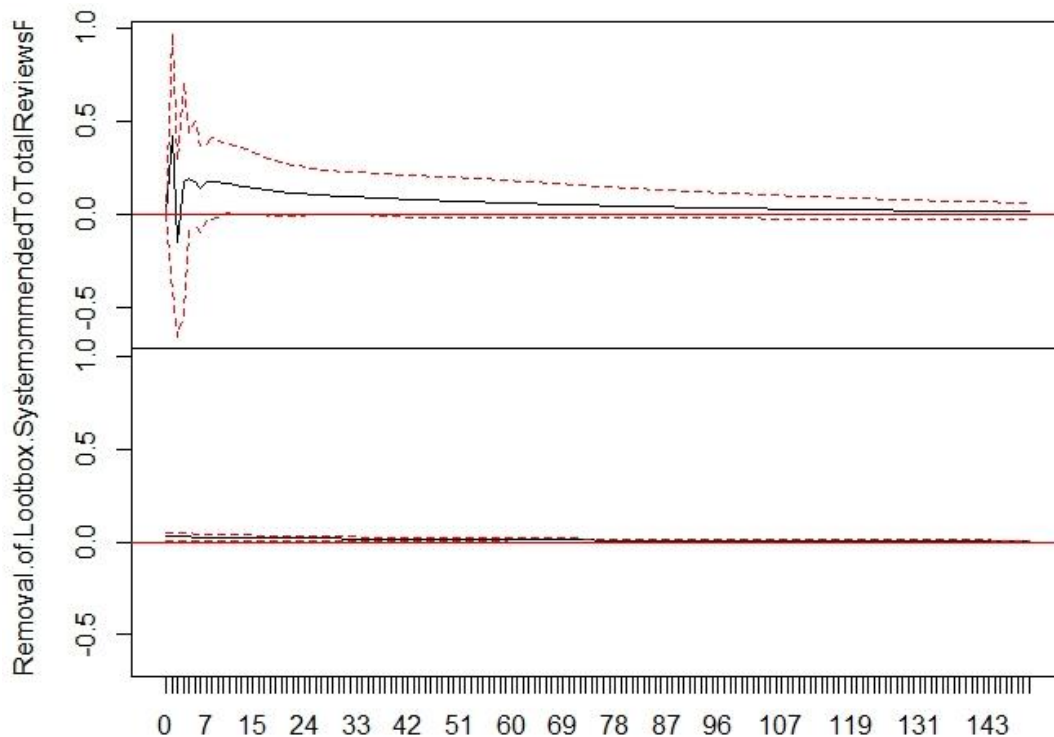


Figure 28 - A Single Shock in 'Removal of Loot Boxes' Event (lower figure) and its Temporal Effect on Rating (upper figure)

Figure 28 is very interesting for our study, as it simulates the event where the game developers decided to remove the loot box system in the game. The reason this is interesting is that this figure demonstrates that if such an event is introduced in this game, it has a positive effect on the game overall in the long term (roughly 15-35 days after the event introduction). This means that removing loot boxes from the game mechanics does play a certain role in how the game is perceived in the long run – that is, it is generally perceived as a positive change to the game.

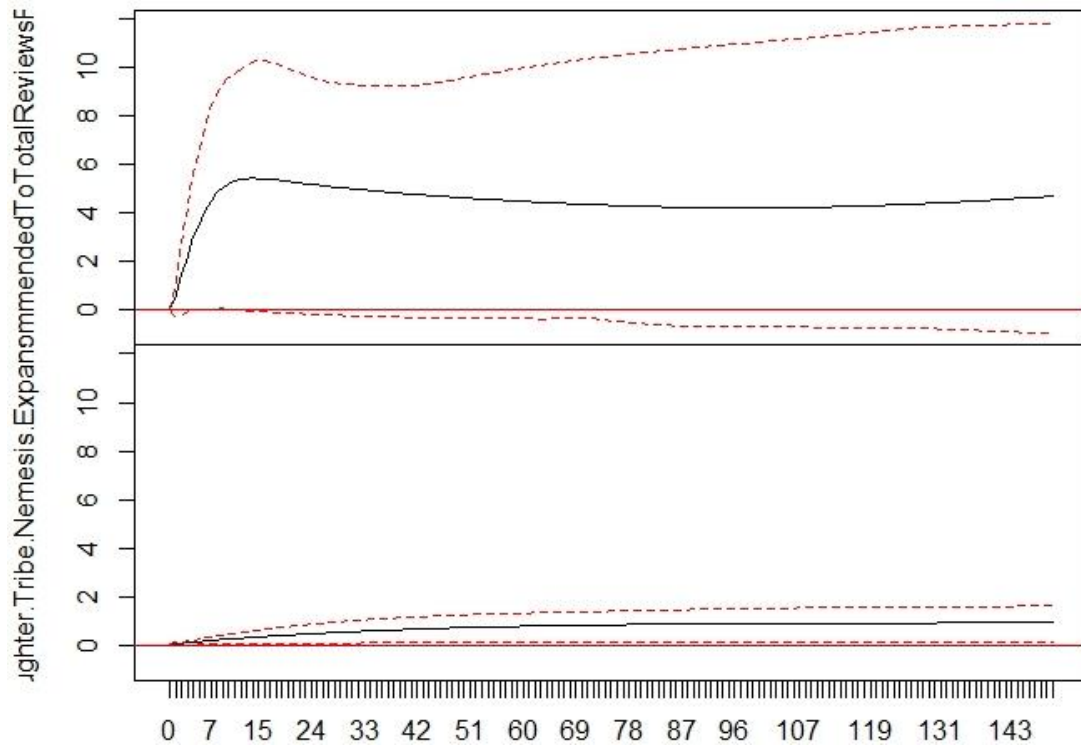


Figure 29 - A Cumulative Shock in 'Slaughter Tribe Nemesis Expansion' DLC (lower figure) and its Temporal Effect on Rating (upper figure)

Figure 29 showcases another interesting pattern that can be observed from the available data. The Impulse-Response function simulates a scenario where the DLC 'Slaughter Tribe Nemesis Expansion' is introduced and cumulated for 150 days. The results show that this impulse does have a positive effect over time (mostly in the short-term), as the rating increases simultaneously with the introduction of the DLC. Thus, this DLC is considered to be a positive addition to the game.

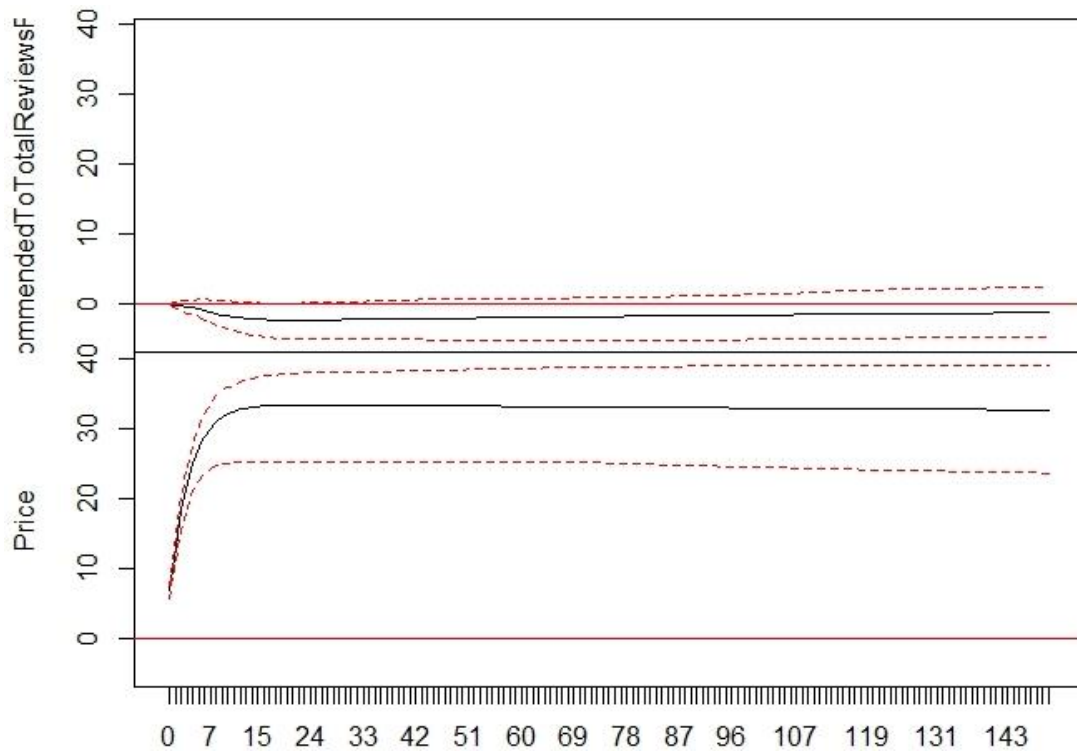


Figure 30 - A Cumulative Shock in Price (lower figure) and its Temporal Effect on Rating (upper figure)

Figure 30 showcases the last interesting observation, in which the Impulse-Response function stimulates a cumulated price increase and the effect this simulation has on the rating. Although the confidence intervals very often cross the red zero line, there is an overall negative effect on the rating if such a scenario were to happen. This is not unexpected, as other games have shown similar results. It can be thus concluded that if the price increases, players might feel that they get less value from the game.

6.3 Top Reviews Analysis

This section considers and analyses the top ten player reviews of each game, which has already been described in the Methodology section of this paper. This section of the analysis is divided into four parts, one for each game.

6.3.1 FIFA 21

Review 1 under the FIFA 21 section in Appendix G is the most popular and helpful review for FIFA 21 and suggests an issue the user is having with the game developers, where the player believes that his account has been hacked and used by another user, which has led to EA (the developer and publisher) suspending his account. The user states that even after talking to EA support, he was not able to have his issue solved, which left him to leave a negative review. This is one of the most popular reviews with the highest helpfulness score, which implies that many other users could have had the same experience. Thus, it might be the case that issues of having one's account hacked and misused, and subsequently banned, is one of the main reasons why FIFA 21 has the lowest overall rating from all the games analyzed.

Review 2 (Appendix G – FIFA 21) showcases a rather angry review, where the user complains about the game mechanics, but most importantly the fact that the game developers have made an identical game to the previous years' FIFA game, with even fewer features in some regards. Besides, the user also states that the game incentivizes kids and other players to spend money on packs and other “garbage”, as the user puts it. Similarly, the rest of the reviews (Appendix G – FIFA 21), from number 3 to 10, suggest the same, as some of the users in these reviews state that the game is just a copy-paste from the previous years, or that it is more like a casino game than actual football.

All the top reviews in Appendix G, FIFA 21 section are very popular, as some of them received more than 3000 upvotes with a very high degree of helpfulness (all of them being more than 85% helpful), which does send a clear message about the state of the game. Firstly, the game developers seem to neglect players who believe their accounts have been mistakenly banned from the game – the high number of upvotes (over 1300) suggests that this seems to be a more general issue, rather than a problem for just a few individuals. Additionally, the rest of the top reviews suggest that

the game has been the same since 2017 or 2019 (varies in different reviews) and that the game has a lot of unnecessary microtransactions that offer products with loot box mechanics, which all these reviews associate negatively with gambling. Thus, it can be argued that these two reasons are likely the main reasons why this game has the lowest overall rating from all the games analyzed in this paper.

6.3.2 Assassin's Creed: Odyssey

In the most helpful and popular review of this game (Appendix G – AC: Odyssey) the author firstly mentions that the game's surroundings are beautiful. The writer is also impressed by the developer's ability to capture many historical Greek characters, which he had not expected when he started playing the game. The author also lists some of the game's shortcomings – such as historical inaccuracies, wrong pronunciation of Greek names, and the style of Greek battles, all of which he considers to be only very minor weaknesses, which then results in him giving a positive rating to the game.

The second most popular and helpful review is also positive of the game and compares it to its predecessor (Assassin's Creed: Origins), as well as its competitors. The author states that the game is overall an improvement of its predecessor, as it improves the combat and role-playing elements. He also states that the developers attempted to mimic a different and extremely popular game, The Witcher 3, in which they failed, as the side missions and the conversation options lack depth. Similarly, the third review very briefly mentions that even though the game is not as good as The Witcher 3, the author had fun playing this game. Interestingly, the author of the second review also compares one game feature to a similar feature from Middle Earth: Shadow of War, namely the Nemesis system, which he says is an improvement. Overall, the author states that the game is an improvement if compared to its predecessor and rewards the game with a positive rating.

The fifth review (Appendix G – AC: Odyssey) of the game is a negative one. The user agrees with the above-mentioned reviews that the game is very polished, has beautiful graphics, and addictive gameplay, but he also complains that he is very disappointed with how greedy the developers have become. Firstly, he states that despite being a fully priced game, the game offers a lot of microtransactions. The author says this would be fine as a way to support the developers, but it is not fine in this case, as the game actively engages the player to ‘grind’ (that is, having to do the same things over and over) to proceed – thus if a player is not interested in ‘grinding’, they would be incentivized to buy game boosters that would help you progress in the story. Secondly, the author criticizes the DLC ‘Legacy of the First Blade’, which he says would be a great DLC if it was priced lower, as he says it only adds one questline to the game. The rest of the reviews (Appendix G – AC: Odyssey), ranging from 6 to 10, mention the same issues – that the game is indeed a beautiful piece of art, but the fact that it includes microtransactions ruins the players’ experience, where some of the reviewers state that they will never support such behavior in the future.

As observed in the visual analysis section, this game has the highest rating of all the games analyzed in this paper. Overall, the fact that the game is not just a copy of its predecessors, but a new game that happens in a completely different setting with a new story, likely affects the overall reviews of the game positively. The drawbacks, however, seem to be shared with FIFA 21, as the authors state that the game developers are being too greedy by trying to persuade players into purchasing game boosters and other products to help them progress in the story.

6.3.3 Borderlands 3

Overall, the most popular reviews for this game consist mainly of negative ones (Appendix G – Borderlands 3). The most helpful and popular comment states that Randy Pitchford, the CEO of Gearbox Software (the developer of Borderlands 3) does not pay his workers, which results in the

user giving the game a negative review. Eight other reviews of the game voice the same concern, and also elaborate more on how the game offers an improvement of gameplay when compared to its predecessors, but lacks heavily on story, which they say is uninteresting and predictable. The third and the fourth reviews rate the game negatively, saying that the game is a cash-grab, which, even after buying the super-deluxe edition of the game, encourages the player to purchase even more content.

There seem to be two elements that are praised in many of the reviews – firstly, the second review (Appendix G – Borderlands 3) states that the gameplay is an improvement, whereas the story is a failure, though the user still gives the game a positive rating. The last two reviews are positive – the authors here state that the game does not force you to use the Epic Games Store to buy and play the game (most players, in general, seem to prefer the Steam store). The mention of this is likely because Borderlands 3 was only available on the Epic Games Store in the first six months after its launch, which was a huge controversy for Borderlands 3 at its launch (Grayson, 2019).

Overall, the reviews for this game are lower than those for Assassin's Creed: Odyssey, but much higher than those for FIFA 21. The main positive element for Borderlands 3 seems to primarily be the gameplay improvement, whereas the negatives can be considered to be the CEO not paying its employees; engaging players in purchasing more even after buying the most expensive version of the game; a deficient storyline; or the Epic Games Store exclusivity.

6.3.4 Middle Earth: Shadow of War

The most helpful and popular review (Appendix G – ME: SOW) is a negative one, which provides an in-depth elaboration of the state of the game. The author firstly states the positive aspects of the game, which are a better story compared to the game's predecessor, and the overall improved gameplay mechanics. Secondly, the negatives are that the game is very buggy (this review was written

in 2017, and the game has likely improved since then) and that the controls of the game feel ‘chunky’, as the author describes it. Besides this criticism, the author also makes a brief comparison to the Assassin's Creed franchise, where he states that the Assassin's Creed developers reuse their assets in their games, which is fine, as long as the game offers new content to make the game feel ‘fresh’. The problem the author faces in this game is that even though the developers do reuse many assets from the predecessor, there is not much new content to make the game feel ‘fresh’ – something that he says the Assassin's Creed developers usually manage to achieve. Another, and rather interesting drawback the author mentions, is the ‘grind’ that the game has at the end, which becomes very boring – at this point in the game, the player is encouraged to buy loot boxes to progress to the end of the story (or rather *was* encouraged to buy loot boxes, as these were later removed). At the end of the review, the user states that Shadow of War is an overall good game, but it needs to have some of the mentioned issues solved. The reviews numbered 2 to 8 of the game are very similar – they give a rather neutral review of the gameplay and the story but shed a very negative light on the game due to the loot boxes, as the authors state that if you decide to play the game without buying them, you might even miss out on some in-game content. Besides, one of the reviewers states that even though the loot boxes have been removed from the game, he shall keep the review negative, as a reminder for developers that he will not tolerate that kind of behavior. The last two reviews, with a helpfulness score lower than 45%, mostly complain about the game crashing, or not performing well on their PC.

Overall, the game thus seems to be a middle-ground kind of game, with a roughly 84% final rating based on player reviews. As seen in these reviews, the game's largest problem was the loot boxes, which were removed a few months after the launch, which, as some of the reviewers put it, “fixed” the game. Other than loot boxes, the game seemed to have a healthy amount of content and gameplay, which is appreciated by the community.

6.4 Interview Analysis

The games of all three of our interviewed game developers are either focused on - or has the option of - playing with or against other players online. Common for all three developers is that the only DLC they produce, and sell is small additions such as in-game currency, new weapons, or bonus items, and not big expansions that enlarge the game world and storyline, like much of the DLC available for our quantitatively analyzed games. The types of DLC sold, however, differ between all three developers.

Developer A offers their game free of charge and has a huge selection of both in-game items, such as weapons and cosmetics for sale. Developer B also offers their game for free, but only sells loot boxes containing in-game items. An important aspect of Developer B's game is that there are different tiers of loot boxes, with each tier containing items that correspond in power to the price of that tier of the loot box. This is to make the loot box system fairer, as players can know approximately what they will receive. While still containing an element of luck, this lessens the element of gambling, as players know they will receive a better item when they pay more for a loot box. Finally, Developer C only sells cosmetic items, such as hats and skins, that do not affect gameplay at all. They consider these skins "fanservice" and compare them with merchandise, such as t-shirts that fans might buy at music concerts, to show other fans that they support the artists.

Additionally, when asked the developers whether they care about how the player base sees the loot boxes, the answer was that they do not, as it creates revenue for the company. Thus, it can be considered that many other companies share this opinion, where only a small number of them try to remove them or at least alleviate the negative effect they have on the game.

	Developer A	Developer B	Developer C
Cost of Base Game	Free	Free	Not free
Type of Add-Ons Available for Purchase	Both in-game items and cosmetics	In-game currency, and loot boxes containing in-game items	Only cosmetics
Source of Revenue	DLC	95% DLC, 5% ads	Primarily retail sales

Figure 31 - Overview of the Differences Between the Three Interviewed Game Developers

A likely reason that only a small DLC is offered is the size of the game studios. As mentioned in the introduction section of this paper, creating a small DLC has very low production costs, and thus carries a low risk to create for the game studios. If a DLC does not sell well, the company will only suffer a small monetary loss if just a few developers have created a couple of skins, compared with the losses if the company had spent a lot of time and resources on a big expansion pack. Thus, just like developing a full-size game is a risky business for all but the largest game studios (several game studios have been closed down or gone bankrupt after the failure of just one game (WatchMojo, 2020)), developing large DLC is inherently risky as well. While the inherent risk of developing the base game is hard to mitigate, subsequent risk can be minimized by scaling development down to continuously releasing small DLC instead of making yet another large bet of creating a large expansion pack. Creating small DLC is also a more agile business strategy, as the developers can quickly see how players react to the products and change the direction of development if reactions and sales are negative. Likewise, the explanation of why only one developer offers loot boxes might be the same, as a loot box system requires a sufficiently large number of items that can be won to function. Meanwhile, individual pieces of DLC can be sold in any arbitrarily small quantity.

7 Results

Common for our four games analyzed is the fact that the *price* turns out to be the most important factor in regard to player responses, mainly in the form of daily reviews (signifying new purchases), but less so in changes to the actual rating of the game. This shows up in both our visual analysis and multivariate time series analysis. This is rather surprising, as it had been assumed that the *content or quality* of a game or DLC should be what matters the most, and that review scores and sentiments would be focused on how much enjoyment players get from a specific piece of DLC. Unexpectedly, our results thus point to the price-to-content ratio being the most significant factor – thus, players value the game/DLC more, if the price matches the amount of content the game/DLC has to offer. For example, if the game has low content, but is fully priced, players are more likely to review the game negatively, however, if both the content and the price of the game are high, players tend to rate the game more positively. Furthermore, we find that aside from a few exceptions, review scores generally do not change in any significant direction from the release of new DLC, pointing to the consensus of a game not being influenced by further additions released for it. Most likely, many other factors that are not included in our data, such as the speed of the computers used by players, and technical problems plaguing games, are likely to influence our results in unforeseen ways.

One thing that does align with expectations, however, is the general dislike of loot box systems, which in our analysis hurts reviews. This is especially evident when looking at the *Middle Earth: Shadow of War* game, whose review score increased after the removal of the loot box system, however, this is also confirmed by many of the top Steam reviews in the analysis section.

These findings contrast with our interview responses from Danish game developers, as none of them has created large-size DLC for any of their games, but instead offer small packages of

weapons, skins, or loot boxes. The line of thought behind the products offered differ, with one developer seeing skins as “fanservice” merchandize that players can buy to support the game, while another tries to mitigate the issues of loot boxes functioning like gambling by dividing their loot boxes into different tiers, so players know beforehand approximately what item they will receive.

8 Discussion

8.1 Relationship Between Price and DLC Content

Like other entertainment forms available for purchase, video games are often priced at fixed levels owing to their size and genre. Even after moving to internet-based distribution channels, the typical price of a so-called “triple-A” game developed by one of the large gaming companies has been fixed at \$60 for decades, with smaller games made by indie developers being priced cheaper. The price of DLCs can then vary between games, but large DLC, in the form of expansion packs, are usually priced at \$15, with smaller DLCs such as skin packs coming in at \$5 to \$10. The price of a DLC is thus dictated by the contents of the DLC, following a very simple logic of more content demanding a higher price. Using a baseline of having a full game count as 100%, we can thus graph an estimation of the expected relationship between the price and the contents of video game offerings.

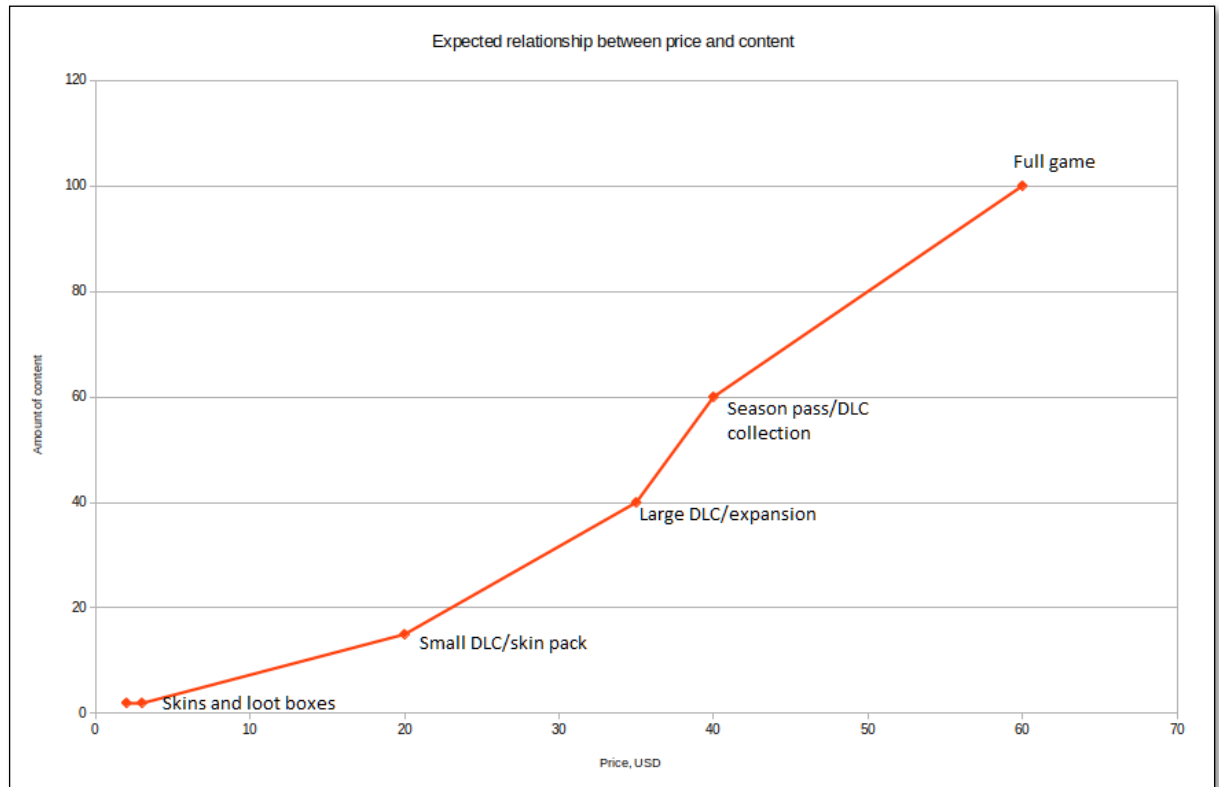


Figure 32 - A Loose Estimation of the Expected Relationship Between Price and the Content of DLC / game

A *satisfaction-line* between the expected intersections between price and contents divides our graphs into two parts: left side and right side. If a game or piece of DLC falls somewhere on the left side, this means that the product is cheap compared to the amount of content it contains. Thus, players will react positively to their purchase, as they think they are getting a lot of value for the money. Conversely, if a game or DLC falls on the right side, players will be disappointed and think they are being ripped off. We have evidence of players thinking like this, as one review of *Middle Earth: Shadow of War* complains that “*sadly the game has too many problems and not enough new things for me to recommend it at the £45 / \$60 price tag*”. Finally, if a game or DLC falls right somewhere on the line, players are satisfied since their expectations have been met.

Having a \$60 price might also affect which DLC the customers might be satisfied with having available at launch. Since customers will expect a full-size game at \$60, selling DLC right from the beginning of the life cycle of the game might cause the customer to think that content has been cut

from the base game to be sold as additional products - reminiscent of the “on-disc DLC” situation that caused controversy around the early 2010s. Another *Middle Earth: Shadow of War* has a complaint about loot boxes in a \$60 game, a sentiment shared among enough players to force the developers to remove loot boxes from that game:

“An amazing improvement upon the original, completely contaminated by some of the worst industry practices we have yet seen. Make no mistake, if the consumer base does not stop this now, we will be seeing not only microtransactions in \$60 games but further degradation of the base game for them to wring every last ounce of money from us. DO NOT BUY THE LOOTBOXES.”

Considering such sentiments as well as the data gathered on our four selected games and their DLC, we can plot a couple of our analyzed items (Figure 33).

