Measuring Streaming Success: Netflix Data Analysis

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Introduction

It's been a little over 125 years since the advent of motion pictures, and since then, an industry has been birthed and reborn many times over in just that short span. From early nickelodeons that gave you a five-cent glimpse at a few seconds of moving antics to the robust Hollywood studio system churning out films for moviegoers to come back to week after week in droves through the wave of independent and digital cinema (and television) and so much more, it's all led to our current media landscape where streaming seems to rule the day. In all that time, as with any industry, there's been the essential question: how does one measure success in a way that can help you both anticipate and replicate it?

Ticket sales and box office were the primary metric up until just recently. Then, the advent of home entertainment with VHS to DVD to Blu-ray sales and rentals added a long tail to the economic story of a motion picture. Television licensing added to this, and finally, franchises have become complicated business machines unto themselves offering financial prosperity through merchandising, theme park rides, and all manner of brand extension revenue. This creates a picture of the shift in the industry which no longer just sells individual films or even series direct to consumers, but rather they create brands unto themselves which can be adopted through many means of cultural collateral (from physical media to books about the making of the film to branded consumer products).

An interesting shift here is also in the branding of the media companies themselves, including those that had started primarily as platforms for others' titles (case in point: Netflix). While Disney had its own family brand for decades, you would be hard pressed to find many consumers in the 20th century looking forward to the latest MGM or Universal picture by company name. Even the filmmakers behind the scenes were largely unknown by the public and it was purely the movie stars that would have any type of relationship that drew in an audience. This has changed dramatically wherein a film or television show is marketed through many different brand affiliations, whether it's the actors involved, the filmmakers behind it, the studio making it ("a Blumhouse picture"), or even the platform it's distributed on ("A Netflix Original").

This leads us back to the encompassing question: **how does one measure success in media anymore?** We can look at all the different metrics available to us over the years and available today (from the Nielsen ratings counting a sample of families to represent how many people were watching to the online video streaming platforms that have up-to-the-millisecond data on exactly how many people have watched and clicked on a video), but these metrics are merely tools. The true metric of success from a business standpoint will be how companies utilize and optimize these digital (and other) metrics to increase company revenue and user growth. In this memo, I will be examining Netflix as a case study company that was at the forefront of the streaming revolution, and looking at several factors against the company's bottom line (i.e. revenue and subscriber growth over time).

Background

Professor Arthur De Vany wrote an authoritative work titled "Hollywood Economics: How Extreme Uncertainty Shapes the Film Industry." In a book review of this work, Chisholm (2005) gives us a few key ideas that characterize the film industry in the 20th century, namely the understanding that the movie business is an information industry that delivers a product which garners either a "herding" reaction by audiences (i.e. great early success in the opening weekend of a film may cause people to see it just *because* of that success), or a "learning" reaction in which a film gains success or failure through word-of-mouth about its quality (p.233). He goes on to talk about Professor De Vany's model of box office revenues which subscribe to a "stable Paretian distribution rather than a standard normal Gaussian distribution," (Chisholm, 2005, p.234). This means that films often have massive success or massive failure with not much of an in-between for a lot of a particular studio's films. This is why the practice called "block booking" was implemented (before it was dismantled through the antitrust Hollywood cases), in which a studio groups their films together when selling to exhibitors to make sure they showed the whole current catalog to audiences and not just the anticipated "hits," per se (Chisholm, 2005, p.234). While this all speaks to box office revenues, what makes it relevant to this discussion and analysis of media success in streaming is that *response to uncertainty* which was—for the old film studios when they had the power to do so—packaging films together.

