Brand Perception and Demand: The Streaming Service Industry Explained

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Brand Perception and Demand: The Streaming Service Industry Explained

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Abstract

As a shift in consumer preferences from cable to streaming platforms increases, companies must evaluate their initiatives to reach ambitious targets and outperform competitors. Estimating the elasticity of demand for streaming service revenue and subscribers is critical to evaluating the impact of brand image, profitability, and competition on growing markets. The elasticities show that Disney+ increases at a much higher percentage than all other streaming services over a shorter period of time. In addition to conducting an analysis on elasticity, evidence is presented through a two-series line graph to illustrate the change in broadband subscribers and revenue relative to streaming subscribers and revenue. Similar line graphs depict revenue changes in Disney theme parks, Six Flags, and Universal as well as AMC theaters and Regal Cinemas. These results show a drastic difference in Disney theme park revenues, consistent with the theory of experience economy where perceived value to customers comes from intentional company strategies to sell goods or services as a memorable experience. Results also reflect the sudden drop in revenue totals across all companies during the pandemic, as well as the subsequent recovery.
I. Introduction

The prevalence of streaming service platforms with the emergence of widespread availability of internet has led to a rise in existing and new companies entering the streaming media market. With streaming platforms competing against long-term players to develop a differentiated product, the effectiveness of the experience economy may serve as an explanation for increasing profits among new streaming providers. The experience economy has served as a key construct in the tourism and travel industry, but it has never been introduced as a theory to explain the variation in demand for streaming platforms, such as Disney+, over high-market share companies like Netflix. To better understand the implications of the experience economy on streaming services, this paper analyzes revenue and subscriber data from three streaming providers against broadband penetration to measure the elasticity of demand for each provider. It is expected that Disney+ will have higher elasticity due to its connection to the Walt Disney Company, who has been an example to economists of the strong implications of the experience economy. This study provides an analysis of streaming providers’ subscriber count and revenue as well as estimates about the effect of broadband penetration on streaming service demand. The analysis is based on financial statements and investor reports shared publicly from streaming providers. This thesis also investigates the emergence and sustenance of the experience economy by highlighting financial and demand elasticity attributes of the Walt Disney Company and its presence in multiple industries. The methods used include analyses on theme park revenues and movie theaters revenues.

II. Literature Review

Experience Economy

Over the past few decades, a new understanding of the importance of and techniques used for optimizing consumer experiences and purchases has been established (Ellis & Rossman, 2008). This wealth of knowledge provides information about specific strategies that well-known organizations in multiple industries might use to fully engage consumers in product experiences.
that have the potential to build brand loyalty and commitment. The most comprehensive analysis on guest and consumer experiences is *The Experience Economy: Work is Theatre and Every Business a Stage* (Pine & Gilmore, 1999). The experience economy model was introduced by Pine and Gilmore to enhance business performance in various settings. They viewed experiences as "events that engage individuals in a personal way" (Pine & Gilmore, 1999, p. 12). Since the model was introduced, the concept has been applied to research on tourists' experiences in various contexts, but not in establishing market share power of brands engaging in the experience economy.

In the experience economy, people readily exchange valued resources such as time, money, physical, social, and psychological well-being for emotional experiences that are induced by companies that have the traditional title of a service industry, as well as organizations that offer products and commodities (Ellis & Rossman, 2008). This notion of exchange of valued resources is a social science principle addressed in applied economics. In this regard, the cost of a service or commodity can be in the form of money or personal opportunity. For example, a consumer gives up something of value to obtain the experience being provided. A personal opportunity cost may be finances, time diverted from other endeavors, or the risk of engagement that results in physical, social, or psychological uncertainty (Ellis & Rossman, 2008). Instead of the value of the purchase being represented by financial properties, it is evaluated by the opportunity cost sacrificed to acquire the experience. The experience economy does not reflect a commercial recreation purchase, despite the potential payment of money to purchase an experience. Thus, the theory emphasizes acquiring valued economic offerings through exchange rather than monetary costs.

Experience enterprises profit off setting up and selling experiences of memorable outcomes. These experiences are inherently personal as memory only functions as a product of an individual who interacts with a service or good on a physical and emotional level. The methodology of forecasting user subconscious thoughts and subsequent behavior is referred to as experience design. Unlike other forms, experience design uses empathy and interdisciplinary processes to prototype qualities of experiential richness that are conducive to a commodification of memory. The entertainment business is comprised of a list of experience enterprises that implement experience design. Theaters, films, media platforms, games, and amusement parks all
stimulate human sensations that develop feelings associated with physical and emotional interactions and by extension, foster memory.

The experience economy is fundamental to the evolutionary theory of economic progress which consolidates a linear progression of economic output into four stages: the agrarian economy, the industrial economy, the service economy, and the experience economy (Pine & Gilmore, 1999). The experience economy is defined as a system in which industries intertwine memorable experiences with conventional commodities. For example, colors can be indications of scents or tastes; theme park rides are reminders of classic movies. Industries, such as theme parks and movie theaters, impart intangible significance onto tangible products to become experience enterprises.

The experience economy model constructs a different perspective of consumers’ participation and connection to their surrounding environment. The two perspectives inform the four themes of experience: education, entertainment, esthetic, and escapism. Among the four dimensions, entertainment and esthetic experiences are classified as passive, whereas education and escapism are active. These four themes are positioned along two axes – participation, active vs. passive, and connection, absorption vs. immersion (Bujisic, Bilgihan, & Smith, 2015).