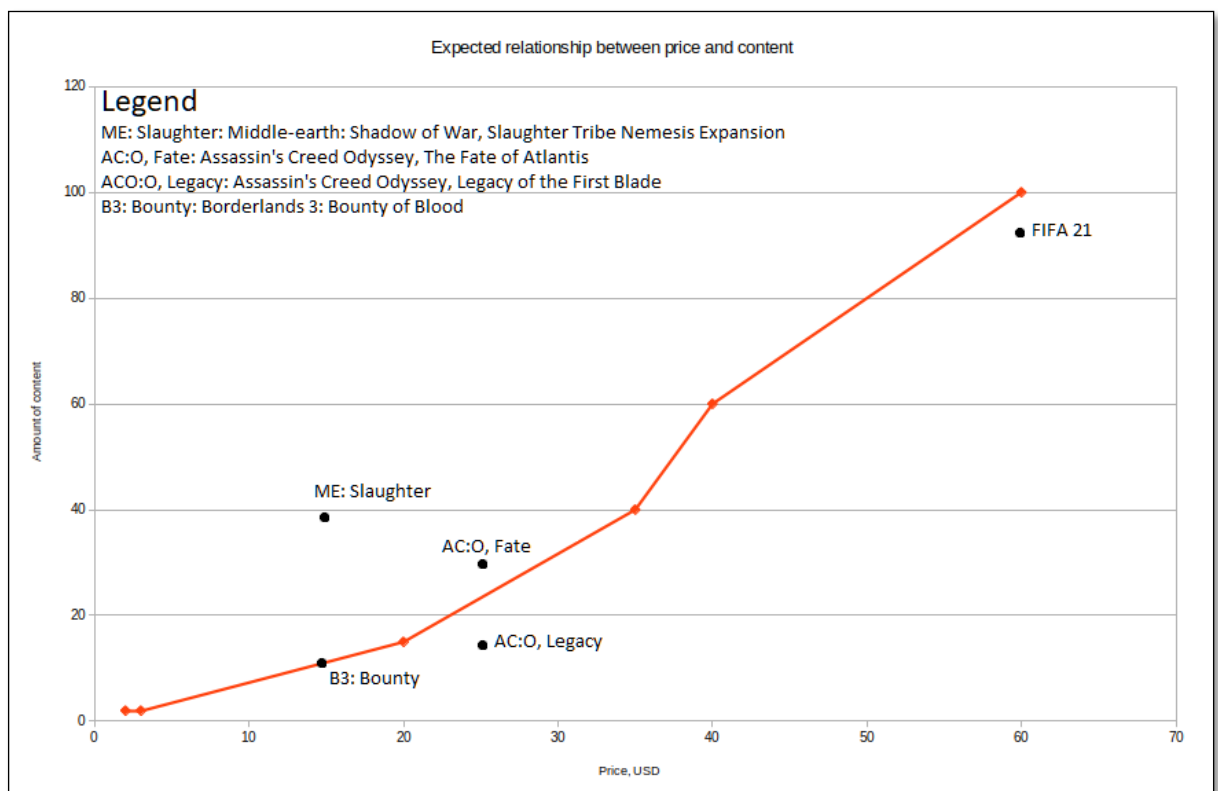


Figure 33 - Examples of the Positions of Some of the Analyzed Games and DLC

Here, we have two pieces of DLC on the left side of the graph, where players reacted positively to the release of the DLC as evident from the increased number of positive reviews that followed. We have one single DLC that falls right on top of the line, meaning that the content was sufficient, and did not result in any change in the reviews of the game. We have one DLC that falls on the right side of the graph, meaning that players were disappointed with the contents offered at that price point. Finally, we have included one full game, FIFA 21, where we speculate that the negative number of reviews for that game is due to players being disappointed in being charged full price for a game that is only a small upgrade from last year's game, FIFA 20.

Two important aspects must be kept in mind in regard to this framework. One is that we are only looking at the quantity of the products, which is easily countable - either in the form of hours of gameplay provided, or in the number of skins, or other quantifiable metrics. This does not take into account the *quality* of the product: Even if, for example, an expansion pack provides 20 hours of gameplay, there is no guarantee that it is 20 hours of fun and joy. Since video games can be considered to be art (Smuts, 2005), there is no objective way to measure how good a video game is, and different people will think differently of a given game. Thus, even if a DLC falls on the right-hand side of our graph, meaning that it does not contain enough content for its price, some players might still be satisfied if they value the sheer quality of the DLC highly enough.

Secondly, what we are considering here is player *opinion* and satisfaction with DLCs. While it must be assumed the game developers in general wish to make their fans happy, it must also be assumed that games - especially triple-A games from the big developers - are intended first and foremost to make money. The opinion of players might such be of less concern to game developers, as long as their game sells well - a situation which was evident at the release of *Call of Duty: Modern Warfare 2*, which became one of the best-selling games ever amid previously unseen player outrage and boycott over the removal of dedicated multiplayer servers (Sterling, 2009). While the power of

dissatisfied players has increased since then, stemming from Steam's introduction of showing the average score of user reviews on the store page of games, it is still likely that game developers look at sales numbers first and foremost, and not the critical reception of their products.

Based on our analysis, we can interpret player reactions to generally be positive towards large DLC, and negative to small DLC - this is also visible in Figure 33 above, where the *Fate of Atlantis* DLC for *Assassin's Creed: Odyssey* is plotted above our satisfaction line, while the similarly priced DLC with comparably lower content, *Legacy of the First Blade* falls below the satisfaction line. In the case of *Assassin's Creed*, this is likely due to the two DLCs having the same price despite the differences in content. Thus, developers must be wary of pricing the DLC correctly to please gamers. The same logic could also be applied to the base games themselves, where the standard \$60 price tag demands a certain level of content. This is evident from our multivariate time series analysis, where we find that in general, whenever the price of a game decreases due to going on sale, the number of daily reviews increases significantly – signifying that the price is the most important factor, at least among the factors known to us.

Since developing content takes time, a game might not reach a level of content high enough to warrant its \$60 price tag at its required release date. To make up for such shortcomings in the eyes of the players, the publisher could lower the price of the game to \$50, thus move it to the left in, as demonstrated in the figure below.

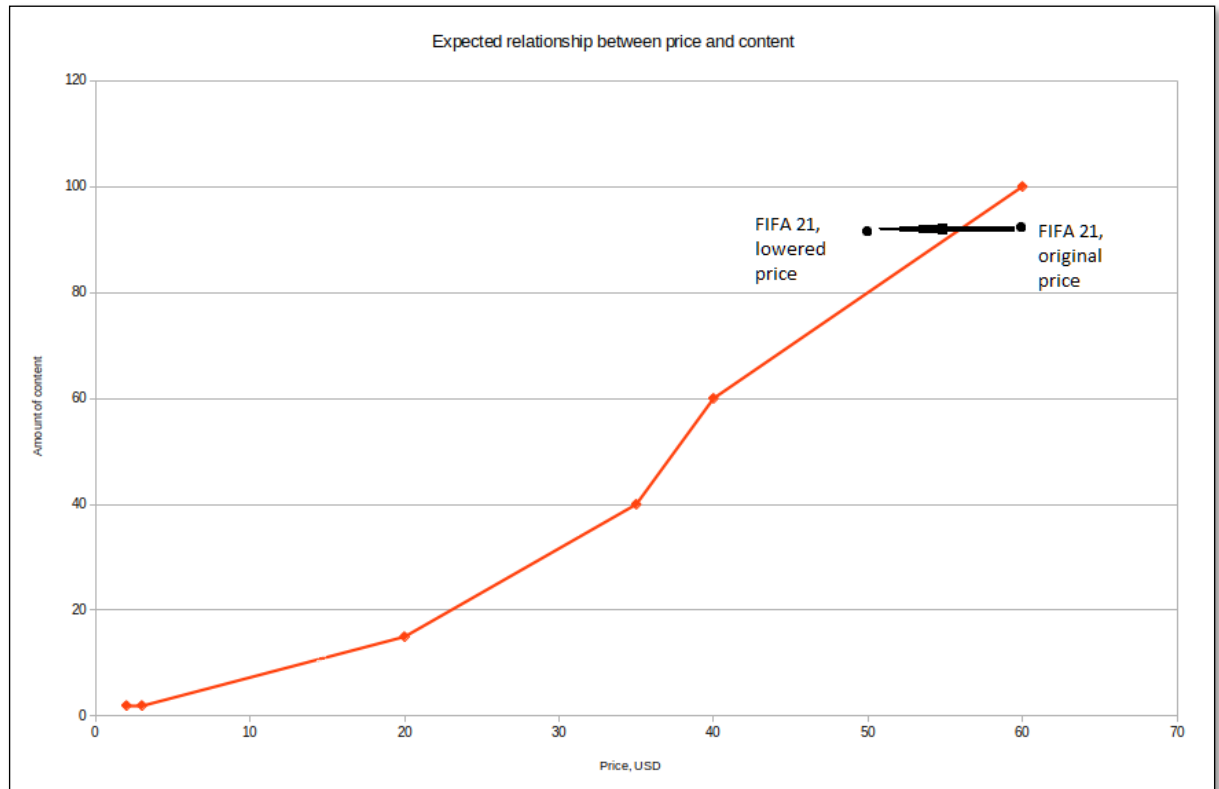


Figure 34 - An Example, Where Lowering the Price of FIFA21 Moves it to the Left, Crossing the Satisfaction Line

However, lowering the standard retail price of an AAA game such as *FIFA21* is likely to never happen, as setting the price lower than the industry standard of \$60 would admit that the game is not a triple-A game, signaling a lower appeal of the game. Since customers generally believe that a high price is an indication of good quality (Allsopp, 2005), they might choose a competing \$60 football game over FIFA, if the price of FIFA were reduced. Thus, the retail price of AAA games cannot be expected to fall below 60\$ despite how “unfinished” the game is at release.

To return to our theoretical framework of value creation in the video game industry, and in our case for DLC specifically, we will have to ask “*value for who?*” From our analysis, we can see a pattern of large DLC generally being more appreciated - and thus, higher valued - by players than small DLC that only adds little value to the game. While player opinion is certainly important, sales numbers and profits must be considered to be of most concern to developers, and without any reliable

data on such figures, we are unable to say whether large DLC or small DLC is preferable to develop, and which type of DLC creates the most value for game studios. If we assume that game developers wish to satisfy their customers, large DLC seem to most reliably have a positive effect on reviews, but on the other hand, from a perspective of economic Darwinism, the extreme prevalence of microtransactions and loot boxes, despite criticisms from players and scholars alike, can be interpreted as these types of DLC continuing to provide monetary value wherever implemented.

If we hold the assumption that large DLC offers the most value to players, then why is there none of our three interviewed game studios that offer large DLC? To answer this dilemma, we must return to the risk implications that the different types of DLC have. As outlined previously, the financial risk of developing a DLC is equal to the size of the DLC (as is the case for most businesses - the larger the product is in proportion to the company, the larger the risk). All three of our interviewed companies are small-scale studios, with financial resources far below those of the biggest corporations in the industry, such as EA and Activision-Blizzard. Furthermore, two of our interviewed companies do not have a large catalog of older games that can continue to bring in revenues from online sales, unlike large studios that can have hundreds of games available for sale at the same time to keep a constant cash flow.

Developing large DLC is thus likely too risky for our interviewed companies, as the failure of a high-cost product might be the end of the company. Developing smaller pieces of DLC, such as new weapons and skins, thus poses much less of a threat to the company if sales of a DLC are low. Furthermore, by only having artists creating a small DLC that does not introduce any new gameplay mechanics, the programmers are free to work on new technologies for subsequent games, a process that takes a much longer time than creating assets for an existing game. Unlike large studios that can afford enough programmers to both work on existing games while having a team develop new games, smaller studios might not have the manpower to do so.

9 Conclusion

To answer our research questions, we contribute to the existing literature on the video game industry by zooming in on a very specific, but so far undeveloped niche in the industry that is the different types of add-on products available to video games. While having to make broad generalizations in our reasoning, due to the vast varieties of the different games on the market today, we believe we have mapped out each different type of DLC available to players, how they differ from each other, and what each of their characteristics are. From the results of our analysis, we emphasize the difference in sizes of the different types of DLC, as in how much content they add to the base game. Using this as our basis for understanding the market of DLC, we obtained vast amounts of different data from the largest PC game store, Steam, both quantitative and qualitative data mainly regarding reviews that Steam players have left for four chosen games.

Based on our analysis of this data, we observe a pattern of large-scale DLC being better received by players than small-sized DLC. Size in this context describes the amount of new content the DLC adds to the game, with large DLC adding new story-driven campaigns and gameplay mechanics, while small DLC only adds several new weapons, maps, or cosmetic skins that do not change the gameplay significantly, if at all. We find the same sentiments in analyzing the texts of actual reviews obtained from Steam, where especially a dislike of loot boxes becomes visible. While this thus points to large DLC being the best choice for game developers in ensuring customer satisfaction, our data from three Danish game companies lead us to reason that only large studios have the resources available to create large DLC for their games, as the nature of developing such products carries a significant risk that smaller studios are unable to take. From the interviews, we have also learned that in-game products can be appealing to developers, as they produce revenue. Besides, not having to rely completely on ads gives developers another advantage, as they do not

have to worry about data protection laws. Furthermore, it seems that only the large studios have capabilities to generate revenue from ads, as this is only reached with games with a vast number of players that watch these ads. So, loot boxes, and other in-game items might appeal to developers by being a source of revenue. However, these items might appeal less to players, as loot boxes and other items might seem like greedy cash-grabs for developers.

To sum up our findings, it appears that it is not the *content itself* of a DLC that matters, such as how “fun” it is to play or what new items it brings to the game. What we find is that it is the price-to-content ratio that is indicative of player response to a game/DLC. While it is not a revolutionary new concept that customers want the best bang for their buck, we are surprised to find that the subjective experience of the product does not appear to matter. To illustrate this content/price relationship, we proposed a model of mapping games and DLC on a graph that contains a satisfaction line that symbolizes the expected amount of content at a given price. While still very loosely and subjectively applied, putting DLC on this graph can predict whether players will be satisfied if they purchase the product. Thus, the way a video game or its in-game products appeal to a player depends mostly on the price-to-content ratio the product offers.

While we cannot claim to be able to make any definite conclusions, primarily due to the available data mainly concerning player satisfaction and opinions and not actual sales data or financial indicators, we believe we have gained an important insight into the dynamics of creating games and DLC. However, due to the limited amount of publicly available data, we are mostly looking at the subject from the point of view of consumers. Even if small-size DLC is generally undervalued by players, it may very well be the case that small DLC is the most profitable for game studios - indeed, the huge amount of small DLC and the continued release of cosmetics and skin-packs lead us to believe that this might presumably be the case. Ideally, if actual sales data were made available from the game studios or game stores such as Steam, more absolute conclusions could be made on the

different types of DLC. However, due to the ongoing competition between games stores - Valve is at the time of writing being sued by the creator of competing game sales platform Humble Games (Hollister, 2021) - such financial numbers are unlikely to ever be released to the public. While the topic of video games and DLC is certainly still open to further research, limitations on available data seem to make additional scholarly scrutiny challenging.

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11 Appendix

11.1 Appendix A – Steam Reviews API

Extraction Code

```
# Following code is just a sample and would have to be adjusted every time
a different game is handled
# Following libraries have to be loaded in order to proceed
library(httr)
library(jsonlite)

# The following code gets the most recent 100 reviews for any game
(.../appreviews/<gameid>?...) from the steam store. Game ID can be found in an
URL of a game on Steam.
url <-
"store.steampowered.com/appreviews/666840?json=1&num_per_page=100&filter=recent&
purchase_type=all&review_type=all&language=all"
resp <- GET(url)
json <- content(resp)
exportJSON <- toJSON(json)
numberofreviews <- json[["query_summary"]][["num_reviews"]]
write(exportJSON, "E:\\OneDrive\\Documents\\CBS\\MSc BLC\\4th Sem\\Steam
JSON Files\\Complete_Middle_Earth_Shadow_of_War_4K_Cinematic_Pack.json")

# The following code saves the base for the API url, excluding the cursor.
base <-
'store.steampowered.com/appreviews/666840?json=1&num_per_page=100&filter=recent&
purchase_type=all&review_type=all&language=all&cursor='

# The following while loop is run a few hundred times in order to get all
reviews into our appended JSON file. The loop stops if the number of reviews
extracted is 0.
while(numberofreviews > 0) {
  Sys.sleep(time = 1)
  cursor <- json[['cursor']]
  cursor <- URLencode(cursor, reserved = T)
  call <- paste(base,cursor, sep="")
  resp <- GET(call)
  json <- content(resp)
  numberofreviews <- json[["query_summary"]][["num_reviews"]]
  exportJSON <- toJSON(json)
  write(exportJSON, "E:\\OneDrive\\Documents\\CBS\\MSc BLC\\4th Sem\\Steam
JSON Files\\Complete_Middle_Earth_Shadow_of_War_4K_Cinematic_Pack.json", append =
T)}
```

11.2 Appendix B – Steam Reviews Data Import and Cleaning Code

```
# Following code is just a sample and would have to be adjusted every time
a different file is handled
# Following libraries have to be loaded in order to proceed
library(tidyverse)
library(jsonlite)
library(bit64)

# The following code reads THE LINES of the appended JSON file. Without
readLines and L apply command, we would not be able to load this appended JSON
file to the R environment.
# Some of the reviews contain invalid characters for this function to load
JSON (these reviews make basically no sense). Thus, these must be manually removed
and replaced with for example "a".
appended_json <- lapply(readLines("E:\\OneDrive\\Documents\\CBS\\MSc
BLC\\4th Sem\\Steam JSON
Files\\Middle_Earth_The_Desolation_of_Mordor_Story_Expansion.json"), flatten = T,
fromJSON)

# Due to the API Extraction while-loop code sometimes misbehaving and
creating duplicates, these should be identified and removed from the appended_json
list
# The first line of code asks if all the values are FALSE (duplicates). If
TRUE, there are no duplicates, if FALSE, there are duplicates
# The second line of code removes any duplicates from the appended_json list
all(!duplicated(appended_json))
appended_json <- appended_json[!duplicated(appended_json)]

# If the last JSON line with zero reviews was not removed directly from the
JSON file, then, in order to merge the reviews into a single data frame, the last
list with zero reviews must be removed.
appended_json[[6]] <- NULL

# The following code turns the lists of appended_json into many data frames,
on which a full join is then performed in order to preserve all the values, and
the finally it's all turned into one dataframe.
new_json <- lapply(appended_json, as.data.frame)
new_json <- lapply(new_json, as.data.frame)
new_json <- new_json %>% reduce(full_join)

# Some unnesting is necessary with certain columns
new_json$reviews.weighted_vote_score <- lapply(new_json[,16], as.numeric)
new_json <- unnest(new_json, c(8:27), keep_empty = TRUE)

# Date transformation from UNIX to a human-readable timestamp
new_json$reviews.timestamp_created <-
as.POSIXct(new_json$reviews.timestamp_created, origin="1970-01-01")
new_json$reviews.timestamp_updated <-
as.POSIXct(new_json$reviews.timestamp_updated, origin="1970-01-01")
```

```

new_json$reviews.timestamp_dev_responded <-
as.POSIXct(new_json$reviews.timestamp_dev_responded, origin="1970-01-01")

# Some columns are not necessary
new_json <- new_json[,-c(1:7)]
new_json <- new_json[,-c(10, 13, 20, 21)]

# Some columns still need a different format
new_json$reviews.recommendationid <-
as.integer(new_json$reviews.recommendationid)
new_json$reviews.author.steamid <-
as.integer64(new_json$reviews.author.steamid)

# Columns need to be renamed for an improved readability
colnames(new_json)[1:17] <- c("ReviewId", "Language", "Review", "Created",
"Updated", "Recommends", "Upvote", "Funny", "WeightedVoteScore", "SteamPurchase",
"ReceivedForFree", "AuthorSteamId", "AuthorGamesOwned",
"AuthorNumberOfReviews",
"AuthorPlaytimeTotal", "AuthorPlaytimeLastTwoWeeks", "AuthorPlaytimeAtReview")

# Save the cleaned new_json file under a different name and keep it aside
for merging with the DLC reviews
the_desolation_of_mordor_story_expansion_dlc <- new_json

# Remove appended_json and new_json data from R environment and start loading
and cleaning data for DLCs of the game (start from the top again)
rm(new_json)
rm(appended_json)

# Before merging, it is a good idea to create a new column which says which
DLC the review belonged to, so that it can be recognized in the merged file
the_desolation_of_mordor_story_expansion_dlc <-
cbind(the_desolation_of_mordor_story_expansion_dlc,
rep("the_desolation_of_mordor_story_expansion_dlc",
length(the_desolation_of_mordor_story_expansion_dlc$ReviewId)))

# Remove the unnecessary values after they have been used to create a new
column in each DLC and the main game
rm(fifa)

# Column names of the newly created variable have to be renamed
colnames(expansion_pass_dlc)[18] <- "Game"
colnames(the_desolation_of_mordor_story_expansion_dlc)[18] <- "Game"
colnames(the_blade_of_galadriel_story_expansion_dlc)[18] <- "Game"
colnames(story_expansion_pass_dlc)[18] <- "Game"
colnames(slaughter_tribe_nemesis_expansion_dlc)[18] <- "Game"
colnames(outlaw_tribe_nemesis_expansion_dlc)[18] <- "Game"
colnames(main_game)[18] <- "Game"
colnames(high_resolution_texture_pack_dlc)[18] <- "Game"
colnames(fourk_cinematic_pack_dlc)[18] <- "Game"

# After the main game and each DLC reviews have been nicely prepared, they
are then merged together
Middle_Earth <- rbind(main_game, expansion_pass_dlc,
fourk_cinematic_pack_dlc, high_resolution_texture_pack_dlc,
outlaw_tribe_nemesis_expansion_dlc,
slaughter_tribe_nemesis_expansion_dlc,
story_expansion_pass_dlc, the_blade_of_galadriel_story_expansion_dlc,
the_desolation_of_mordor_story_expansion_dlc)

```

```

# After everything is cleaned, then the new_json file can be saved
export <- toJSON(Middle_Earth)
write(export, "E:\\OneDrive\\Documents\\CBS\\MSc BLC\\4th Sem\\Steam JSON
Files\\Complete_Middle_Earth.json")

```

11.3 Appendix C – SteamSpy Data Import and Cleaning Code

```

# Following code is just a sample and would have to be adjusted every time
a different game is handled
# Following libraries have to be loaded in order to proceed
library(tidyverse)
library(jsonlite)

# The following code reads the SteamSpy JSON file
json <- fromJSON("E:\\OneDrive\\Documents\\CBS\\MSc BLC\\4th Sem\\Steam
JSON Files\\Old JSONs\\Middle_Earth_Owners_And_Prices.json")

# Remove unnecessary columns
json$link <- NULL
json$color <- NULL

# Column type and name changes are needed
json$Owners <- as.numeric(json$Owners)
json$date <- as.Date(json$date)
colnames(json)[1] <- "Date"

# The file data.frame is exported and saved as a new JSON file
export <- toJSON(json)
write(export, "E:\\OneDrive\\Documents\\CBS\\MSc BLC\\4th Sem\\Steam JSON
Files\\Complete_Middle_Earth_Owners_And_Prices.json")

```

11.4 Appendix D – SQL Code to Load a JSON File Into an SQL Table

```

-- The following sample code loads the complete json file to the SQL server
Declare @JSON varchar(max)
SELECT @JSON=BulkColumn
FROM OPENROWSET (BULK 'E:\\OneDrive\\Documents\\CBS\\MSc BLC\\4th Sem\\Steam JSON
Files\\Complete_AC_Odyssey.json', SINGLE_CLOB) import
SELECT * INTO Steam_AC_Odyssey
FROM OPENJSON (@JSON)
WITH
(

```

```

[ReviewId] int(255),
[Language] varchar(255),
[Review] varchar(8000),
[Created] datetime,
[Updated] datetime,
[Recommends] bit,
[Upvote] int,
[Funny] int,
[WeightedVoteScore] float,
[SteamPurchase] bit,
[ReceivedForFree] bit,
[AuthorSteamId] bigint,
[AuthorGamesOwned] int,
[AuthorNumberOfReviews] int,
[AuthorPlaytimeTotal] int,
[AuthorPlaytimeLastTwoWeeks] int,
[AuthorPlaytimeAtReview] int,
[Game] varchar(255)
)

```

11.5 Appendix E – An SQL Sample Code to Merge Everything on a Daily Basis

-- The following code creates various new columns which are calculations and aggregations of the data. This specific code creates a table for Assassin's Creed: Odyssey.

```

SELECT CAST(Updated AS DATE) AS ReviewDate,
SUM(CASE WHEN Recommends = 'TRUE' THEN 1 ELSE 0 END) AS Recommended,
SUM(CASE WHEN Recommends = 'FALSE' THEN 1 ELSE 0 END) AS NotRecommended,
COUNT(*) AS ReviewsTotal,
SUM(SUM(CASE WHEN Recommends = 'TRUE' THEN 1 ELSE 0 END))
OVER(ORDER BY CAST(Updated AS DATE)
ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW)
AS RunningTotalOfRecommended,
SUM(COUNT(*))
OVER(ORDER BY CAST(Updated AS DATE)
ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW) AS
RunningTotalOfReviews,
(CAST(SUM(CASE WHEN Recommends = 'TRUE' THEN 1 ELSE 0 END)
AS decimal(10,5))/CAST(COUNT(*) AS decimal(10,5)))*100
AS RecommendedToTotalReviewsRatio,
(CAST((SUM(SUM(CASE WHEN Recommends = 'TRUE' THEN 1 ELSE 0 END))
OVER(ORDER BY CAST(Updated AS DATE)
ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW)) AS decimal(10,5))/
CAST((SUM(COUNT(*))
OVER(ORDER BY CAST(Updated AS DATE)
ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW)) AS decimal(10,5)))*100
AS RunningRatioOfRecommendedToTotalReviews,
(SUM(CAST(SUM(CASE WHEN Recommends = 'TRUE' THEN 1 ELSE 0 END) AS decimal(10,5))/
CAST(COUNT(*) AS decimal(10,5))
OVER(ORDER BY CAST(Updated AS DATE)
ROWS BETWEEN 1 PRECEDING AND CURRENT ROW) +
2*FIRST_VALUE(-CAST(SUM(CASE WHEN Recommends = 'TRUE' THEN 1 ELSE 0 END)
AS decimal(10,5))/CAST(COUNT(*) AS decimal(10,5)))

```

```

        OVER(ORDER BY CAST(Updated AS DATE)
        ROWS BETWEEN 1 PRECEDING AND CURRENT ROW))*100 AS RatingDifference,
SteamSpy.Owners,
SUM(Owners) OVER(ORDER BY CAST(Updated AS DATE)
ROWS BETWEEN 1 PRECEDING AND CURRENT ROW) +
2*FIRST_VALUE(-Owners) OVER(ORDER BY CAST(Updated AS DATE)
ROWS BETWEEN 1 PRECEDING AND CURRENT ROW) AS OwnersDifference,
((LAST_VALUE(Owners) OVER(ORDER BY CAST(Updated AS DATE)
ROWS BETWEEN 1 PRECEDING AND CURRENT ROW)
/ FIRST_VALUE(Owners) OVER(ORDER BY CAST(Updated AS DATE)
ROWS BETWEEN 1 PRECEDING AND CURRENT ROW))-1)*100
AS OwnersDifferencePerCent,
SteamSpy.Price,
US, RU, KR, GB, FR, DE, CN, CA, BR, AU, other
INTO AC_Odyssey
FROM Steam_AC_Odyssey AS Steam
LEFT JOIN SteamSpy_AC_Odyssey_Owners_And_Prices AS SteamSpy
ON CAST(Steam.Updated AS DATE) = CAST(SteamSpy.Date AS DATE)
LEFT JOIN SteamSpy_AC_Odyssey_Geography AS Geo
ON CAST(Steam.Updated AS DATE) = CAST(Geo.Date AS DATE)
GROUP BY CAST(Updated AS DATE), Owners, Price, US, RU, KR, GB, FR, DE, CN, CA, BR, AU,
other
ORDER BY ReviewDate

```

11.6 Appendix F – SQL Code to Fetch the Most Popular Reviews

```

SELECT Updated, Review, Recommends, Upvote, Funny, WeightedVoteScore
FROM Steam_AC_Odyssey
WHERE Language = 'english' AND Upvote > 900
ORDER BY WeightedVoteScore DESC

```

```

SELECT Updated, Review, Recommends, Upvote, Funny, WeightedVoteScore
FROM Steam_Borderlands_3
WHERE Language = 'english' AND Upvote > 1400
ORDER BY WeightedVoteScore DESC

```

```

SELECT Updated, Review, Recommends, Upvote, Funny, WeightedVoteScore
FROM Steam_FIFA_21
WHERE Language = 'english' AND Upvote > 550
ORDER BY WeightedVoteScore DESC

```

```

SELECT Updated, Review, Recommends, Upvote, Funny, WeightedVoteScore, Game
FROM Steam_Middle_Earth
WHERE Language = 'english' AND Upvote > 880
ORDER BY WeightedVoteScore DESC

```

11.7 Appendix G – The Top 10 Steam Reviews

11.7.1 Assassin's Creed: Odyssey

11.7.1.1 *Review 1 – Recommends, 2251 Upvotes, 108 Funny, 97,6% Helpfulness*

‘As a historical novelist and former high school English teacher with over 700 books in my home devoted to ancient Greek literature, history and culture I had to try this game. I should mention that I am pushing 60 years old and although I like strategy games like Creative Assembly’s Rome II, I’m not a fan of ‘gopher’ games that make you run around collecting items, rescuing damsels in distress, delivering messages, and murdering politicians to level your character. The whole premises seems rather tedious and unimaginative. So right from the start I expected to hate Assassin’s Creed Odyssey. Combine that with the fact that I’d never played an Assassin’s Creed game before, and I am not the most nimble finger clicker, I was prepared to spend a good portion of my playing time getting my head lopped off. None of that happened. Well, yeah, there is a pretty steep learning curve here. I did spend a lot of my initial hours zigging when I should have been zagging, and with my opponent’s spear in my head, but I stuck with it and eventually even an old poop like me was able to figure out the mechanics. What kept me going was the sheer majesty of the game and the beauty of the surroundings. I’ve been to Athens, Sparta, Argos, Mycenae, Delos, Aegina, Hydra, Crete, Melos (now Santorini), and dozens of other locales on the campaign map multiple times. I’ve walked around the ruins at Delphi, strolled the docks of Piraeus and walked through valley of Laconia for research for my books. I wanted to see these places at they might have looked 2,500 years ago and that for me is the true joy of Assassin’s Creed Odyssey. The team at Ubisoft deserves a lot of credit. They did their homework. Sure, you’d expect to see historical figures like Pericles, Socrates, Alcibiades and Archidamas in a game about the Peloponnesian War. But that anyone outside of academia even knows who Brasidas, Aspasia, Herodotus and Pausanias were, is impressive. Kudos

to you. I'm probably an oddball gamer because I was not motivated by stabbing people in the back to gain levels and steal loot. The entire idea of stabbing people in the back goes against the grain of the Greek ethos of 'kleos' or honor. What kept me going was the desire to see more of the world that Ubisoft created. I wanted to visit the Athenian Acropolis and see the Propylaea, Erechtheion and Parthenon as they were shiny and new, instead of in piles of rubble. I wanted to gaze up at Phidias' statue of Zeus in Olympus (one of the wonders of the ancient Greek world that no longer exists), speak to the Pythia at the temple of Delphi, and see the five villages of Sparta as they might have looked. Getting to walk the streets of Athens, Argos and Elis was like taking a trip back in time. Magical. Okay, the game isn't perfect. The pronunciation of common names like Pericles and Socrates and the character's accents were maddening. I can only guess that Ubisoft believes we've Americanized the real pronunciations, or at least I hope that's what they were thinking. Ultimately it's a minor annoyance. The hoplite battles were a major disappointment. The Greeks fought in a phalanx formation. Shoulder to shoulder. Shield to shield. The battles here are a 300 movie style free for all. Oh well, guess you can't have everything. Also I could not fathom how Alexios and Cassandra could be descended from Leonidas, but have no connection to the Agiad royal family. By rights they should have been Pausanias' cousins, but they're not. I don't know who they are. The whole Pythagoras-is-my-father thing is rather bizarre and makes no sense at all. I won't go off the charts here listing the historical inaccuracies that drove me batsh!t crazy, as it serves no purpose. Suffice it to say that I enjoyed the game. If you ever wanted to unravel the labyrinth of the minotaur beneath King Minos palace at Knossos, get drunk and sing songs with Socrates at an Athenian symposium, feel the Aegean Sea roll beneath your feet on the deck of a trireme, or stare out in wonder at the lights twinkling over Attica at twilight, try this game. You won't be disappointed.'

