

# Analysis of Irrational Consumer Behaviour in Relation to the Freemium Model

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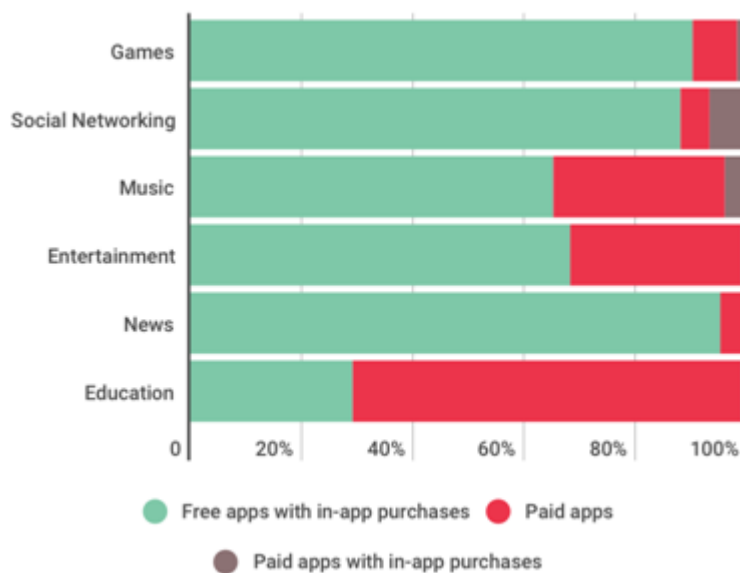
**Abstract:** *The increase in popularity of freemium services has evoked thought as to how consumers make economic decisions with regard to this business model, which in this case we hypothesize are irrational. The conversion rates of these freemium companies are influenced by several factors, the most influential of these being the utility of the premium service, the daily usage of the free service, and the difference in value between the paid and free products. In this paper we analyse this consumer irrationality and attempt to understand how, and to what extent, certain cognitive biases and heuristics affect consumer decisions in relation to freemium products. We do this by identifying trends and similarities across freemium products, contrasting consumer behaviour in freemium and paid pricing models through case studies, and then creating a survey to corroborate our hypotheses.*

**Keywords:** Behavioural Economics, Freemium, Subscription Model, Bounded Rationality Theory, Irrational Consumer Behaviour, Consumer Bias, Case Studies, Survey

## 1. Introduction

The term “freemium”, an amalgamation of “free” and “premium”, was coined in 2006 to describe a business model that gives a company’s service away for free, acquires a large user base through word of mouth, and simultaneously offers a priced service with added value. Since then, big and

small companies alike, such as Spotify and YouTube, have adopted this model, to varying degrees of success. However, freemium in general remains an incredibly popular business model; its market dominance can clearly be seen in Figure 1, where it has the majority in every sector except education.



Source: <https://theappsolutions.com/blog/marketing/freemium-gaming/>

The freemium model is dependent on consumer behaviour, and so analysing it through the lens of behavioural economics can provide deeper insight into consumer motivations. We hypothesize, using the bounded rationality theory, that consumer behaviour tends to be largely irrational and unpredictable in this case. We focus on the features offered in paid versions of services and the lack of proper consideration given to the purchase of the paid version. This lack of consideration stems from several cognitive biases and heuristics, including the familiarity bias, the sunk cost bias (Arkes and Blumer, 1985), the anchoring bias, et cetera. This multiplicity of factors results in a relatively negligent consumer.

Our analysis of consumer behaviour presents qualitative and quantitative evidence that consumers react irrationally when considering purchasing the premium service; this evidence includes a survey, in order to study the thoughts and reasons behind consumers’ choices about buying premium services. We also analyse the retention rates of products to understand why certain companies have a high number of paid users while others do not.

The section-by-section breakdown of our paper is as follows:

In Section 2, we examine case studies of companies that use the freemium model (Spotify, YouTube, and Zoom).<sup>1</sup> In Section 3, we examine case studies of companies that simply offer a paid service (Netflix, Prime Video, and PlayStation Now). We then contrast the previous two sections in order to identify the differences between the two models. Section 5 presents the results from our aforementioned survey. Finally, in Section 6, we synthesize all of our results in order to create a final analysis.

### Freemium Case Studies

This section provides a detailed analysis of Spotify, YouTube and Zoom, three freemium companies that we believe can provide useful insights into what can lead to a successful (or not) product. We look into the companies' products, strategies, target audience, and the biases that likely play into the decisions that consumers make in relation to their paid product.

#### Spotify

Spotify, a Swedish music-streaming service with over 299 million users worldwide, is a key example of how the freemium model can effectively be used. With a 46% conversion rate and the highest market-share in the music-streaming industry, the company likely has the highest transformation of freemium users to paid users, and hence provides some valuable insights into why consumers may purchase the paid service.

Like most of its competitors, the free version of Spotify aims to make music widely available to everyone at a 'decent' quality. The base service provides users with the ability to listen to all songs and podcasts available on the platform, create playlists, and listen to personalised playlists. The average user will rarely need a larger feature-set as this represents the most important aspects of listening to music. Free users must, however, endure ads interrupting their songs, although these are mostly curated in-house, promoting premium features. This ensures that their quality and theme are consistent while also pushing for more users to purchase the premium service.

Spotify Premium, the premium product, adds a quality-centric feature set that will likely appeal to users that spend a large amount of time on the platform. The primary difference between the free and paid version is the removal of ads. Additionally, higher quality music, the ability to listen to music with other users at the same time, and the facility to download songs are provided and will likely be appreciated by avid listeners as they will tend to be more displeased by the freemium interruptions. These features provide the users with perceivable change in the quality of the experience, expanding the range of situations in which users could utilise the hassle-free interface of Spotify. Given that it provides users with additional features that are important in shifting the experience from 'comfortable' to

'exceptional', Spotify's Premium product is likely viewed as substantial enough for users to be willing to purchase it.