In our modern streaming landscape, platforms like Netflix essentially can do this with their whole catalog (both licensed and original content) and sell directly to the audience / viewer. This helps, in some part, to mitigate the uncertainty of the film business by changing the model from being so dependent on "hit" films' successes to carry a studio into profitability and instead creates an information product that's constantly growing in value (a library/catalog of film and TV shows to access on-demand). The DNA of the film industry lives on, though, in that Netflix and others have opted to make original content which they very much market and sell to the public as "events." The release of a TV season or film is hyped with a release date, often backed by A-list actors or filmmakers, and rolled out with much the same PR and media blitz as any regular Hollywood release film. The key difference, though, is the product is a subscription to the platform, not a ticket to a particular movie, and so what partially sparks this analysis is the question of why the traditional film industry has not collapsed completely? Why do filmmakers still want the chance to premiere their film in theaters beyond artistic & nostalgic attachments? Why do movie studios still experience massive amounts of success, at times, in the opening weekend of a film (hitting numbers that are incomparable to the success of any one film on a platform like Netflix)?

It is with these thoughts and background in mind that I want to examine this topic of media streaming success metrics. From Nielsen ratings for advertisers measuring the number of people watching and the market share of all potential viewers to box office numbers domestic and worldwide, we've had many ways to look at the viewership and revenue of traditional media. Netflix presents an interesting case study as they themselves examine what metric is best to help them understand the success of a film or series, and they have cycled publicly between the number of hours watched (which tracks user engagement) and the number of views themselves (which can speak to both volume but possibly also rewatchability from smaller niche audiences). How can they measure the effectiveness of their original and licensed programming and discern its real impact on the bottom line when the only product is subscription revenue? While studies show that viewers consider Netflix to have the best original content among streamers, this still places them in a narrower context than the overall film industry (Stoll, 2022, p.27). With all this in mind, we proceed with the analysis.

Research Question

In this analysis, I will be exploring a broader topic of how to measure streaming success by specifically examining Netflix's company data as a case study.

In that, the primary question we will ask is: looking at the available data for the last 2 years of Netflix's "Top 10 Weekly" titles, how do these top titles' attributes affect the success of Netflix as an overall company in regard to its revenue and subscriber growth?

In conducting these analyses, we will be purporting the following hypotheses to test:

1. Increased weekly views of films and television correlate to increased revenue & subscribership.
2. Netflix original titles are the majority of its “Top 10 Weekly” titles.
3. After introducing Netflix original titles, Netflix experienced at least 10% growth YoY.

Datasets for Analysis

Netflix Global Top 10

The key dataset I’ll be utilizing is Netflix’s published “Top 10 Weekly” global titles which can be found at https://www.netflix.com/tudum/top10/ . They have a few datasets, but the one we’ll be focusing on is the Global Top 10 which lists the weekly Top 10 in 4 categories: Films (English), Films (Non-English), TV (English), TV (Non-English).

The titles are rated as the Top 10 by number of hours viewed during that week, for data prior to June 18th (for this reason, in some of my analyses, I exclude the most recent data using the weekly views statistic). As noted by Porter (2023) in The Hollywood Reporter, Netflix made a shift in June of this year to ranking its Top 10 titles instead by weekly views which is calculated as the number of hours a program is viewed divided by the runtime of the program itself. He notes that the Netflix team made the switch and referenced “its hours-divided-run-time view statistic in publicity emails, and it ‘proved to be a more relatable metric for people’” (Porter, 2023).

Netflix Revenue / Subscriber Growth

I’ll be utilizing data as provided by Business of Apps (a website that collects and summarizes company data sourced directly from publicly available company information). This data will be found here: https://www.businessofapps.com/data/netflix-statistics/, and I’ve worked to organize it into a dataset based on the tabular data provided on the website. It includes quarterly revenue from 2011 to 2023 and subscriber count from 2011 through 2022. Additionally, I will reference data from Netflix's 10-K form for any additional data from specific years.

Netflix Originals

There is no publicly available, clean list of Netflix originals from the company itself, and so, as a last resort, I've scraped the data utilizing a Wikipedia entry which lists titles which have references to several different sources for each title (mainly industry articles that announce the release/details of the title). Since this data will only be utilized to cross-reference the Global Top 10 list, this was sufficient for this analysis (although typically it is preferable to utilize a more reliable data source).

