Optimal Content-Sharing Strategy for Online Streaming Platforms

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Abstract

Many subscription-based video-on-demand (SVOD) platforms are currently focusing on creating exclusive content to attract more subscribers. However, it is not clear that an exclusive-content strategy will eventually increase the platforms' profits and/or the number of the platforms' subscribers. This research models two competing platforms' choices between leasing and not leasing exclusive content investigating the impact of their choices on the SVOD market size and the competition results. We show the conditions under which the two platforms can increase their profits by sharing a certain amount of exclusive content.

Keywords: Subscription-based video-on-demand (SVOD), Platform Competition, Exclusive-content.

1. Introduction

According to the godfather of the Internet, Vinton Gray Cerf, in the future, we will consume most of our television content via the Internet (Bobbie, 2007). Over-the-top (OTT) media service brings about the most significant transformation in the traditional media market. Video-on-demand (VOD) plays a key role in the OTT service that drives this change in the media market. VOD refers to a service that allows consumers to consume desired content at a desired time through a network, such as the Internet (Little and Venkatesh, 1994). VOD companies, (including Netflix, Amazon Prime Video, HBO GO, YouTube Originals, Disney Plus, etc.), generate revenue through three main profit structures. Transactional Video-on-Demand (TVOD) is a revenue model in which consumers pay for each episode watched. Advertising Video-on-Demand (AVOD) generates profit from consumers watching advertisements. Subscription Video-on-Demand (SVOD) generates profit from consumers' regular subscriptions (Danaher et al., 2010). In the early days of VOD service, many VOD companies entered the market in various forms of revenue model. However, currently, the majority of companies have adopted the Subscription Video-on-Demand (SVOD) format, where consumers subscribe on a monthly basis. (De Matos, 2017; Waldfogel, 2012).

In the early days of SVOD streaming services, not many content provider companies had their own streaming platforms. Instead, they got revenue from renting their content to other SVOD companies. For example, WarnerMedia rented the drama 'Friends' to Netflix for $100 million per year (Rani, 2020). However, the situation has changed as content provider companies who did not have their own streaming platforms gradually started to create their own streaming platforms. They did not extend or renew contracts of copyrights for contents that were previously lent to competitors and are now only providing their contents on their own streaming platforms. In the case of Walt Disney, they did not sign contracts for new Disney content with other companies since 2019 (Rani, 2020). Figure 1 clearly illustrates this phenomenon: despite Netflix's continued increase in original content, the quantity of licensed content experienced a significant decrease until 2018. Compared to 2012, the number of contents in 2018 has decreased by half (Travis, 2020).

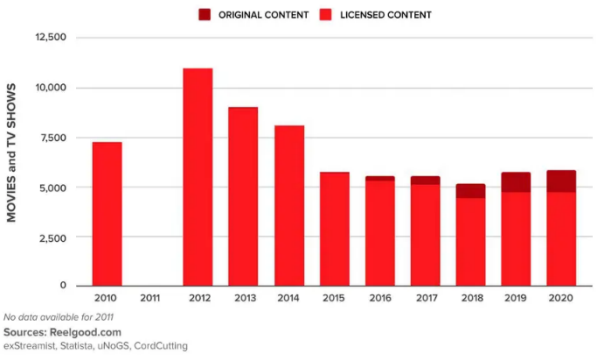

Figure 1. Movies and TV Shows on Netflix Over the Years (Travis, 2020).

Considering that several streaming platforms do not further lease their contents, it has become increasingly difficult for streaming platforms such as Netflix to sign content contracts. As a result, they are shifting their focus towards producing original content. According to Todd (2018), Netflix has invested 85% of its investment

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in original content (content exclusively provided among self-produced content) in 2018. As illustrated in Figure 2, approximately half of Netflix's content in 2022 is exclusively available on its platform. This phenomenon is not limited to Netflix and extends to other streaming platforms as well. Hulu and Amazon Prime Video also increased the proportion of original contents by over 1,450% during five years (Lesley, 2016).