Consumer participation represents involvement, which ranges from passive to active participation. This explains how tourists choose to engage in activities, purchase and use the service, and create personal experiences. For instance, theme park tourism is active participation, whereas watching a movie is passive. Consumer connection explains the consumer's desire to interact with the environment from absorption to immersion. Absorption happens when the experience forms a thought or association in the mind. In contrast, immersion is when the consumer plays a part in the act of creating the experience. Pine and Gilmore observe that customers usually absorb entertainment and education at a tourist destination when immersed in the environment offered through attractions, dining, or interaction, resulting in the esthetic or escapist experience (1999). In particular, immersive experiences are identified by high absorption and active participation. This indicates that with educational experiences an individual absorbs the event in a specific setting through active participation and interactive engagement.
Esthetic experiences are a form of passive participation and immersion. In esthetic experiences, consumers passively accept the way the environment is offered to them without having any interaction or impact on the setting (Pine & Gilmore, 1999). The esthetic experience is also associated with the concept of a servicecape, which explains the important impact of environmental characteristics on customers' experiences in a physical or service setting. Thus, the esthetic experience can be a prominent factor for evaluating the quality of a destination (Bujisic, Bilgihan, & Smith, 2015).

Entertainment is considered one of the most pervasive in the experience economy (Pine & Gilmore, 1999). The entertainment dimension is located between passive participation and absorption. The participation of the entertainment experience is generated when consumers watch events, performances, films or activities. Entertainment can play a significant role in improving or enriching the overall experience.

Lastly, escapist experiences are characterized by enhanced immersion and active participation. When visitors are immersed in the environment in addition to actively participating in the events as a product of their environment, people experience escape from routine life and normality. The escapist experience is an important component to satisfy basic but fundamental motivation to choose an experiential good over an alternative (Cohen, 1979; Prentice, 2004). An optimal experience occurs when education, entertainment, esthetic and escapism are harmonized and integrated (Pine & Gilmore, 1999).

Although the concepts and processes discussed in the experience economy are centrally relevant to parks, recreation, and tourism organizations, specific attention to applications is limited (Pine & Gilmore, 1999). An experience economy, like the Walt Disney Company, is not simply concerned with consumption of goods or services, but with a series of memorable events that set the stage in a personal way (Chytry, 2012). Disney continued to expand its market and influence on American popular culture in “its declaration of Disneyland as ‘The Happiest Place on Earth’ in the 1950s” as a ploy to capitalize on “the marketing of good feelings and intricately fabricated fantasies of fulfillment” (Sandlin & Garlen, 2017). As a piece of culture frozen in time, from the beginning of Disney history to early memories, “Disney themes give guests a chance to look back at their childhood and reminisce” (Lawrence & Greene, 2020). Disney
leveraged the therapy of “experience economy” to add value to the memories associated with the Walt Disney animations through a living re-creation modeled by Disneyland, and later, Walt Disney World. Disney, as a global conglomerate, intensely markets to youth with promises of childhood memories to structure a future adult-oriented capitalistic marketplace (Coulter, 2012). Interaction within the parks influences the cultural perception associated with the memories founded in experience economies in America through customer service.

Within the experience economy, organizations “stage” encounters that yield emotional and motivational states that may become memories (Ellis & Rossman, 2008). It is notable that the impact of any set of encounter-staging practice is dependent upon a greater context of service quality and customer experience (Ellis & Rossman, 2008). The presence of escapism, implementation of esthetics that appeal to multiple senses, and active immersion for guests are all meaningless if employees are unresponsive, equipment fails, wait times are excessive, and guests are not prioritized. A complete model for staging experience encounters must include attention to relational factors that affect opinions of service and experience quality.

Disney employs the strategies of emotional regulation in training customer-facing employees. Emotional regulation is described as appearing in surface acting — “modify[ing] or control[ling] emotional expressions by enhancing feelings”— and deep acting— “the progression of controlling inner thoughts and feelings to adhere to the commanded company rules” (Reyers & Matusitz, 2001). The Disney theme park employee is now held at an esteemed position because there is an association with the facilitated environment that is also seemingly joyful and pleasant for workers. Disney controls the situation from the perspective of the 1:70 general rule of thumb; that is, it takes only one negative guest experience… to counteract 70 positive experiences” (Reyers & Matusitz, 2001). Children, and even adults, respond to this kind of prosocial behavior with increased exposure over a period of time (Pettigrew, 2011). As interactions increase, the face and name of Disney psychologically registers feelings of happiness and excitement (Pettigrew, 2011). The Disney company’s approach to a total guest experience anticipates and fulfills customer needs and wants by providing real emotional experiences making Disney a distinct market offering interaction and engaging memories (Lawrence & Greene, 2020). Every aspect of the brand is carefully crafted to continue the
perception that Disney is the most magical place on Earth to pass down the collective memories of the experience economy.

The principles identified by Pine and Gilmore, when applied to a company as a whole, can be thought of as a method that may be used successfully by many organizations outside the experience industry (1999). This structure is readily applicable to many settings in which the intention of the experience industry company is to stage encounters that yield memorable experiences for consumers (Oh, Fiore, & Jeoung, 2007). The experience economy is robust and may be applied in commercial settings and successfully integrated with other markets for the full effect of programming and staging experiences. Robert A. Iger, Chairman and Chief Executive Officer of the Walt Disney Company reported in the financial statements to shareholders in the first year of Disney+, “We had a strong first quarter, highlighted by the launch of Disney+, which has exceeded even our greatest expectations…Thanks to our incredible collection of brands, outstanding content from our creative engines and state-of-the-art technology, we believe our direct-to-consumer services, including Disney+, ESPN+ and Hulu, position us well for continued growth in today’s dynamic media environment” (The Walt Disney Company, 2020). The success of Disney+ in its first year may be attributed to the well-known image of the company and the experience associated with classic Disney films. Disney also provided streaming service subscribers with exclusive discounts on park admissions and resort stays during the launch of Disney+. This incentive to subscribers is another way that the company uses the experience economy to their advantage.