Data Analysis

Viewership vs. Revenue/Subscribership

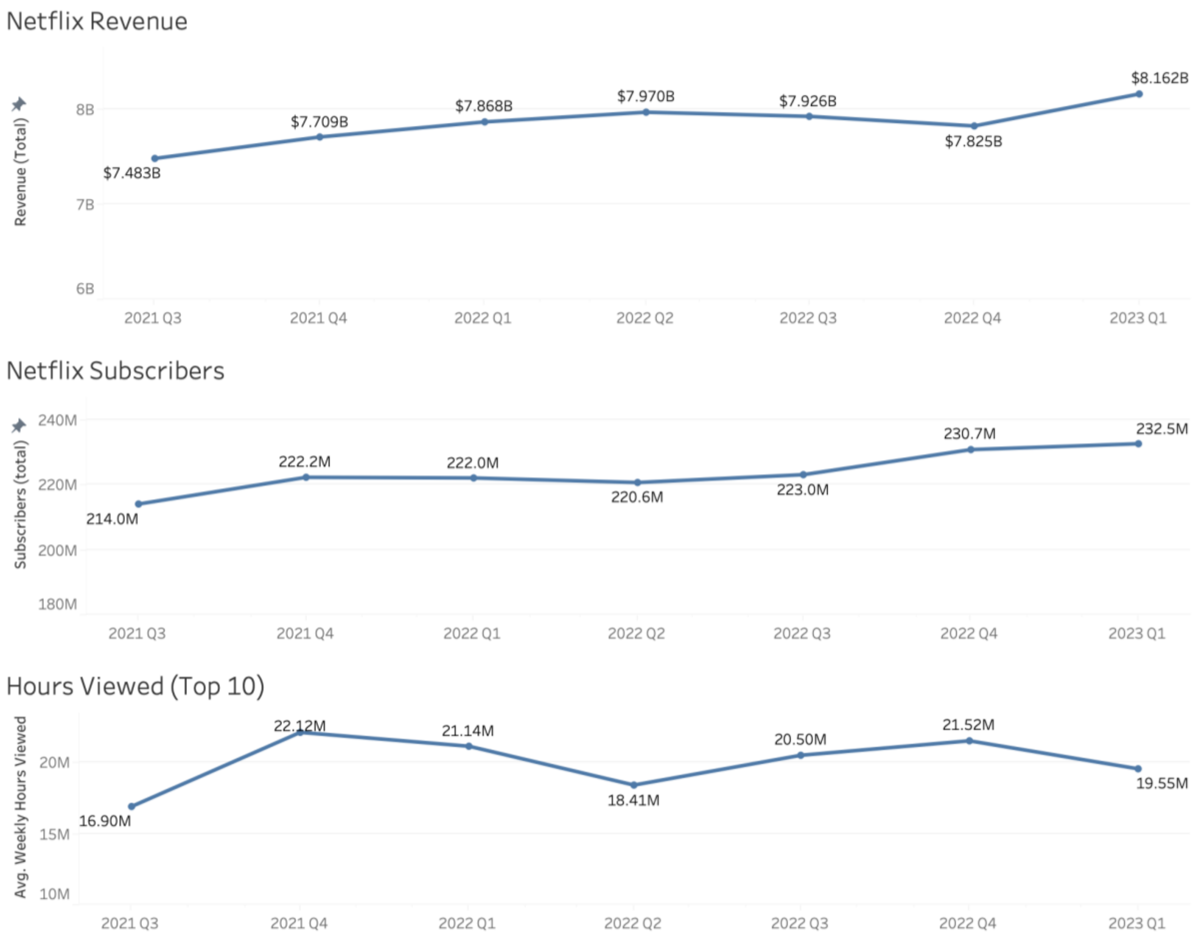

Figure 1

The first analysis I completed was comparing the data between average hours viewed of the Top 10 content (in 4 categories: Films (English), TV series (English), Films (non-English), and TV series (non-English) and Netflix's company Revenue and Subscribership over the same timeframe. Given the available data, I examined from Quarter 3 of 2021 through Quarter 1 of 2023, covering about 18 months of data. As shown in Figure 1 above, we see a steady growth in Revenue over the time period, with a dip at the end of Q4 2022, followed by a strong rise to the highest quarter in

Q1 2023. Subscribership shows more fluctuation, but does see overall growth during the period, and the data looks in line with what Netflix has referenced in its 10-K Form regarding subscriber growth in which they mention their greatest growth is typically in Quarter 4 (Netflix, 2022). Looking at the Hours Viewed metric, while there’s also fluctuation, it seems to follow the pattern of subscribership more closely than revenue (excepting Q1 2023).