Moreover, Spotify's primary user demographic is millennials, with 55% of its users being between the ages of 18 and 34. This is likely due to users from this age demographic being highly active on the internet. Spotify effectively utilises this knowledge, and often has ads targeting this age-group. A unique aspect of Spotify is its ads, which are often analogues and attempt to reference a common situation in which Spotify Premium would improve the listening experience. Often humorous and entertaining, the ads have allowed the listening experience to not be as disruptive while subconsciously still reminding consumers to purchase Spotify Premium. Repeating the same set of ads allows Spotify to utilise the repetition bias, registering the fact that Spotify Premium is a valuable service and that its free version is disruptive in users' minds. This balance between disruptiveness and entertainment is a unique aspect of Spotify, and a key reason for its success to effectively advertise its premium product.

Their target segmentation marketing strategies seem to have been wildly successful, as shown by the aforementioned 46% conversion rate. Price, as usual, is likely to play a major influence here. In the US Spotify Premium is offered at \$9.99. When purchasing power parity is taken into consideration, these prices are roughly the same. When purchasing power parity is taken into consideration, these prices are roughly the same. In addition to these low prices, users may also be incentivised by further discounts including a family plan and 50% discounts for university students.

A large part of Spotify's marketing strategy is flexibility, with the music-giant providing users with the option to purchase plans for as short as a day. These allow users to free themselves from commitment, and open up the service to a far wider audience in reference to income. This familiarity bias may also come into play here, making users that purchased the daily plan more likely to purchase the monthly plan. Furthermore, the anchoring effect may encourage users to purchase the monthly plan, as the daily and weekly plans provide the illusion of it being cheaper, considering the time-frame.

Shorter plans may also retain customers as a result of both loss aversion and the sunk cost bias. For the former, customers would prefer to continue to pay for Spotify Premium as opposed to losing the features offered by premium. The sunk cost bias would further encourage users to retain their premium membership due to the time they invested into Spotify, primarily downloading songs or setting up playlists. According to Statista, Spotify's 2019 Q4 churn rate<sup>2</sup> was 4.8%. While this is average, it still illustrates effective marketing and high consumer retention.

Similar to the previously-discussed familiarity bias, the herd mentality bias<sup>3</sup> may be a major influence on Spotify's

<sup>1</sup> We choose more popular companies due to a higher quantity of information about their success and model. An average freemium model would likely have worse conversion rates than these businesses.

<sup>2</sup> This is the percentage of users that left the service.

<sup>3</sup> While this term is usually used in reference to investor decisions, here we can look at the consumers as the investors given the similarity of the situation.

success. This may act like a network effect, where consumers are likely to purchase the premium service given the high number of previous users, in addition to peer-pressure. The net effect of this is growth in an exponential-like fashion, notably developing 'clusters' of users closely connected.

On the whole it can be seen that Spotify's success can widely be attributed to its advertising strategy, pricing, and the set of biases that it uses to overcome the consumer negligence surrounding Premium, which normally refers to consumers not fully grasping the cost-value advantage of Premium in terms of opportunity cost. However, these biases may have nudged consumers to slightly irrational decisions that would now be oriented towards a positive reaction to purchasing Premium.

## YouTube

YouTube, one of the most popular entertainment services, is an online social media platform where creators can publicly upload their video content to be streamed by any user on the platform. Since its inception, it has gained an incredibly large audience, with over 2 billion unique users on the platform. In 2015, it launched YouTube Premium (named YouTube Red at the time), a subscription-based service with certain added services - consumers could stream content without advertisements, play videos in the background of their devices, and also access certain YouTube Originals<sup>4</sup> for free (users of the free version would have to pay to watch these).

When it comes to target audience, it can be said that YouTube Premium had a broad appeal; the company had no specific demographic they directed this service towards. However, YouTube has since rolled out a variety of Premium services to offer more flexibility, a strategy it has in common with Spotify. YouTube Music Premium, a service aimed at garnering more market share in the music streaming industry, offers higher audio quality, offline downloads, and again, allows the user to consume content without ads (this service is also available on YouTube Premium). YouTube TV is another such service that gives users access to video content from prominent television networks, such as sports games, television shows, and news.

Consumer disillusionment with advertisements is clearly on the rise (Firat, 2019). Ignoring the impact of ads on the brands themselves, we see clearly that they bring little to no benefit to consumers. As such, YouTube users are faced with a dilemma between AVOD and SVOD.<sup>5</sup> In recent times, the balance has started to shift towards subscription content (Gardner, 2015). Furthermore, the cord-cutting attitude of consumers, wherein they cancel their cable television subscriptions in favour of online streaming

<sup>4</sup> YouTube Originals were usually either shows or movies produced by YouTube in collaboration with certain content creators.

<sup>5</sup> AVOD, or Advertising-supported video on demand, refers to a model wherein users are shown various ads in between the content they wish to consume. SVOD, or subscription video on demand, refers to a model wherein users pay a monthly fee to avoid these ads.

services, would theoretically allow for YouTube's paid services to become immensely popular.

Aside from the advertisements, the capacity to 'unlock' exclusive content is an appealing feature for consumers. This appeal is exemplified when it comes to children - pester power may play a particularly strong role here. The ability to play music or videos in the background provides further incentive to switch to the paid version; since YouTube dominates the music streaming space<sup>6</sup>, this premium feature is likely to turn many consumers over.

A variety of heuristics and biases may affect how consumers view YouTube Premium, but most of them are not unique to YouTube but rather apply to most freemium companies. For example, the halo effect and social proof bias (Cialdini, 1984) would potentially work in the service's favour, while the anchoring bias and the zero-price effect would be detrimental.

YouTube's marketing strategy also plays a role in consumer reactions to their paid product. The company has undertaken various initiatives to make their product more attractive and popular, including globalized marketing - the company has attempted to market its product to audiences outside English-speaking countries; examples include India, Mexico, and France. Diversifying the types of content on their platform is another key part of their strategy, and it allows them to enter (and gain large market share in) new regions.