Cable and Internet Penetration

There is no existing literature on the determinants of streaming service penetration and sparse data collection on comparisons between providers. The lack of statistics is in part due to the relatively new industry of streaming networks coupled with the limited availability of corporate data on subscribers and revenues. To fill the gaps in current economic models, this analysis will express the impact of brand loyalty and consumer perception on increases in demand for streaming service providers. In contrast, many studies have been done on broadband penetration using price variables (Crawford, 2008, Galperin and Ruzzier, 2013, Mitomo et al, 2009, Otsuka
In the 1980s, the price levels meant an inelastic range in basic cable demand due to the deregulation of the cable industry through the Cable Communications Policy Act of 1984 (Otsuka and Mayo, 1991). The act was intended to counter previous years of regulation that limited consumer choice and failed to provide protections for on-the-air providers. Over the years, the demand elasticity shows considerable variation as the range of direct and indirect substitutes. The number of substitutes influences elasticity of demand in each market; smaller markets have a price elasticity of demand considerably less than one, while larger urbanized markets are greater than one (Otsuka and Mayo, 1991). The price of cable services responds to the marginal cost, demand conditions, geographic area, characteristics, and regulatory factors. Observations from the cable industry indicated a number of conclusions. First, at the price levels in the early 1980s, the demand for basic cable service was generally inelastic, while the demand for pay services was elastic (Otsuka and Mayo, 1991). The demand elasticity for basic service results in greater variation as the presence or absence of direct and indirect substitutes arise over the years. For instance, in smaller, rural markets, the price elasticity of demand is significantly less than one but significantly greater than one in large urban markets (Otsuka and Mayo, 1991). The analysis shows that regulation of cable rates leads to prices that were statistically above marginal cost prices, but below the levels that would exist if regulation was absent or nonbinding. There is minimal variation in the effects of alternative cable regulation on basic cable prices. The price of pay cable is influenced by the marginal cost and demand for paid cable, as well as the degree of complementarity between basic and pay services and the binding cable regulation (Otsuka and Mayo, 1991).

Kridel, Rappoport & Taylor analyze the United States household demand for high-speed internet access using a large sample with over 32,000 households (2002). Their estimation procedure is a standard logit specification using the respondent’s situation relating to characteristics, geographic area and price of broadband access. Elasticities range from -1.08 to -1.79 (Kridel et al., 2002) according to price, geography, and cable characteristics. The calculated elasticities vary inversely with the level of price. However, the absolute value of the elasticities is all greater than 1 implying that at the levels of cable prices for the year of the study cable-
modem Internet access demand is price-elastic (Kridel et al., 2002). The cross-price elasticity in relation to the dial-up Internet access price of $22 is estimated to be 0.15 indicating dial-up internet is a substitute for cable-modem internet (Kridel et al., 2002). There is a distinct link between usage and access but demand for access depends on the benefits and economic value of internet usage.

Kelly and Ying tested if national regulatory policy and competition between 1993 and 2001 had a significant effect on lowering cable prices. Cable regulation was first introduced to protect consumers from monopoly prices and poor service that might come from high installation fees coupled with limited availability of new technology. The model isolates the effects of fluctuating regulation and deregulation using ordinary least squares to compute cable rates as a percent change in rates resulting from regulation or competition. During periods of regulation, it is discovered that cable operators’ competitive rate differential is greater. In contrast, competition constrained prices in large markets and opened the door for new companies to enter the market. A conclusion of the results points out profit opportunity will be big enough to provide the economic possibility of multiple video delivery companies to compete.

Galperin and Ruzzier analyze broadband prices in Latin America and the Caribbean (LAC) to estimate the effect of price on adoption (2013). Compared to countries associated with the Organization for Economic Cooperation and Development, demand is relatively elastic to price in LAC. They use a simple bivariate regression model and a multiple regression model with control variables—GDP per capita, age and education. To capture the effect of price on broadband demand, Galperin and Ruzzier use international internet bandwidth per 100 households as the instrument variable. The results of estimating broadband demand including the instrumented price variable indicate lower prices produce higher penetration and price has a significant impact on these results (Galperin and Ruzzier, 2013). Results from reveal that adoption of policy initiatives in the LAC to reduce prices could significantly increase use because own-price elasticity is relatively high. The study suggests price reductions are important in areas with a deficit of competition and poor-quality services where a 10 percent price reduction could result in close to a 22 percent penetration rate (Galperin and Ruzzier, 2013).
In addition to pricing and demand of cable, Crawford, Shcherbakov and Shum measures the welfare effects of internal quality by US cable television companies (2019). The dataset includes 12,000 cable systems between 1997 and 2006 in addition to annual price and quality data from satellite competitors. The study observes the network bundles offered by local cable markets including price, market share, and television offerings. Market-level indicators predict that cable companies set prices and qualities too high compared to the social optimum. Qualities are 23 to 55 percent more than necessary and prices 33 to 74 percent too high (Crawford et al., 2019). Cable consumers would prefer smaller bundles with lower prices, raising awareness to the fact that monopolists can overprovide quality. Cable companies' quality overprovision comes from the effects of competing with satellite TV. Quality of provision is not merely a function of correlation for preference in price and quality, but dependent on the presence and nature of competition with satellite competitors (Crawford et al., 2019). The models of consumer and producer behavior provides insight into the demand for quality and a consumer's willingness to pay for benefits. The same principles can be applied to streaming services by measuring the effects if bundle pricing and benefits on consumer willingness to pay. Instead of measuring these effects, streaming service data against broadband subscribers describes the relationship between the variables through the instrument, real disposable personal income.