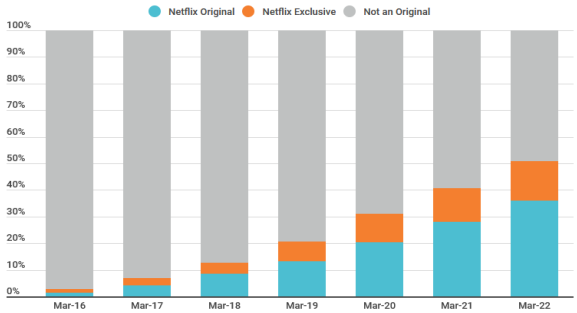

Figure 2. Netflix USA catalogue share by original status, 2016-2022(%) (Joe, 2022).

Due to fierce competition in the SVOD streaming market, companies adopt different profit strategies for their content (Wayne, 2018). Disney Plus and HBO GO only provide their own content to subscribers to generate profit from the subscription fee, while some of their old content is rented to competitors to generate profit from down payment. On the other hand, Netflix and Amazon Prime Video rent content from production companies or competitors, and they also produce their original content. In short, there are two major strategies for VOD companies: 1) not lease strategy: not renting their contents to competitors and provide their exclusive contents to their members only. 2) lease strategy: renting contents (some or all) to competitors and earn down payment. From the two major strategies, SVOD streaming companies can generate three types of revenue strategy: 1) a strategy to obtain revenue only from subscribers' regular membership fees by providing only their contents to subscribers exclusively, 2) a strategy to obtain revenue from membership fees and down payment by renting contents to competitors along with providing their own contents to their member, and 3) a strategy to obtain revenue from membership fees providing its own contents and renting out competitors' contents to obtain more members.

For platforms that accept a lease strategy from competitors, leasing competitors' content can attract more subscribers and is much cheaper than creating their own content (Rani, 2020). However, it can cause a significant loss due to the termination of the contract and the request for a high down payment. Platforms that give a lease strategy to competitors will gain short-term profit from down payment but will not be able to attract new subscribers. Conversely, if a platform does not rent, they cannot benefit from short-term content rental fees, but in the long term, they can attract subscribers to their own platform. As such, there is a tradeoff between the down payment revenue due to the 'lease strategy (in other words, rental strategy)' and the increase in the number of subscribers due to the 'not lease strategy (in other words, subscriber attraction strategy)'. Therefore, it is necessary to study the lease or not lease strategy of the streaming platform in response to competitors. This study will analyze whether it is beneficial for SVOD streaming platform to adopt a lease strategy and, if so, how much content to rent.

In this research, we aim to determine the most optimal revenue-maximizing strategy for streaming platforms by analyzing the lease and not lease strategies. In the lease strategy, revenue is generated from both leasing content and subscription fees from consumers, while in the not lease strategy, revenue only comes from subscription fees. There is a trade-off between the revenue obtained from leasing content and the number of subscribers. To investigate this trade-off, we have developed a game-theoretic model for competition between two platforms with lease or not lease strategies. We will first determine the consumer market equilibrium by analyzing how consumers make subscription decisions. Next, the two SVOD streaming platforms will determine their respective strategies for leasing and not leasing content. In the case where a lease strategy is chosen, in what level or proportion of content that should be leased. Finally, based on the strategies, we will determine the price that the SVOD streaming platform will offer and obtain the subgame perfect Nash equilibrium (SPNE) through backward induction.