Price is yet another important factor - YouTube Premium is priced at Rs 139 per month, or Rs 399 every three months. However, it would be difficult to compare this figure to any competitors since YouTube tends to dominate the entertainment space regardless of price; the most important comparison to make here is with cable television, in which case they are generally equally priced. Nevertheless, YouTube's array of seemingly unlimited content does give it an edge over cable networks in this case.

In spite of all the theoretical advantages YouTube Premium brings to consumers, conversion rates are estimated to be as low as 1.24% globally, a rate much lower than that of other popular freemium companies. This is because YouTube does not advertise its premium service as aggressively as other companies too; it uses its advertising spaces to gain revenue from ads. Therefore, even a perfectly rational consumer would remain relatively uninformed about the service.

Bounded rationality plays in here; even though people may be able to optimize their utility by purchasing YouTube Premium, they settle for an option that satisfies them yet provides them with a lower payoff, and instead choose to spend their money on lower-value products. The aforementioned cognitive biases may guide a consumer away from making a rational decision as well; it is likely that the negative biases will outweigh the positive ones. This makes for an even bigger problem under the freemium model, as rather than focusing on the benefits accrued upon

<sup>6</sup> In terms of listening time; people listen to music on YouTube more than any other app.

converting to the premium service, consumers tend to look at the cost.

However, this is not to say a consumer who is unaffected by biases will more certainly buy YouTube Premium. Certain biases provide incredible benefits to the company and usually compound sales; for example, herd behaviour, social proof, choice supportive bias, bandwagon bias, and exposure bias (Zajonc, 2001), amongst others, would not affect a perfectly rational consumer. It is difficult to predict how a rational consumer would act without data; the decision is dependent on the utility that a particular consumer perceives of certain features.

### Zoom

Zoom is an online conferencing service that allows its users to communicate via video calls. It rose to popularity amidst the coronavirus pandemic, during which time the number of participants using the service grew by approximately 3000%, with around 300 million as of August 2021. While Zoom's free version allows 100-user meetings of up to 40 minutes, the company offers a large variety of paid services alongside it, the most prominent one being Zoom Pro. Other plans offered include Zoom Business (aimed at small businesses), Zoom Enterprise (aimed at larger enterprises), Zoom Video Webinars, Zoom Phone, and Zoom Rooms.

Zoom Pro gives users a license that allows them to host group meetings for up to 30 hours, stream their meetings live on various social media, and allows for 1 GB of cloud recording per license. They can use that license to purchase extraneous features such as Zoom branding, customised backgrounds, and other business-oriented features. Zoom Rooms, on the other hand, offers bigger meetings, better security, a better user interface, easier personalization, and better data recording properties.

Evidently, Zoom's paid service does not market itself to casual consumers of the product - it is distinctive from Spotify and YouTube in that it has a more specific focus. It appeals much more to small, medium, and large enterprises and organizations who need a better online video conferencing experience. It is more corporate-oriented, as evidenced by the incredible flexibility, prices, and branding features. This is one of the main reasons that the company's revenue shot up after the pandemic.

The premium features would definitely be advantageous to their target audience, particularly small and developing businesses. Its simple user interface, reliability, and improvements over its competition are key points that it has in its favour. Along the same vein, larger businesses may see the free plan as too restrictive and quite dull. As the market becomes more dependent on digital means, Zoom Pro becomes more attractive. While its features might not be seen as useful post-pandemic, it is likely that biases like the halo and exposure effects would keep it afloat.

The wide variety of services offered leads firms of all kinds to choose Zoom. Video Webinars may be a helpful option for presentation-based events, particularly for schools or student-oriented services. Zoom Rooms helps businesses

adapt to the online method by allowing them to connect their hardware to the software. Zoom Pro is more affordable for small businesses that don't make much profit. The company carefully releases different priced models in order to best attract their target audience.

In addition to the halo effect and exposure bias, consumers of Zoom, as with those of any freemium company, are affected by the bandwagon effect and herd bias - as more people use Zoom, the more disproportionately fast its growth gets when compared to its competitors. The representativeness heuristic is well-used by Zoom, though - its free version offers many features that are sure to satisfy the average consumer and more. This would theoretically result in a consumer expecting the premium version to be much better, and hence, buying Zoom Pro.

This, combined with the exposure bias, would be magnified, since consumers do not need an account to use the free version of Zoom - if they're invited to a meeting, they can join seamlessly. This makes the platform easy to use, and so, consumers are more likely to form a positive image of it. Furthermore, unlike other companies, choice overload<sup>7</sup> might not affect Zoom's consumers too adversely, since each plan has a unique target audience.

Zoom's marketing strategy is quite simple and effective. The flexibility and low price (starting at Rs 1100 per month) of Zoom's products make them a more trustable and stable brand. This may result in companies buying the more expensive plans. As for advertising, Zoom does not market itself too aggressively - whenever a meeting runs out of time, the consumer is directed towards Zoom Pro. The firm manages to keep it well known that the priced service offers added value without over advertising, a point that is sure to push consumers towards its product.

Since Zoom's popularity was largely motivated by a temporary pandemic, it's difficult to qualify consumer rationality as it relates to the firm. Zoom Premium is certainly a worthwhile, efficient investment for small businesses going down the digital route. A perfectly rational business or corporation wishing to advertise online would ideally get Zoom Pro or its other premium counterparts. While detailed statistics are currently unavailable, Zoom's popularity makes it clear that its consumers are acting relatively rationally in this case.

However, comparing online video conferencing to a physical workplace is complicated and personalized. Zoom's platform is mostly intended for electronic-based industries (telemedicine, telehealth, software, even education), so a majority of rational consumers in Zoom's target demographic would be likely to benefit from Zoom's paid models.