Film and Movie Theater Industry

There is a greater body of literature in the film industry which investigates the market demand for motion pictures as well as theater experiences. King et al.’s research model is used to signal quality in imperfect, competitive firms to address consumer attitudes toward experience characteristics in different markets. The model represents a fixed number of consumers choosing movie preference based on quality signifiers. The number of tickets sold depends on the true quality of the film and the perceived quality by consumers (King et al., 2017). Quality is measured by the set of characteristics a film has to offer mass market appeal and signaled by a firm’s expenditure on public attractions like advertising and promotion (King et al., 2017). The high and low demand periods are not defined only by the mass of potential consumers but also by a shift in the tastes of consumers.
A relatively high elasticity of demand of perceived quality is assumed among consumers in the high-demand period (King et al., 2017). Consumers divide evenly over all movies that they believe are high quality but will opt out of what they believe to be a low-quality movie. In the low-demand period, consumers are fewer in number, but have less quality elastic demand (King et al., 2017). These consumers will see a perceived high-quality movie; however, they will also see a low-quality film if there is no high-quality film available. Firms chosen in a high-demand market with consumers that are sensitive to the experiential good are more responsive to a movie budget (King et al., 2017). These results explain a substitution effect in movie demand that may explain the switch to streaming service as a better alternative to evaluating film quality among new releases. Consumer may settle for variety and accessibility for quality of newness.

In addition to ticket sales, signal intensity—the frequency of movie showings to the market—is significantly larger in the high season and produces better critical reviews (King et al., 2017). The empirical results confirm that ticket sales are more sensitive to the movie budget, which reflects spending on advertising, during the high season rather than the low season. Combined with the findings that budgets and signal intensity are larger for movies released during the high season and critical reviews are better, King et al. concludes that there is a separating equilibrium in the film market in which firms send costly signals to enter the high demand market (2017).

Direct competition does not change the profit for small firms. Word of mouth marketing by high volume and degree positively correlates to movie sales (Chen, 2022). Consumers tend to make quicker purchasing decisions if user ratings are consistent with their desired experience. Findings in the film sector are noteworthy because it stresses the importance of consumer opinion and perception influencing purchasing decisions.

Movie theater demand is made up of two factors: the demand for the theater experience and the demand for the movie offerings. Theaters are becoming increasingly innovative to make up for falling demand caused by home video services. AMC and Regal are two companies upgrading theater locations to include deluxe menu items, luxury recliners, and mixed drinks (McClintock, 2011). Movie theaters are targeting people to engage in the movie experience at an affordable rate, while maintaining quality service. The highest-producing revenue segment is concessions which contributes to the experiential market delivery. Data on movie-going
frequency, video purchases/rentals, titles of films watched, and television time provides an explanation of movies as an inferior good that is necessary in analyzing experiential goods (Collins and Hand, 2005). The demand for theater experience emphasizes the effect of the experience economy on consumer purchases but downward sloping demand in theater revenue and an increasing demand for Disney+ may indicate Disney’s experience economy is more influential based on brand reputation and scope.

Collins and Hand evaluate the net marginal benefit of various leisure activities relative to the alternatives. The two key parts of moviegoing demand are the demand for moviegoing experience and derived demand for specific movie showings. Modeling these facets requires economic variables as well as social and lifestyle variables. With the addition of lifestyle variables, socioeconomic status exhibits a positive correlation to movie going and ticket purchases with income, contrary to the appeal of the masses theory (Collins and Hand, 2005). Younger people are also more responsive to the influence of advertising on movie theater visits (Collins and Hand, 2005). Collins and Hand’s findings could explain the individual demand for experience based on preference and identify the relationship experiential goods have with income. While the movie theater market indicates economic and social indicators for demand, it does not demonstrate the substitutability of streaming platforms. The closing of theaters during the coronavirus outbreak in 2020 could be a considerable factor in increased streaming demand and revenue over the course of several years. A disruption in the consumer experience provided by movie theaters is a motivation for a drastic change in entertainment source which is explored further in the results section of this paper through statistics on streaming and movie theater revenue over the affected years.

In addition to investigating media entertainment, this study seeks to provide a foundation for the experience economy in relation to tourism and theme parks. Previous research suggests shows experience has the strongest relationship with memory, quality, and satisfaction (Oh, 2007). Theoretical variables, including memories, overall quality, and satisfaction, impact the predictive validity of consumers' hospitality experience. Theme parks take advantage of consumer response to experience by introducing new interactive experiences to offer guests a fully immersive park opportunity. Innovation comes with higher marginal costs and raised tickets prices during peak seasons to level out the crowds and generate revenue to continue
expansion (Biesiada, 2019). The new model for dynamic pricing raises the concern that tickets are too expensive for the average middle-class American. Specifically, Walt Disney World raised one-day single admission passes to exceed 100 dollars, which economists have questioned (Biesiada, 2019).

Despite concern, dynamic pricing seems to uphold Disney revenues with decreased park entry and increased revenue from admissions, resort stays, and park products (Biesiada, 2019). One explanation for this might be the assumption that theme park demand is inelastic because theme park bookings leave consumers with limited recreation choices after spending a majority of vacation costs on travel and accommodations (Braun and Milman, 1990). Using Disney as the example again, the degree of substitutability only increases as distance and entertainment attributes increase but air travelers are not sensitive to changing prices (Braun and Milman, 1990). Local economies, including local attractions, exist to lower travel and experience costs, which is supported by industry development and expansion; however, alternative theme parks are not perfect substitutes for longstanding, reputable attractions like Disney World.

III. Methods

This study provides an analysis of streaming providers’ subscriber count and revenue as well as estimates about the effect of broadband penetration on streaming service demand. The analysis is based on financial statements and investor reports shared publicly from streaming providers. These reports include quarterly filings with the U.S. Securities and Exchange Commission (SEC). SEC filings are garnered from the Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system—a public database containing companies’ financial information created to increase transparency, efficiency, and fairness in the securities market (SEC.gov, 2023).