2. Literature Review

Existing studies related to VOD streaming platforms mainly focused on empirical analysis using data on how to attract new users (Ben Rhouma and Zaccour, 2018; Hiller, 2017) and on consumer subscription (Godinho de Matos et al., 2018; Nam et al., 2010). Hiller (2017) used Netflix data to generalize that the strategy of bundling similar video content in the VOD streaming industry had a positive effect on the profits of the streaming platform. Ben Rhouma and Zaccour (2018) showed an optimal way to attract service subscribers through dynamic planning using data from two telecommunications companies. Although focused on piracy, Godinho de Matos et al. (2018) studied the effects of consumer subscriptions to SVOD services on digital piracy through a randomized experiment. Nam et al. (2010) studied the effect of

word-of-mouth effects on subscribers who were already using VOD streaming platforms and new subscribers who could be attracted by them. Unlike the papers mentioned above, this study contributes to the literature study of VOD streaming service through economic modeling based on game theory.

Our paper builds upon previous literature in the field of VOD streaming platforms, specifically focusing on the application of the two-sided market framework. Two-sided markets are characterized by three defining features: 1) the presence of two or more distinct user groups for transactions, 2) cross-network effects (also referred to as indirect network effects), and 3) direct network effects (commonly known as same-side network effects) (Rochet and Tirole 2003, Evans and Schmalensee 2005, 2016). Our choice to construct a model based on the two-sided market concept is justified by the observation that the VOD streaming ecosystem exhibits these defining characteristics.

Considering the content provider, consumer, and platform as distinct groups, often referred to as 'sides' following the terminology of Evans and Schmalensee (2016), Choi (2010) previously analyzed digital media markets as two-sided markets. Additionally, Choi (2010) discussed the presence of cross-network effects, where the availability of media player programs becomes more valuable as more content is accessible, and vice versa. This concept is akin to the situation in VOD streaming platforms, where the platform's value increases with the availability of more content and vice versa. Furthermore, Nam et al. (2010) identified that existing subscribers of VOD streaming platforms can attract new subscribers through word-of-mouth recommendations, indicating the presence of direct network effects. For instance, when a subscriber enjoys a positive experience with content on a platform like Netflix, they are likely to recommend it to others, sharing their positive experience. Additionally, Datta et al. (2018) demonstrated that subscribers tend to increase their spending after subscribing to a streaming platform, further underscoring the impact of direct network effects.

To capture the characteristics of VOD streaming platforms, we constructed a model based on the two-sided market framework. Specifically, we took into account the network effect on two fronts: 1) the consumer side, where increased content availability translates to greater utility, and 2) the multi-homing behavior of consumers, following the framework proposed by Armstrong and Wright (2007). While our model does not delve into the content provider side, as Choi (2010) did, we assumed that the platform itself plays a pivotal role in determining the quantity of content offered.

Another stream of the literature related to our paper examines the choice between leasing and selling strategies for digital content, with several studies investigating the effectiveness of selling digital content versus leasing it. (Adida et al., 2017; Cachon and Feldman, 2011; Duo et al., 2017; Lambrecht and Misra, 2017). Duo et al. (2017) divided the pricing strategy of information goods into the leasing model and the selling model and suggested an appropriate strategy according to the decline in consumer value. They showed through game theory that the sales model was suitable when the decline in consumer value exceeded a certain level. Similarly, Lambrecht and Misra (2017) presented a suitable strategy according to the demand for content by dividing it into a model that received a fee for online content and a model that provided it for free and collected advertising revenue. They also said that a model that collected fees was more appropriate when the demand for online content was low. Contrary to these results, according to Cachon and Feldman (2011), the pricing strategy that always charged a subscription regardless of service quality (Sell subscriptions) was always superior to the pricing strategy that paid for as much as it was used (Per-use Fees). Adida et al. (2017) compared the bundled sales strategy and the commission strategy to study the effect of the sales strategy on performance and showed that a combination of the two strategies was the best decision.

Unlike Cachon and Feldman (2011) and Adida et al. (2017), this paper investigates the leasing strategy in the competition between two SVOD platforms, where revenue is derived from subscribers' fees. Specifically, this paper examines the trade-off between the number of subscribers and the sale of exclusive content. We primarily focus on determining whether profit derived from attracting subscribers through exclusive content is superior to profits generated from leasing one's content. In contrast to Duo et al. (2017) and Lambrecht and Misra (2017), we contribute to the literature on leasing and selling strategies in the following contexts: (i) We investigate multi-homing consumers who subscribe to both platforms. (ii) To assess the importance of exclusive contents, we develop a game-theoretic model based on the profits obtained from exclusive content. (iii) Finally, we also consider the network externality effects in the digital content within our model.