11.7.1.2 *Review 2 – Recommends, 1501 Upvotes, 32 Funny, 95,08% Helpfulness*

‘Judging whether or not you’ll want to play this game is most easily done by comparing it to its direct predecessor, Assassin’s Creed Origins, with which Odyssey shares a lot of its DNA. I played nearly 100 hours of Origins but was surprised it received nearly universal praise. Origins is more polished than a typical AC game due to its extra year of development time, and the setting of Ancient Egypt is wonderful, but [\[url=https://steamcommunity.com/id/greatjon_umber/recommended/582160/\]](https://steamcommunity.com/id/greatjon_umber/recommended/582160/)I found there to be severe flaws in the foundation of what that game does regarding stealth, combat, and story.[\[/url\]](#) Typically with an Assassin’s Creed game I expect a great core experience that often lacks polish in terms of stability due to the grueling yearly release schedule from Ubisoft that doesn’t allow adequate QA time to fix such things. With Origins, it was the opposite—The core experience was lesser than Syndicate’s, but the game was very polished. It ran well and looked gorgeous. The universal praise Origins received was only skin-deep, full of people raving about its wonderful setting and graphics while neglecting the deeper issues the game had at its core. Odyssey, then, reminds me a lot of what Syndicate was to Unity; an improvement of the core mechanics and the smoothing out of the previous game’s rough edges. **[b]IF YOU’RE IN A RUSH:[/b]** If you liked Origins and want more of something similar, then you’ll probably love Odyssey. It’s just Origins with added light roleplaying, MUCH better combat, more practical skill trees, and some key new features to provide enough new territory that it doesn’t simply feel like Origins in a new setting. For more detail, feel free to read on. The most hyped aspect of the game is its expanded RPG elements. Since Unity, which introduced customizable gear, there have been growing light RPG elements to the Assassin’s Creed series, including the introduction of skill trees in Syndicate. Continuing this trend, Odyssey has become a full-blown action RPG rather than just an open world game with some RPG elements. It’s clear the team was playing a lot of Witcher 3 during development as, superficially, roleplaying and story are

more developed. However, a lot of this comes to naught, because most of the side quests are still boring, filler fetch quests, and a lot of the "decisions" you have to make are little more than window-dressing: the illusion of choice rather than actual choice. I reloaded saves only to realize that the same thing happens in most instances no matter which choice you make. While it's nice to have the option to select dialogue this time around, story and roleplaying still clearly need more work put into them to deliver on the promise of better story and writing. Combat in Origins was one of my chief complaints. The animations felt stilted and artificial, and the combat itself was difficult to judge due to the unrealistic speed at which animations played. The game felt like it was aping Dark Souls without understanding what makes its combat great. Combat in Odyssey, however, has several more layers of polish. Animations seem more natural, dodging takes place over a judgeable distance, easy countering is back. Adding depth are Adrenal Skills, which basically act the way the single Overpower skill did in Origins. There are a number of different Adrenaline skills to unlock within the skill tree, with each providing a different facet than the other. The skill tree is greatly improved from Origins, which had few useful skills and a lot of what felt like unexciting padding that didn't change gameplay greatly. Many of the abilities that were locked to gear in Origins have been instead relocated to the skill tree (different bow styles from Origins are now tied to skill unlocks), which gives you far greater freedom in customizing the way your character looks via gear. It's a very good decision as the skill tree from Origins felt like something that was tacked-on because somebody on the team decided "we should have skill trees in this game". The skill tree in Odyssey feels more natural and has a huge impact on gameplay. A lot of the new abilities feel inspired by WB's Shadow of Mordor series. Chiefly among this inspiration, though, is a fantastic port of what was obviously inspired by Shadow of Mordor's Nemesis system. Odyssey takes place during the Peloponnesian War in 431 BC, and this war has a number of the different city states of Greece going at one-another; chiefly Athens and Sparta. Odyssey's modified version of the Nemesis system depicts what feels like

a living, breathing war going on around you. Athens and Sparta change territory through the story and your actions, with each city's forces being easily identifiable, and each occupying different fortresses as they move. They have leaders, cities you can disrupt, money and materiel you can steal and destroy. There are various war leaders and mercenaries that function as the actual Nemeses from the Shadow games, and somehow the team has made this system feel more natural in an Assassin's Creed game than the Lord of the Rings games which inspired it. It's the main draw of Odyssey, and it's a huge one. It all works smoothly, indicative of significant polish, and the game is worth playing just to experience it even if you were burnt out on Origins. There are a number of more minor new features which fixed complaints I had about Origins. Number one of which is a dedicated (though limited to the open world) Quicksave feature for the first time in the Assassin's Creed series. As a hardcore stealth fan I despise any game that features stealth without quicksaving and makes me rely on checkpoints. It's too easy to experience a bug (especially in AC games) and have your entire stealth run of a fort become ruined. This alleviates it, and it's a fantastic quality-of-life addition. There are also now non-lethal takedowns and enemy recruiting, deepening stealth gameplay. History blurbs are also back! This eliminates one of my chief personal complaints about Origins: Ripping out these history blurbs and putting them in a separate gameplay mode from the main game. As a fan of historical fiction I want to learn about these settings as I play, and Origins taking that away really damaged the experience for me. They are now back as a map feature, allowing you to hover over map markers for a brief paragraph of background. I do have some complaints, though. The balance of the game is off, requiring a bit too much grinding if you're not clearing every map marker like I am. The leveling system is also far too rigid, turning enemies one level higher than you into health sponges. This should be addressed in a future balance patch. It didn't affect me much because I'm always overleveled, but I could see how someone focused only on the main story would become frustrated. The game also removed shields from combat, which is puzzling in a game about Greek combat—A

style of combat based almost wholly on the use of a heavy bronze shield. I loved the shields in Origins and am puzzled and disappointed to see them go. The game also runs questionably—my 1080 couldn't hold 60 fps on ultra settings at 1080p. It needs a performance patch. In the end, much of Odyssey looks the same as Origins: The menus are nearly identical. You have a pet bird to scout with. The running and climbing animations are the same. The buildings look similar. The graphics are of the same quality. But these similarities--like the critical praise for Origins--are only surface-deep. Odyssey fixes Origins' faults and adds solid new features. If you liked Origins or you're a fan of the series then you'll love Odyssey. It's the culmination of what the past 3-4 Assassin's Creed games have been introducing, and it's become one of my favorites in the series. You can find more reviews like this by following [\[url=https://store.steampowered.com/curator/32979487/\]my Curator page!](https://store.steampowered.com/curator/32979487/)[/url]'

11.7.1.3 Review 3 – Recommends, 989 Upvotes, 156 Funny, 93,82% Helpfulness

'I'm not saying its as good as the Witcher 3. I am saying I have not had this much fun since the Witcher 3.'

11.7.1.4 Review 4 – Recommends, 937 Upvotes, 133 Funny, 92,11% Helpfulness

'~ DIFFICULTY ~ <U+0001F532> My 90 year old grandma could play it <U+0001F532> Easy <U+2705> Normal <U+0001F532> Hard <U+0001F532> Dark Souls ~ GRAPHICS ~ <U+0001F532> MS Paint <U+0001F532> Bad <U+0001F532> Meh <U+0001F532> Graphics dont matter in this game <U+0001F532> Good <U+2705> Beautiful <U+0001F532> Masterpiece ~ MUSIC ~ <U+0001F532> Bad <U+0001F532> Not special <U+2705> Good <U+0001F532> Beautiful ~ STORY ~ <U+0001F532> This game has no story <U+0001F532> Like playing Temple Runners for the story <U+0001F532> It's there for the people who want it <U+0001F532> Well written <U+2705> Epic story <U+0001F532> Imagine Kingdom Hearts but on crack ~ PRICE ~

<U+0001F532> Free <U+0001F532> Underpriced <U+0001F532> Perfect Price <U+2705> Could be cheaper <U+0001F532> Overpriced <U+0001F532> Complete waste of money ~ REQUIREMENTS ~ <U+0001F532> You can run it on a microwave <U+0001F532> Average <U+2705> High end <U+0001F532> NASA computer ~ LENGTH ~ <U+0001F532> Very Short (0 - 2 hours) <U+0001F532> Short (2 - 15 hours) <U+0001F532> Average (15-50 hours) <U+2705> Long (50-90 hours) <U+0001F532> Extremely long (90-110 hours) <U+0001F532> No ending ~ FUN ~ <U+0001F532> I'd rather watch paint dry <U+0001F532> Hard to enjoy <U+0001F532> Repetitive <U+2705> Actually pretty amusing <U+0001F532> The kind of fun youll remember <U+0001F532> Ride of your life ~ REPLAYABILITY~ <U+0001F532> It's a one-time experience <U+0001F532> Only for achievements <U+2705> If you wait a few months/years <U+0001F532> Definitely <U+0001F532> Infinitely replayable ~ WORTH BUYING ~ <U+0001F532> No <U+2705> Wait for sale <U+0001F532> Yes'⁵

11.7.1.5 Review 5 – Does Not Recommend, 1405 Upvotes, 60 Funny, 87,41% Helpfulness

‘This game sets a great example for what is going wrong in the gaming industry at the moment: At its core it's an astonishing and amazing masterpiece that creates a beautiful pseudo-historic open world playground for exploration and questing. UbiSoft improved the gameplay experience on almost all levels in comparison to AC: Origins. Especially in regards to the quest design. The big but coming though is they also improved massively on their corporate greed. Every big update comes with changes to the ingame economy and lategame solely designed to push the player into their shop to obtain boosters via microtransactions. The only way around it forces you into a grind that makes even the fun parts of the game soon into a grinding chore. The max level cap

⁵ Review likely contained special characters that could not be parsed correctly during data collection

was increased twice to enhance this grinding spiral even farther. For me as an oldschool gamer who remembers the times when boosting and customizing your character in epic single player titles was something that was up to you and for free due to cheats and easter eggs, these microtransactions were a concern from the getgo. But I did not say anything because I never felt the need for them myself and they were advertised as bonus services for impatient casual players and also a way to support the devs. But in this case here UbiSofts greed gets bigger with every patch: Increasing the level cap (twice already, almost doubling it from 50 -> 70 -> 99) and lowering resource gain from ingame mechanics with every update is just to be explained with them trying to force you either into a needless, unnecessary grind that is frustrating or into spending money on their helix credits and ingame boosters. This, considering we are talking about a full prized singleplayer game is just infuriating and outrageous. Basically they keep ruining a gameplay experience for the player that was truly fun and exhilarating in the first place and hide it behind a paywall if you want the game back that you knew. I am deeply offended by this update policy of theirs and henceforth can't recommend the game anymore even though I loved it in the start. Update regarding Patch 1.2.0 and The Legacy Of The First Blade DLC The latest DLC "Legacy Of The First Blade" adds one quest-line to the most empty region of the game. While from what I've come to know about it so far, the quest seems to be really cool and adds more of the Assassin's Creed vibe to the game, it's definitely very pricy for the new content it adds to the game. In my oppinion it's very odd, that it's set in the most neglected region of the main game and leaves the feeling of old DLC policies of cutting things from the game to release them later on for some extra cash. The newest patch 1.2.0 did not distort the ingame economy any further and is officially mostly about bugfixes. The patch introduced a new addendum to the gameplay as well: You can purchase gear slots for ingame currency now. These new slots allow you to assign predefined sets of gear (only gear not skills) to interchange between them more quickly. A feature I personally deem utterly useless since the changing of gear at least for sets was quickly done anyways. Since its

addition I have encountered that the mercenaries seem to have gotten stronger by a big margin. Even lower tier mercenaries one- or two shot my fully max geared character now, while they are somewhat of "bullet sponges". One mercenary gave me a bigger challenge than the mythical boss monsters. It might require changed gear to be able to fight them. Since the upgrades for gear are still hidden behind ridiculous upgrade costs and henceforth stupid amounts of grind, I was not able to test other gear.'

11.7.1.6 Review 6 – Does Not Recommend, 2068 Upvotes, 78 Funny, 84,39%

Helpfulness

'My action Review for this game has been Hijacked by the Cash Shop. "Time Savers" and any other items meant to be sold to the players who've already bought your game is a disgrace. We paid you, Ubisoft. You do not get to then peddle us with a Cash Shop. You get a negative review for this horrible behavior.'

11.7.1.7 Review 7 – Does Not Recommend, 1935 Upvotes, 71 Funny, 84,1%

Helpfulness

'I like the game! I like the graphics, the story and the general design. BUT! EVERYONE HAS TO STOP BUYING THE MICROTRANSACTION CRAP THAT SEEMS TO BE THE UBISOFT TRADEMARK THESE DAYS! If you stop buying it, they will stop doing it! Ubisoft has actually put in grind walls in the game, and then put in "time-savers" that are expensive as fuck! Its disgusting behaviour from the developers. I will, because of this, give the game a negative review as a protest against this.'

11.7.1.8 *Review 8 – Does Not Recommend, 1938 Upvotes, 131 Funny, 79,98%*

Helpfulness

' This game is a prime example of what greed is doing to games. I will never by another Ubisoft game while this kind of behavior persists. The game itself is genuine work of art, and it was by far my favorite AC game....or at least it was until I played long enough to figure out what they did here. Normally, a leveling system with a bit of grind provides incentive and a reward system. Ubisoft has taken grind to a new level and offers paid XP boosts to circumnavigate this. The fact that this even exists means they knew people would be annoyed enough to dish out extra \$\$\$\$. When gamers found a clever way to use custom missions granting large sums of XP to boost players around boring areas of the game Ubisoft put an end to this. I can only assume this was because this interfered with their profits from XP boosts and in-game purchase. UP VOTE IF YOU DON'T NEED THE MAN TELLING YOU HOW TO PLAY YOUR SINGLEPLAYER GAMES!'

11.7.1.9 *Review 9 – Does Not Recommend, 1475 Upvotes, 106 Funny, 79,64%*

Helpfulness

'Game seems great until around level 25. This is where the grind kicks in. Suddenly you are getting story missions that are 6 levels ahead of you. Now you are forced to do HOURS of side missions that are poorly written dumb fetch quests. "GO TO THIS FORT AND OPEN A CHEST" Once you realize they sell real money XP boosts you suddenly realize why they force you to do boring side quests for HOURS. Recent Edit : Game still blows. Same issues.'

11.7.1.10 *Review 10 – Does Not Recommend, 1183 Upvotes, 89 Funny, 74,74%*

Helpfulness

'This game is MASSIVE and it is actually better than AC: Origin which was also fantastic gameplay wise but man does it hurt seeing how overboard they have gone with microtransactions, I

payed 120\$ and still feel like I need to spend at least another 50\$ to truly enjoy this game the way it was meant to be played by the devs, the game is not balanced to be best enjoyed without buying "time savers" and no matter how amazing the game is, this is going to be the death of AC as a series if they don't ease off on the extreme level of greed on display at every turn in this game. This game is far from being bad, it is a great game but it constantly pushes you toward spending money. Upgrading items costs resources, upgrading your ship costs resources and at no time does it ever feel good to be in a shop looking at your choices when you know that this choice wouldn't exist if you payed more money. Being able to pay for something undermines any purpose the resources have by boiling them all down to "you could farm this stuff but we would really rather you just pay us more" because no matter how much they give you during play you still know that it was all put into the game with the intent of giving you something you could spend real money on. If you couldn't buy them then it would make said resources and levels you gain feel purposful, if you ever want to prove this point to yourself simply imagine your favorite games with a similar cash store being added in, imagine any final fantasy game where you could buy EXP or cash boosts, imagine Pacman if you could get a 2xpoints boost for 1.99\$ and how that would literally make everything you do feel undermined.'

11.7.2 Borderlands 3

11.7.2.1 Review 1 – Recommends, 2279 Upvotes, 435 Funny, 94,6% Helpfulness

' pay your employees randy'

11.7.2.2 Review 2 – Recommends, 1409 Upvotes, 63 Funny, 94,5% Helpfulness

'Gameplay: B3 > B2 Story: B3 < B2'

11.7.2.3 *Review 3 – Does Not Recommend, 3156 Upvotes, 155 Funny, 92,88%*

Helpfulness

‘Nice we need to buy more after we bought super deluxe edition’

11.7.2.4 *Review 4 – Does Not Recommend, 1525 Upvotes, 206 Funny, 92,42%*

Helpfulness

‘A cash grab that would make even Handsome Jack blush. Butt Stallion, [b]awaaayyy!/[b]’

11.7.2.5 *Review 5 – Recommends, 1580 Upvotes, 77 Funny, 91,73% Helpfulness*

‘Want to change game language ? On Steam Library, right click on Borderlands 3 -> Properties -> Set Launch Option Now type: -culture=en (English) -culture=en (French) -culture=fr (Italian) -culture=it (German) -culture=de (Spanish) -culture=es (Russian (text only)) -culture=ru (Japanese) -culture=ja (Brazilian Portuguese (text only)) -culture=pt-BR (Korean) -culture=ko (Simplified Chinese) -culture=zh-Hans-CN (Traditional Chinese) -culture=zh-Hant-TW You are welcome.’

11.7.2.6 *Review 6 – Does Not Recommend, 1427 Upvotes, 117 Funny, 90,73%*

Helpfulness

‘So i preordered Super Deluxe Edition,now i have to pay more to have sp 2?Whats next after ultimate ?Super mega ultimate deluxe edition? Greed...’

11.7.2.7 *Review 7 – Does Not Recommend, 1598 Upvotes, 208 Funny, 86,7%*

Helpfulness

‘sidequests are fine. 7/10 standard borderlands fare graphics, sound, music 9/10 easily an improvement over borderlands 2 gameplay 10/10 exactly what i wanted from a borderlands sequel, wouldn't change a thing. main story 2/10 intolerable, everything about the main story is wrong and

bad. boring and unfunny, unskippable and cringe. mute the dialogue and put on a nice audiobook. this is a case where all the writers needed to do was make mashed potatoes and somehow burned the whole franchise down.'

11.7.2.8 Review 8 – Does Not Recommend, 1715 Upvotes, 80 Funny, 82,88%

Helpfulness

‘***[b] Gearbox and Randy Pitchford have not been paying their developers what they were promised. If this matters to you DO NOT BUY BORDERLANDS 3. [b]***
[url=https://kotaku.com/sources-despite-huge-sales-borderlands-3-developers-a-1842617645][url]

Borderlands 3, on the whole is a solid game. The gunplay is much improved on previous entries as are the vehicles and most of the side missions are pretty fun, best bought on sale. But there are a lot of problems; Weapon Manufacturers: They are a very mixed bag in this game. Vladof and Jakobs weapons are solid across the board, definitely the best in the game. Maliwan, Tediore, Hyperion and COV are meh; some of their weapons are good but others are poor. Atlas and Torgue (?) are just awful in general, in my playthroughs I've avoided using any of their weapons. Story : Predictable and disinteresting, with antagonists that I want to kill not because they're evil, but because they're mind-numbingly annoying. As if Randy Pitchford distilled his personality into two angsty teenagers. Playable Characters : There's not a lot wrong with them, but I find them distinctly less endearing than the 6 Vault Hunters from Borderlands 2. Moze is generic, outshone by Tiny Tina and Gaige. Amara is dull, and even Zane isn't particularly interesting. FL4K I rather like; he has a certain dry humour but even so I find his voice to be too emotionless. The loot aspect of Borderlands 3 isn't great either; Legendaries drop far too often. Whereas in Borderlands 2 I enjoyed finding new and interesting Legendaries over multiple playthroughs, and it encouraged you to keep rare variants for the future. In BL3 you may as well not have a bank, just spend 5 minutes farming the boss, he'll drop a Legendary

in next to no time. TL;DR : If you're new to the franchise, go play Borderlands 2. If you're wondering about picking up Borderlands 3, pick it up heavily discounted and not at full price.'

11.7.2.9 Review 9 – Recommends, 3097 Upvotes, 255 Funny, 77,88% Helpfulness

'Epic Store is pure poison and i will never support their vision. Welcome back Borderlands.'

11.7.2.10 Review 10 – Recommends, 1418 Upvotes, 131 Funny, 76,03% Helpfulness

'Doesn't force you to use Epic anymore. But fuck 2K and Randy for making us wait 6 months'

11.7.3 FIFA 21

11.7.3.1 Review 1 – Does Not Recommend, 1321 Upvotes, 136 Funny, 94,22% Helpfulness

'This will be my last EA purchase. I use hibernate mode on my laptop and typically do not exit the game when I put my laptop into hibernation. However, on one occasion, when I was playing SB, a glitch happened and the AI computer took over my gameplay. Not wanting to forfeit the match, I allowed the game to play out and got a victory. Shortly after, I receive an email from EA, describing how I am a cheater and got a 7 days suspension. Also, they deleted my FUT team just before un-suspending my account. So I began the long process of rebuilding my team. Note that a couple of objectives were already collected on my previous FUT team so I lose those easy objective bonuses. I could not change my team name too. Also, I lost all my pre-order bonuses. I had a long online text chat with EA and they could not do anything to help me. When I had a decent enough team, I went to play Division Rivals. That was when I met the REAL hackers. I was hit with the disconnect hack which is pretty common. See more here: <https://fifaforums.easports.com/en/discussion/567414/current-state-of-playing-fifa-21-on-the-pc> So

the irony of the situation is that all these hackers are getting away scot free, while me, just an average dude that wants to play a game of football on my PC gets suspended from EA with all my bonuses thrown out. Last EA purchase ever.'

11.7.3.2 Review 2 – Does Not Recommend, 1016 Upvotes, 78 Funny, 93,52%

Helpfulness

'There needs to be a law made regarding companies like EA releasing a game that is IDENTICAL to FIFA19 (the last purchase I made) and label it as a new product. This is basically fraud. I am shocked to see that I could have just played FIFA19. This is a tripe of a game, designed and focused upon a fake FUT feature that's just there to make kids gamble, buy card packs and more. EA is a garbage company that knows NOTHING about football....period. I like to play "be a pro" career mode. It has not changed AT ALL since FIFA19. In fact a few small features are missing, so it's REGRESSED. Seriously, how can people accept this as a NORM. I hope laws pass that stop gaming companies re-releasing virtually the same product for \$90 each and every year. I still can't believe that I am playing career mode on ultimate/competitive and I scored 9 goals in 3 matches - but in this time, a 57 rated striker plays before me for about 9 of the 12 games and hasn't scored a single goal!!! The only games I played were the "pity" matches because I "haven't been picked for awhile". Surely the AI should be smart enough to see that they have a winger who scores loads of goals and grabs assists, with the highest rating in the team (68). If I can't start a fricken game in the lowest divisions available, where else am I going to get play time? This game also NEVER puts you on the subs bench and NEVER subs you on because you either START or DON'T PLAY AT ALL. Like... ..WHAT THE ACTUAL F * C K!?!?! PES has had this feature for a decade. EA, you are a piece of crap company. I hope your investors, your board of directors shove each and every dollar so far up your ass that you get a diverticulitis attack. SHAME SHAME SHAME.'

better than SOM), I don't feel that I can recommend it, at least now, based on the large number of issues I have with the game. First of I will start with the positives + The game is much larger in scope than SOM with more areas to explore (Five in total, compared to SOM's two) + A much better loot system that replaces the runes of the last game. There is now armor and weapons. + A better story, which feels more Lord of the Rings than SOM's story + More varied orcs with new attack patterns and new olog-hai (trolls) + Large fortress battles + A few new skills and improvements to the SOM formula, like auto picking up arrows and double jump Now sadly onto the negatives, and I have a lot of them :(- The game is very buggy at the moment and as far as I am aware there has not been a single patch released for the game on PC (I am not 100% sure) Twice have I failed fortress assaults because my character has glitched into the environment and I am unable to move. - The maps are actually smaller than the ones in SOM (but the total mass of all 5 maps is bigger than the 2 in SOM) and they just aren't very memorable. Apart from the forts which vary a bit, 4 of the 5 maps are basically the same, with different skins over the top. There are pretty much no memorable locations on any of the maps except the Minas Morgul map. - The controls still feel clunky, and the gamepad controls have too many actions on too few buttons. For example, on an XB1 controller, A is to sprint, jump, climb jump, roll, vault over an enemy and a few more moves. This means that when you are in combat you end up doing the wrong moves, like trying to vault an enemy instead of dodging an attack. There are also too many enemies at once and it's pretty much impossible to attack a certain one, the game will just attack anything it wants. - Far too many reused assets. As a huge AC fan, I am used to seeing a lot of reused assets going from game to game, and I don't have a problem with reusing assets, as long as there is enough new stuff to make it feel fresh. The problem is that this game doesn't have enough. The combat animations are 95% the same as SOM, the background music and combat music has been copied over from SOM, one of the 5 regions of the game is in the same region as one of SOM's maps with a lot of reused textures and models. As someone who played SOM for over 200 hrs between PC

and Xbox, I have to say this game starts to feel stale way to fast. - The end cutscene is hidden behind a grindwall. To access the real ending of the game you are forced to defend your fortresses 20 times in a mode called "shadow wars" at the end of the main story. After 2 or 3 assaults it starts to get boring real fast, and every single attack feels pretty much the same. Since it's the end of the game there is nothing left to do except repeat the fortress assaults, and when there are bugs like the ones mentioned above it really starts to piss you off. - The loot boxes. Like I said above the ending of the game feels purposely hidden behind a grind wall to make the player want to buy loot boxes. There are also adverts all over the main menu and the pause menu and even pop-ups on the army screen telling you to "buy" new orcs from the market. - Poor optimisation on lower end PCs. My Rig is running a 1080Ti, so I have not experienced this one first hand. That said, many friends running lower ends cards, as well as other reviews I have read say that the game doesn't run that great on lower end PC's. I wasn't going to add this since it hasn't effected me, but I decided to just to keep people informed. - Alot of the orcs use the same dialogue, which was never an issue in SOM (for me), and it makes alot of the enemies you face feel the same as other enemies you have already killed. I have run into 7 orcs during my playthrough which all have the same story about how they were bitten by a spider and they all look the same, with the same orc character model with a spider web stuck to their faces. - The orcs talk too much during sieges, let me explain what I mean. Like in SOM, every time you run into a named orc from the nemesis system, the gameplay will pause and the orc will talk to you for 10 - 20 seconds, usually saying something about how hes going to kill you and eat your face. The problem I have is that when you attack an enemy fortress there are usually 6 warchiefs in charge of the fort that you will have to kill. Each warchief usually has 2 bodyguards, which means there are about 18 nemesis enemies in total in every fort. Every time you run into one they will start to talk to you, and there is nothing you can do while they talk to you for 10 - 20 seconds, and there is no way to skip it. This means that during every fortress assault you have to listen to 18 orcs telling their boring stories about

how they are going to kill you. This really ruins the pace of the assaults as they are ment to be huge scale battles with tonnes of enemies to kill, and having the game pause once every few seconds as you run into another orc captain really ruins the pace. Simply adding a skip dialogue button would fix this problem and I don't know why the devs havn't done this. To summarize, I don't think this is a bad game. I even think this is a better game than SOM. But sadly the game has too many problems and not enough new things for me to recommend it at the Â£45 / \$60 price tag. If the game is patched and some of the issues are fixed I might change my review to a positive, but as of now I honestly cannot recommend this game. Im sorry if this review comes across as very negative, but its because I had really high hopes for this game and I want to see it succeed. It just has too many problems for me right now :(