<https://www.cleverism.com/zoom-interview-founder-ceo-eric-yuan/>

<sup>7</sup> At the time termed 'Overchoice', the idea was first presented by Alvin Toffler in his book "Future Shock"

### Freemium Trends and Similarities

Spotify, YouTube, and Zoom are three examples that are quite representative of the freemium market. Therefore, it is unsurprising that they share multiple similarities in terms of their free and paid products. The primary commonality is that they are all subscription models - they involve continuous payment on the consumer's side. This would make sense, since it might be more profitable and practical to gain consistent revenue rather than making the service one-time paid, especially if there is a simultaneously running and widely used product that offers them comparably low revenue.

This subscription model also allows for another interesting likeness shared by all three: flexibility. All three companies offer different kinds of plans for different kinds of audiences; Spotify offers family plans, couples plans, and student plans, YouTube offers monthly and quarterly plans, and Zoom offers a wide variety of services targeting the key areas within their audience demographic. Another similarity is the value of the free product: all three companies offer extremely useful free services that lure in users and make their base product advantageous.

These free products are also helpful for a very general audience rather than specific sectors. Even in the case of Zoom, where the paid product is mostly targeted towards businesses, the free Zoom appeals to everyone.

Another similarity is the existence of the herd mentality bias that is crucial to the success of the model as a whole. When more people use the product, its popularity grows, and so more people start to buy it. This leads to growth that resembles exponential growth rather than linear growth.

However, there are a plethora of features that distinguish the three companies. While Spotify and YouTube are more similar, Zoom stands out. One important aspect is Zoom's absence of ads and interruptions. Spotify and YouTube market their paid services by removing all advertisements, while Zoom cannot do this. As a result, Zoom makes much less revenue on their free product. Zoom Pro and the other paid Zoom services are also more specifically targeted, with a focus on businesses. Meanwhile, Spotify Premium and YouTube are targeted towards a wider range of consumers.

Moreover, Zoom Premium's services tend to be more "additive" in nature: increasing meeting times, improving brand recognition, etc., and YouTube and Spotify Premium's services may be more "subtractive": removing advertisements, removing skip limitations, removing playing limitations, etc. Zoom is also more need-based for this reason. Their paid services are not as much used for personal comfort as they are for business improvement. Meanwhile, removing ads or allowing background playing allows for comfort.

YouTube is also different from the other two companies in that it does not advertise its premium product extensively. It gains good amounts of money from ad revenue, and so, its paid service is treated as secondary. Another distinguishing factor of YouTube is that there is one other party that is

crucial to its success: creators. The creators are the ones that control advertisements, and one of their primary sources of revenue from YouTube is ad revenue. Therefore, it might be harder for YouTube to let go of advertisements for a large part of its audience since a large part of YouTube's success depends on its creators.

### Paid Case Studies

This section will analyse Netflix, Amazon Prime, and PlayStation Now, three 'paid' products that are vastly popular. By 'paid', we refer to how they do not provide a free version of their product. We identify the factors that have led to their success and high customer retention, and how some of these strategies can be applied to freemium products for higher conversion rates.

#### Netflix

Netflix, a global content-streaming subscription based service, with over 200 million subscribers, is a key example of how its model can successfully be used. Originally started in 1997 as a web-based direct mail DVD rental service, the company has grown to serve in 190 countries.

The media-giant currently has over 1500 TV shows and 4000 movies in its library, ranging from blockbusters to niche content. Netflix has recently also started to produce its own award-winning TV shows and movies, which has increased viewership. In its paid model Netflix provides access to its entire catalog to users, with no features 'locked' behind additional paid plans. The sole differentiation between plans is the video quality and access to content on different platforms. This is similar to the way Spotify offers its free and paid services, while in contrast with YouTube. A key advantage of this strategy is that 'upgrading' is done on a larger basis of need as opposed to want; the user likely has the requirements to stream video on several platforms at the same time.

Another key strategy that connects Netflix, YouTube, and Spotify is the use of Artificial Intelligence to recommend content to the user. Netflix uses a recommendation engine to predict which TV shows and movies the user may enjoy, and then recommends them. This personalised service greatly improves the viewing experience as users may often be unsure of what to watch.

Furthermore, Netflix has impressively attracted all age groups to its platform. 24% of Netflix subscribers are between the ages of 18-24, 25% are 25-34, 19% are 35-44, 17% are 45-54 and 14% are 55+. This shows that it has managed to cater to all age demographics, with its large content library playing an important part here.

Another integral aspect of Netflix's success is its pricing. The base plan costs \$8.99 in the US, with access to simultaneous streaming on one device at the standard quality. This is a competitive price considering the vast array of streaming material Netflix offers and the absence of any limits. Netflix's quarterly revenue for Q1 2021 was \$7.16B, with a profit of \$1.7 billion.

A number of biases affect consumers' willingness to purchase a Netflix subscription. The network and bandwagon effects are largely influential here. As seen in both Spotify and YouTube, social pressure can often be an important factor, and our paid models are particularly affected by this as a result of no content available at a free price. Netflix's user penetration<sup>8</sup> in the United States is 64.5%. Some part of this number will have stemmed from the population watching Netflix on a friend's account. This may invoke the exposure bias too, as users would be familiar with Netflix and know several people who already have a subscription.

Similarly, the position of Netflix as a non-freemium model may largely be influenced by the high costs of producing television and film content. However, this also helps Netflix gain more revenue (as opposed to freemium) where it is likely a large number of users would be on the free service. Contrastingly, the absence of a freemium model may eliminate potential sources of ad revenue.

A subscription-based model is used as consumers are unlikely to cancel their subscription while being under the illusion of believing they do not have any commitments. The company has the best churn rate in its industry, at 2.4%. A primary reason for this is the large catalog that allows users to never run out of entertaining content. Like in most subscription models, loss aversion also allows Netflix to rarely lose users.

Overall, Netflix has a variety of biases that allow it to attract a large number of users and retain them, the network and exposure effect being particularly important ones. We realise that analysing the decisions consumers make when considering purchasing a Netflix subscription can be important to understanding how consumers make decisions, and why they may be irrational in certain situations.