3. Model

In our model, we set the product differentiation of platform content as horizontal differentiation based on content difference. This is reasonable because 1) it is difficult to reflect the superiority of platform contents, 2) consumers can subscribe to two or more platforms (multi-homing), and 3) there are exclusive contents

provided by each platform. In this respect, horizontal differentiation is more appropriate than vertical differentiation. In this study, we propose a dynamic game with the following sequence. In Stage 1, the two SVOD streaming platforms first decided on a 'Lease strategy' and a 'Not Lease strategy', respectively. If the platform decided to adopt a lease strategy, they will also set the amount of lease on their lease strategy. After the two SVOD streaming platforms decided to lease or not lease strategy, in Stage 2, the two platforms will determine the subscription fee for consumers to pay in order to subscribe to the platform. Additionally, if the platform decides to adopt a lease strategy, they will also determine the down payment for the leased content. Lastly, in Stage 3, consumers decide whether to subscribe to both platforms (multi-homing) or to only one platform (single homing).

3.1. Consumer Market Segmentation

In this study, we analyze the horizontal differentiation of the two platforms using Hotelling's (1929) linear city model. As shown in Figure 3, the characteristics of the platform contents are expressed as a range with a length of 1. We assumed that consumers are located uniformly in the interval between [0,1]. The location of each consumer is expressed as x, indicating the characteristics of the content that the consumer likes the most. For example, consumers who prefer the content of Platform A will locate themselves closer to 0, while consumers who prefer the content of Platform B will locate themselves closer to 1. Consumer preferences for content determine whether to subscribe to both competing platforms (multi-homing) or just one (single homing). If the consumer's taste is close to the middle (that is, the content taste is not clearly indicated) and the consumer's utility is high enough, there will be consumers who subscribe to both platforms (multi-homing) in the interval between [0,1]. If the utility of consumers is high and one is close to platform A, one will only subscribe to platform A (single homing). Similarly, if the consumer utility is high and one is close to platform B, one will only subscribe to platform (single homing).

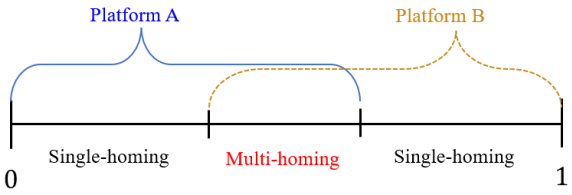

Figure 3. Consumer Market Segmentation.

3.2. Platform Contents Classification

SVOD streaming platform company A is referred to as platform A, and its amount of digital content is denoted as m_A. Similarly, SVOD streaming platform company B is referred to as platform B, and its amount of digital content is denoted as m_B. If a consumer subscribes to both platform A and platform B, the combined amount of digital content provided by both platforms is denoted as m. This model assumes that each platform provides two types of digital content: 1) exclusive content and 2) non-exclusive content (common content). Exclusive content is content that is only available on one platform (i.e., Original contents, Original Series). The content exclusively provided by platform A is represented by αc, and the content exclusively provided by platform B is represented by βc. Content that is not exclusive (i.e., common contents) is represented by c and is available on both platforms. Therefore, the amount of digital content provided by platform A can be represented as $m_A = (1+\alpha)c$, and the amount of digital content provided by platform B can be represented as $m_B = (1+\beta)c$. When a consumer subscribes to both platforms, the amount of digital content they receive can be represented as $m = c + (\alpha+\beta)c$.