11.7.4.2 Review 2 – Does Not Recommend, 2165 Upvotes, 31 Funny, 85,87%

Helpfulness

[b]UPDATE: WB and Monolith have removed pay to win elements from this game, including lootboxes. I shall keep this review negative however, as a lesson to Publishers and Devs alike that this kind of behavior will not be tolerated.[/b] [h1]Tl'dr version: [/h1] [b]An amazing improvement upon the original, completely contaminated by some of the worst industry practices we have yet seen. Make no mistake, if the consumer base does not stop this now, we will be seeing not only microtransactions in \$60 games but further degradation of the base game for them to wring every last ounce of money from us. DO NOT BUY THE LOOTBOXES.[/b] You can follow me, and see the rest of my work here: <http://steamcommunity.com/id/StarSide/myworkshopfiles/?section=guides> [h1]Elaborated version:[/h1] Maybe from that you can already tell I will not just be talking about the base-game of Shadow of War for the whole review. Most reviewers policy is to separate industry practices from the game to judge the game "on its own merits". Well, here's my issues with that. If you are compromising the product on purpose, in order to drag the game out, or purposely tear the

game apart in order for you sell us content later down the line, that is most definitely an already compromised (ethically and mechanically) product. If WB had kept their grubby mitts of this game, I would most definitely have given this a positive review. However, since that is not what they have done, this review will remain negative. [b]Microtransactions.[/b] Some in-depth analysis here. Firstly, the infamous loot box situation. You can buy orks from loots boxes, not just getting them out in the in-game world. This completely breaks in-game immersion and the economy of the game. You can either choose to ignore the loot boxes and go at it vanilla, where you're missing out on possible high-level minions, as the game was obviously intended, as the level of orks you find are introduced on a gradient; the higher level you are, the better orks you will find. Additionally, what are essentially ads for the lootboxes keep popping up in game, where you are prompted to go and buy them. Also, if you want any hope of being 'competitive' in the online game mode Shadow Wars, you'll need some super powerful orks, something the lootboxes have the slight possibility to help with. Consequently, you will notice every dynamic in the game becomes centered around these things in some form of another: You want an high level ork? Cough up! You want to upgrade your weapons and armor? You'll need additional gems to do that, cough up! You want to play multiplayer? Better have some good orks, so cough up!! Whether the game would have been constructed like this without the cancer that is WarnerBrothers getting their claws into the mechanics of the game is completely moot. Now, with that out of the way, let's talk about the game. [b]Story.[/b] You a lord of the rings lore fan? This is going to be a rough ride. The game, for better or for worse, plays fast and lose with the canon to such an extent you wonder why not just set this in the time of the silmerilian and call it a day. However, if you can get past the desecration of established law (which I can), the story is actually quite compelling. Following on the last game, Ranger Talion and his ancient dead elf-friendo Calimbrimbor have made a new ring of power, just like Saurons. Great! What could go wrong. Turns out quite a lot actually. What follows is an epic, continent spanning war between the 'Bright Lord'

and Sauron. All sorts of shenanigans ensue! Just don't get too disappointed if you were expecting high-brow Shakespeare. [b]Movement and Combat.[/b] Like Shadows of Mordor but better. Everything is back from the last game, but with added upppf. Movement is buttery smooth, and really the game plays just like every other third-person openworld, Arkyum style game. Speaking of which, the combat system is straight outta Batman, which isn't a bad thing. Combat is fun and Talion's wraith powers are suitably beefed up from the last game. [b]The Nemesis system.[/b] I was going to add this to the last section however, it more or less is one of the most original ideas in the last decade in gaming. Essentially, the Nemesis system allows every individual ork to remember you, and everything you've done to them. Burn that ork captain in a fire, he might come for you later on. This is extended to the 'meta game' aspect for creating armies. Your generals might betray you, or save your life. This creates some of the best dynamic stories in gaming really. However, sometimes the betrayals get a little too common, and you'll find yourself trying to game the system in order to keep your orks on your side. I won't say anything more, it really is something better to experience for yourself. [b]Sound.[/b] Not the best, not the worst. Voice acting is passable, with a few exceptions. Talion seems mostly asleep during his cutscenes, the voice actor is clearly phoning it in for his paycheck at this point. On the other hand, Calimbrimbor is the star of the show. His gravelly tones are both charismatic and slightly scary, especially when he gets all shouty. Combat noises are also quite good. Swords ring and the screams of orks will pervade your ears constantly. In this universe, all orks seem to have a slightly comical British cocny accent. You'll either love it or hate it. [b]Conclusion[/b] Not concentrating on the poor industry behavior, this is a great game. However, I will not simply segregate them out of the review, because this stuff definitely effects the end product. Great game! But make a statement and wait for this to get to a low price. And DON'T, DON'T, DON'T buy those damn lootboxes!!'

11.7.4.3 *Review 3 – Does Not Recommend, 3866 Upvotes, 54 Funny, 84,2%*

Helpfulness

‘DO NOT ACCEPT THE TOS! If you just click the accept button without clicking the check box it turns off the Microtransactions, marketplace, and people attacking your base while you are offline "multiplayer" there is NOTHING that tells you this is possible on the screen. I detail about this further here at the very start! <https://youtu.be/ur3-II1kvBE> Edit: WB did change the game prerelease to no longer include losing your Uruks if you get raided while you are offline. The other points still apply. I wish there was a maybe option instead of recommend or not. In light of how this game is packaged I had to click no. Overall I am enjoying the game but it still needs optimization and all the loot box stuff removed.’

11.7.4.4 *Review 4 – Does Not Recommend, 2077 Upvotes, 32 Funny, 81,21%*

Helpfulness

‘So First off i played this game offline and online. atm 40+ hours However there is a few things that is bad and a few things that is good. ***** Update 5 Finalized last update All microtransactions has been removed. As we all saw from the start the microtransactions had impacted the game severly and monolith decided to remove it to fix the nemesis systems problems. There is a patch note and a Developer interview in wich they say that microtransactions did cause problems within the game to obtain orcs the correct way much as i have covered on earlier. BUT now the game has been fixed the market is disabled all training orders and orcs are now ready to be used INSIDE the game for free! and surprise surprise "legendary orcs are now easier to find in open world!" did not see that comming ? :p anyways the market and microtransactions are out and the game is fixed Enjoy sadly 8 months to late or so ? ***** Update 4! After some time after release monolith has now planned for officially removeing the market

and all the micro lootboxes and predatory mechanics from the game (sucked people dry) Legendary orcs will now be more available in the open world and so will training orders. Basicly all we said from the start is now being put back into the game from the lootboxes after they sucked market dry! good thing for players sad that it had to go to such extension as to make laws forbid lootboxes before it was removed. Update2! For once this will be a good point and update. With the first dlc released Slaughter Tribe they will be makeing Shadow wars Endless (free update with or without additional dlc purchase) This is a good step in right direction hopefully they will solve alot of the other problems as well later down the road. Lets take bad part first. Update3! Pitfight AI sometimes can be broken and the orcs just stand there for a minute and then suddenly go berzerk and kill some one. possible bugg ? Update! After about 40-50 hours into the game i started getting alot of IronWilled Orcs wich makes them Impossible to dominate. This is no doubt a lockbox Mechanic wich is aimed at you haveing harder time to get a orc dominated. It was not in first game shadow of mordor for sure. IronWilled can be removed at a super low chance (so far my chances have been 1 in 29 shames) while you shame an orc but heres the kicker. If you shame an orc they have a chance to became deranged wich makes them lose their personality. Also (if you have certain skill have chance to make them a maniac wich can be quite insane strong but if ironwilled then they will proboly be hard time to deal with) Or in my case i ended up with alot of very weak orcs and deranged and still ironwilled. Now this mechanic is aimed at you haveing a slower time to get orcs so you get bored and buy lootbox orcs i have no doubt in my mind about this. This only happened later down in the game and well it sucks to be frank. I found some very cool orcs i wanted but since they IronWilled i cannot get them without risking them to become insane and lose all their personality. VERY poor game mechanic. So Monolith lied about a few things in their interviews and such. First of all they said there would be no advertisements on lootboxes ingame in a published interview. But as soon as you open the game and anytime ingame you play and press escape advertisement for lootboxes shows up. Wich is bad. Next

Monolith promised everything that was in lootboxes was in open world. This was also a lie. You see in the lootboxes you get scrolls that can customize your orcs. You do not get that in the open world only from lootboxes (free or Pay boxes) Below there is a few examples of what you get from lootboxes that is NOT in open world. Battle Training (raises a follower's level by 1) Archer Recruitment (grants a follower an Archer Gang) Hunter Recruitment (Grants a follower a Hunter Gang) Defender Recruitment (Grants a follower a Defender Gang) Mount Training (Grants a follower a caragor mount) Fire Training (Grants a follower a Fire Weapon) Epic Training: Mighty Savages (Grants a follower a boost to the effectiveness of nearby Savages) Poison Training (Grants a follower a Poison Weapon) Mount Training Legendary (Grants a follower a Defencive Graug) This list is INCOMPLETE we do not have all the traits scrolls here there is supposedly many many more locked inside the lootbox system and NOT available ingame. Below is a link to the official forum where people asked that this be put into the game and not into lootboxes Monolith preetty much ignored it. <https://community.wbgames.com/t5/General/Please-make-training-orders-and-reassignment-orders-avaliable/td-p/1656682> Next part that is bad about the game is Lootboxes in a single player game was kinda over the line and poorly done IF everything was inside the game offline as well as in lootboxes then ok np but it is not. Other than micro transaction things the game suffers from a little bit repetitive gaming syndrome you do aloooot of the same things over and over with very little changes. Now that was the bad parts. Lets go to the good parts. Game features a very well made graphics engine and Npcs are well cordinated for the most part. Story is good as far as i gotten and sound actors are good but maybe little bit low on volume and subtitles can be a hit and miss. Optimisation is welldone i tested on my laptop and on my pc and both worked great. have not encountered any buggs so far wich is good. Nemesis version 2 engine is awesome! you will love it. Skill system is a little bit weaird at first glance but you get the hang of it later. You can respec free of charge at any given time great addition. Id say if it was not for the lootboxes this would be a

perfect game. Now In conclusion If you do not mind microtransactions and some items being In Lootboxes only then you should buy this game. However if you do have something against microtransaction or you suffer from addiction disorders or similar problems DO NOT buy this game due to sublime advertisements in the menus. I do not know if they will ban people who have fun with the game with mods or cheats or such but i hope they do not since this is a single player game. There is a multiplayer section of the game but its like not worth mentioning couse its very very basic and limited. anyways there you have my review. PS the amount of bad decisions monolith and warner bros made when releaseing this game made the game dirt cheap before it was even released i got my copy 65% off from a retailer on gold edition. you can proboly snag this game with gold edition 50% of at any given time from retailers or digital merchants.'

11.7.4.5 Review 5 – Does Not Recommend, 1456 Upvotes, 26 Funny, 79,79%

Helpfulness

'Pros: - Better movement across the large maps - Similar gameplay to its predecessor -- doesn't completely change the formula - Grindy, if you're like me, you may enjoy spending more time killing captains and leveling up than actually playing main quests - Massive landscapes with lots of impressive views - Fleshed out army building: More interaction on recruiting and leveling up dominated enemies. - Some really fun main quest battles that slightly deviate from the repetitive side quests - Tons of lore that is delivered via main menu, in-game, and cinematic videos. - Despite reports, I was getting relatively smooth gameplay ~40-60FPS from my Titan X Maxwell (NOT the newer Titan X Pascal) running 4K: 3840x2160 on ultra. There was some choppiness when it came to assassin/ambush captain pop ins, otherwise been smooth. Also, no crashes in my ~20 hours of play. Neutral: - Microtransactions -- there's a lot of strife over this, so instead of writing about it ad-nausem, I'll say this: Aside from the trolly T.O.S. screen (desribed below), didn't affect my gameplay (I didn't purchase anything nor was I nagged in-game to purchase anything from it). Cons: - The annoying

T.O.S. -- I accepted the Terms of Service, but didn't accept the collecting of data (checkbox). Now, everytime I start OR exit the game, the T.O.S. screen pops back up wanting me to accept the data collection. Instead, I have to accept and leave the checkmark box empty over and over and over and over and over. Never in my gaming history have I had a T.O.S. screen be that trolly. - Lack of customization -- the swords/shiv/cloaks/rings etc. are just stat upgrades. You can't customize the character's look nor can you differentiate between a level 1 sword from a level 25 sword. - Predictable - captain assassin/ambush/betrayl pop-ins will mainly appear after sending death threats. Doesn't feel like RNG, but rather staged gameplay to distract the player. - Climbing walls -- when it comes to arch-ways, the climbing becomes super wonky, particularly if you're climbing on the front-face and are attempting to drop inside of/underneath it. Also, some of the wired "walkways" won't allow the player to move forward. He'll go into the crouched position and stick at the beginning of the wire. - The AI -- you can sneak in front a generic enemy's face and assassinate them. Or worse, they could be looking right at you and say, "Where did he go!?". Some minor tweaks should fix this issue. - Repetitive -- the gameplay, so far, has become repetitive. Very similar to Shadow of Mordor, but with a touch of Just Cause 3 style of play, where areas need to be "liberated" (captured), before the story continues. Unfortunately, this becomes quite repetitive after about 15 hours. - The game size -- 100GB ladies and gentlemen. That includes the game, the 4k DLC cinemas and the DLC high-res texture packs. If you have a slower than 1 gigabit connection or have a data cap or have limited harddrive space... I'm sorry! <https://imgur.com/m9gjJm0> Glitches as of v1.01: - Captain loot -- Early on, I ended up getting a bow that I already had equipped at the time. However, since it's a level 1, I couldn't dismantle it. So I'm stuck with two level 1 bows with the same stats that I can't dismantle. - Broken Shelob memories - after solving ANY of the spider web puzzles, I get about 1-2 seconds of video before it rewinds, makes a loud pop and goes back to the gameplay: <https://youtu.be/GbYwCjGYSUw> ***This may only affect those who have the 4K DLC

installed.*** - Enemies respawn too quickly - After defeating a main quest/side quest/kill a captain, enemies will respawn in place within seconds. This mainly affects the side quests and mini-fortress battles, where another captain may respawn in an area you just killed the mini-fortress captain. Therefore, creating an endless captain respawn loop if you decide to kill the respawned captains. It does affect the main quests, but to a smaller degree. Regardless, enemies should respawn only after the area is left. - Loading - Occasionally, the loading screen would hang. When I alt+tab out and back into the game, it seemed to fix it. Other thoughts: Unfortunately, I feel that if you've played Shadow of Mordor, you've played Shadow of War. The game is just way too similar to its predecessor (same overall gameplay, similar storyline, same level-up grind fest, same animations, same in-game assets, same captain strengths/weakness, same captain menu, same generic enemies, mostly the same dominated mounts... etc). This game kind of feels like it should have been an expansion pack or DLC for Shadow of Mordor. It's not so much a new game with some fresh new features, but an old game that's been fleshed out. It feels like this: An author created a successful book. The fans wanted a sequel. The author takes his or her first book, adds in more detail, keeps everything else relatively the same, and releases it as a new sequel to the first. Would you pay for that? When it comes to Shadow of War, expect a different map with the same gameplay and a few minor game tweaks and army additions; otherwise, everything else just feels like icing on an already stale cake (I played Shadow of Mordor for 120+ hours, so I ate my fair share of this dessert already). Recommendations: - If you've never played Shadow of Mordor: Buy it. - If you've played Shadow of Mordor and loved it: Wait to buy it on discount. - If you've played Shadow of Mordor and were expecting a revitalized game with some new enemies, new assets/animations, more purpose than building an army, or a new storyline: Don't buy it. Final thoughts: - Visuals - 9/10 - Variety of Gameplay - 5/10 - Fun Factor - 6.5/10 Overall: 6.5/10 -- slightly above average'

11.7.4.6 *Review 6 – Does Not Recommend, 983 Upvotes, 12 Funny, 79,56%*

Helpfulness

‘Shadow of War is fun until reaching the 4th and final act, which locks the ending of the game behind a monotonous and mindless grind. A baffling decision that can only be explained by the developer/publisher trying to strongarm you into buying their expensive XP boosts and Orc followers in order to get closure for the story. SHAME’

11.7.4.7 *Review 7 – Does Not Recommend, 990 Upvotes, 21 Funny, 72,53%*

Helpfulness

‘Shadow of war review I have given this game a negative review for two reasons: it looks more like an indie studio proof of concept with the great nemesis system, but poor implementation of most other elements and it was designed to push you into the oblivion of microtransactions although it is a premium priced game. Now let's get into details: GOOD: + An excellent nemesis system bringing the world to life and adding depth to the enemies. There are numerous variations of orcs you will encounter. + Decent combat mechanics with enough depth due to different damage types and various enemy strengths and weaknesses. + Diverse bioms. + No significant bugs or crashes. BAD: - Too few innovations compared to the previous game. This is basically more of the same. - Some mechanics are not explained well enough. I have finished the whole game, but still, don't know what some of the objects in orc camps do. - Almost all characters seem uninteresting and cliché. They are so terribly plainly good or evil that Nazgul's mumbling about how many evil things they will do to me and how they are generally evil makes me want to just skip all of the cutscenes. - Due to the lack of character depth and a simply boring story, there is almost nothing memorable in the game plot. Character motivation is lacking and interesting plot twists are extremely rare and quite predictable. - Although it would seem that stealth is an integral part of the game, it is rarely present and poorly

implemented. The only viable tactic is to hit and run otherwise you can be overrun by even much lower level grunts. - Although there are more abilities and their variations in this game, about half of them seem completely useless and plainly uninteresting. Some of the game mechanics that are offered and clearly HAVE soon become repetitive and boring. - Although bioms are diverse and the map does not seem small, but there is no feeling of a large and dynamic world like in other open world games. - The movement system clearly copied from the first assassins creed games has stuck back in 2007. How many times have I stumbled in the wrong direction or tried to climb a wall when I wanted to run next to it. Assassins Creed games have come a long way since the first one and their movement mechanics have evolved greatly, Middle-earth developers should have copied a more recent game instead of the first on in the series. UGLY: * Microtransactions in a premium priced game! This is a cancer of game industry these days and we must vote with our money by not falling for them even though many game mechanics are built around forcing players to shell out some more money. * The UI is painfully console-ish requiring dozens of extra button pushed where a simple drag and drop system HAS to be present and the same results could have been achieved with a single click. Plus the whole user interface system could use a lot more polish. * Unskippable orc speeches!!! There are so many orcs and each one needs to say something when: (1) he arrives, (2) he starts fighting me, (3) usually before he dies. All of these cutscenes are UNSKIPPABLE(!!!) and uninformative. They would have been very nice if less frequent, but in this state are simply HORRIBLE. * Around half of the game time is locked in its final fourth act. The ONLY thing you will be doing in it is defending your bases over and over and over and over and over again. In between, you can enhance your armies, but overall this whole act is one messy and boring grind of only ONE from the whole plethora of possible activities. VERDICT: A great proof of concept for a single idea: procedurally generated enemies can be fun. All of the rest is a poorly implemented action game that would fit a decent indie team on their first attempt but is clearly not a AAA project. Get it at a major discount and don't pay

into microtransactions. The game can be boring and grindy at times and you may want to speed up things a bit, but on PC there are many other free ways of doing so ;-)'

11.7.4.8 Review 8 – Does Not Recommend, 900 Upvotes, 19 Funny, 70,93%

Helpfulness

'I don't normally write reviews, but I think this has to be said: don't buy this game. If you buy this game, you are supporting one of the largest anti-consumer companies I've ever seen. I'd say that at this point, WB Games is even worse than EA. Let's break it down. [list] [*] Microtransactions / gambling. [*] Season pass. [*] Day 1 DLC. [*] Preorder content. [/list] We'll break it down even further and describe why each of those are bad. Microtransactions in general are bad, especially for an ostensibly single-player game because it preys on people with gambling addictions, especially in the case of WB Games here; it's in the form of "loot boxes". Loot boxes are groups of content that you buy in video games, which give you random rarities of loot that you can normally (or in the case of this game, you can't get it normally for some) get, but easier and potentially better. "Why should I spend 5 hours killing captains when I can just spin the wheel and get stuff?" In addition, it pushes ads at you every time you pause for the damn things. The concept of a season pass is extremely anti-consumer oriented. While it may seem like a great deal to some people, it really isn't. When you buy a season pass, you're essentially telling the company that "hey, I want and would pay for more DLC that doesn't exist yet", and you're basically just throwing them money for content that may never come. Can you get more than you paid for with a season pass? Maybe, but that depends on if the company that you're buying it from ever produces enough DLC to make it worthwhile. If WB Games has any say in this, they'll definitely nickel and dime you to death with tons of little DLCs that contribute little, but prey on the compulsive buyer. Day 1 DLC is awful. I really hope I don't have to explain to an audience of gamers as to why this is bad, but here's a summary: that's content that they intentionally withheld from the game to sell you piecemeal. Just think about it. Preorder content is

controversial. Some people like to be rewarded for buying into a game that isn't released yet. I don't agree with this practice, because you're essentially buying non-content; you're rewarding a company for selling something that doesn't even exist yet with completely ephemeral things in return. In some cases, it's not quite as nonsensical: with the Mithril edition of this game, you got some actual physical items, which I suppose is neat. However, let's just look at the "editions" of this game. What do you get with them? Different sets of day 1 DLC. How nice. However, I might add that if you are a fan of the Arkham Asylum games, or the original of this series, it's a fun game. I regret my purchase on a moral level, but the game itself is fun, if repetitive.'

11.7.4.9 Review 9 – Does Not Recommend, 905 Upvotes, 69 Funny, 43,83%

Helpfulness

'Game runs terrible on my system i7 6700k GTX 970 16 GB Ram Windows 7 Benchmarks says 15 FPS, while in-game it's more between 25 and 35, no matter what settings! More people are reporting the same issues on the forums. For some reason, Monolith is fucking us over and nothing seems to fix it. Newest Nvidia Drivers are installed aswell. Until there is a fix this will stay as Thumbs-Down. And some screenshots to share my misery <https://imgur.com/a/eVUUE> EDIT: Since people use the comments to attack me or the hardware i use, i'm editing the review with this point: If my system sucks, why are Witcher 3, Battlefield 1, Overwatch or the Battlefront 2 Beta last weekend running fine for me? I'm running on 1080p and SoW should run fine, but even low settings didn't make a difference. I didn't do this review to shit on your enjoyment. If it runs well for you, great! Play the game, have fun with it. It must be good, if so many ppl play it despite the microtransaction drama. It just refuses to work for me, for some unknown reason. And since i'm reviewing the product i bought, i have to give it a thumbs down (there NEEDS to be an option between yes or no, bc that's what i would have chosen, since it's an issue that's hard to reproduce apparently). I'll promise, that once the game is fixed for me, that i'll edit the review to a thumbs up, bc that's what

it deserves if it runs well and is a good game. I won't go around and tell you not to buy it, just bc it doesn't work for me'

11.7.4.10 Review 10 – Does Not Recommend, 885 Upvotes, 38 Funny, 39,69%

Helpfulness

'Played a few hours, only to have the game crash - reproducably - when I try to equip my first epic gear of loot. Seriously. Edit: A Nemesis Orc failed to load (only the arms rendered) and killed me because the dodge and parry prompts also didn't render. Game crashed, now won't load past continue button. I can't recommend the game in it's current state, which is a shame, because I was enjoying it quite a bit. In case it helps out: i7 6700k, 20 GB RAM, GTX 1070. Run 60+ FPS at 1440p normally.'