### Prime

Amazon Prime, a subscription based loyalty program introduced by Amazon in 2005, can be regarded as another key paid service. It has over 200 million subscribers worldwide as of April 2021, and 64% of US households have a Prime subscription. This represents one of the highest user penetration rates in the world, and portrays how paid services are able to attain a large user base.

To begin with, a unique aspect of Amazon Prime is the diversity of the products it offers; it offers free shipping, Amazon Prime Video, Music, Reading, and more. Its video-streaming service rivals Netflix, and Prime Music provides all the features of Spotify Premium. Shipping costs could often discourage users from ordering items from Amazon, so free shipping further encourages users to use Amazon. Prime further offers exclusive access to deals and offers on 'Prime Day'. Resultantly, Prime subscribers spend an average of \$1400 on Amazon a year, while others only spend \$600. This portrays how Prime is key to Amazon's growth strategy.

<sup>8</sup> This refers to the number of people who have watched Netflix in the past month.

Prime's diversity also ensures it is attractive to a large user base, and hence aims to capture a large proportion of the population, a task at which they have succeeded. Amazon resultantly does not have a specific target audience, contrasting to Zoom. While this allows Amazon to target a much larger group, Amazon correspondingly has to ensure that its products entail a large variety of features.

Amazon Prime costs \$119/year in the United States, which is on par with Netflix and Spotify. Given that Prime offers features similar to Netflix and Spotify, and more, at a price close to what the individual companies offer, users are likely to evaluate it as a value-for-money purchase. Amazon sustains low prices as a result of Prime boosting sales, but more importantly, users not fully utilising all features. Oftentimes, users expect to use all aspects of the product they buy, but few will be regular users of Prime Video, Music, and Reading. While not specifically the naive diversification bias (Simonson and Itamer, 1990), a similar idea can be applied here, where consumers will opt for the product with a wider range of features, in this case, Amazon Prime.

Similar to the other case studies, Amazon Prime is also a subscription based model, and hence is unlikely to be cancelled. With a 93% retention rate, the key challenge is acquiring new users as opposed to keeping existing users.

As a result of the wide range of products that Prime offers together (rather than separately), it also avoids the choice overload bias. Pooling all of its products into a singular package ensures customers believe they are receiving an exemplary package while competing with several companies at the same time.

Amazon Prime, as a premium product, would likely change in that aspects of its sub-products would change: Amazon Prime Video would likely have ads and restricted content, while Prime Music would function similarly to Spotify.

On the whole, Amazon Prime can be regarded as a key study of how its model can effectively be used to attract users, and how some aspects of subscription-based paid can also be applied to freemium to increase conversion rates.

### Play Station

Sony's PlayStation brand of gaming consoles has greatly evolved since the first console's release in 1994, amassing over 109 million monthly users. In 2014, it introduced PlayStation Now, a monthly subscription service that gives customers easy and free access to over 800 games. The service has also grown immensely popular, with over 3.2 million users.

When a consumer purchases a PlayStation console, they are given a lineup of free games they can play - some of these titles are widely popular, while the rest are unknown and not as well liked. PS Now greatly improves the variety offered in addition to providing high-quality, critically acclaimed games across various versions of the console.

In some sense, this may seem like a freemium product - however, that is not entirely the case. PS Now is not as reliant as freemium services on acquiring a large user base through word-of-mouth. Instead, it is usually simply an extraneous service rather than the premium version of an already existing product. Furthermore, there is no real “free product”; every game on the PlayStation requires some monetary purchase to be made i.e. the console. Therefore, this serves as a unique case study, since it offers a gray area between freemium and paid.

The service’s target audience encompasses the gaming community, a large group of consumers with varied interests. Their incredibly large content library helps satisfy most customers who buy the product, and it allows for more flexibility. Furthermore, the service can be used across a variety of devices, making the consumer’s gaming experience more seamless.

It offers three different plans: \$8.99 per month, \$22.99 per quarter, or \$59.99 per year. These prices are much better than that of PlayStation’s primary competitors. Its wide content library also makes PS Now more appealing to the average consumer. All these factors may make it seem as though PS Now is more valuable, and so, a more rational purchase for consumers to make. Therefore, it is surprising that PS Now is not very successful, or at least seen as inferior to its competition.

However, as previously mentioned, their target demographic is mostly comprised of young adults and older teenagers who are mostly active in the gaming community. This community tends to look beyond price and focus more on the titles each service offers, and it is widely regarded that Xbox offers higher quality games due to their tie-ins with famous video game companies such as EA Sports. It is likely that Xbox’s relative success (due to its better quality) is the biggest detriment to PS Now’s success.

There are a variety of biases in play here. One of the primary irrational behaviours that propels consumers towards the service is the naive diversification bias - a consumer strives for diversity when forced to make multiple decisions at once. Therefore, PS Now’s high flexibility would be attractive to a customer. However, according to the social proof bias, people would likely choose Xbox Game Pass (Xbox’s subscription service) since it is regarded as better and it is more widely endorsed, be it by big companies or by tech reviewers.

The representativeness heuristic also plays in here - the race between PS Now and Xbox Game Pass is less of a competition between the two services, but rather a competition between PlayStation and Xbox themselves. PS Now and Game Pass are largely seen as complementary to the consoles themselves, and so, an increase in the popularity of PlayStation would lead to an increase in PS Now users. Since both major gaming companies have struggled to gain significant market share in the industry, both firms are engaged in a constant battle of innovation and each newer generation of consoles simply increases competition. Consumers tend to believe that since a certain

console is better, its complementary subscription service is also better.

Since PS Now is more similar to a freemium product than Netflix and Prime, it would be interesting to see how adopting characteristic freemium features would affect it. It is, however, likely that the aforementioned biases mitigate the effects of any change in business model. Consumers would still be relatively irrational overall, since they do not evaluate the benefits of PS Now, but rather the PlayStation itself. In fact, a freemium model that links PlayStation closer with PS Now might exaggerate the representativeness heuristic, making the product’s features less consequential in the long run.