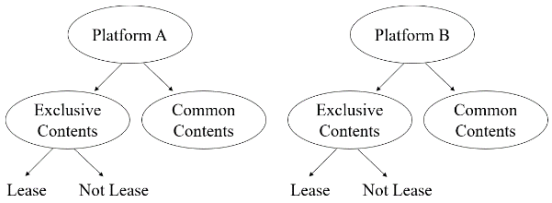

Figure 4. Contents Classification.

3.3. Consumer Utility

In this model, we adopt a continuous approach to the leasing strategy, wherein each platform determines the degree to which it engages in leasing or not leasing content. The degree of lease, denoted as d_i ($0 \le d_i \le 1, i = A, B$), represents a spectrum of choices. A value of 0 means 'Not Lease' strategy, values between 0 and 1 indicate a partial lease of the content, and a value of 1 means leasing all their exclusive contents. The two platforms can determine the degree of lease for exclusive content only. $\alpha c d_A$ is the amount of exclusive content that platform A lends to platform B, while $\beta c d_B$ is the amount of exclusive content that platform B lends to platform A. Let $U_A(p_A, x)$ and $U_B(p_B, x)$ be the utility that a consumer perceives when subscribing to platform A and platform B respectively. And, let $U_{AB}(p_A, p_B, x)$ be the utility that a consumer perceives when subscribing to both platforms, i.e., multi-homing.

Consumer utility for subscribing to each platform or multi-homing will be as follows.

$U_A(p_A, x) = b\{m_A + \beta c d_B\} - p_A - tx$

$U_B(p_B, x) = b\{m_B + \alpha c d_A\} - p_B - t(1-x)$

$U_{\mathrm{AB}}(p_A, p_B, x) = bm - p_A - tx - p_B - t(1-x)$

(Note that if the platform does not select the lease strategy, $\alpha c d_A$ or $\beta c d_B$ will be 0.)

In consumer utility, the parameter b ($0 \leq b$) captures the cross-side network effects, where consumers perceive more utility as the amount of content increases, similar to Choi (2010). This is reasonable because each consumer's utility of subscribing to a platform depends on the number of content available on the same platform. In other words, the availability of additional content that the platform generates increases additional utility. Although our model does not include a content provider agent like Choi (2010), we believe that the platform plays the role of a content provider, allowing it to adjust the amount of content according to the competitive situation. The taste of digital content is expressed as t, which indicates that the consumer's utility decreases as the distance from the most preferred digital content increases. In other words, the larger the value of t, the clearer the difference in consumers' digital content preferences. To simplify the model, we assume that the amount of common content is 1 ($c = 1$).

3.4. Platform Profit

The subscription fee paid by the consumer for subscribing to platform A is expressed as p_A, while the subscription fee paid for subscribing to platform B is expressed as p_B. We denote platform A's profit as π_A and platform B's profit as π_B. π_A and π_B will vary depending on the strategies chosen by each platform, and it is as follows.

$$\pi_A = N_A p_A + L_A d_A \alpha - L_B d_B \beta$$

$$\pi_B = N_B p_B - L_A d_A \alpha + L_B d_B \beta$$

L_A represents the down payment received by platform A in exchange for leasing digital content to platform B. Therefore, $L_A d_A \alpha$ will be the down payment fee for leasing $d_A \alpha$ amount of digital content. Similarly, L_B represents the down payment received by platform B in exchange for leasing digital content to platform A, and $L_B d_B \beta$ will also be the down payment fee for leasing $d_B \beta$ amount of digital content. If platform A chooses a not lease strategy, $L_A d_A \alpha$ will be 0, the same applies to platform B: $L_B d_B \beta = 0$. The number of subscribers for platform A, including multi-homing consumers, is expressed as N_A, and the number of subscribers for platform B, including multi-homing consumers, is denoted as N_B.

4. Model Analysis

From the consumer utility, we obtained the market segmentation of consumers and then determined the degree of lease when the lease strategy was selected. By combining a lease (expressed as L) strategy and a not lease (expressed as NL) strategy, the SVOD streaming platform market can be a combination of {platform A, platform B} = {L,L}, {L,NL}, {NL,L}, {NL,NL}. Based on the lease or not lease strategy, we found the price that each platform will offer and derived the subgame perfect Nash equilibrium (SPNE) through backward induction.