11.8 Appendix H – Sample R Code for VAR

Analysis

In this case, it is a sample for Middle Earth: Shadow of War game

```
# Read necessary libraries
library(readxl)
library(forecast)
library(tidyverse)
library(qdapTools)
library(urca)
library(lmtest)
library(vars)
library(lattice)
library(caret)
set.seed(113)

# Load files into the R environment - one game analysis at a time
Base <- read_xlsx('E:\\OneDrive\\Documents\\CBS\\MSc BLC\\4th Sem\\SQL
Tables.xlsx', sheet = 'Middle_Earth')

# Check data stationarity - 0 results from each test means we don't need to
diff, thus everything looks good
ndiffs(unlist(Base[, "Price"]), test = "adf")
```



```

ndiffs(unlist(Base[, "RecommendedToTotalReviewsRatio"]), test = "adf")
ndiffs((unlist(Base[, "ReviewsTotal"])), test = "adf")

# Some transformation of data necessary
Base <- Base %>% fill(Event1)
Base <- Base %>% fill(Event2)
Base <- Base %>% fill(Event3)
Base <- Base %>% fill(Event4)
Base <- Base %>% fill(Event5)
Base <- Base %>% fill(Event6)
Base <- cbind(Base, mtabulate(Base$Event1))
Base <- cbind(Base, mtabulate(Base$Event2))
Base <- cbind(Base, mtabulate(Base$Event3))
Base <- cbind(Base, mtabulate(Base$Event4))
Base <- cbind(Base, mtabulate(Base$Event5))
Base <- cbind(Base, mtabulate(Base$Event6))

# Remove NAs
Base <- Base[1:1239,]

# Determine the VAR Order
VARselect(y = Base[, c("RecommendedToTotalReviewsRatio", "ReviewsTotal",
"Price", "Slaughter Tribe Nemesis Expansion", "Outlaw Tribe Nemesis Expansion",
"The Blade of Gladriel Story Expansion + Story
Expansion Pass", "The Desolation of Mordor Story Expansion", "Removal of Lootbox
System")], type = "both")

# Fit the VAR Model
VAR_Model <- VAR(y = Base[, c("RecommendedToTotalReviewsRatio",
"ReviewsTotal", "Price", "Slaughter Tribe Nemesis Expansion", "Outlaw Tribe
Nemesis Expansion",
"The Blade of Gladriel Story Expansion + Story
Expansion Pass", "The Desolation of Mordor Story Expansion", "Removal of Lootbox
System")], type = "both", p = 4)
summary(VAR_Model)
plot(VAR_Model, names = "RecommendedToTotalReviewsRatio")
plot(VAR_Model, names = "ReviewsTotal")
plot(VAR_Model, names = "Price")
plot(VAR_Model, names = "Slaughter.Tribe.Nemesis.Expansion")
plot(VAR_Model, names = "Outlaw.Tribe.Nemesis.Expansion")
plot(VAR_Model,
names = "The.Blade.of.Gladriel.Story.Expansion...Story.Expansion.Pass")
plot(VAR_Model, names = "Removal.of.Lootbox.System")

# Polynomial Roots - results imply that the VAR Model is stable
roots(VAR_Model)

# Creation of Impulse Response Function variables, with 150 number of days
considered, including its cumulative versions (takes a few minutes to create)
IRF_Price_Rating <- irf(VAR_Model, response =
c("RecommendedToTotalReviewsRatio", "Price"), n.ahead = 150)
IRF_Price_TotalReviews <- irf(VAR_Model, response = c("ReviewsTotal",
"Price"), n.ahead = 150)
IRF_Slaughter_Rating <- irf(VAR_Model, response =
c("RecommendedToTotalReviewsRatio", "Slaughter.Tribe.Nemesis.Expansion"),
n.ahead = 150)
IRF_Slaughter_TotalReviews <- irf(VAR_Model, response = c("ReviewsTotal",
"Slaughter.Tribe.Nemesis.Expansion"), n.ahead = 150)

```

```

    IRF_Outlaw_Rating <- irf(VAR_Model, response =
c("RecommendedToTotalReviewsRatio", "Outlaw.Tribe.Nemesis.Expansion"), n.ahead =
150)
    IRF_Outlaw_TotalReviews <- irf(VAR_Model, response = c("ReviewsTotal",
"Outlaw.Tribe.Nemesis.Expansion"), n.ahead = 150)
    IRF_Blade_Rating <- irf(VAR_Model, response =
c("RecommendedToTotalReviewsRatio",
"The.Blade.of.Gladriel.Story.Expansion...Story.Expansion.Pass"), n.ahead = 150)
    IRF_Blade_TotalReviews <- irf(VAR_Model, response = c("ReviewsTotal",
"The.Blade.of.Gladriel.Story.Expansion...Story.Expansion.Pass"), n.ahead = 150)
    IRF_Removal_Rating <- irf(VAR_Model, response =
c("RecommendedToTotalReviewsRatio", "Removal.of.Lootbox.System"), n.ahead = 150)
    IRF_Removal_TotalReviews <- irf(VAR_Model, response = c("ReviewsTotal",
"Removal.of.Lootbox.System"), n.ahead = 150)

    Cumulative_IRF_Price_Rating <- irf(VAR_Model, response =
c("RecommendedToTotalReviewsRatio", "Price"), n.ahead = 150, cumulative = TRUE)
    Cumulative_IRF_Price_TotalReviews <- irf(VAR_Model, response =
c("ReviewsTotal", "Price"), n.ahead = 150, cumulative = TRUE)
    Cumulative_IRF_Slaughter_Rating <- irf(VAR_Model, response =
c("RecommendedToTotalReviewsRatio", "Slaughter.Tribe.Nemesis.Expansion"),
n.ahead = 150, cumulative = TRUE)
    Cumulative_IRF_Slaughter_TotalReviews <- irf(VAR_Model, response =
c("ReviewsTotal", "Slaughter.Tribe.Nemesis.Expansion"), n.ahead = 150, cumulative
= TRUE)
    Cumulative_IRF_Outlaw_Rating <- irf(VAR_Model, response =
c("RecommendedToTotalReviewsRatio", "Outlaw.Tribe.Nemesis.Expansion"), n.ahead =
150, cumulative = TRUE)
    Cumulative_IRF_Outlaw_TotalReviews <- irf(VAR_Model, response =
c("ReviewsTotal", "Outlaw.Tribe.Nemesis.Expansion"), n.ahead = 150, cumulative =
TRUE)
    Cumulative_IRF_Blade_Rating <- irf(VAR_Model, response =
c("RecommendedToTotalReviewsRatio",
"The.Blade.of.Gladriel.Story.Expansion...Story.Expansion.Pass"), n.ahead = 150,
cumulative = TRUE)
    Cumulative_IRF_Blade_TotalReviews <- irf(VAR_Model, response =
c("ReviewsTotal",
"The.Blade.of.Gladriel.Story.Expansion...Story.Expansion.Pass"), n.ahead = 150,
cumulative = TRUE)
    Cumulative_IRF_Removal_Rating <- irf(VAR_Model, response =
c("RecommendedToTotalReviewsRatio", "Removal.of.Lootbox.System"), n.ahead = 150,
cumulative = TRUE)
    Cumulative_IRF_Removal_TotalReviews <- irf(VAR_Model, response =
c("ReviewsTotal", "Removal.of.Lootbox.System"), n.ahead = 150, cumulative = TRUE)

    # Plots of Impulse Response Function variables, including its cumulative
versions
    plot(IRF_Price_Rating, names = "Price")
    plot(IRF_Price_TotalReviews, names = "Price")
    plot(IRF_Slaughter_Rating, names = "Slaughter.Tribe.Nemesis.Expansion")
    plot(IRF_Slaughter_TotalReviews, names =
"Slaughter.Tribe.Nemesis.Expansion")
    plot(IRF_Outlaw_Rating, names = "Outlaw.Tribe.Nemesis.Expansion")
    plot(IRF_Outlaw_TotalReviews, names = "Outlaw.Tribe.Nemesis.Expansion")
    plot(IRF_Blade_Rating, names =
"The.Blade.of.Gladriel.Story.Expansion...Story.Expansion.Pass")
    plot(IRF_Blade_TotalReviews, names =
"The.Blade.of.Gladriel.Story.Expansion...Story.Expansion.Pass")
    plot(IRF_Removal_Rating, names = "Removal.of.Lootbox.System")

```

```

plot(IRF_Removal_TotalReviews, names = "Removal.of.Lootbox.System")

plot(Cumulative_IRF_Price_Rating, names = "Price")
plot(Cumulative_IRF_Price_TotalReviews, names = "Price")
plot(Cumulative_IRF_Slaughter_Rating, names =
"Slaughter.Tribe.Nemesis.Expansion")
plot(Cumulative_IRF_Slaughter_TotalReviews, names =
"Slaughter.Tribe.Nemesis.Expansion")
plot(Cumulative_IRF_Outlaw_Rating, names =
"Outlaw.Tribe.Nemesis.Expansion")
plot(Cumulative_IRF_Outlaw_TotalReviews, names =
"Outlaw.Tribe.Nemesis.Expansion")
plot(Cumulative_IRF_Blade_Rating, names =
"The.Blade.of.Gladriel.Story.Expansion...Story.Expansion.Pass")
plot(Cumulative_IRF_Blade_TotalReviews, names =
"The.Blade.of.Gladriel.Story.Expansion...Story.Expansion.Pass")
plot(Cumulative_IRF_Removal_Rating, names = "Removal.of.Lootbox.System")
plot(Cumulative_IRF_Removal_TotalReviews, names =
"Removal.of.Lootbox.System")

# Model validation, 80% to 20%
MyTimeControl <- trainControl(method = "timeslice", initialWindow = 991,
horizon = 248, fixedWindow = TRUE)
PlsFitTimeRating <- train(`RecommendedToTotalReviewsRatio` ~ `Price` +
`Slaughter Tribe Nemesis Expansion` + `Outlaw Tribe Nemesis Expansion` + `The
Blade of Gladriel Story Expansion + Story Expansion Pass` + `The Desolation of
Mordor Story Expansion` + `Removal of Lootbox System`, data = Base, method =
"pls", preProc = c("center", "scale"), trControl = MyTimeControl)
PlsFitTimeTotalReviews <- train(`ReviewsTotal` ~ `Price` + `Slaughter Tribe
Nemesis Expansion` + `Outlaw Tribe Nemesis Expansion` + `The Blade of Gladriel
Story Expansion + Story Expansion Pass` + `The Desolation of Mordor Story
Expansion` + `Removal of Lootbox System`, data = Base, method = "pls", preProc =
c("center", "scale"), trControl = MyTimeControl)
PlsFitTimeTotalReviews
PlsFitTimeRating

```

11.9 Appendix I – The Rest of the Graphs

Produced by the Orthogonal IRF

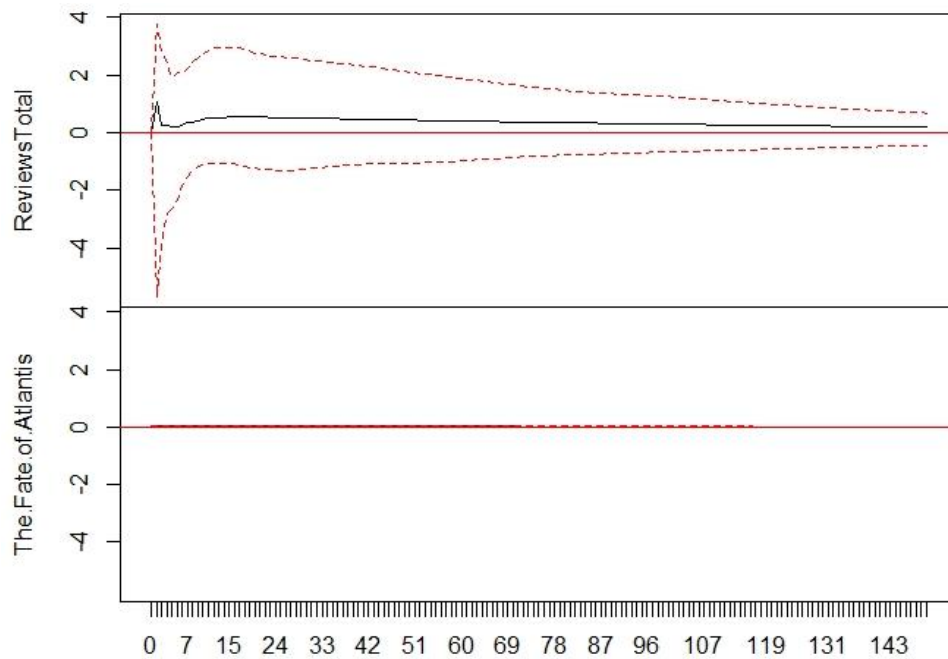


Figure 35 – AC: ODYSSEY - A Single Shock in 'The Fate of Atlantis' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

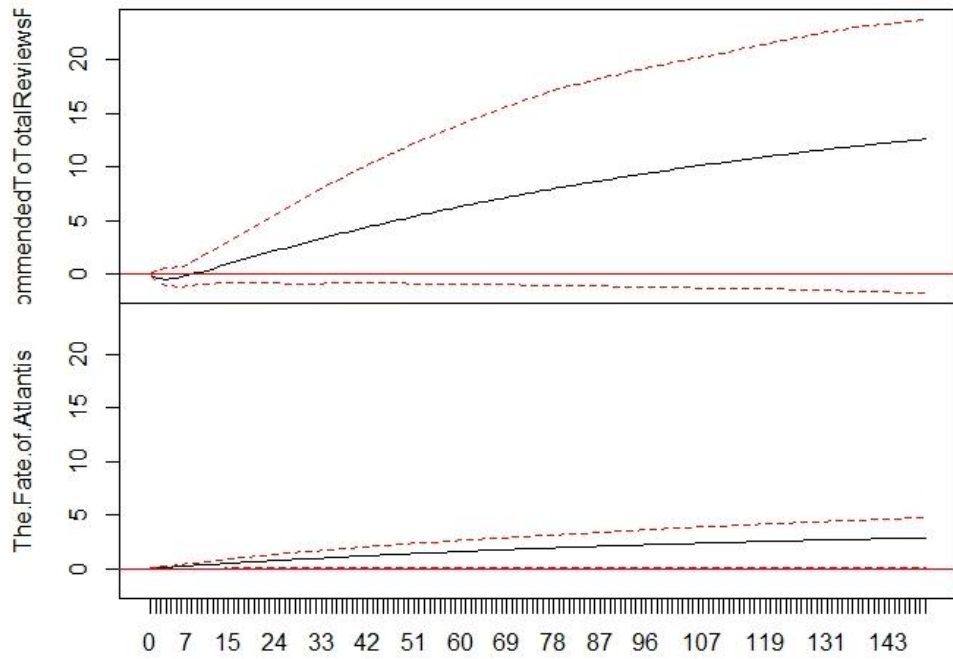


Figure 36 - AC: ODYSSEY - A Cumulative Shock in 'The Fate of Atlantis' DLC (lower figure) and its Temporal Effect on Rating (upper figure)

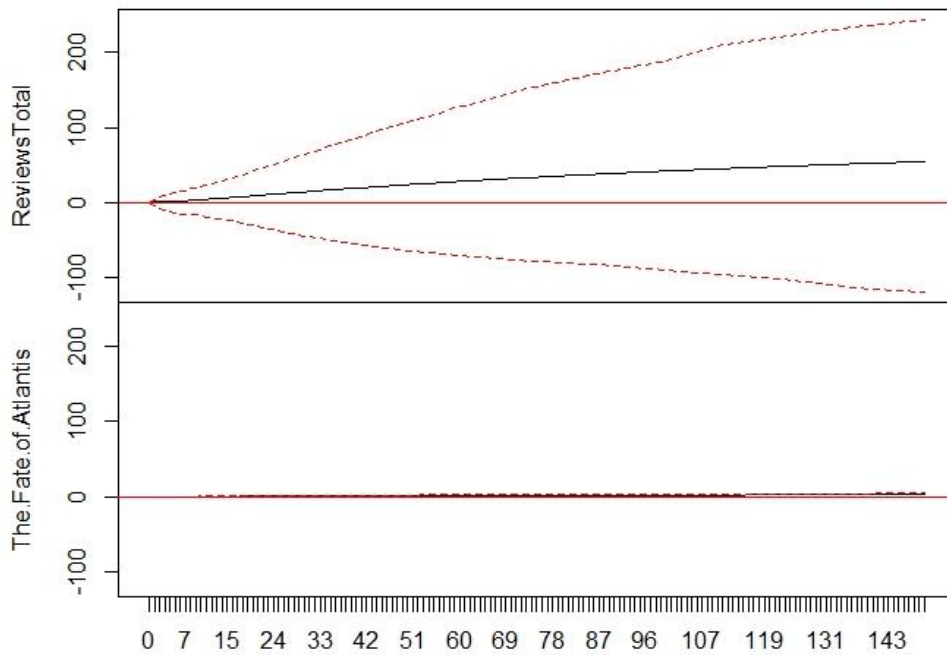


Figure 37 - AC: ODYSSEY - A Cumulative Shock in 'The Fate of Atlantis' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

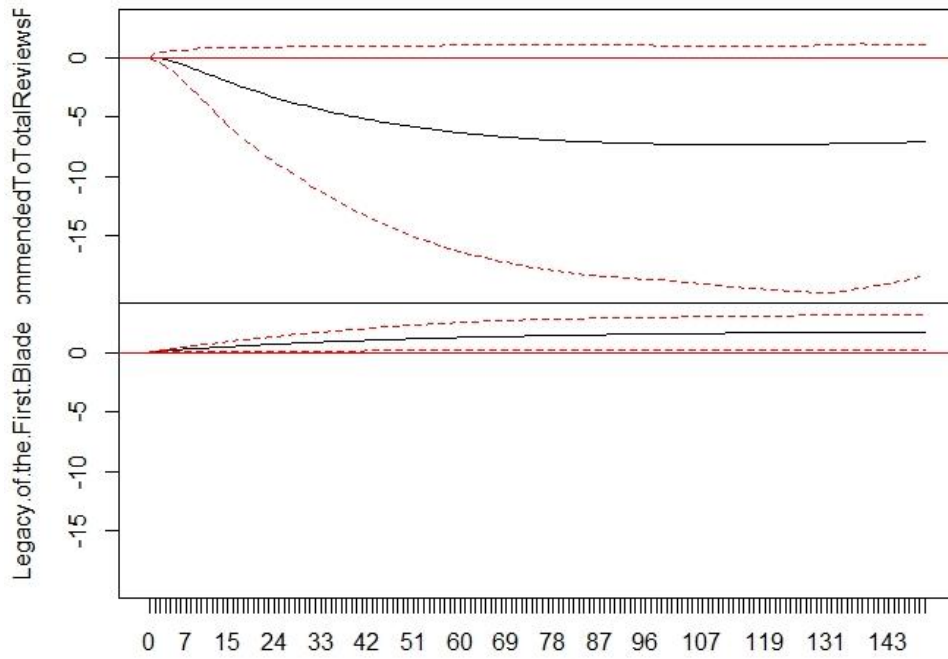


Figure 38 - AC: ODYSSEY - A Cumulative Shock in 'Legacy of the First Blade' (lower figure) DLC and its Temporal Effect on Rating (upper figure)

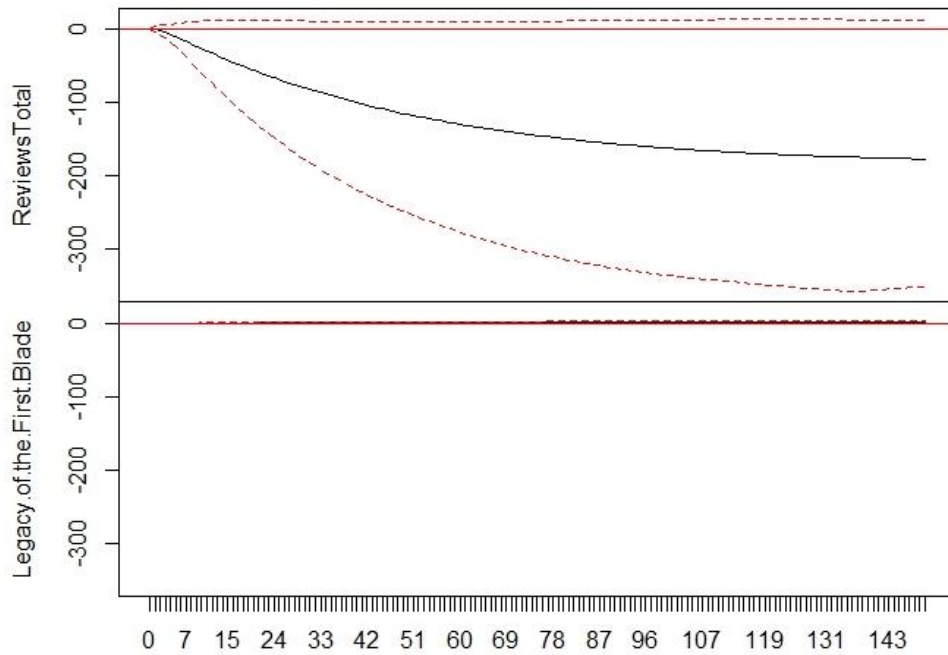


Figure 39 - AC: ODYSSEY - A Cumulative Shock in 'Legacy of the First Blade' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

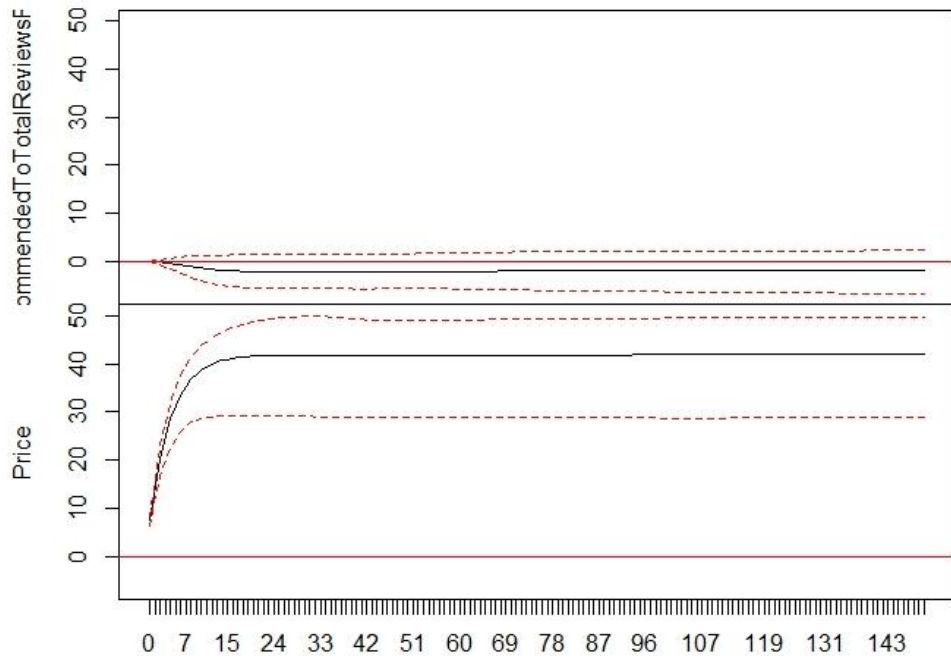


Figure 40 - AC: ODYSSEY - A Cumulative Shock in Price (lower figure) and its Temporal Effect on Rating (upper figure)

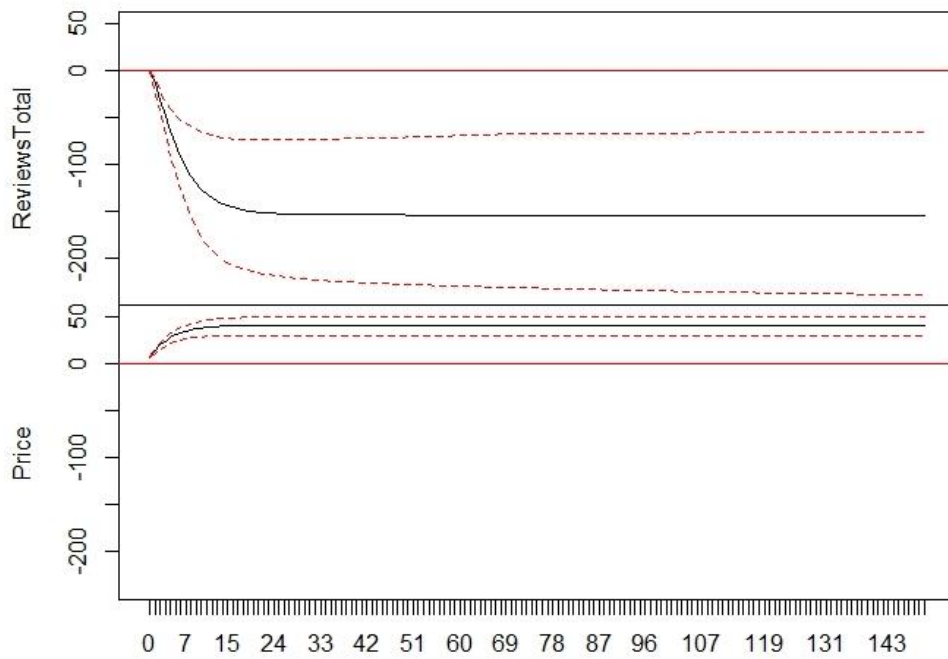


Figure 41 - AC: ODYSSEY - A Cumulative Shock in Price (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

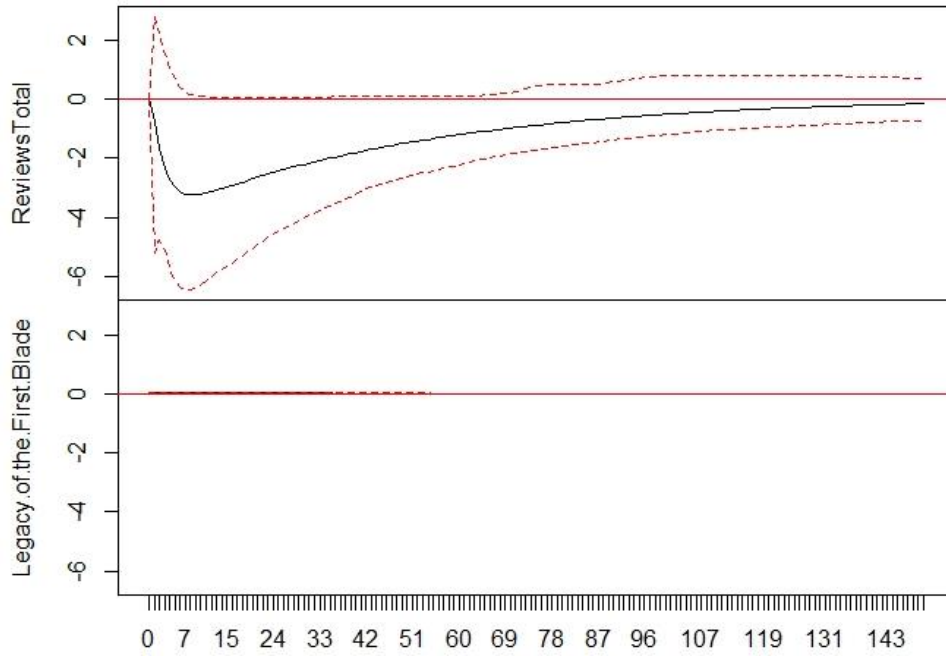


Figure 42 - AC: ODYSSEY - A Single Shock in 'Legacy of the First Blade' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

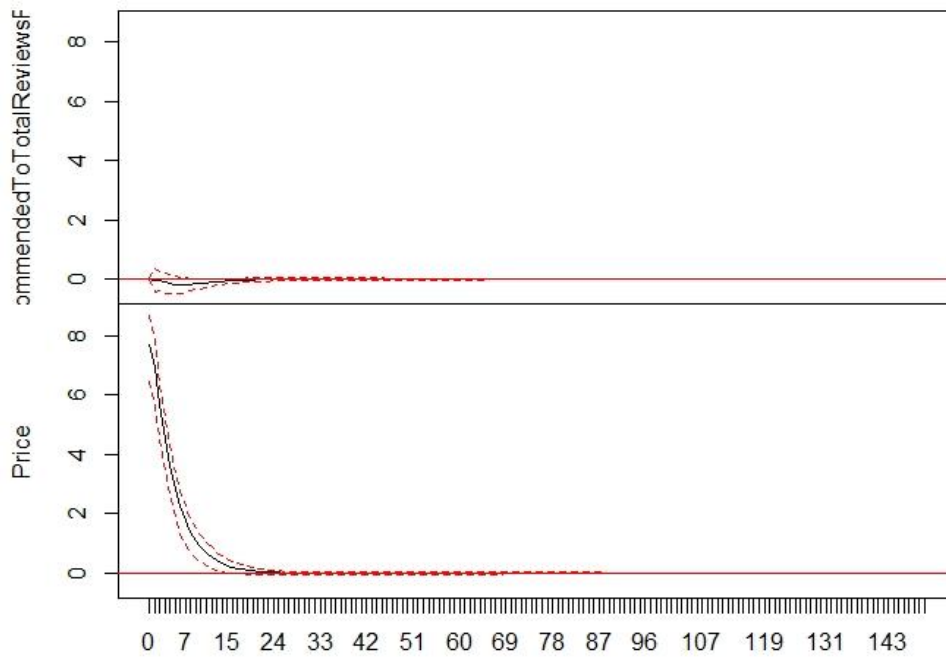


Figure 43 - AC: ODYSSEY - A Single Shock in Price (lower figure) and its Temporal Effect on Rating (upper figure)

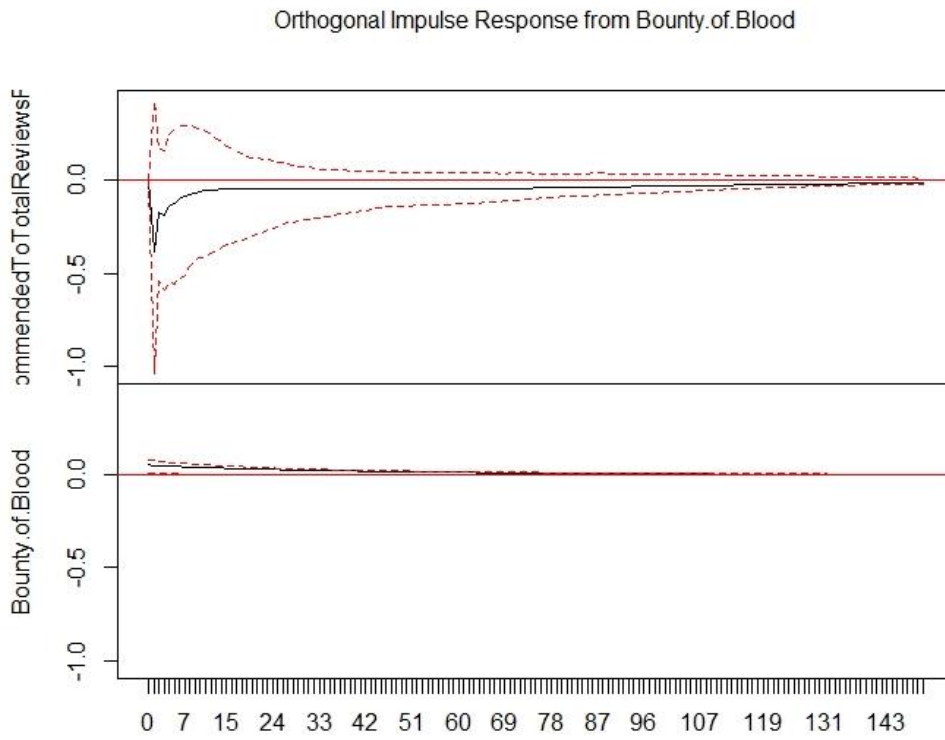


Figure 44 - BL3 - A Single Shock in 'Bounty of Blood' DLC (lower figure) and its Temporal Effect on Rating (upper figure)