### **Paid Trends**

A large part of technology still employs a simplistic non-freemium model, and hence, analysing the strategies that these companies employ is vital to understanding consumer behaviour.

To begin with, a similarity we notice is that Netflix, Amazon Prime, and PS Now have a wide variety of content that they provide access to. Netflix offers access to several thousand movies, Prime provides access to music and a variety of content, and PS Now has a library of video games. The cost associated with gathering this content is likely a key reason why these services employ a paid model as opposed to freemium; the revenue generated from converting free users to paid users would not meet the costs. High initial setup costs demonstrate how focusing on acquiring a large free user base first is not feasible.

Furthermore, we notice that social pressure plays a key role in acquiring users for our case studies. The herd effect is employed on a more personalised level here, as a result of the discussion of content with friends, family and acquaintances. This pressures consumers to buy these paid services, which leads to exponential-like growth. The use of networks to grow a consumer base is a strategy freemium uses too, but paid services differ here by making this effect stronger, as a result of the restricted access to content.

Our paid case studies are all subscription models, like a large part of software. However, we notice that they increase their retention rates by providing a seemingly endless number of movies, TV shows or games to consume. This results in consumers likely always being immersed in content and never running out of usage. Loss aversion contributes to this too, as consumers would keep the services despite lack of usage in order to avoid losing the content the platforms offer.

Something we find interesting about Amazon Prime’s marketing strategy is the deliberate focus on the variety of features it offers. This is done to actively use the naive diversification bias, which states that consumers will make more diverse decisions when forced to make these decisions within a limited time frame, in this case at the same time, as Amazon Prime is sold as a bundle and products cannot be purchased individually. Prime uses this to make its product seem more attractive when compared to Netflix.

Moreover, we notice that PlayStation is different from Amazon Prime and Netflix in that it has a very specific target audience when compared to the two. This is likely due to the narrower appeal of the content library it offers and its different marketing strategy.

Similarly, Netflix is seen to be more flexible in terms of availability of plans when compared to Prime and PS Now. While Netflix offers various plans for different use cases and demographics, Prime and PlayStation only provide one plan. Both likely have reasons for organising their products in the following way; Netflix may not want income to be a barrier for the availability to its service, while Prime and PlayStation may not want to overhaul their customers with decisions.

### Freemium Vs Paid

Analysing the differences between freemium and paid products and understanding how these differences play into the consumer behaviour are both important aspects of our paper. Note that a majority of these conclusions assume *ceteris paribus*.

To begin with, we notice that our paid products have higher initial setup costs; in the case of Netflix and Prime, they have to purchase the rights to thousands of movies, and PlayStation Now has to do the same but for video games. On the other hand, freemium companies do not operate under such high initial costs. This is likely a major influence on why these companies have priced themselves as paid and freemium respectively. Spotify, for instance, has to pay for the use of the music it provides access to, but this cost is much lower than that of purchasing movies.

Furthermore, the products our paid case studies offer are additive in nature, while freemium companies rely on subtractive services. We predict that consumers would value gaining a product more than losing an irritating aspect of an existing product for the reason that additive products in general provide the illusion of a more value-for-money purchase.

Additionally, variety is an important part of all our paid case studies. The idea of paying a limited amount of money to access an almost unlimited stream of content is incredibly appealing to consumers. On the other hand, when it comes to freemium products, the cash transaction does not unlock this content - it makes it more convenient. An average user would, therefore, tend to value the paid products more. This is in part also because of the diversification bias that is prevalent in paid products; consumers feel as though this unlimited content will lead to them making diverse choices.

We also notice that most of our case studies employ the use of Artificial Intelligence. This, combined with the value of diversity, poses a conundrum that further illustrates consumer irrationality. Most consumers have a variety bias, wherein they tend to value "diversity" in the content they consume, and so, the wide library of content that these companies offer is appealing. However, the AI utilized in these products often provides content that is suited to a

consumer's likes, inhibiting them from true variety - firms often exploit this idea.

Moreover, social influences often play a key role in determining products' consumer reception. In the case of paid products we find that social pressure is largely from social circles, while freemium is more reliant on macro social trends. This is likely as a result of the exclusive access to content that paid products such as Netflix and PS Now provide. The discussion of such content and will to engage in similar activities as one's peers act as strong factors in encouraging consumers to buy paid products. With freemium on the other hand, access to content is freely available, and only certain models of access to such content, such as ad-free, is limited.

Freemium models, however, usually offer more flexibility in terms of their plans. This is likely done in an effort to convert as much of their network into paying consumers. Paid products, on the other hand, usually do not offer as much variety in the plans that consumers can choose. Most of the time, paid products simply offer multiple subscriptions that are differentiated by time period.

Another key difference between freemium and paid models is the exposure bias. The freemium services discussed can not only be accessed for free, but also without an account. This lessens the work done by the consumer, therefore making the service more incentivizing for the consumer to use. Our non-freemium products, on the other hand, all require some form of setup; this may include monetary purchase, account set-up, and in the case of PlayStation Now, physical set-up.

A large source of revenue for companies that operate under a freemium pricing model is ads. These are shown to consumers using the base service and actively used as a point to encourage users to venture into the paid service. YouTube is a key example of this, sourcing the majority of its revenue from ads, and using this revenue to attract content creators. While Spotify does also show ads, these are mainly sourced in-house and hence do not create revenue. Like most paid services, Netflix, Prime, and PS Now do not have as many ads, likely due to the fact that the user has paid for the service.

A final difference is that freemium models depend on consumer "discomfort" - most free versions of a service intentionally have some form of interruptions or inconveniences that push the consumer towards a paid product. However, paid products simply choose to offer a service. The aforementioned lack of advertisements is an example of this.

One similarity that did strike out was the fact that all of our case studies operated as subscription models, and we realise that this is true for the majority of technology-oriented services. This mode of structuring does have several advantages: consumers have the choice to quit at any time, but the majority avoid this due to loss aversion and sunk-cost biases. This means subscription models often have high retention rates.