Proposition 1.

The optimal degree of lease for one platform is to lease all their exclusive contents only if the other platform accepts the offer. The conditions under which the other platform accepts the offer are as follows:

$$\{\text{Platform A, Platform B}\} = \begin{cases} \{\text{L, NL}\}: \ d_A^* = 1 \ \left(\text{when } \frac{b(6t + b\alpha - 2b\beta)}{18t} < L_A < \frac{b(6t - b\alpha + 2b\beta)}{18t}\right) \\ \{\text{NL L}\}: \ d_B^* = 1 \ \left(\text{when } \frac{b(6t + b\beta - 2\alpha b)}{18t} < L_B < \frac{b(6t + 2b\alpha - b\beta)}{18t}\right) \\ \{\text{L, L}\}: \ \text{equilibrium does not exist} \end{cases}$$

Selecting the appropriate degree of leasing becomes a critical decision for a platform that opts for the lease strategy. In the case where no multi-homing consumers exist, platforms will make comparisons based solely on their ability to attract consumers with their exclusive content versus the revenue they can generate by renting out their exclusive content to other platforms. We have found that when a platform chooses to adopt the lease strategy, it is optimal for them to lease out all of their exclusive content if the other platform accepts the offer. The other platform will accept the offer if the down payment fee is reasonable. This typically occurs when the platform choosing the lease strategy has a smaller amount of exclusive content compared to the other platform (specifically platform A chooses the lease strategy when $\alpha < 2\beta$ while platform B chooses for lease strategy when $2\alpha > \beta$). From the perspective of a platform that rents exclusive content, if the down payment fee is guaranteed to exceed a certain threshold, the loss of subscribers due to offering a limited amount of content becomes greater than the down payment fee itself. This is because the down payment fee decreases as the amount of content available for rent diminishes. Consequently, instead of adopting a strategy solely focused on attracting subscribers, this platform chooses to rent out all of its exclusive content to maximize the down payment fee earned. This strategy is also embraced from the perspective of the other platform that accepts the rental strategy offer. The key factor enabling this is the subscription fee pricing. When all of the other party's exclusive content is rented, it not only allows

them to capture the entire subscriber base in the market but also leads to an increase in the subscription fees collected from these subscribers, ultimately benefiting the platform that accepts the offer. Therefore, it is rational for a platform to provide all their exclusive contents when they have decided to adopt the lease strategy.

Proposition 2.

If multi-homing consumers exist, the best strategy for both platforms A and B is to choose the not lease strategy {NL, NL}. The profits of platform A and platform B in this case are as follows.

$$\begin{cases} \pi_A = \dfrac{b^2\alpha^2}{4t} \\ \pi_A = \dfrac{b^2\beta^2}{4t} \end{cases}$$

If there exist consumers who subscribe to both platforms, the subgame perfect Nash equilibrium occurs when neither platform chooses the lease strategy. This is because leasing would result in a net loss rather than a profit. As from Proposition 1, platforms will lease all their exclusive content if they choose to conduct a lease strategy to maximize their profit. However, multi-homing consumers do not have any incentive to remain multi-homing when at least one of the platforms chooses to lease all their exclusive content. Since all content can already be viewed on one platform, multi-homing consumers do not need to subscribe to both platforms, and the cost of subscribing to both platforms has also increased. Although there exists a tradeoff between the loss of subscription fees and the income from leasing, the not-leasing strategy dominates the leasing strategy when multi-homing consumers exist. If a platform chooses to lease all exclusive content, they will not only lose all their multi-homing consumers but also their single-homing consumers. Therefore, the only revenue remaining comes from renting out exclusive content, leading to smaller profits compared to the case where no platform chooses the lease strategy. Even though increasing the income from leasing is possible, since the other platform does not accept the down payment, the lease strategy with a high down payment is not feasible. As a result, platforms will not choose the lease strategy in order to earn subscription fees from multi-homing consumers, but rather to receive the down payment fee. This can be explained by the fact that many SVOD platforms currently do not adopt the lease strategy. Even if the lease strategy is taken, the contract period is short and only a very small percentage of the exclusive content is leased to other platforms in the form of a brief show or a trailer.