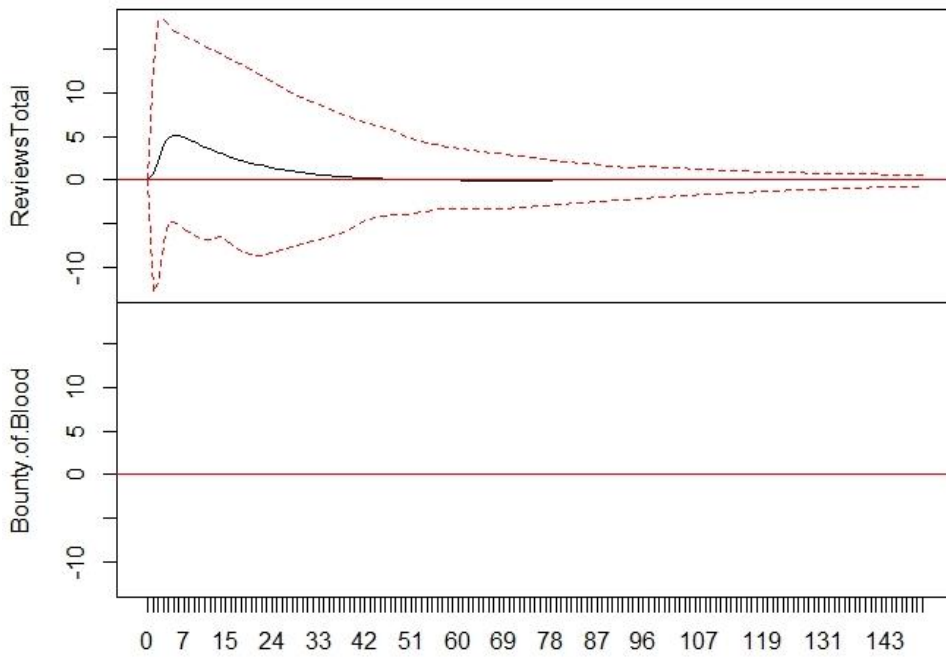


Figure 45 - BL3 - A Single Shock in 'Bounty of Blood' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

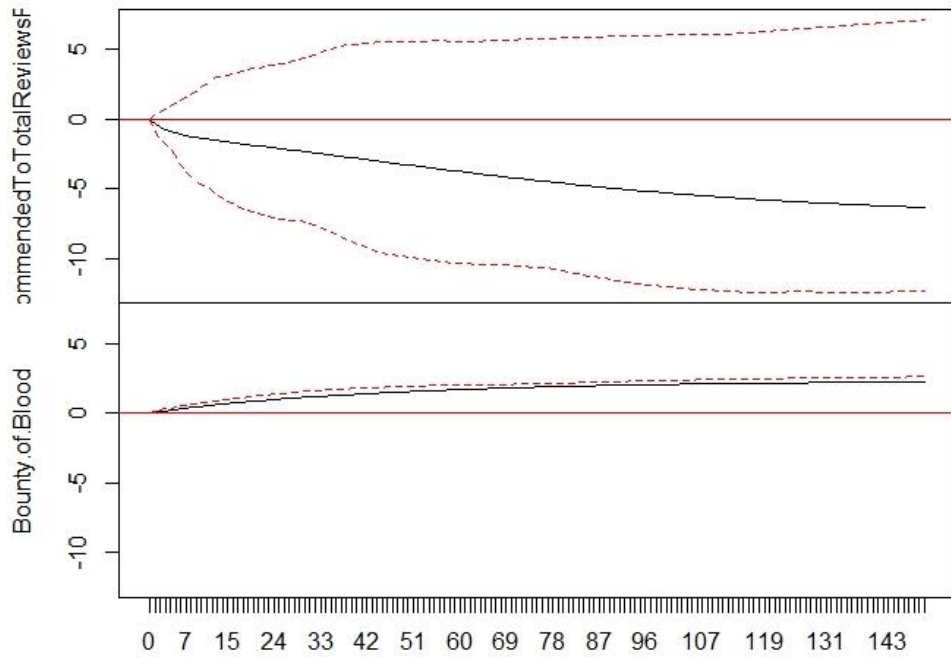


Figure 46 - BL3 - A Cumulative Shock in 'Bounty of Blood' DLC (lower figure) and its Temporal Effect on Rating (upper figure)

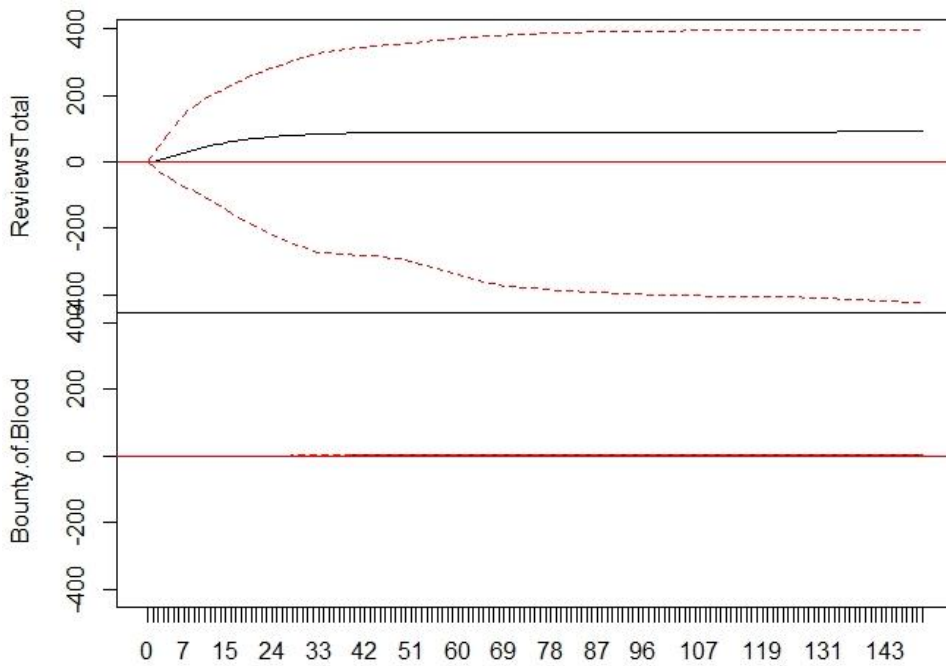


Figure 47 - BL3 - A Cumulative Shock in 'Bounty of Blood' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

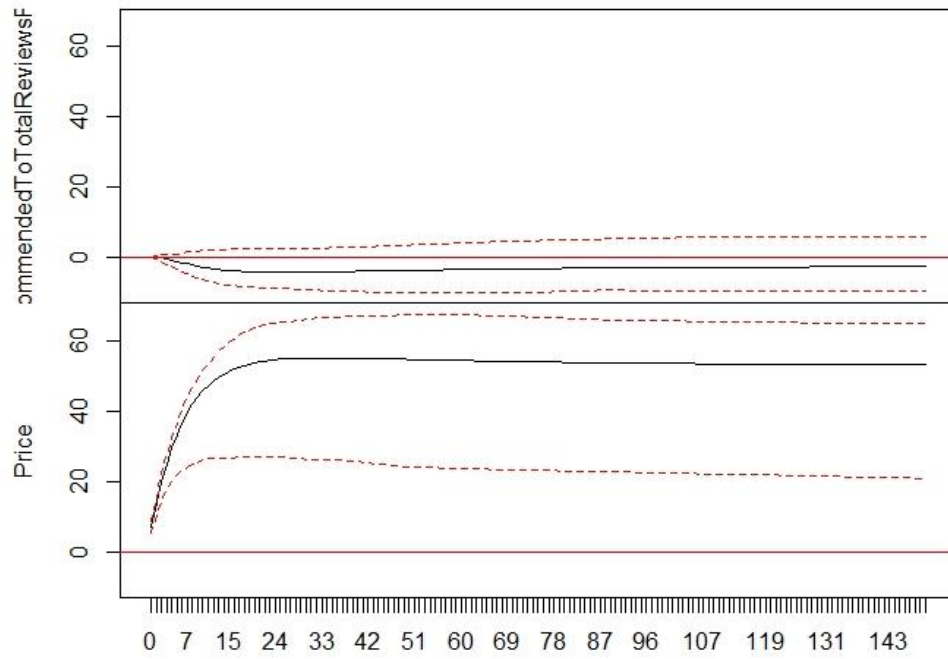


Figure 48 - BL3 - A Cumulative Shock in Price (lower figure) and its Temporal Effect on Rating (upper figure)

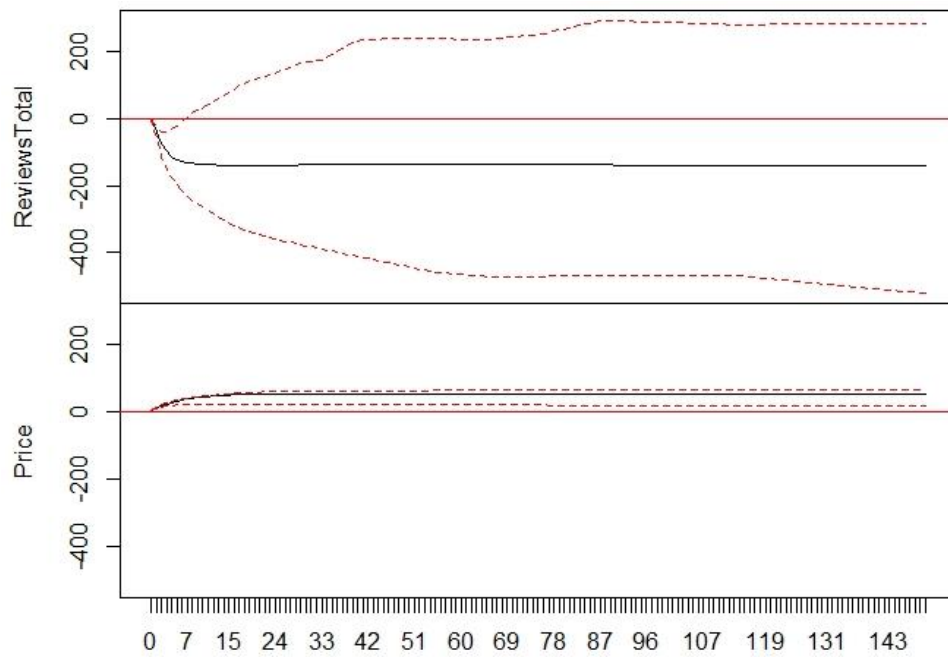


Figure 49 - BL3 - A Cumulative Shock in Price (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

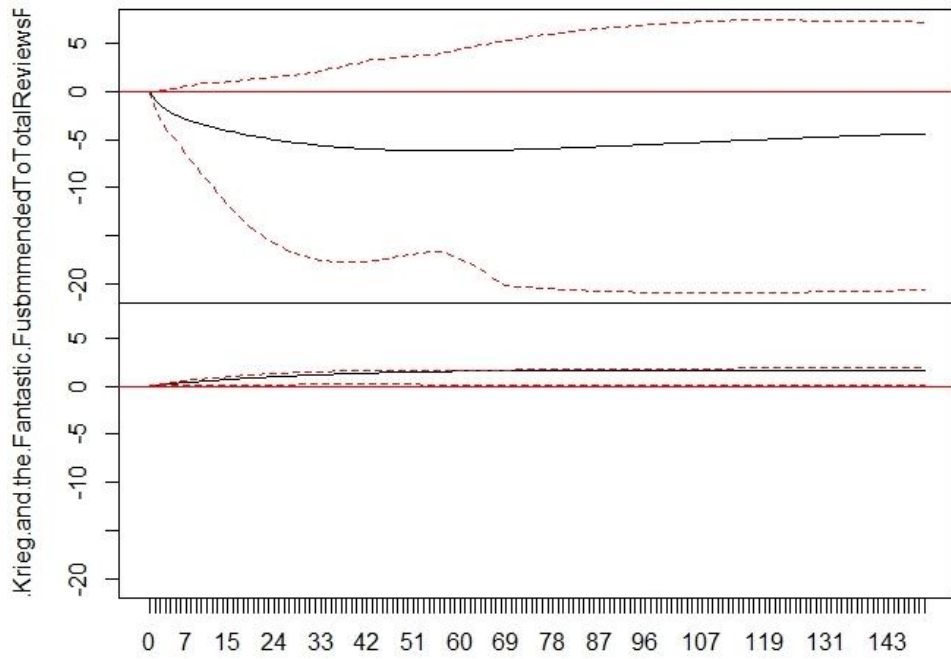


Figure 50 - BL3 - A Cumulative Shock in 'Psycho Krieg and the Fantastic Fustercluck' DLC (lower figure) and its Temporal Effect on Rating (upper figure)

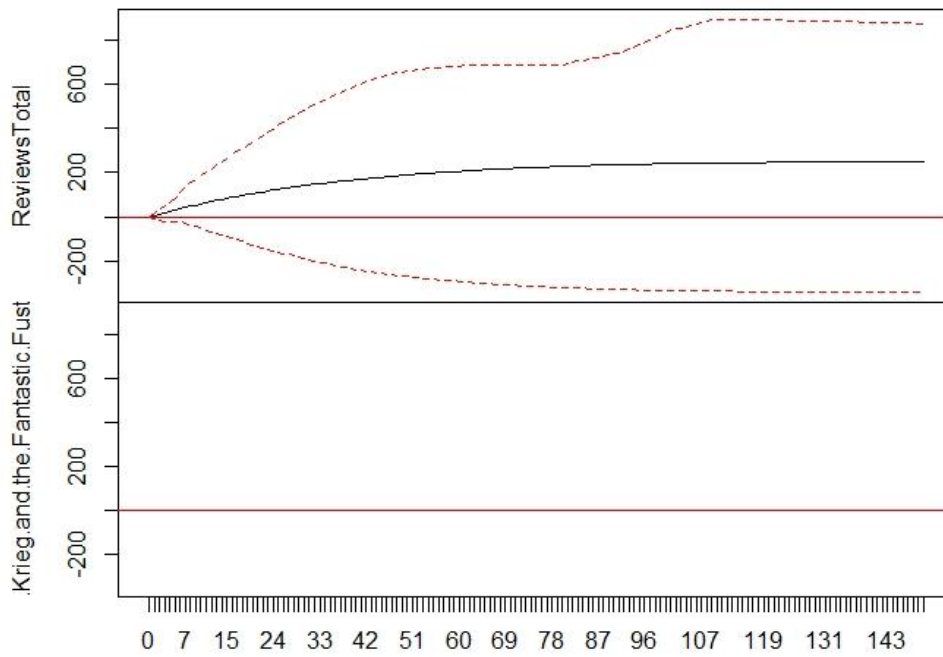


Figure 51 - BL3 - A Cumulative Shock in 'Psycho Krieg and the Fantastic Fustercluck' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

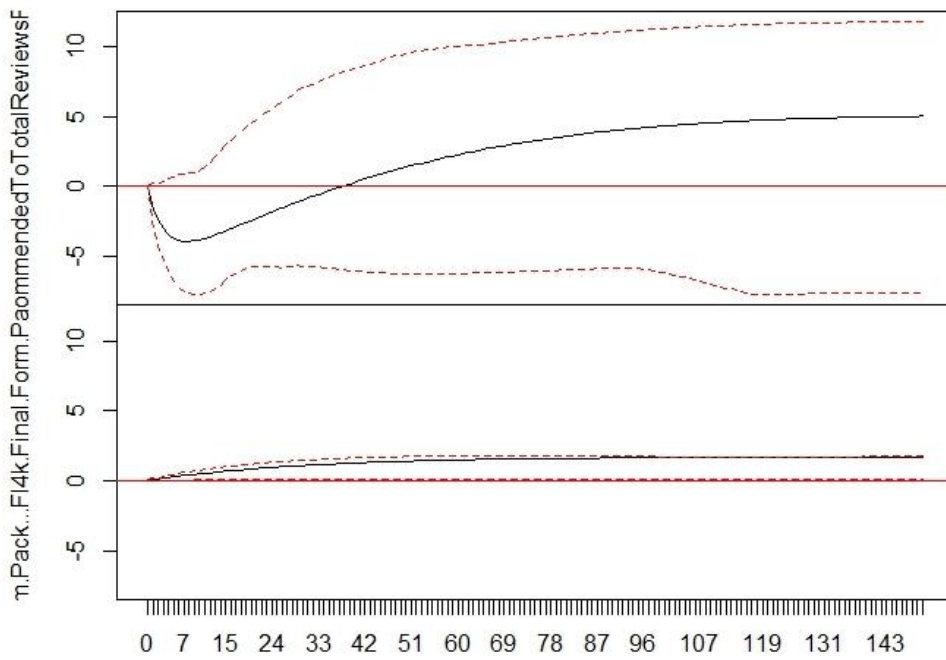


Figure 52 - BL3 - A Cumulative Shock in a Set of DLCs (Season Pass 2 + Designer's Cut + Amara Final Form Pack + F14k Final Form Pack + Moze Final Form Pack + Zane Final Form Pack) (lower figure) and its Temporal Effect on Rating (upper figure)

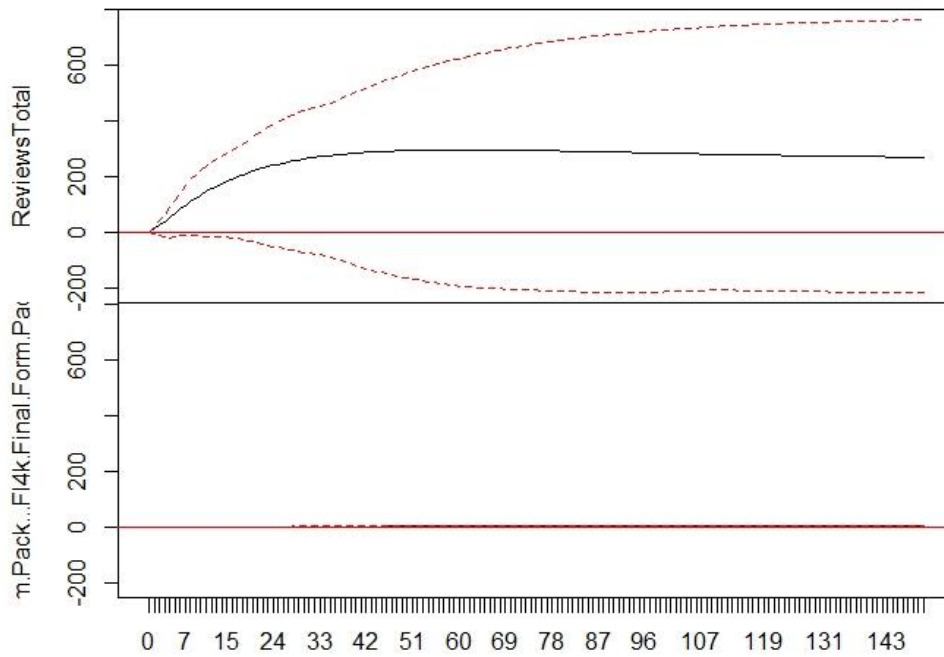


Figure 53 - BL3 - A Cumulative Shock in a Set of DLCs (Season Pass 2 + Designer's Cut + Amara Final Form Pack + F14k Final Form Pack + Moze Final Form Pack + Zane Final Form Pack) (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

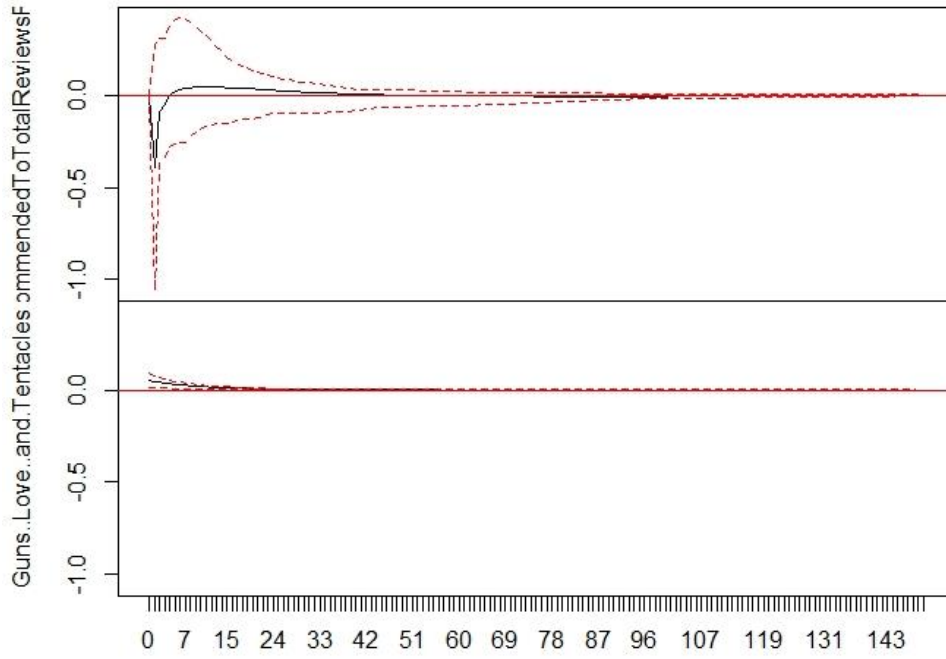


Figure 54 - BL3 - A Single Shock in 'Guns, Love, and Tentacles' DLC (lower figure) and its Temporal Effect on Rating (upper figure)

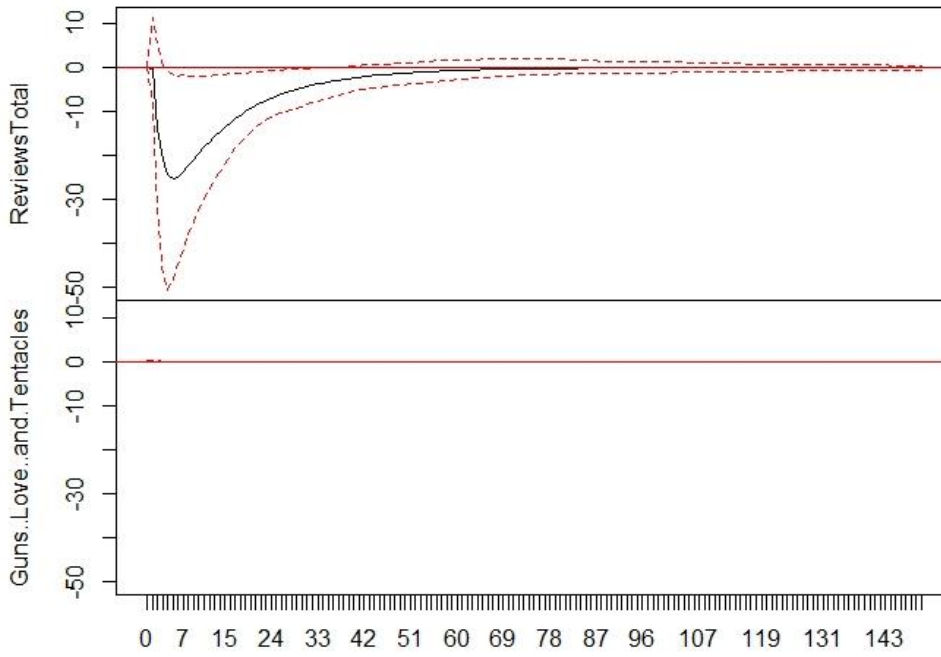


Figure 55 - BL3 - A Single Shock in 'Guns, Love, and Tentacles' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

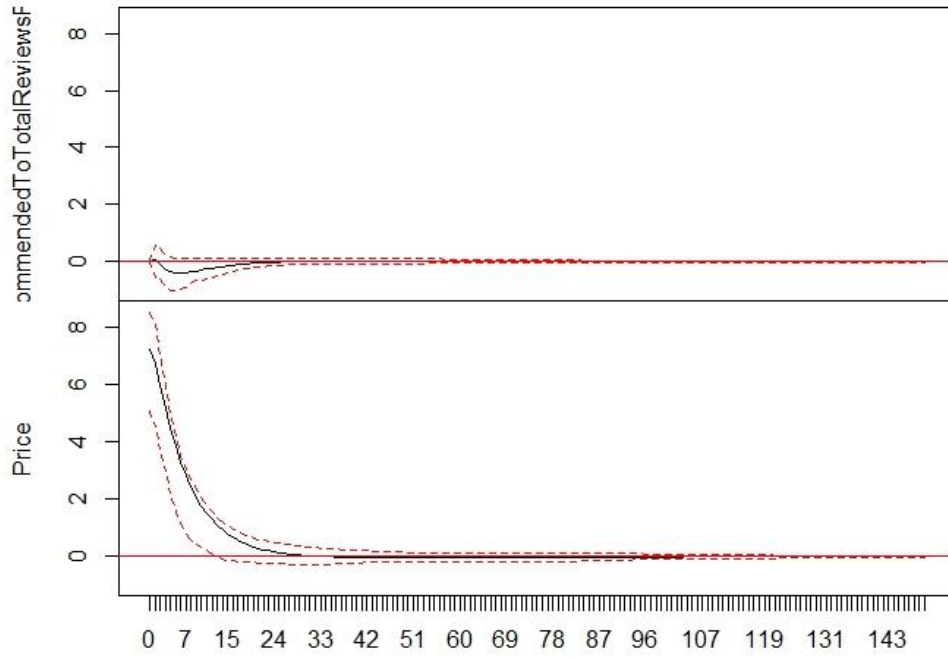


Figure 56 - BL3 - A Single Shock in Price (lower figure) and its Temporal Effect on Rating (upper figure)

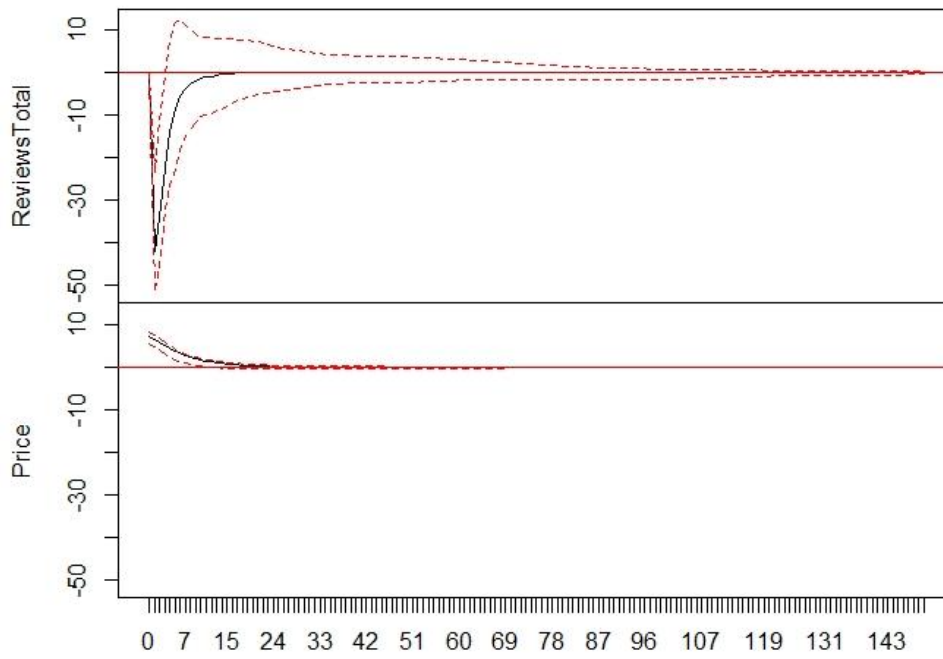


Figure 57 - BL3 - A Single Shock in Price (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

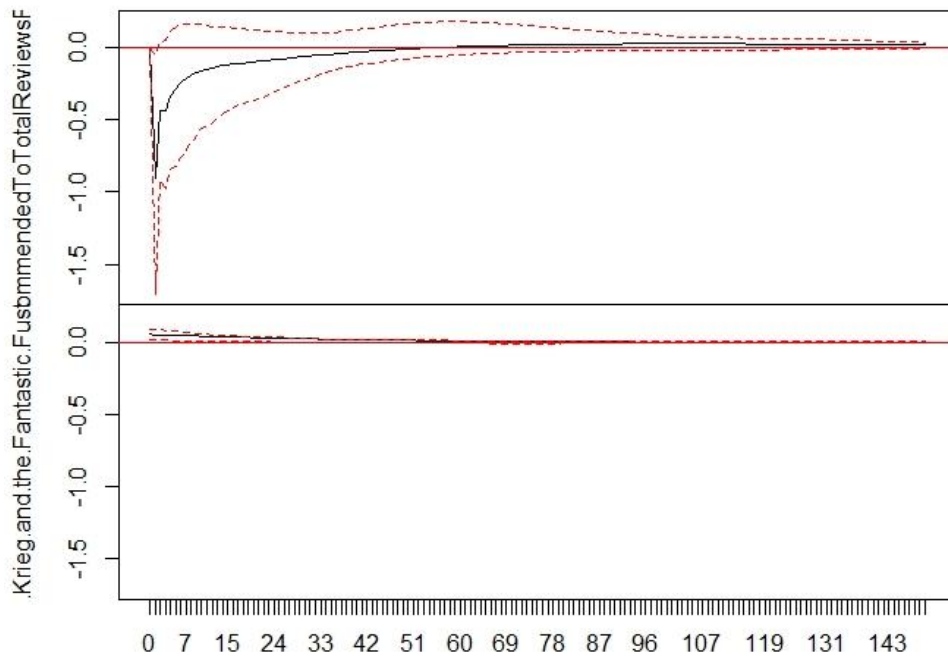


Figure 58 - BL3 - A Single Shock in 'Psycho Krieg and the Fantastic Fustercluck' DLC (lower figure) and its Temporal Effect on Rating (upper figure)