## 2. Survey Results

The survey we conducted acts as a good indicator of public opinion of freemium and paid services, and allows us to further understand consumer behaviour behind these services. We took a sample size of  $n = 100$ , and asked the respondents whether they had YouTube Premium and Netflix, and why or why not they bought these services. A detailed list of questions and results can be found in the appendix.

To begin with, around 10% of the population we surveyed had YouTube Premium. This is relatively high when compared to the actual 1.24% conversion rate it has. However, our survey sample size was relatively smaller and partially WEIRD,<sup>9</sup> which may have impacted this figure, as a large part of YouTube's consumer base is likely from lower income households.

Out of the X people that purchased YouTube Premium, we found that only 57% of them were satisfied with the service and felt that it was worth it. This indicates that the product might not be as satisfactory or useful as other freemium models, and could be a reason for its comparatively low conversion rate.

The majority of respondents did not purchase YouTube Premium, and the answers they gave regarding their decision to abstain from making the purchase can interestingly be divided into the following groups: a) They found the product unnecessary, b) They found the product to be unreasonably priced, c) They had an adblocker installed or d) They had another reason. This portrays how a large part of the population that watches YouTube is either interested in the product (although to a limited extent) but believes it is overpriced, has no interest in the features of the product, or found an alternative. A lack of user desire for the added value services is likely the most influential factor in YouTube Premium's low conversion rate.

When asked why they chose not to purchase YouTube Premium, several respondents cited the feeling that the ads were not annoying or disruptive enough to push them towards buying it. However, when later asked how annoying they felt ads were on a scale of 1 to 10 (1 being not annoying, 10 being very annoying), over a quarter of them chose 10. Additionally, the results for this question averaged around 6.8, indicating a moderately high level of annoyance with ads.

Furthermore, not a single respondent chose 1, so on some level, every consumer found the advertisements at least a little bit annoying. This is likely due to the fact that the negative impact left by advertisements is not long-lasting; in hindsight, ads seem much less disruptive than they are in the moment. This is also partially explained by the existence of free ad blockers, as mentioned previously.

Our survey also asks those who do not have YouTube Premium to list a price at which they would purchase it. We

notice that there are two distinct groups that form. The first cites a price between Rs 50-100,<sup>10</sup> and the second citing a price around and above Rs 200; the second group made up roughly 22% of the sample population. YouTube Premium's actual price is Rs 139, clearly portraying how the second group is irrational. We predict that they will abstain from purchasing the premium plan after being shown the actual price too. The first group is also likely irrational, as such a small difference in price is usually not the deciding factor.

Out of all the respondents that did not buy YouTube Premium, around 56% of them stated that they would buy it if the service was one-time paid rather than subscription. Given the margins of error, this figure turns out to be around a half, meaning that a significant number of people would prefer a change from the subscription model. Some of the answers to previous questions also highlighted that paying was "a hassle". It is probable that the existence of a free service elevates the impact of the pain-of-paying bias (Zellermayer, 1996) on its paid counterpart, since Netflix showed slightly different trends; only around a third of people stated that they would buy Netflix if it was a one-time subscription.

We also surveyed the time people spent on YouTube, and found that around 50% said they watched somewhere between 1-2 hours per day, and 30% saying they watched it less than an hour a day. We do, however, believe that daily watch times can be deflated through a survey as users rarely notice how much time has actually passed due to YouTube's entertaining and addictive nature. This is relatively lower when compared to Spotify, where the average user listens to music for 148 minutes per day.

The "subtractive" services that YouTube Premium presents were seen as unuseful and unnecessary to a majority of people. This can be attributed to the aforementioned perception of advertisements in hindsight, but it is also significant that several respondents mentioned ways to bypass the negative features present in the free version of YouTube that were free (ad blockers). Even though YouTube Premium offers more features than just the removal of ads, many respondents chose to focus on why the ads did not bother them as much, therefore hiding the more "additive" services that the service offers.

The large majority of respondents that had Netflix cited reasons relating to the wide variety of content, quality content, or peer pressure that led them to purchase and continue with Netflix. Diversity is something Netflix actively advertises to attract users, employing the Naive Diversification Bias, and it is clearly successful. It is also impactful as it attracts a large part of the population with content catered specifically to different target demographics. Access to exclusive content is something that further differentiates paid products from freemium products, and these results portray how access to this content in an "additive" fashion is pleasing. Social pressure is something we mentioned in the previous section and the results clearly portray it to be of influential nature.

<sup>9</sup> This stands for Western, Educated, Industrialised, Rich and Democratic.

<sup>10</sup> This is roughly equal to \$1.

We asked the respondents that purchased Netflix whether or not they would prefer it if Netflix was freemium rather than paid, and around 60% of them stated that they preferred the current business model instead - this is an interesting figure that seems to diminish the lure of a “free product.” This disproves our earlier hypothesis that users would be attracted to the idea of not paying for content. It is possible that those that purchased Netflix would be accustomed to the non-freemium model, and this may have influenced the decision - however, this makes it clear that freemium models do not work in all cases.

Interestingly, 96% of the population surveyed was satisfied with Netflix. This clearly portrays Netflix’s success in terms of user satisfaction, and suggests that Netflix as a product, despite being almost thrice as expensive as YouTube Premium, offers more value for money.

Those that did not buy Netflix, however, stated that they do not consume much media content, and therefore found it unnecessary. Contrastingly to YouTube Premium, price was never mentioned in this case - this point is made more significant by the fact that Netflix is around thrice as expensive as YouTube Premium. This depicts that users tend to think more about price when they are offered the free version of a service, but focus more on quality in paid products, leading to another cause of irrationality.

Note that our survey contains some limitations that may restrict its accuracy. Firstly, our smaller sample size may not have been representative of YouTube’s or Netflix’s user base in terms of demographics, thereby causing some imprecision. Furthermore, we were unable to conduct the survey physically as a result of governmental lockdowns, increasing opportunities for response biases and invalid responses. Time restrictions and a lack of funding were also caveats.