Corollary 1.

When exclusive content exceeds $\frac{6t}{\sqrt{5}b}$ ($\alpha > \frac{6t}{\sqrt{5}b}$ or $\beta > \frac{6t}{\sqrt{5}b}$), neither platform chooses to implement the lease strategy.

As the contents of the two platforms are differentiated (t), the SVOD is developing into a form where platforms can lend independent contents from one another. This is possible because the contents they each have are clearly different and new subscribers can come by borrowing content, thus lead to additional profit for platforms. On the other hand, if the marginal utility for consumers increases (meaning consumers perceive more utility as the amount of content increases), platforms will not choose the lease strategy. Instead, the SVOD market will continue to develop in the form of multi-homing, where each platform can attract the maximum number of subscribers with not lease strategy.

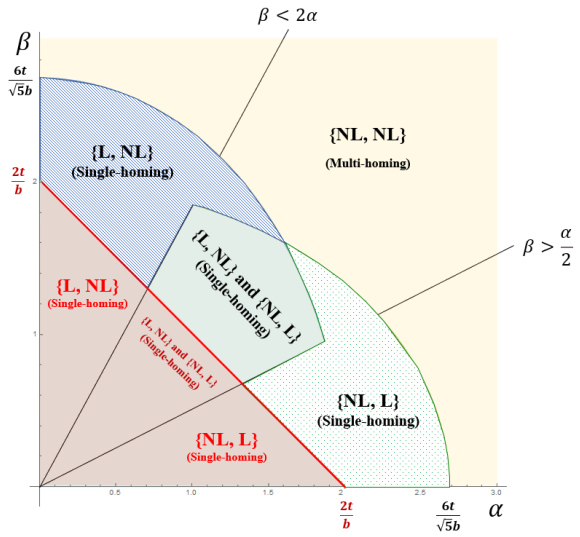

Figure 5. Relationship between equilibrium and exclusive content amount (Note: $b = 0.5, t = 0.5$).

Proposition 3.

For both platform A and platform B, multi-homing can only occur when the ratio of exclusive contents (α, β) is greater than a certain amount. Specifically, the following conditions must be satisfied:

$$max\{9\alpha^2 + 5\beta^2, 5\alpha^2 + 9\beta^2\} > \frac{36t^2}{b^2}$$

If both platform A and platform B have exclusive contents over a certain ratio, the best option is to not lease each other. This is because if both platforms do not have more than a certain percentage of exclusive contents, there is no advantage for consumers to choose multi-homing. With a small portion of exclusive contents, consumers perceive both of the platforms

similar due to the relative amount of common contents. Therefore, consumers subscribe to only one of the platforms that matches their preference, and the market appears as single homing. As the contents of the two platforms are differentiated (t), the SVOD market develops of adopting lease strategy, lending exclusive contents from one platform to another. Conversely, as the utility that consumers perceive through subscribing to a new platform is large (b), platforms tend not to lend their contents to other platforms. This is reasonable because consumers are more likely to convert depending on the content of the platform. Therefore, the market develops in the form of multi-homing where each platform can get the maximum number of subscribers.

Proposition 4.