Disney defines subscribers as a consumer for which there was a recognized subscription revenue. A subscriber ceases to be a revenue-producing subscriber on the effective cancellation date or as a result of failed payment during the time of collection. A subscription bundle is
considered a paid subscriber for each service included in the bundle. The revenue per paid subscriber is calculated by the Walt Disney Company based on the mean of the monthly average paid subscribers for each month in the quarter. The monthly average paid subscribers is calculated as the sum of the paid subscriber count for the beginning of the month and end of the month, divided by two. Disney+ average monthly revenue per paid subscriber for the quarter is calculated using a daily average of paid subscribers for the period beginning and the end of the period on the last day of the quarter. The average revenue per subscriber is net of discounts offered on bundled services with Hulu and ESPN+. The discount is allocated to each streaming service indicated by the retail price of each service on a standalone basis.

To carry out an analysis of broadband subscriber effects on streaming service demand, a linear regression model is used. The model isolates the variables effect on streaming provider revenue (quarterly gains in US $) and subscribers through two demand factors: broadband penetration and real disposable income.

The model uses a logarithmic transformation to improve the fit of the model with a distribution that is exponential instead of linear. The nonlinear relationship between streaming provider revenue or subscribers and broadband penetration increases the chance of producing more errors. Using the logarithm of both variables improves the fit of the model by transforming the distribution of the features to a more normal shaped bell curve. This expression converts the multiplicative properties of the data to additive properties. Logging both sides of the equation reduces heteroscedasticity. As a result, both variables will effectively adjust from a unit change to a percent change.

The multivariable regression models were built on data collected from financial statements and investor relation reports from companies in the streaming service industry alongside statistics in disposable income and broadband subscriptions. The selection of variables in the model is a response to theoretical considerations and data access, as well as to the need to keep the number of estimated parameters low, given the limited number of observations. The lack of comparable data on streaming revenue and subscribers is problematic for accurate results. However, given that real disposable income per capita and broadband penetration are strongly
associated with streaming statistics, the inclusion of disposable income and broadband with the regressors should capture the effect.

The following formula is used to calculate the multiple linear regression:

\[
\log (Y_i) = \beta_0 + \log (\beta_1 x_{i1}) + \log (\beta_2 x_{i2}) + \ldots + \log (\beta_k x_{ik}) + \log (\epsilon_i)
\]

where:
- \( i = n \) observation samples
- \( Y_i \) = dependent variable
- \( x_i \) = explanatory variables
- \( \beta_0 \) = constant term (y-intercept)
- \( \beta_p \) = coefficients of independent variables
- \( \epsilon_i \) = error terms

It is important to introduce the broadband variable into a model that attempts to interpret streaming service adoption because the degree of penetration is determined by the interaction between the availability of alternative sources and the demand for service. Therefore, streaming service and broadband penetration are determined simultaneously; streaming demand will be correlated with the error term in a multilinear regression on broadband and other explanatory variables. Broadband subscribers are endogenous in the demand function: if streaming network demand and supply were to vary over time, observed broadband penetration would reflect an intersection of streaming supply and demand. In this case, a regression of penetration on broadband would not identify either the demand or the supply function. If broadband subscriptions are endogenous, the estimation may yield inconsistent estimators of all other parameters in the regression.

The instrumental-variable method provides a solution in the case of a single endogenous regressor (Galperin and Ruzzier, 2013). To correctly capture the effect of broadband on streaming demand there needed to be a factor that affects supply without affecting demand for the service, known as the instrumental variable. The idea is to isolate the exogenous variability of revenue and subscribers to estimate its impact on broadband demand. Real disposable personal income per capita is used as the instrumental variable. Real disposable income is computed as the log of income in dollars, as reported by the Federal Reserve Bank of St. Louis (FRED, 2023).
IV. Results

Table 1. Revenue without Controls

<table>
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<th></th>
<th>Disney+</th>
<th>Netflix</th>
<th>Starz</th>
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</thead>
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<tr>
<td>Coefficient</td>
<td>*12.602</td>
<td>*4.597</td>
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<td>R Square</td>
<td>0.973</td>
<td>0.886</td>
<td>0.090</td>
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<td>P Value</td>
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<td>0.000</td>
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<td>Observations</td>
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Table 2. Subscribers without Controls

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<td>Standard Error</td>
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<td>0.039</td>
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<td>Observations</td>
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<td>39</td>
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Table 3. Revenue with Controls

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<th>Netflix</th>
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<tbody>
<tr>
<td>Coefficient for Disposable Income</td>
<td>*1.121</td>
<td>*1.886</td>
<td>0.324</td>
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<td>Coefficient for Revenue</td>
<td>12.471</td>
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<td>R Square</td>
<td>0.945</td>
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<td>P-Value Income</td>
<td>0.487</td>
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<td>P-Value Broadband</td>
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Table 4. Subscribers with Controls
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<td>Coefficient for Subscribers</td>
<td>*14.043</td>
<td>*5.004</td>
<td>*0.657</td>
</tr>
<tr>
<td>R Square</td>
<td>0.940</td>
<td>0.983</td>
<td>0.857</td>
</tr>
<tr>
<td>P-Value Income</td>
<td>0.927</td>
<td>0.022</td>
<td>0.649</td>
</tr>
<tr>
<td>P-Value Broadband</td>
<td>0.002</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Significance F</td>
<td>0.001</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.166</td>
<td>0.101</td>
<td>0.039</td>
</tr>
<tr>
<td>Observations</td>
<td>8</td>
<td>43</td>
<td>39</td>
</tr>
</tbody>
</table>

First, the p-value tests whether the null hypothesis (no relationship exists between the two variables) has a coefficient below the common alpha level of 0.05. The p-value is tested against this level because it indicates that there is less than a 5% chance of having no correlation between the independent and dependent variable. The p-value in this model determines whether the relationship between broadband penetration and streaming platforms’ subscribers or revenue observed in this subset exists in a larger population. Based on the results in Tables 1-4 using Disney+ and Netflix revenue as dependent variables, the p-value indicates broadband penetration is a strong predictor of revenue for both companies and statistically significant. The same can be said of Disney+, Netflix, and Starz subscribers with and without the controls of an instrumental variable. The p-value of Disney+ subscribers is still significant, but the positive sign indicates the relationship is growing in a positive direction. There is weak evidence that broadband penetration is a predictor of Starz revenue (with and without controls). Specifically, Starz revenue with controls has a p-value of 0.373 meaning it is statistically insignificant. A lack of correlation may indicate too much variability in the data or more likely a small magnitude of effect. It can be assumed that broadband penetration has no effect on Starz revenue or subscribers. While these statistically significant figures identify the correlation between both variables it does not mean causation. To test for causal effects, an instrument is introduced and put through an identical process.