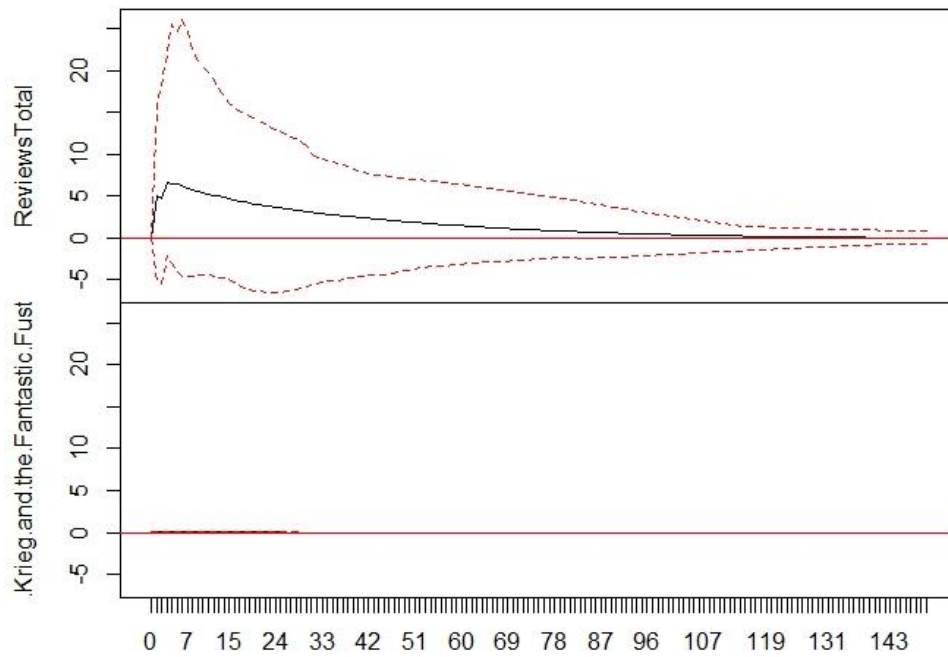


Figure 59 - BL3 - A Single Shock in 'Psycho Krieg and the Fantastic Fustercluck' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

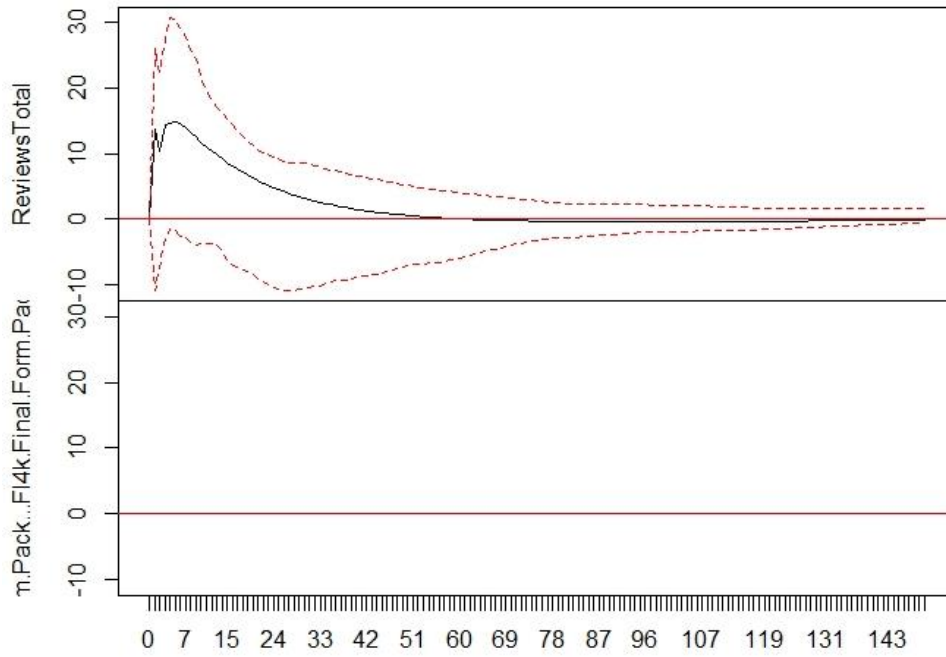


Figure 60 - BL3 - A Single Shock in a Set of DLCs (Season Pass 2 + Designer's Cut + Amara Final Form Pack + F14k Final Form Pack + Moze Final Form Pack + Zane Final Form Pack) (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

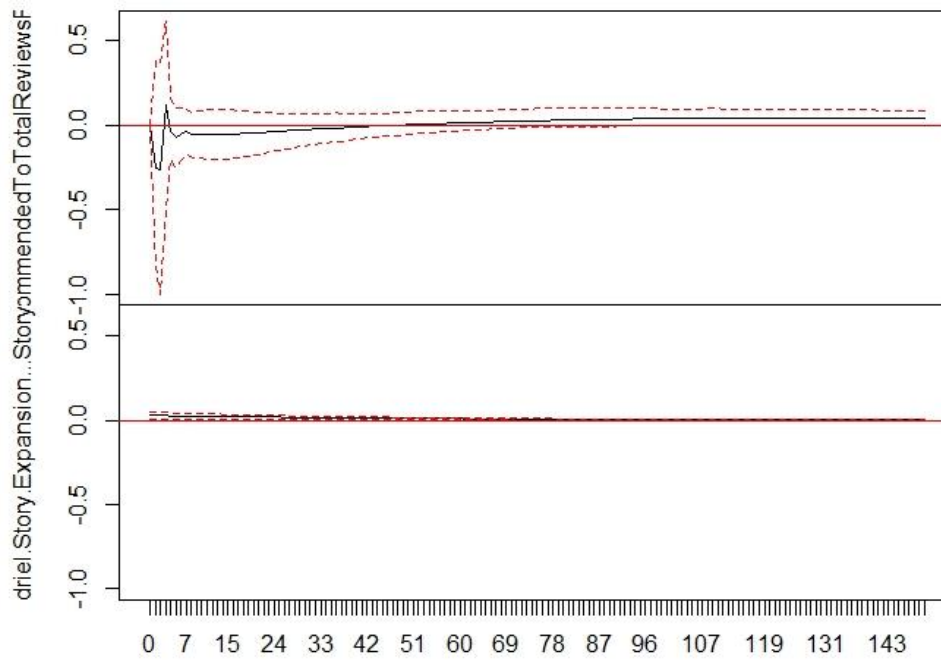


Figure 61 - ME:SOW - A Single Shock in a Set of DLCs (The Blade of Gladriel Story Expansion + Story Expansion Pass) (lower figure) and its Temporal Effect on Rating (upper figure)

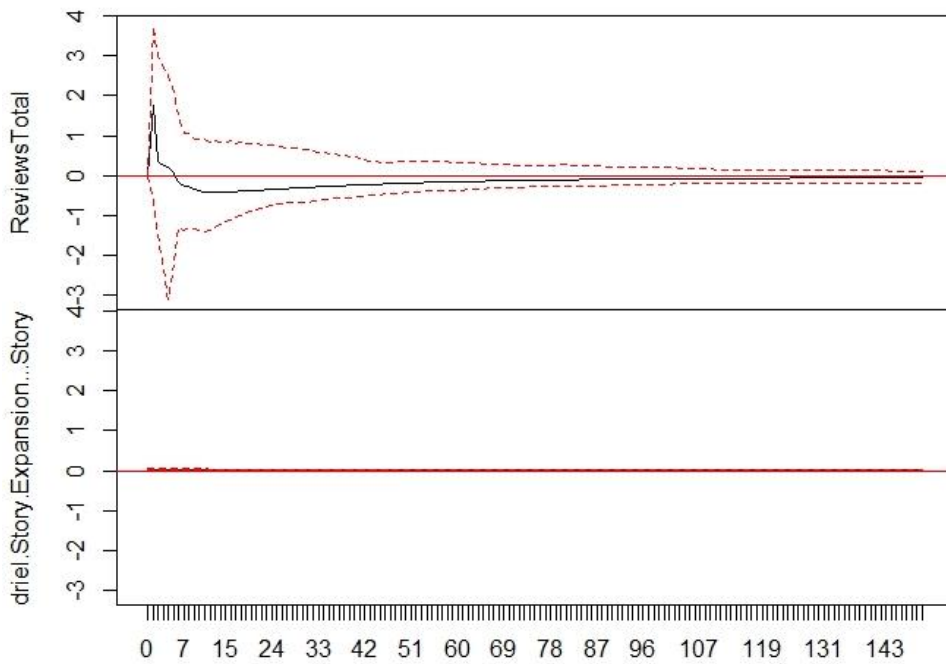


Figure 62 - ME:SOW - A Single Shock in a Set of DLCs (The Blade of Gladriel Story Expansion + Story Expansion Pass) (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

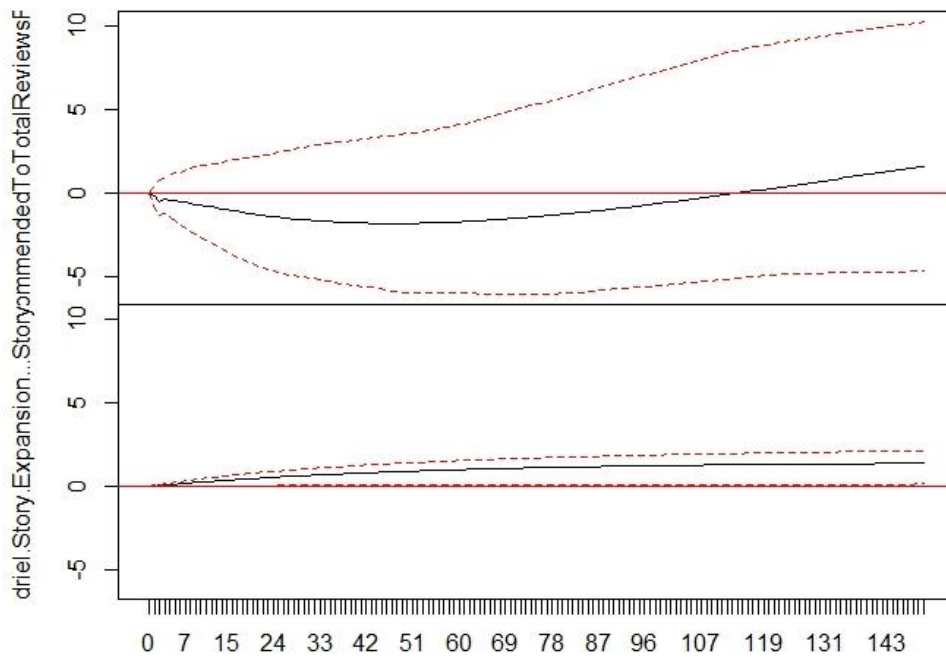


Figure 63 - ME:SOW - A Cumulative Shock in a Set of DLCs (The Blade of Gladriel Story Expansion + Story Expansion Pass) (lower figure) and its Temporal Effect on Rating (upper figure)

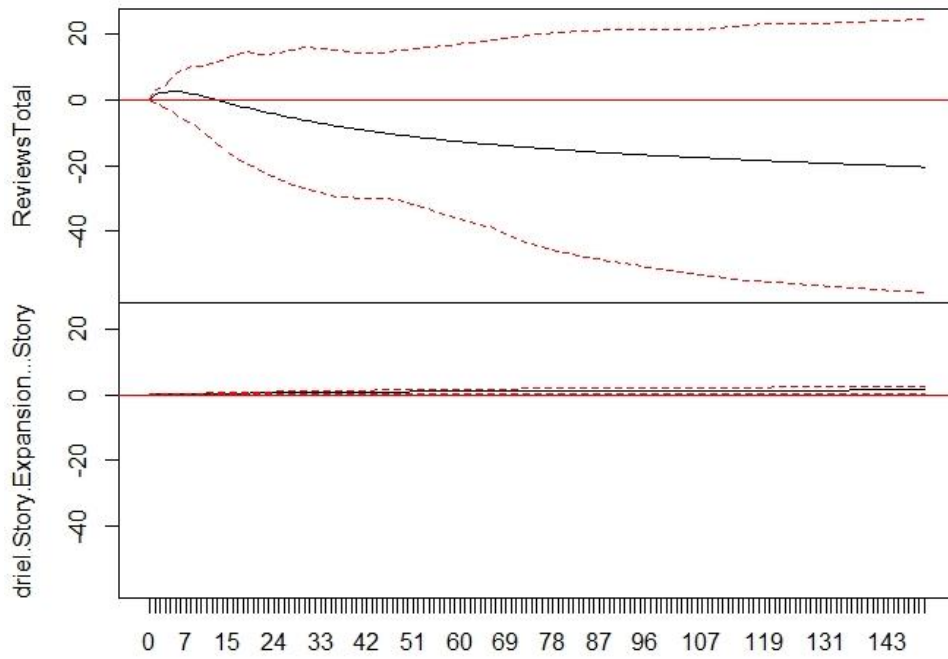


Figure 64 - ME:SOW - A Cumulative Shock in a Set of DLCs (The Blade of Gladriel Story Expansion + Story Expansion Pass) (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

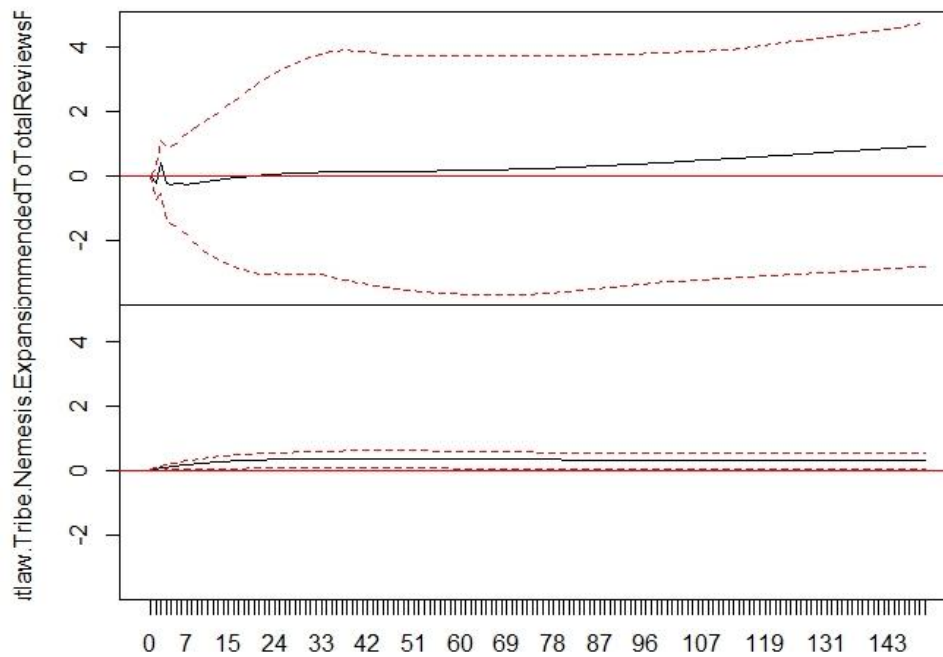


Figure 65 - ME:SOW - A Cumulative Shock in 'Outlaw Tribe Nemesis Expansion' DLC (lower figure) and its Temporal Effect on Rating (upper figure)

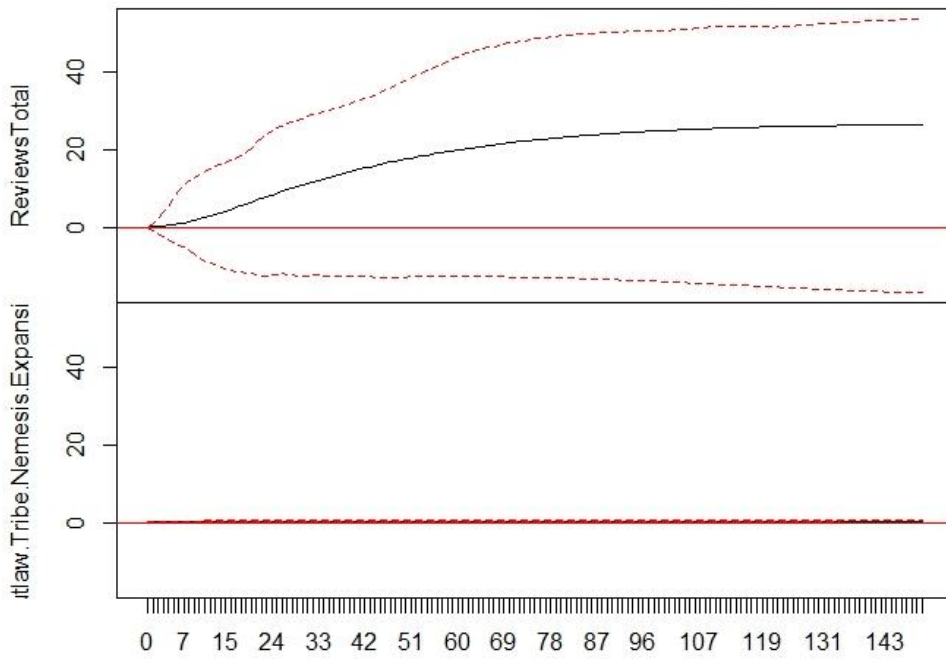


Figure 66 - ME:SOW - A Cumulative Shock in 'Outlaw Tribe Nemesis Expansion' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

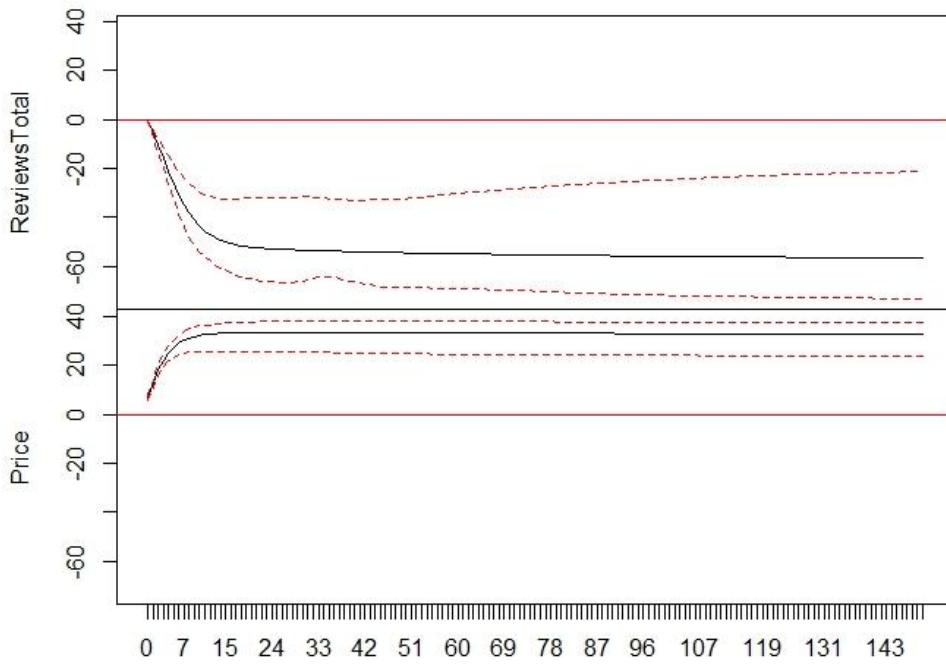


Figure 67 - ME:SOW - A Cumulative Shock in Price (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

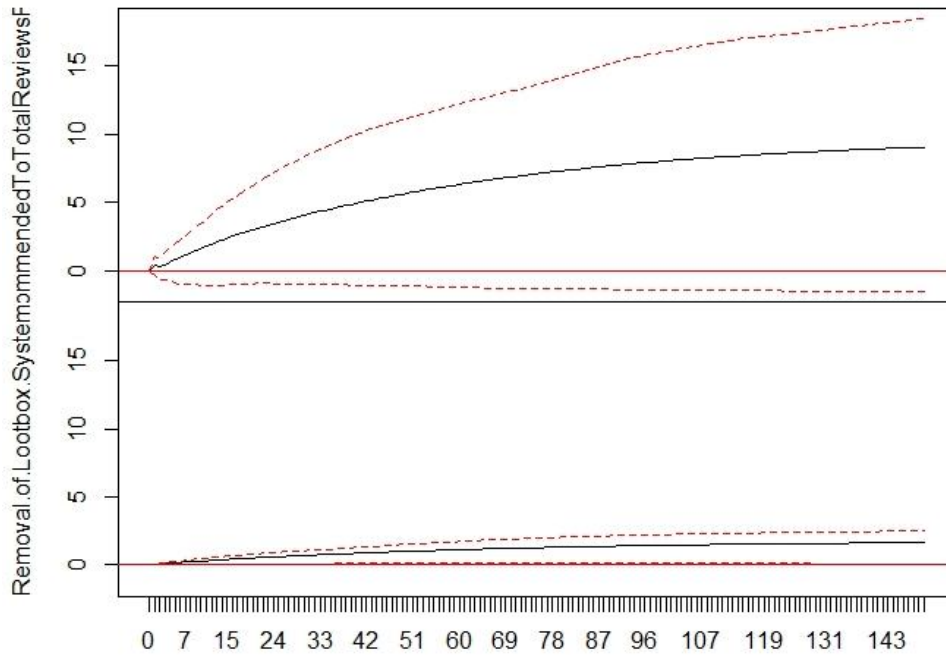


Figure 68 - ME:SOW - A Cumulative Shock in 'Removal of Loot Box System' Event (lower figure) and its Temporal Effect on Rating (upper figure)

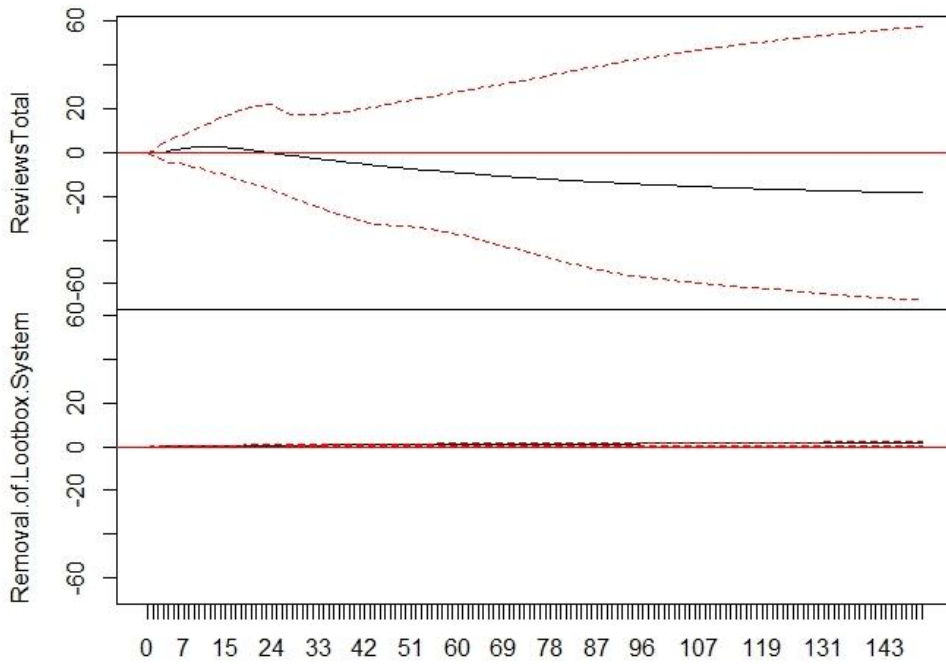


Figure 69 - ME:SOW - A Cumulative Shock in 'Removal of Loot Box System' Event (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

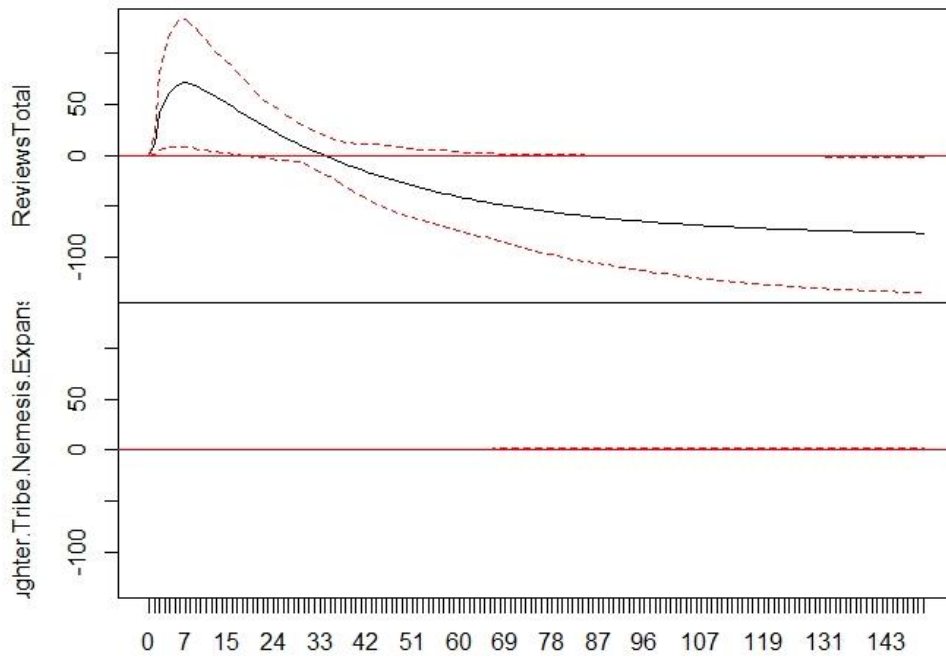


Figure 70 - ME:SOW - A Cumulative Shock in 'Slaughter Tribe Nemesis Expansion' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

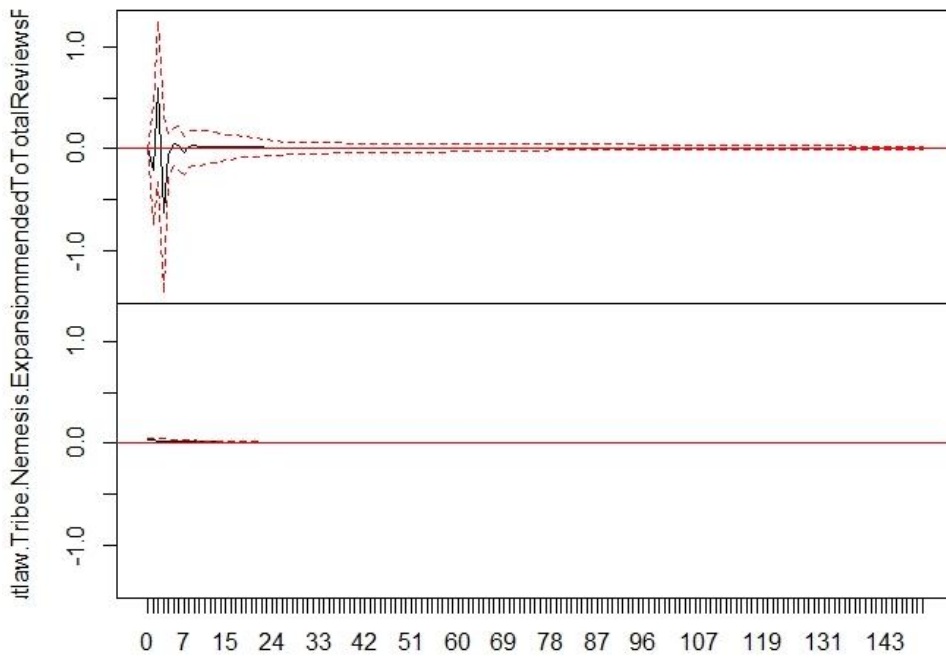


Figure 71 - ME:SOW - A Single Shock in 'Outlaw Tribe Nemesis Expansion' DLC (lower figure) and its Temporal Effect on Rating (upper figure)