When the ratio of exclusive contents is small on both platforms, it is optimal for a platform with a small ratio of exclusive contents to rent its contents to another platform. Specifically, when the ratio of exclusive contents is as follows:

$$\begin{cases} \beta < 2\alpha, & \text{platform B should only lease} \\ \beta > \dfrac{\alpha}{2}, & \text{platform A should only lease} \end{cases}$$

The platform with a small ratio of exclusive contents should lease its contents to another platform to maximize its profit, while the other platform should not. If the ratio of exclusive contents on both platform A and platform B is small, a strategy in which a platform with a small ratio of exclusive contents leases its contents to another platform is the optimal choice. This explains the phenomenon that appeared in the early SVOD market. In the early days of the SVOD market, platforms had few exclusive contents (note that Netflix original contents appear from 2015). Similar to proposition 3, for a platform with few exclusive contents, the benefit obtained by renting out its exclusive contents is greater than the benefit of obtaining more consumers without renting it. In addition, a platform with slightly more exclusive contents has a greater profit of getting more consumers by renting contents from other platforms. This shows that SVOD companies with a small amount of exclusive content can maximize profits by renting out their content to other platforms rather than solely focusing on increasing the number of subscribers in the early stages. After generating profits, we propose a plan to gradually increase the amount of exclusive content using the resulting earnings.

5. Conclusion

This study evaluates the revenue model strategies of platform companies in the current VOD market situation, with a focus on SVOD, which generates revenue through regular subscriptions from consumers. Through this study, two academic contributions and three practical contributions were found. First, as an academic contribution, optimal content-sharing strategy for online streaming platforms was derived through economic analysis. The results of the analysis provide the basis for expanding the literature on the efficacy of leasing strategies for companies, including the degree to which such strategies are beneficial. During the early 2000s, studies were conducted to determine whether outsourcing or in-house strategies were more appropriate, with Apple and Samsung serving as representative examples. Subsequently, the focus shifted to the rental and sale of online content, with further studies exploring which strategy was more suitable. Therefore, this study is meaningful in that it analyzes the suitability of rental policies (i.e., lease strategy) in online streaming platforms. Secondly, the existing literature on Video-On-Demand (VOD), particularly Subscription Video-On-Demand (SVOD), has predominantly relied on empirical research. This study contributes to the literature by using economic modeling to validate and generalize the findings of previous empirical studies.

This study provides practical contributions in three aspects: Firstly, it suggests a rental/lease strategy for digital contents in SVOD platforms. Secondly, it highlights the importance of exclusive contents in SVOD platforms. Thirdly, it offers potential applicability to various industrial fields beyond online streaming platforms where two-sided markets exist. This study provides insights for SVOD streaming platform companies seeking corporate strategy suggestions on whether to have digital content exclusively or rent it to other platform companies. The findings reveal that the current SVOD streaming market offers different strategies that platform companies must choose depending on the number of consumers who subscribe to two or more SVOD streaming platforms. If there are many consumers who subscribe to only one SVOD streaming platform, the strategy of renting out a portion of their exclusive content can be an alternative to maximize the company's profits.

Additionally, this study highlights the importance of exclusive content for SVOD streaming platforms and offers a guide for utilizing such content. According to the findings, if a large number of consumers subscribe to multiple SVOD streaming platforms, companies should refrain from sharing their original and exclusive content with other platforms. Therefore, it is suggested to SVOD streaming platform companies that it is better to invest in developing their own content rather than borrowing digital content from other SVOD streaming platforms at a premium price. Moreover, it is

recommended that platforms prioritize enhancing their content and user experience, rather than solely relying on leasing arrangements as a means of generating revenue.

However, it has also been found that situations may arise where a lease strategy could be profitable for both platforms. Specifically, when the number of exclusive contents is below a certain threshold, both platforms can benefit from one platform leasing out its entire exclusive content to the other platform in order to maximize revenue. Moreover, in cases where one platform has a lower ratio of exclusive contents, it may be advantageous to lease its contents to the other platform to maximize profit, while the other platform should not. These findings emphasize the importance of carefully considering the specific circumstances of a given platform when deciding on a revenue strategy. By taking into account the findings outlined in our analysis, platform companies can make more effective decisions about how to maximize their revenue and remain competitive in online streaming market.

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