One of the key interesting points we see from this data is the inverse relationship between Revenue and Subscribership/Hours Viewed, particularly more recently. While Q4 2022 saw a decrease in Revenue, there was an increase in Subscribership/Hours Viewed, and following into Q1 2023, there was an increase in Revenue, yet a decrease in Hours Viewed (and a smaller growth rate in Subscribership). This can speak to a positive trajectory for 2023, as the amount of money/users is growing while the usage itself went down (which is a short-term gain, given the cost of usage, but it’s still something positive in the short-term). However, given the current Writers Guild of America writer’s strike which has slowed or stopped production for Netflix and many other companies, it may spell trouble for the rest of 2023 or beyond if new programming must be delayed. Overall, there’s no perfect correlated relationship between these three metrics, but do we see them interacting in some ways over the period, as mentioned.

Revenue, Subscribership, and Average Hours Viewed by Growth Rate

Figure 2

Looking at our three key metrics, we can compare them by their relative growth rates over the same period of Q3 2021 through Q1 2023 (starting with Q4 2021 as we don't have the data available for Q2 2021 to acquire the growth rate). Utilizing growth rate quarter-by-quarter allows us to see a better, more objective comparison measure between these three metrics. In Figure 2 above, we can see the growth rates shown, highlighting the Revenue growth rate. We see a lot of movement for the Average Hours Viewed, while Revenue and Subscribers have more subtle shifts (this is likely due to the sheer amount of revenue and subscribership, as they are in the billions and millions, respectively, and as such, it takes a lot to increase by a significant percentage). In that vein, it again seems as though the average hours viewed of the top 10 titles (in the 4 categories) is not closely correlated to revenue and subscriber count increase. What is interesting, though, is to see how revenue and subscribership are related, and again, we see a somewhat inverse relationship in Q3 2022 and Q4 2022 (higher subscribers but lower revenue) and in Q3 2023 (higher revenue but less subscribers). This possibly speaks to shifts in their pricing model which has been working to get more revenue per paying membership as their 2022 10-K form indicates, stating they've seen an increase in average monthly revenue per paying membership going from $10.91 in 2020, to $11.67 in 2021, to $11.76 in 2022 (Netflix, 2022). They've also launched ad-based plans to garner greater subscribership and capture more people at a lower plan. Overall, again, we don't find any real correlation between average hours watched in the Top 10 and revenue/subscribership.