Significance F interprets significance similar to the p-value except it applies to the entire model instead of each corresponding coefficient. For this reason, significance F is only important
to the evaluation of variables with the instrument. Table 3 provides conclusive evidence that disposable income and broadband penetration are significant in determining Disney+ and Netflix revenue. It also confirms that broadband subscribers do not predict Starz revenue. Although the value decreases with the inclusion of real disposable income per capita. Table 4 shows similar results for subscribers. The significance affirms the correlation between broadband and subscribers of Disney+, Netflix and Starz as well disposable income and subscriber counts.

The second test in the regression is R Square which interprets the relationship between streaming service revenue/subscribers (Y) and broadband penetration (X). R-squared is a goodness fit for linear regressions models, therefore, it is one reason that made it necessary to log both sides of the model equation to get a linear fit. It should be noted that the R square test alone cannot explain the causation between independent and dependent variables. The quality of the r-squared measure depends on other factors like the nature of the variables and the method of data transformation. The predictor (X) explains 97.3% of the variation in Disney+ revenue without an instrumental variable. 88.6% of Netflix revenue is explained by the independent variable. Conclusive with the p-value tests of being insignificant, Starz revenue is only explained by broadband by 9 percent. It is only a slightly higher percentage of 9.2% for Starz revenue after adding an instrument. These results should be ignored on the basis of being insignificant. R Square for Disney+ subscribers in Table 2 are a 96.6% proportion of the variance in (X) that explains (Y). Netflix subscribers are 98% and Starz subscribers is 85.6% of the variation. Both percentages remain relatively similar when controls are added to the subscribers— 98.3 for Netflix and 85.7 for Starz. Disney+ subscribers have a 0.940 R square in the same table which also indicates a good fit of the data using the regression model. Furthermore, the revenue R square with controls is close to 1 for Disney+ and Netflix—0.945 and .889— a strong indication that variability is explained by the given regression model.

Standard error results are an indication of the reliability of the mean. The standard error of the regression represents the observed value’s average distance from the regression line. Smaller slope values indicate values that are closer to the fitted line. A 95% prediction interval states approximately 95% of the observations should fall within standard error of the regression of positive or negative 2 from the regression line. All standard error observations are less than 0.3, which signifies a reasonably precise measurement of the regression coefficient. The standard
error of Netflix revenue is 0.283 for results including and excluding the instrument. Netflix subscribers’ standard error are 0.107 and 0.101 (without instrument). Disney+ standard errors are lower values of 0.083 for revenue, 0.128 for revenue with controls, 0.115 for subscribers and 0.166 for subscribers with controls. Starz has the same subscriber standard error of 0.039 with a slight change in revenue error of 0.165 and 0.167 adding the instrumental variable. All observations of error are less than the value of the coefficients. In turn, the standard error values correlate to a more precise measure of the coefficient. Assuming that the regression model is a linear function, the coefficients are expected to be unbiased and normally distributed based on the errors given in Tables 1-4.

The coefficient values signify the average change in dependent variable as the independent variable increases by one. In the case of this paper, a one percent change in broadband penetration increases streaming revenue or subscribers by a positive percentage. A positive coefficient indicates as broadband penetration increases so does revenue and subscribers. In contrast, the coefficients of the instrumental variable differ in signs and are much smaller. A one percent increase in broadband correlated to a 1.886 percent increase in disposable income and 3.793 percent increase in Netflix revenue. Disposable income and broadband penetration remaining constant, the regression coefficient drop in Netflix revenue to 3.793 percent from 4.597 percent, only controlling for broadband, can be explained by disposable income’s effect on revenues. The opposite is true for the coefficients of Disney+ revenue with a 12.602 percent increase without observing real disposable income and a lower increase of 12.471 percent with a control for disposable income. This observation is consistent with the hypothesis that Disney+ revenue can be explained by the experience economy but not an absolute explanation for revenue discrepancies. A smaller change in revenue percentage increase is expected of Disney+ compared to Netflix because disposable income should not have as great of an impact on Disney+ due to the nature of its consumer base. Disney+ subscribers are more likely to keep or purchase a subscription regardless of a drop in disposable income because they are susceptible to the experience environment of Disney-owned enterprises. Starz revenue only decrease by 0.006 percent with controls largely due to the small share of the market controlled by Starz. A relatively insignificant percentage decrease can be described by an already trivial willingness to pay for Starz that is not easily affected by income.
Subscriber increases to the coefficient produce similar results. Netflix holds a 4.363 percent increase with every one percent increase in broadband penetration, but a 5.004 percent increase in subscribers relative to disposable income. Since Netflix revenue decreases with disposable income but subscribers increase, it can be assumed that the cost of Netflix subscriptions is lower than other services. In contrast, Disney+ subscribers change from 15.532 to 14.043 compared to a -0.171 percent change in revenue. The greater loss of subscribers than revenue equates to a higher price in Disney+ streaming services. A contrasting effect is observed with Starz subscribers with a percent increase from 0.603 to 0.657. Disposable income per capita has effects Starz subscriptions but the results are insignificant based on the P-values and F-test. In conclusion, Disney+ subscriptions still hold to the hypothesis of a sustained advantage for the experience economy based on the ratio of subscriptions to revenue.