### 3. Analysis and Recommendations

This section provides an in-depth analysis of the similarities and differences we have identified in the previous sections, formulating recommendations as to how freemium products can be modelled to achieve higher conversion rates.

The most noticeable result, and one of key importance in this paper, is that our hypothesis was fundamentally right - consumers do behave irrationally in the context of freemium purchases. However, our study also finds that consumers, when approached with questions about this, attempt to justify their behaviour with certain excuses - the most common ones found in our survey included high price, lack of necessity, and alternate means to access paid features (adblockers, for example). This presents a significant challenge to firms who adopt this model, as they must be able to effectively advertise their product in a way that radically changes consumer mindsets.

Another key impact of low conversion rates is the powerful effect of “Free” itself. (Ariel and Shampaner, 2006) conduct an experiment in which a Hershey’s Kiss and a Lindt truffle are sold at 1 cent and 15 cents respectively. 3 out of 4 subjects choose the truffle in this case due to the higher

value-for-money aspect it has. Both prices are then reduced by a cent, such that the Kiss is now free while the truffle is sold for 14 cents. Despite the price difference staying the same, two thirds of participants now choose to take the Hershey’s Kiss. This clearly represents how consumers act irrationally when presented with a free option, not making ideal decisions taking into account value-for-money and even need, while they conduct more thorough cost-benefit analyses when presented with paid options, in our case, to the likes of Netflix and Amazon Prime.

The biases and heuristics used by consumers exemplify their irrationality, and through our findings we identify a few of the most important biases that are prevalent amongst users of freemium products. Firstly, the pain-of-paying bias was clearly reflected through our survey findings. The existence of a free service definitely exacerbates this bias, particularly in regards to a subscription model, as more consumers would prefer it if YouTube Premium was a one-time paid service, but did not answer similarly about Netflix.

The naive diversification bias was also an important factor in determining whether people bought paid products or paid versions of freemium products. This portrays the importance of variety and diversity in a product like this, and shows how paying money for a practically unlimited stream of content is perceived to be more “worth it” than paying to access this content more comfortably. We see that consumers tend to value the content they consume rather than the way in which they consume it, thereby reaffirming the belief that additive services appear more beneficial than subtractive services. This is one feature that could greatly assist firms that aim to profit off of the freemium model. For instance, Spotify could reserve original podcasts for premium users.

The herd effect is also significant in the case of the freemium model, and must be adequately utilized by firms when modelling their product. As mentioned previously, consumers tend to behave in a bandwagon-like manner when it comes to freemium services, acting on a much more macro scale than in paid services.

We further notice that freemium products operate on the principle of consumers wanting the extra “comfort”, while paid companies actively advertise the “need” of it. Spotify, for instance, often talks about the added comfort you experience with an ad-free experience, and so does YouTube. Need has a stronger impact upon consumers, which in turn results in more sales.

Similarly, Spotify also repeats its ads several times, so the message it wishes to send is ‘engraved’ deeper. This repetition of ads and their self-referential nature are likely a key reasons behind Spotify’s high conversion rates, as consumers may begin to automatically assume they should purchase Premium, and make fewer critical decisions. They also tend to find the ads more disruptive as they hear them more often.

Another trend we observed was the difference in levels of flexibility across freemium and paid products. Freemium products offered greater amounts of flexibility in terms of their plans, and this may have both positive and adverse

impacts on the average consumer. While consumers tend to value more flexibility in decision making, too many choices may be a counterintuitively poor choice, as users may be affected by choice overload. In the case of Spotify and Zoom, where different plans are targeted towards different audiences (families/couples in the case of Spotify, different types of firms in the case of Zoom), this often works in the company's favour. However, providing too many plans of the same form, as is the case for YouTube, may not be as practical.

Free samples, often offered in the food retail industry, and a subtype of freemium, often have conversion rates of 25-30%. We believe the limited access to the product is a key factor, and companies such as Zoom that use this are shown to be successful. While this may not be applicable in all instances, its implementation may positively impact consumer transformation.

Another smaller trend that stood out in our survey was that multiple respondents cited adblockers to justify not purchasing YouTube Premium. We notice that while these alternative means of accessing services exist for both paid and freemium products, they would likely be used more often in the case of freemium products, as the added features of freemium products are easier to replicate, and it has lower moral weight to consumers as a result.

However, in certain cases, the freemium service is just inherently less value-for-money. We believe YouTube to be one such case, particularly when compared to products such as Netflix or Prime, which provide access to large streaming libraries. Ads, however annoying, may in the end just not be as worth a purchase as film and television content. Improving the Premium product is certainly important in attempting to receive higher conversion rates.

#### 4. Conclusion

In this paper, we hypothesized that consumers would make irrational decisions regarding freemium products. Through the analysis of several freemium and paid case studies and a survey, we identified several biases that play into these irrational decisions, and found that in certain cases, consumer behaviour could be attributed to negligence. For example, some of our respondents were willing to pay more than the actual price for YouTube Premium, while still not having the service.

Our research has direct impacts on two parties: consumers and firms that produce freemium services. To a consumer, our paper provides insight into some of the irrational decisions they make and how they could potentially circumvent them in order to make economically sound decisions. To a firm, our paper provides insight as to how an average consumer responds to freemium products; this includes the biases they hold, the features they value, and the ideal price ranges. This can help producers better construct a freemium service to achieve maximum profit.

The field of freemium economics is still relatively new and underdeveloped, and so, future research could set many of the economic decisions made by consumers in better

context. It may achieve new discoveries regarding the psychological reasons behind the biases themselves, and construct algorithms to determine the pricing and the balance between the free and premium services. Larger sample sizes, experiments with consumers, and the analysis of more companies could provide further insight into what we discuss. However, we hope this paper sheds some light on how consumers behave and why some freemium products have lower conversion rates than others.

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