Original vs. Licensed Content

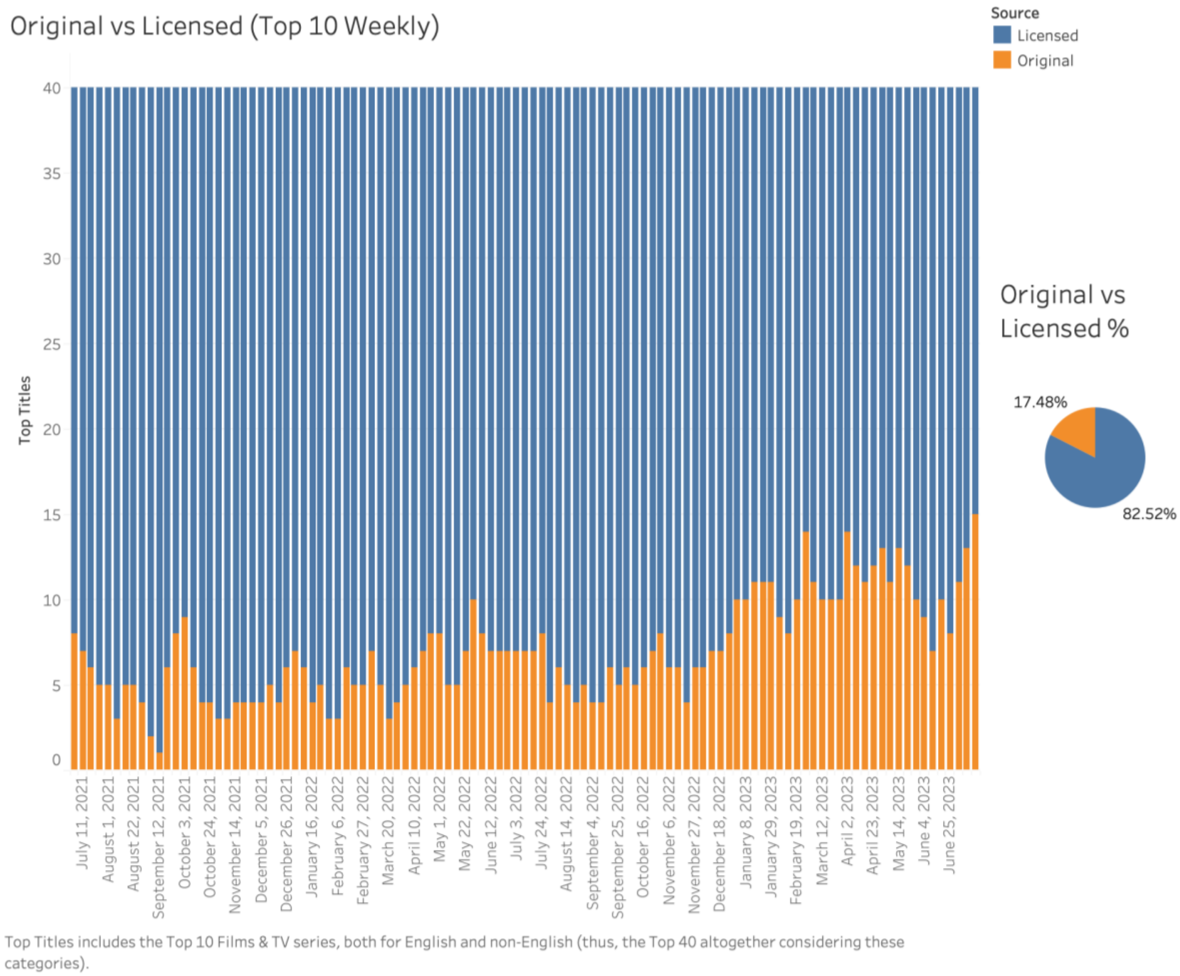

Figure 3

In looking at the Top 10 Weekly titles for Netflix, I examined how many of these titles were Netflix Originals. In producing Originals, Netflix made a name for itself and revolutionized the streaming industry by shifting its business model from being a platform for content to being a producer of content as well. Given this, though, when examining the data for its Top 10 Weekly films and TV shows, its originals are not the majority of its top titles (as seen above in Figure 3). While there is fluctuation and slight growth of originals in the Top 10, the original content still makes up less than 20% of the Top 10 weekly titles. This speaks to the fact that while Netflix entered the industry seeking to reinvent itself as a major studio and producer of content, the business model is still heavily reliant on licensed media. This can affect how it moves forward, and we learn from Netflix's 10-K Form that while they heavily increased investment in added content assets in 2021 (going from $11.8bn in 2020 to $17.7bn in 2021), they've slowed down slightly in 2022 (spending $16.8bn) and may continue to do so in 2023 (Netflix, 2022). While Netflix led the way for the "streamer as studio" model, it's really become dominated by existing studios such as Disney which had the benefit of being their own studio first and can utilize their Disney+ platform for just content they own and produce. If Netflix seeks to continue making original content, they will need to continually learn from what's worked best for them and optimize for it. Additionally, it seems they've recognized as they adapt to new sources of revenue in ad-based plans, and new sources of content in creating original mobile games as well. They've stated that they recognize their competition is more than other video entertainment services, but anything that's seeking to occupy consumers' attention and free time, and this is what they intend to compete for and not limit themselves to video media (Netflix, 2022).