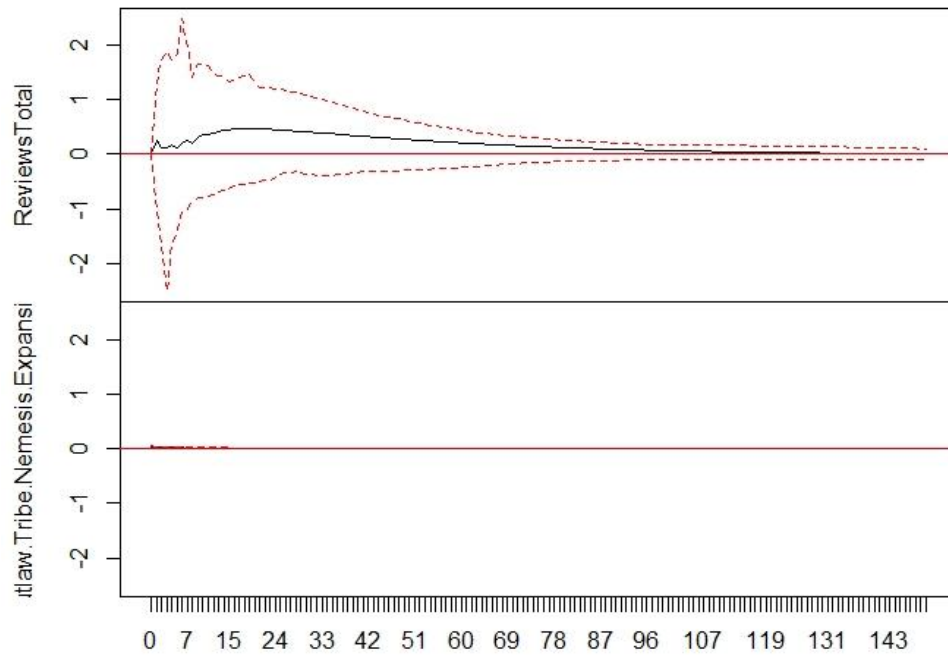


Figure 72 - ME:SOW - A Single Shock in 'Outlaw Tribe Nemesis Expansion' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

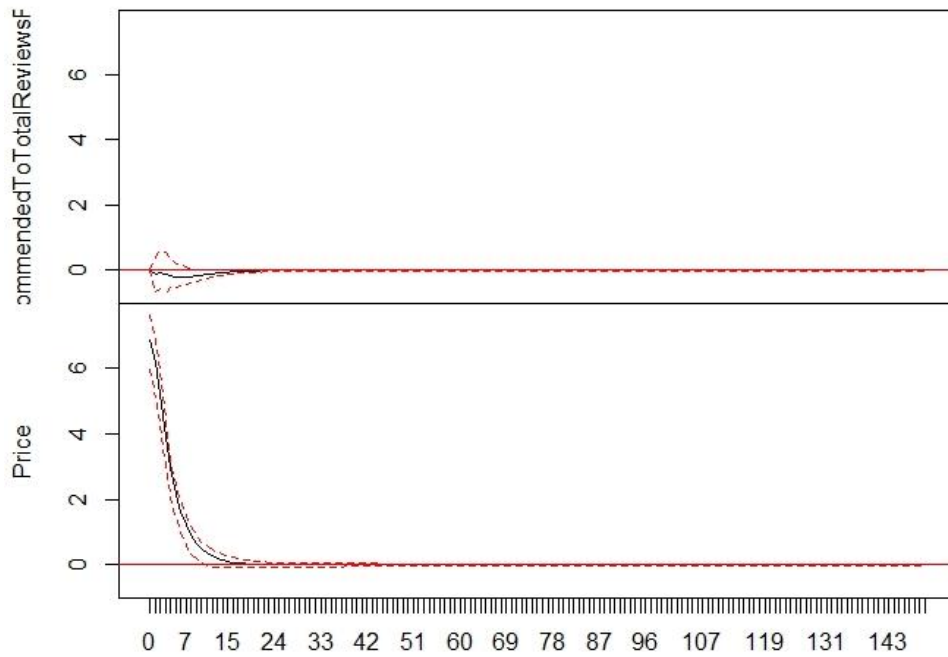


Figure 73 - ME:SOW - A Single Shock in Price (lower figure) and its Temporal Effect on Rating (upper figure)

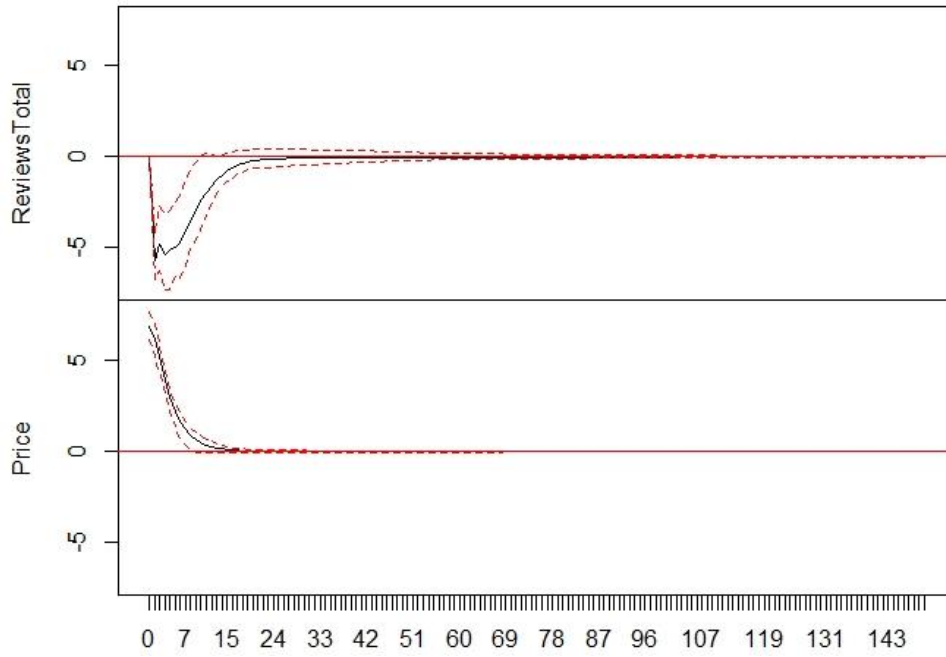


Figure 74 - ME:SOW - A Single Shock in Price (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

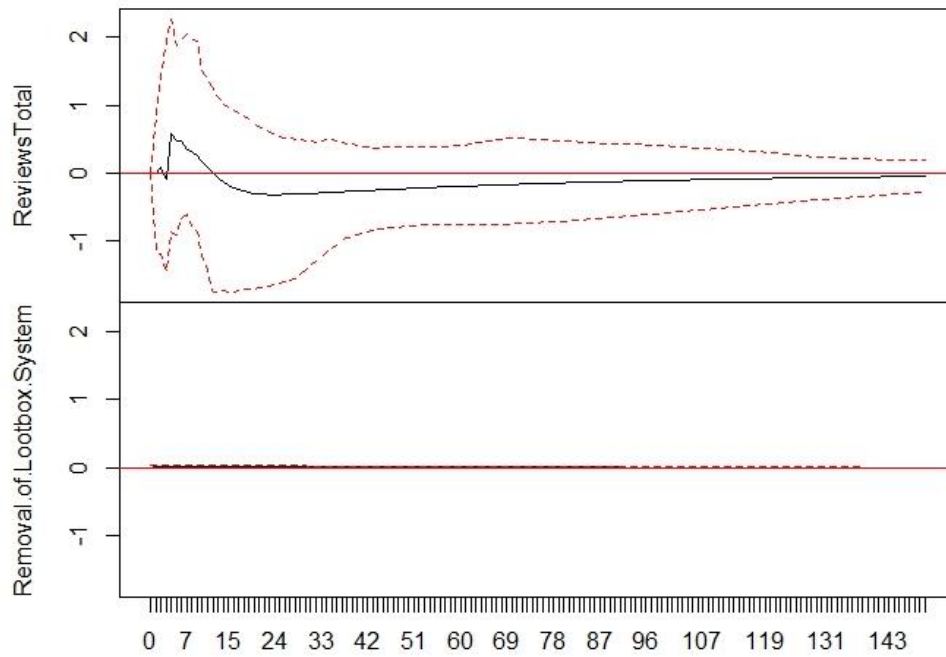


Figure 75 – ME:SOW - A Single Shock in 'Removal of Loot Box System' Events (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

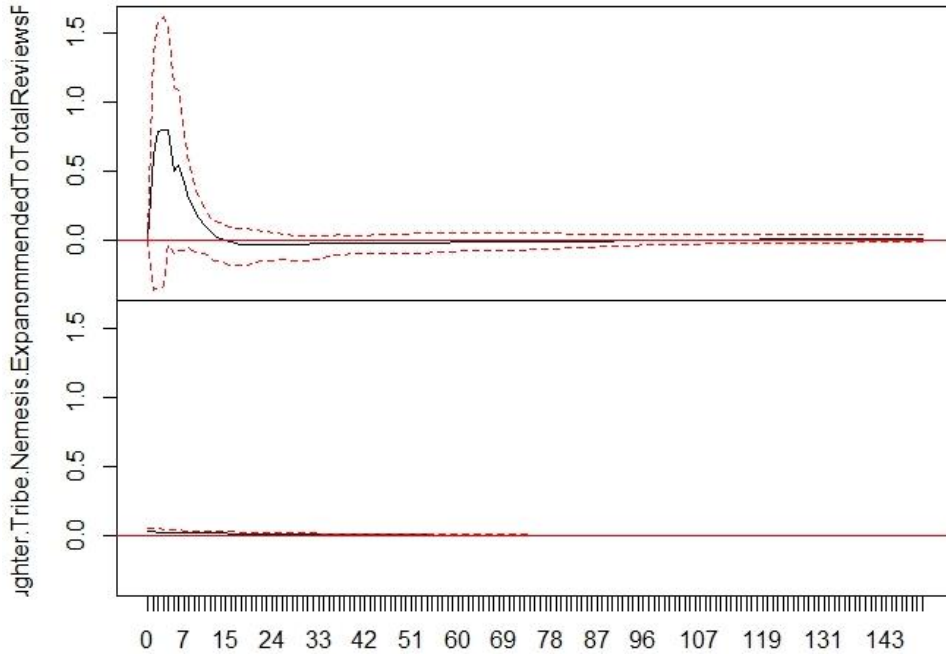


Figure 76 - ME:SOW - A Single Shock in 'Slaughter Tribe Nemesis Expansion' DLC (lower figure) and its Temporal Effect on Rating (upper figure)

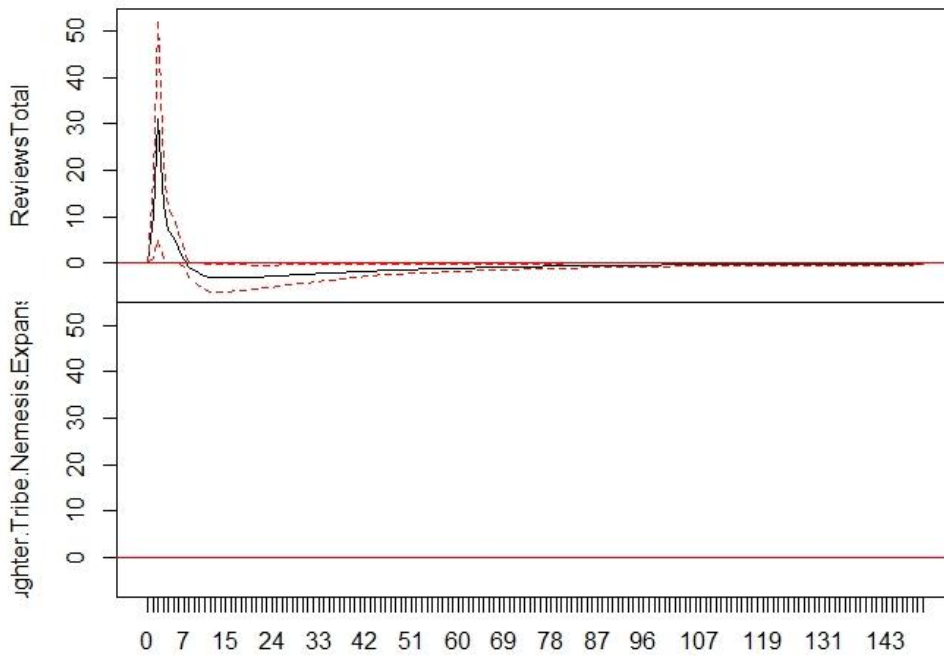


Figure 77 - ME:SOW - A Single Shock in 'Slaughter Tribe Nemesis Expansion' DLC (lower figure) and its Temporal Effect on Count of Daily Reviews (upper figure)

11.10 Appendix J – Interviews and E-mail

Responses from Danish Game Studios

11.10.1 Survey Response from Developer A

1/ There are a lot of games to compete with – how do you keep players in your game?

We keep players in our game by first having an original game proposition with unique selling points, then we have multiple features to keep players engaged and have a sense of achievement during play, finally, we add content, improve and add features too and have marketing programs and community management to retain players over time coupled with long term achievements and "end game" features access.

2/ Do you allow players to customize their own character/gameplay?

Yes, our game offers the creation of many characters and their customization.

3/ How do your games primarily generate revenue? (for example through retail sales, subscription, loot boxes, in-game purchases, and so on)

Our game generates revenue through microtransactions in-game purchases, in the vast majority.

4/ Are there any other ways of monetization similar to loot boxes or in-game purchases that your games use?

Not really, the main monetization vector is the purchase of hard currency, used in-game to acquire boosters, consumables, repairs, vanity items, etc... We also have PDLCs (Paid Downloadable Content) available on our distribution stores like Steam and Epic Games Store.

5/ Do the in-game purchases (for example loot boxes or other in-game purchases) have a lock-in effect on the consumer? For example, the customer is less likely to play another game due to the growing in-game collection, possible extra rewards for additional purchases, etc.

Yes and no. Most F2P (Free to Play) game players engage in a lot of different games and make very little to no purchase at all. Their loyalty to anyone game depends on where their friends play and their level of engagement over time, providing that the game in question let them progress long enough without paying (our game does let players play for free forever, buying is only an option).

For those players who are really vested in the game, however, I can imagine that the "digital equity" they gather over the years makes it hard to stop playing for fear of missing out or because it generates such satisfaction to show up in-game and brag about what you already accomplished and purchased or because as a player you feel very competent due to your experience etc...

Neuroscience and behavioral science have been used more prominently in the past years (taking cues from the Casino industry) to improve "stickiness" and increase or trigger the urge to continue to play, to continue to spend. While this has been controversial (loot boxes, gacha...), the mobile game industry is already moving to the next level by identifying the psychological profile of its users and optimizing the experience for engagement, retention, and ultimately greater monetization. It's fascinating that a business model that is presented as free has been at the forefront of revenue generation obsession while premium game makers have been suffering from a bipolar monetization disorder by selling premium games and microtransactions at the same time...

11.10.2 Machine Transcript of Video Interview with Developer B

Matej (00:00):

All right. All right. So let's begin with the first question. So how do you create value in your games, for example, something that creates value for both you and the players?

Developer (00:13):

Yes, it's, it's, it's actually rather simple. It's it's about creating great content. So since we started the, the main focus for us has always been the gameplay and the full focus on that because the gameplay is what creates the value for the player and when the players are happy, the value is created for us. So it's rather simple as I see it.

Matej (00:44):

All right. And how do you keep players in your games

Developer (00:50):

We have mainly kept our users due to that. We believe, at least we have a very strong gameplay over our competitors, but obvious there are many tools to keep them hanging. The whole concept in our games is that it's, it's a life cycle that never ends is continuing to gameplay that recreates itself. So, so the users are building a club in alphabet menu games and they have to keep building and maintaining it when the players go on retirement and so on. So we have to mechanism in our gameplay, like keeps them motivated to play. But some of the things we do we have at least in our early games we have had a lot of focus on community and we had some really strong forum engagement in older games. It's been a bit harder since we turn more to the mobile market when we started, it was a browser games on mobile. It's not as easy to engage users in a community as it's, it's harder to right. Example in a forum. But we also have plans to to improve for community features in our mobile games. We also use push notifications referrals and or loyalty programs, quite basics, I think, nearly any game that's doing decently.

Matej (02:36):

Okay. So I think with this, you also just answered my third question here, which is players, like having goals to what mechanisms do you use in your games to keep players interested and for players to work towards? So you said something about the push notifications and maybe some other mechanisms that you have in your game.

Developer (02:55):

Yeah, sure. That the gameplay is a lot about having goals or, or part goals. While you build your club you start in the lowest level, for example, then you promote, so you have to promote until you have the ultimate level, which is the premier league. You can also qualify for, for champions league tournaments when you're a part of the top. So there are some some, some goals to reach with your club. We also have a world ranking lists and all sorts of things by the play X can compare to each other and that motivates them. And yeah, we also, a few years ago built a whole achievement system where they have to do various things X amount of times to unlock a reward. So yeah, it's kind of a loyalty program.

Matej (03:55):

So whenever a player gets some kind of an achievement how are they rewarded? What kind of rewards do they get?

Developer (04:03):

It can be anything, eh, but obviously it's, it's all in game currency. Somehow it can be cash credits player extra training that's sort of things.

Matej (04:18):

So drawing on that. I also want the next question then it's yeah. So do you allow players to customize their characters or gameplay?

Developer (04:35):

I wouldn't say characters because the players they have in the club and not customized custom customized but they are able to customize the clubs with club kit or club name. And, and also we are expanding with some new stadium features where they are also able to customize that part for that club.

Matej (05:02):

All right. So moving on to the next question how do you generate revenue through your games primarily?

Developer (05:12):

Yep. It's a UC it's 95% from in-app purchases and the last 5% is from advertising.

Matej (05:25):

So these in-app purchases can you give us an example of what a player can buy?

Developer (05:32):

It could be that they could buy a new player for the team. They could buy more cash, so they can go to the transfer market and buy some better players for the team. It could also be that they buy extra training to boost their current players.

Matej (05:51):

All right. Do you do you offer products to players that have that are similar to loot boxes?

Developer (06:07):

I don't have a loot boxes directly, but we have some kind of features that could remind of it. An example could be when the users are, are looking to get a new youth player, we have some

categories where they let's say the cost, the cheapest one close to 100 credits and 500, 5,000 and 20,000 credits. And we give them a player. They don't know how they don't know how the player exactly will look before they are paid, but we have put it into categories. So they have an idea of what kind of rarity or quality they will get, but it has some varieties or a chance to it. So sometimes the users are not completely happy with what they get, but we, we made the system to make sure they do not pay a lot of credits and then get some really content because that's crazy, really bad user experience.

Matej (07:20):

All right. So moving on to another question are there any other ways of monetization similar to look boxes or in game purchases that your game use? So that, that could maybe be the 5%?

Developer (07:34):

Yeah, we are a, it's very classic in, in mobile games to use a rewarded video and offer walls. It's, it's not earning a lot for us, but I know a lot of more casual games, which have a lot harder time to monetize by within in-app purchase, have a focus, a lot on obviously advertising, but, but more on rewarded videos where users watch a video to unlock something or get a reward that some creators in the game they can use.

Matej (08:13):

Okay. That's interesting. So what about what about the purchases in game whenever a player buys your product? Does it have a lock-in effect on the consumer?

Developer (08:32):

Do you mean if they are kept engaged? Yeah, very much. Typically we want to make sure that users buy very early after the install, even though it's only for \$1 or so, because there's a natural

mechanism that once you have invested a little, it's harder to leave. And, and it's very important for our games because it's about building a club. So the more money you have put into your club, the harder it will be to leave it because then, okay, maybe the user will think now I have invested \$1,000 in this club. If I leave it, it will just be wasted then maybe I should just play, keep playing and then maybe I'll get hooked again in half a year or so.

Matej (09:27):

Yes. And what about the player base that purchased digital products? How many, what is the percentage of players purchasing the goods in games?

Developer (09:41):

I would say we have a conversion about a 5%, five to 10% are converting. All right.

Matej (09:57):

So it's the 5% that purchased in game in game products.

Developer (10:04):

All right.

Matej (10:06):

And the these 5%. Okay. That makes sense. That's interesting. What about the age group of these customers?

Developer (10:16):

We don't have H on on our users because GDPR made it very difficult and we are trying to not ask for any information at all. We only get information on the user, which can be used to connect the club if they lose a phone. That's the only thing we collect. There are some analytics tools, but age

is not one of them, but I know because Facebook and Google analytics does have some Intel, but not but not something not some data we give them, but just general data they have about our users. And we know that our users are typically a male 20 to 35 years old. And the reason why they are rather old is because we have a rather complex game play. A football manager game is, is not friendly for younger children. So we have, I think we have 10% under 18, and I'm guessing very few on the 15 in New Zealand, because it's too complex.

Matej (11:29):

And now I will, I'll go back a little bit again regarding these products you said which are kind of similar to loot boxes. So the question is whenever a player buys this product, does it have some flashy visuals or sound like casino, slot machines?

Developer (11:52):

We done obviously some some cool animations for it. So the use of have a really feel good experience when they get something cool. Also the, the players in our new games have like a rarity color, so where they are like, you can show them off. So the other users can see, okay. Yes, a really, really good play a card here. So, yeah, definitely. And also sound is something we also added a little bit of to improve the experience and feel the users get when they open their player card packs.

Matej (12:30):

So, and now regarding the legal stuff. So there ha there have been some bands of loot boxes in Belgium or the UK. So you don't have directly these loot boxes, but have these laws somehow in the UK or Belgium effected your games in some way?

Developer (12:54):

Nope, not at all. Also we are not really afraid of it because we already did a lot to make it make it less chance. So if we actually have to display the actual numbers before... we could turn it around and then we could basically say, okay, the users click the “get youth players” button. We could present the player and then the user could say, buy or don't buy. So it's rather easy to change it up and make it a zero chance or users. We'll see what they get always. And I would say most of everything we sell in our apps are very straight up and the users know what they're getting for the money

Matej (13:48):

Do you tell the players the percentage of what kind of an item they are going to get from this loot box similar system that you have?

Developer (14:06):

We try to always display like a range. So let's say we have a rarity, a one to seven, if the user's seeing like an item and it's like five the rarity is shown with a gold color because that's rare number five. So the users know that they will get something within the range of gold. So we use it a graphic graphically. We display it.

Matej (14:44):

Have you taken, or have you made yeah, or planning to make any changes or maybe even add or remove some game gambling elements in the game? Nope. Nope, Nope.

Developer (14:59):

NSF we would rather use to be able to change anything if that came a big verdict in the code somewhere. So we're not afraid of that.

Matej (15:09):

Right. so this may be already answered. What if loot boxes get probably banned for example, in the whole EU if it's the same answer or, yeah,

Developer (15:24):

Well, maybe it's a good thing for us because I'm sure a lot of our competitors will maybe have a harder time to adapt.

Matej (15:39):

So what advantages do you see an in-game purchases over games that do not offer them?

Developer (15:48):

Well, eh, first of all the reason why we are doing is it is because you earn so much more money than advertising advertising is it's like, you're, you need millions of active users to earn enough. So it's really hard to, to run a game or develop a game from scratch, where you have to live off advertising. So that's why we're really happy about creating a gameplay, which is, is I would say mid core game play, which then creates games, which are based on, in a purchase because in our purchase, I would say you need a lot of content to get users to pay for that. And then also I would say another advantage is that we are not we're not so reliant on what happens. For example Facebook has some problems right now with how they collect data and how much, and that can impact how much you could earn on advertising. So we are happy that, that we are not relying on, on advertising income because I see in the future that it can be quite a game changer for the whole gaming industry because it will be harder to live off advertising only.

Matej (17:24):

And do you know what the player's views are of income products?

Developer (17:34):

Not really. But yeah, if they buy then probably they don't care. But obviously we all, we always have had users who wants a free game. And they always use those who leave comments and reviews about it's a pay to win game. But we did have a free to play game model when we created our first game, our browser game back in 2006 and, and had a subscription model for that the first many years. But when we launched our second game as a pay to win game, as you can call it where you can pay to get benefits better players and so on, and just beat your competitors by paying money. We saw that the fear we had about how angry users would be if we made a game like this was not really existed, we still got tons of players and they didn't really care.

Developer (18:38):

And, and, and we have seen now that, that the pay to win concept really wins because we, we are making, I would say five to 10,000, 10 times more revenue by having this game marble over a free to play or subscription based model. And basically that means that if we had free to play games, we would have to have an incredible Ganek growth and a huge number of installs to run the game, because it will be nearly impossible also to to compete with other games on advertising, because they can just pay more because the users are worth five to 10 times more when they have a pay to win mug. And you probably also notice that nearly every game in the, in the app store was office a lot of in game purchase. So you can spend thousands of dollars and it's nearly impossible to be the number one in the game, just by skill.

Matej (19:45):

Okay. So just a spontaneous question. Then you are saying that you also have elements in your game that gives higher chances to players to win the game when they pay more

Developer (20:00):

Not directly, but when they pay for something, they get a better player. So obviously a better player would give you a better chance to win a game, but we have no mechanism than the makes paying users win more if they don't have a better team.

Matej (20:18):

Do you also have features just like cosmetic features that do not really affect your win rates?

Developer (20:27):

We did in our early games, but we kind of moved away from it and said where we make money is, is the, I would say hot hot features really where you can win. If you pay a isn't is rather hard to get users to pay for. So in, in, in, in our current games, we have just said, let's give them all a pretty game and then leave it to a few, but really selected pay features in our games. I know it's a bit different from most games because they try to monetize ties on, on tons of various things and where customizations one thing. Eh, I know a lot of our competitors has customization on club logos club kids where you have to pay to get certain kind of logos and kids, but we decided to not have that. We do, however, in, in some of our upcoming games have some passive this customization, but that's also because they are more graphical, heavy games having a war game, hammer game coming up. But I would say we have spent five times more on developing graphics for that game. So obviously that's something we want to, I would say we have, we have, we have better graphics to try to convince the users to pay money, to get something.

Matej (22:04):

So before I move on to the last question, I just got another spontaneous question in my mind. What countries are you targeting? Where are you active with your games?

Developer (22:18):

Eh, definitely all the countries who liked football and real life. So it's, I would say Europe is really strong. We have 70%, 75% Europe where we have seen France, England, Italy being really strong besides, well, so it's also Europe. Turkey is really strong and I think that goes for nearly every game Shanghai. There's a lot of Turkey gamers around Priscilla has also been really strong for us.

Matej (22:50):

So you don't have any geoblocking in your game so that somebody living in some country cannot download it because he lives in that country.

Developer (23:01):

All right.

Matej (23:02):

So, and that brings me to the last question. Do you use any rating systems to classify your games for children's safety, such as Peggy in the EU or E S R B in the USA?

Developer (23:14):

No. I think we, we have to select something on Google play and, but we just, our game has no controversial content. So it just yeah, it's just like the basic one. I don't know. It's not me. Who's doing it, but yes.

11.10.3 Survey Response from Developer C

How do you create value in your game? For example, something that creates value for both the player, and you?

There are a lot of games to compete with – how do you keep players in your game?

There are two levels to this. 1. Updates: We try to release new content for players to try 3-4 times pr. year. to keep things fresh

2 Depth: We try to design openended gameplay that unlocks over time - this is done both by allowing players to unlock new items in the game, that in turn unlocks new potential building possibilities, and by designing gameplay evolves along with your skill level.

Players like having goals – what mechanisms do you use in your games to keep players interested, and for players to work towards?

We have a campaign, Racetracks, Daily Challenges etc.

How are players rewarded for playing your games?

They earn in game gold, which can be used to buy certain blocks in Race mode.

Do you allow players to customize their own character / gameplay?

Yes

How do your games primarily generate revenue? (for example through retail sales, subscription, loot boxes, in-game purchases, and so on)

Primarily through retail sales. Some money come from DLC.

If your games have in-game features such as loot boxes or in-game purchases – what do they offer? (for example cosmetics, gameplay items, or advantage to other players)

Skins - we do not have loot boxes

Are there any other ways of monetization similar to loot boxes or in-game purchases that your games use?

no

Do the in-game purchases (of for example loot boxes or other in-game purchases) have a lock-in effect on the consumer? For example, the customer is less likely to play another game due to the growing in-game collection, possible extra rewards for additional purchases, etc.

No, not particularly. Normally we sell Skin packs either by a bundle deal when they buy the full game (before they actually play the game) or to players who already spend hours in the game.

Do you know how much of your player base purchase in-game digital products? (loot boxes, or other in game items)

around 10%

What is the age group of these customers, who purchase such in-game digital products?

There is no clear age

Does the purchase and opening of in-game products include flashy visuals and sounds?

(like casino slot machines)

no

Has the banning of loot boxes in some countries, like Belgium, or the UK, affected your

games in any way?

no

Has this affected your games in any way?

no

Have you taken, or planning making any changes to remove (or possibly add) gambling

elements in your games? (if there are any)

no

Do you have any plans for what you would do if loot boxes get broadly banned, for example

in all of the EU?

yes, the same as we always do.

What advantages do you see in in-game purchases over games that don't offer them?

It works both as an extra revenue stream, but also as fan service. I can see a comparison to Rockbands selling t-shirts at their concerts. It is an opportunity for fans to engage even deeper with what they love. and there is real value in what they are getting. Same goes for our players who buy the skin packs.

What are the player's views of purchases of digital in-game products?

They like it.

Do you use any rating systems to classify your games for children safety, such as PEGI (EU) or ESRB (USA)?

Yes, since our game is on consoles, we are obliged to have age ratings for all territories.