A one percent change in the number of broadband subscribers is associated with a 1.121 percent increase in the instrumental variable—real disposable income per capita— and with a 12.471 percent change in Disney+ revenue. The increase in Disney+ revenue is a consequence of the indirect effect that an increase in disposable income led to an increase in broadband penetration which in turn increases Disney+ revenue. It follows that a 1.121 percent increase in disposable income per capita is associated with a 12.471 percent increase in dollars of revenue.

The tables above (Tables 1-4) show the impact of broadband and real disposable personal income on streaming penetration. They represent descriptive statistics for each sample. As hypothesized, streaming service revenue and penetration is positively correlated with internet penetration as well as real disposable personal income. For a one percent increase in broadband subscribers, revenue increases, by percent, as follows: Disney+ by 12.471, Netflix by 3.793, Starz by 0.477. An increase of real disposable income by one percent also correlates to an increase in streaming revenue, in percent change, for Disney + by 1.121, Netflix by 1.886 and Starz by -0.324. With and without controls, the results show that streaming service subscriptions increase as the number of broadband subscribers increases. Disney+ subscriptions increase by 15.532%, Netflix by 4.363%, and Starz by 0.603% without controls. With controls, the number of subscriptions increased by 14.043 (Disney+), 5.004 (Netflix), and 0.657 (Starz).
The same is true of revenue, however the correlation is lower than that of streaming service subscribers. Revenue with controls can be referenced above, while revenue without controls increases, in percent, by 12.602 (Disney+), 4.597 (Netflix), and 0.33 (Starz) for every additional broadband subscriber change of one percent.

The second set of tables (Tables 3 and 4) presents a multi-regression model that includes the control variable, real disposable personal income per capita. The effect of broadband penetration decreases but is still positively correlated. The signs of the coefficients are as expected despite not being as significant as anticipated. In this model, while it is possible to detect the effects of broadband penetration on streaming demand, the effects are minimal and insignificant. For example, according to the multiple regression model for Starz revenue, a one person increase to broadband users would result in only a 0.477 increase in Starz revenue. Despite seeing minor significance in Starz observations, the increase in Disney+ revenue and subscribers exhibits greater coefficients of 12.471 (revenue) and 14.043 (subscribers).

To be considered a valid instrument, real disposable income must satisfy two conditions. First, it must not be correlated with streaming demand and second, it must be correlated with broadband penetration. Condition (I) is an identification assumption; therefore, it cannot be tested. This assumption would be invalid only if disposable income affected streaming demand directly, other than through its effect on broadband. The identification assumption implies that this is not the case. Condition (II.), real disposable income is a critical cost factor for the entertainment market, particularly in streaming networks since much of the subscriptions offered are through individual providers and is subject to change or limit movie/television offerings (Galperin and Ruzzier, 2013). For that reason, disposable income has a direct effect on streaming revenues and subscriber counts. Unlike the first condition, with the effects of other exogenous variables being taken into account, this condition can be tested by verifying there is a correlation between broadband penetration and disposable income. It can be tested by using the t test and the F test associated with the coefficient on real disposable income in the first-stage regression. The tests imply that the instrumental variable is valid—satisfies condition I and II—although it might be relatively weak. The use of a single instrument for the endogenous regressor minimizes this problem. The coefficient associated with real disposable income has the expected positive sign and is statistically different from zero.
The results with and without controls indicate that the gain in Disney+ revenue and subscribers is substantially more as the number of broadband subscribers increase, which indicates that streaming brand has a significant impact on increases for both factors. With the help of the instrument, the observed effect of broadband penetration on steaming demand is larger than the one, as suggested by the first estimation, and is statistically different from zero. The results confirm Disney+ has a greater influence on the streaming market despite its relatively new entrance to the service offering. According to the estimates, an average broadband subscriber increases of 1 would result in an increase of 14,043 in the Disney+ subscriber base, equivalent to about 8.5 million additional Disney+ subscriptions over the past 2 years. These overall estimates are in line with predictions, which argue Disney+ demand to be relatively inelastic in the market but relatively elastic to broadband changes. Broadband effect estimates vary considerably between companies in streaming networks and are best interpreted in context with other brand exposure mediums.
Figure 1. Netflix Revenue Compared to Internet Subscribers

Figure 2. Netflix Subscribers Compared to Internet Subscribers
Figure 3. Starz Revenue Compared to Internet Subscriber
Figure 4. Starz Subscribers Compared to Internet Subscribers
Figure 5. Disney+ Revenue Compared to Internet Subscribers
Figure 6. Disney+ Subscribers Compared to Internet Subscribers

As depicted by the graphs, Disney+ has the steepest slope in revenue and subscribers over the shortest period (see Figures 1, 3, and 5). The number of Starz subscribers remained below the number of internet subscribers from 2012 until the end of 2021. Starz revenue also had substantially less gains in revenue with their maximum reaching below $500,000,000 compared to Disney+ at $600,000,000 and Netflix at almost $8,000,000,000 (see Figures 1, 3, and 5). Internet subscribers as a constant show dramatic fluctuations in Starz revenue as well as its underperformance in subscriptions. Figures 1 and 2 also illustrate the progressive increase in revenue and subscriber count for Netflix over a 15-year period. Disney+ revenue and subscribers grew exponentially over the two-year period reaching a higher number of subscribers than Netflix by the end of 2020. While the figures depict increases, they are not sufficient in
describing exogenous factors that lead to drastic increases or decreases not addressed in the previous model.