Company Growth after Original Content Introduction

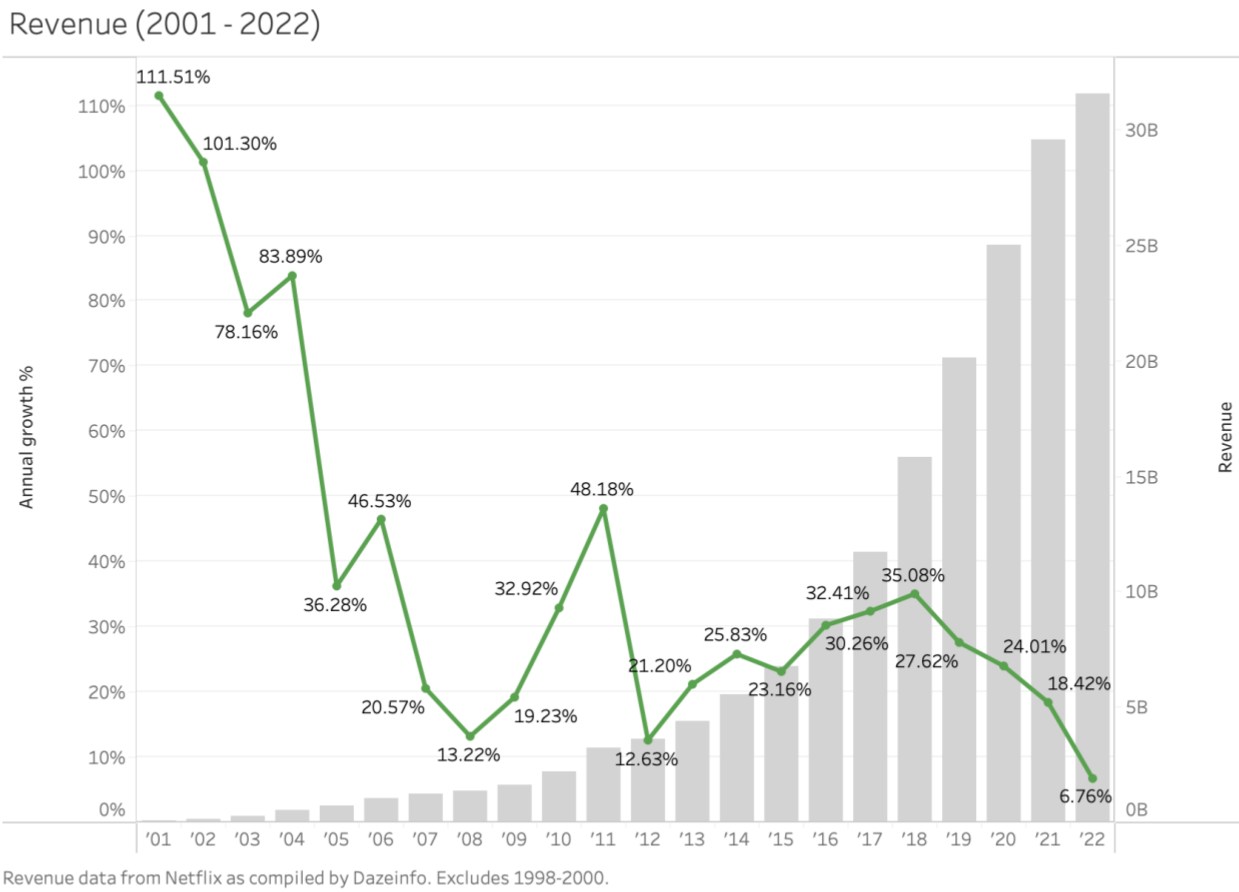

Figure 4

Netflix released its first original series (the first piece of Netflix "original" and exclusive content) in 2012. Examining the company's revenues from its inception in 1998 through 2022, we see that it experienced significant year on year growth after it released its first piece of original content (which would then be a major part of its strategy in the ensuing years after). The threshold hypothesized was at least 10% growth YoY, and we find that after 2012, Netflix did experience growth over 10% almost every year (peaking in 2018 at 35% growth and hitting just around $10B in annual revenue). After this, though, the growth staggered a bit (in no small part due to the enormous revenue numbers the company had reached already). Thus, continued growth at these rates would be astounding. They hover around 25% until 2021 where, after COVID-19, the growth rate went down 18.42% and finally, the only year to see less than 10% growth (in this 22-year span) is most recently in 2022. This is also in line with the growing popularity of platforms that Netflix views as competitors for users' attention and free time (including TikTok, YouTube, and the other streaming platforms as well). Overall, though, especially looking at the exponential growth in revenue over time, it is clear that original content production definitely boosted growth and revenue for Netflix. Now, the company was experiencing even higher growth rates at times in prior years (but again, bigger numbers in revenues means much more is needed for high growth rates). The main caveat to keep in mind here is that while the data does suggest originals increased revenue, it's unclear whether originals was the source of that increased revenue, or if the growth trajectory would've happened without it (as the company did experience positive growth each year. It fluctuated a bit before original programming, but it also did a little after it, too). See Figure 4 above for the breakdown of yearly revenue and growth rate Year on Year.

Conclusion & Takeaways

Some key takeaways from this exploration and analysis:

- The hours viewed of Top 10 films and TV shows metric doesn't neatly correlate to greater revenue and subscribership (and it's likely several factors including policy updates, the greater catalog of films, marketing investment, technology updates, and competition that may contribute more substantially to revenue and subscribership).
- Netflix's Originals are still only around 18% of its Top 10 most watched films and TV shows, which means its most successful content, by this metric, is still majorly dominated by licensed media. This creates a further question on whether the investment in originals is worth it (which can be explored by not just the viewership, but also survey data on why people chose to subscribe, as the marketing of new content regularly may pull people in,

but once they're subscribed, they may defer to watching and re-watching licensed media they already like).

- The introduction of Netflix originals coincided with a huge amount of revenue increase for the company with around 20-30% consistent growth Year over Year. This may not fully indicate a causal relationship, but undoubtedly Netflix's entrée into the world of production changed its reputation and just might have raised its profile enough to have garnered much more revenue as a result.

Finally, the media landscape has been changed again and again in this past quarter century, and although the old models persist and still exist, the lagging majority have turned to streaming as a staple form of media consumption. What will dictate success, then, is a robust examination of success measurement and analytics along with a keen eye to where the true competition lies (and it seems Netflix is keeping a firm eye on that as they expand into the market of attention more broadly rather than just the film/TV media market).

References

Chisholm, D. C. (2005). Hollywood economics: How extreme uncertainty shapes the film industry. *Journal of Cultural Economics, 29*(3), 233-237. doi:https://doi.org/10.1007/s10824-005-2858-4

Netflix. (2022, December 31). *Form 10-K.* Retrieved from Netflix website.

Porter, R. (2023, June 23). *Netflix's new view metric is easier to grasp, but it still doesn't say a lot*. The Hollywood Reporter. https://www.hollywoodreporter.com/tv/tv-news/netflix-viewership-data-metric-explained-1235521282/

Rathore, I. (2021, April 23). *Netflix revenue by Year: FY 1998 to 2020*. Dazeinfo. https://dazeinfo.com/2019/07/14/netflix-annual-revenue-worldwide-graphfarm/

Stoll, J. (2022, April). *Streaming wars: The value of original content to streaming services*. Statista. https://www.statista.com/study/89572/streaming-wars-the-value-of-original-content-to-streaming-services/

Wikimedia Foundation. (2023, July 27). *List of netflix original programming*. Wikipedia. https://en.wikipedia.org/wiki/List_of_Netflix_original_programming