However, the graphs alone are indicative of greater demand for Disney+ than Starz or Netflix. This is based on exponential growth since the introduction of Disney+ in 2018. The number of subscribers has surpassed Starz by nearly seven times at around 140,000,000 compared to 30,000,000. As the longest-standing streaming service, Netflix has even fallen short of reaching subscription numbers close to Disney+. Disney's quick rise to industry leader in streaming may be, in part, explained by their reputation. The streaming outlet was a long awaited phenomenon for serious Disney movie fans. The Walt Disney Company’s previous acquisitions of Lucasfilm and Marvel could also play a role in the quick adoption of the platform.

Despite leading numbers in subscribers, Disney+ is significantly behind its competitor Netflix. Netflix reported almost $8,000,000,000 in revenue at the of 2022. Disney report $700,000,000. Due to inconsistent reporting from companies, these numbers do not completely and accurately reflect revenue from streaming segments alone. The large gap can also be attributed to experience from Netflix’s many years in the industry. Their price judgments on subscriber plans are also indicative of revenue. Netflix subscribers pay more per plan than Disney+ or Starz.
Figure 7. Movie Theater Revenue

Figure 8. Theme Park Revenue
Revenues depicted in figures 7 and 8 are informed by reports released during each quarter for the movie theater industry companies, AMC and Regal Cinemas, and the theme park industry companies, Disney, Universal and Six Flags. Despite Regal Cinemas’ quarterly fluctuation in earnings, their revenues never exceeded $600,000,000. In contrast, AMC quickly outpaced Regal Cinemas in the third quarter of 2016. Both companies are well below the revenues gained by streaming service companies from their year of creation to the most recent year of data. The substantially smaller revenues among movie theaters are contradictory to the theory that the experience economy promotes customer spending but supports the claim that the Disney franchise, as a collective, is the exaggeration of an experience market that profits from the association of emotions and memories connected to the brand.

Figure 8 defends the model experience economy by showcasing the revenue of major theme parks in the industry. The data from Disney is inconsistent because of their global presence and the financial reports categorized parks and resorts together. Despite this irregularity, earnings are substantially larger at Disney theme parks even during times of financial crisis. At its peak, Disney retained profits of $7,580,000,000 and reached close to that amount after recovering from shutdowns in 2020. On the low-end of revenue Six Flags theme parks never reached the $1,000,000,000 mark. Despite Universal’s presence in the same geographic location as Walt Disney World, the company only managed to earn less than a third of Disney’s highest profits.

V. Discussion

This study explains the experience economy theory through an analysis on elasticity of demand for network streaming services using broadband as a variable and real disposable income per capita as an instrumental variable, benchmarking revenues and subscribers against broadband penetration and estimating the effect of disposable income on streaming service demand. The results show that streaming services are positively correlated to broadband when benchmarked against real disposable income, though variation exists without controls by small percent changes.
The results suggest that streaming providers with previous consumer bases and customer loyalty are generally more inelastic when benchmarked against less reputable streaming platforms, although there is significant variance between consumer perceptions. To isolate the effect of broadband penetration on streaming revenue and subscriptions an instrumental variable is used to estimate streaming demand. Findings show that streaming demand is relatively elastic to broadband adoption when using real disposable income per capita as the instrumental variable. It is estimated that an average broadband subscriber increase of 1 percent would result in an increase of almost 15 percent in the streaming subscriptions for Disney+; equivalent to almost 45,000 additional subscribers and 3.07 billion dollars in revenue over 8 quarters.

Due to the nature of the research question and limited use of alternative data among privately held streaming platforms, this study was largely based on observations and a small sample size of the population using streaming services. The data collected from Starz video streaming did not yield statistically significant results due to the nature of inconsistent data over the available years. Lionsgate acquired Starz in 2016 and released financial data after the acquisition; however, much of the information beforehand is not available to the public. Therefore, conclusions can only be drawn from the statistically significant data of Netflix and Disney+. While the regression analysis is rigorously conducted and validated, the results are limited by the availability of data due to relatively new streaming platforms, like Disney+, and the amount of information held privately. A more inclusive set of data with a full range of quarterly revenue over a 10-year period would have allowed for consistent evidence and less error in the range of values. The possibility of calculation error in company financial reports also cannot be ruled out either. This means that some of the numbers may be skewed based on the reported results at the end of each quarter. Lack of additional streaming platform data from competitors also puts constraints on the estimations. It is possible that additional data not collected in this research may be available as the industry grows and companies become more comfortable delivering statistics on revenue and subscribers.

While there is historical data pertaining to broadband demand and the experience economy, there is a lack of research and consistent measures of data collection in the streaming market. The reason for this discrepancy of research is that the market is relatively new. The effectiveness, or lack thereof, of previous literature provides little to no framework for the
regressions in this paper. Theory can only be applied as seen fit by speculation rather than on previous conclusions.

The findings also reveal relatively high earnings for Walt Disney World theme parks for side-by-side comparisons of other firms in the industry, suggesting that the collective experience associated with the Disney company could be a significant motivator for the steep revenue increase of Disney+. Yet the results also reveal that the experience economy alone will likely not be enough, as represented by the diminishing returns of the movie theater industry. This paper does not address certain aspects that could be critical to analyzing the experience economy including a missing variable among movie theaters to evaluate how consumers weigh the experience value of going to theaters and staying at home to stream. Further research must be done to weigh the economic implications of experience and provide policy to regulate brand overconsumption on a broader scale.

Disney+ exceeds subscriber counts of Netflix and Starz. Their exponential growth over the few years of being in the streaming market is a leading identifier of the company's reputation in the experience economy. The elasticity of demand for Disney+ is highly elastic in comparison to Netflix and Starz. The availability of substitutes decreases because Disney has influence over the market through the experience economy. Although the elasticity cannot be entirely explained by loyalty to the Disney experience, existing literature and correlation coefficients of the result support this conclusion. The Walt Disney Company, despite its new arrival to the streaming world, is an example of the strong economic response to experience strategies and developed brand influences.
References


