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An Analysis of the Secondary Market for Live Music and Complementary Goods

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ABSTRACT. Ticket scalpers exist because ticket prices in the primary market are often set below the market equilibrium price. The question is why are prices consistently set too low? One theory says that the desire to sell complementary goods such as concert memorabilia explains why ticket price are set below equilibrium. Technological improvements, however, have rendered that theory obsolete. Economic theory still does not explain why ticket prices are frequently set too low. Perhaps the reason is simply that artists do not want to gouge their fans.

I. Introduction

What causes the secondary market for live entertainment? Previous researchers have come to the consensus that the ticket prices are generally set below equilibrium, causing excess demand. However, there is no clear answer as to why ticket prices are set below equilibrium. This is especially puzzling because streaming platforms have made concert revenue the most important source of income for musicians. While some claim that the desire to sell complementary goods drives down the price, changes in how complementary goods are sold in the last two decades have made that claim irrelevant.

II. Background

There are five distinguishing characteristics in the market for entertainment. First, concerts typically have relatively high fixed costs and low marginal costs. Second, the quality of the experience is only known after the event, even if there is an expectation beforehand. Third, the value of the purchased ticket falls to zero after the event. Fourth, seats will vary in quality. Finally, artists sell complementary goods such as t-shirts and records (Connolly and Krueger 2005, 10).

Concert ticket sales begin in the primary market. The performer, promoter, and venue agree on a revenue sharing policy, as well as ticket prices and sale dates. Tickets are sold to consumers through different

modes: the box office, ticketing agencies, and online. A ticketing agency comes to an agreement with the promoter to buy and resell tickets. In the past, even with a processing fee, ticketing agencies sold a larger quantity of tickets due to convenience, (Courty 2003, 87-89).

Ticket prices are typically chosen at the revenue-maximizing level, coinciding with the amount and quality of each seat. Prices of complementary goods are also set at the revenue-maximizing level. Sellers generally set ticket prices lower than equilibrium. One explanation is that maximizing attendance will also maximize sales of complementary items (Connolly and Kruger 2005, 5-10).

In the market for entertainment, each performance is a unique product, meaning that consumers prefer specific events. This differentiability gives sellers monopoly power. Economic theory suggests that price would be set such that there is no excess demand (Halberg 2010, 175).

In economic theory, the market would clear in the primary market. Sellers, however, set tickets prices below equilibrium for a variety of reasons: the desire to sell complementary goods, creating a consistent fan base through easily accessible shows, and selling out events more easily. The low price creates excess demand. The number of seats available in a given venue is lower than the number of consumers willing to pay for the event. Since the quantity demanded exceeds the quantity supplied, a queue is created. For example, a consumer may need to wait in line to purchase a ticket when it goes on sale before it sells out (Halberg 2010, 174-176).

The queue introduces an extra cost into the purchase of a ticket, which is time. The real cost of the ticket becomes the price plus the time set aside to acquire the ticket. But in today's world, this idea may no longer be true. A large majority of tickets are purchased online. Instead of waiting in line, consumers simply purchase the tickets from their phones. The time cost may be minimal due to technology, but online queues still exist, leaving excess demand. Consumers may prefer paying extra to avoid the wait (Halberg 2010, 175-176).

This creates the secondary market, commonly known as ticket scalping. Scalping is a service to consumers to obtain tickets that are no longer available in the primary market. Prices in the secondary market are set to eliminate the excess demand (Halberg 2010, 176). There are two kinds of scalpers in the secondary market. Some consumers initially buy a ticket with the intention of actually attending the event, and later decide not to. However, most make the initial purchase with the intention of selling the ticket for profit.

Before the days of the smartphone, there were official businesses known as ticket brokers who resold tickets. These firms hired people to wait in line for tickets in order to flip them. Most of these brokers were in competitive markets in metropolitan areas. They would advertise their services on websites and in phone directories. Most held a large number of tickets with a variety of seat qualities for popular events. Brokers would also be able to charge different prices for tickets of the same quality, which does not occur in the primary market. A standard broker is not connected to the primary market in any way. Since these scalpers typically have a poor public image, promoters usually limit the quantity of tickets sold to them, and support legislation either limiting or banning resale above the primary market value. Promoters have also used different methods to avoid resale, such as wristbands and non-transferability restrictions on tickets (Halberg 2010, 176-178).

In certain scenarios, ticket scalping can be beneficial. The entrance of the secondary market can eliminate the excess demand created by the primary market. If the secondary market sellers overestimate the demand for an event, they may be forced to sell for less than the primary market price. There is also a slim chance for ticket trades. However, similar to any bartering system, the trouble lies in finding two consumers who have mutually desired tickets to trade. CashOrTrade is a ticket trading website that allows consumers to buy, sell, and trade tickets at face value. For the scalper, facilitating the resale of tickets in the secondary market allows them to capture a fraction of the surplus created. Finally, through the advancement of technology, the resale of tickets has become convenient and safe (Halberg 2010, 176-178).

While ticket scalping can provide beneficial outcomes, there are negatives. In the eyes of the consumer, scalpers set prices ridiculously high. Halberg suggests diehard fans of a certain artist may be cut out of the market if they are unable to obtain tickets in the primary market and cannot afford them through resale. Basic economic theory, however, tells us those who value the event more will purchase the tickets. Since the public dislikes ticket scalpers, politicians typically favor legislation against the secondary market. If legislation is put in place and is actually enforced (most anti-scalping measures are difficult to enforce due to online sale), the market will not clear. Also, since some ticket scalpers operate "underground", meaning they do not report resale profit as income, there is an unknown quantity of tax revenue lost (Halberg 2010, 178-179).

III. Marburger's Theory

Marburger (1997) provides a theoretical framework to determine why tickets are priced below equilibrium in the primary market. In the model, the quantity of tickets demanded depends on three things: price, performance quality, and characteristics of the local market. Complementary goods, such as merchandise, are available only to consumers who attend the event. Therefore, the demand for complements is included in the pricing decision. Marburger claims that the quantity demanded for complements is a function of three things: the price of the complements, the price of the ticket, and performance quality (Marburger 1997, 376).

Marburger creates a profit function and maximizes it. Including complementary goods means the pricing decision is akin to that of a multi-product firm (the concert and the complements). Since the concert is a performance good and the firm is a monopolist (according to theory), prices will be set so the marginal revenue from sales of admission tickets and complementary goods equals the marginal cost of admission tickets and complementary goods. The profit maximizing price falls into the inelastic portion of the demand curve. Marburger claims that since complementary goods are only available to those who attend the concert, lower ticket prices lead to increased potential for sales of complementary goods. He also experiments by factoring the price of complements into the demand for tickets. This provides the same result: ticket prices fall into the inelastic section of demand. His analysis shows that due to the presence of complementary goods at these events, the price of tickets is lower than equilibrium, and the secondary market is created. (Marburger 1997, 376-377)

Since 1997, however, technology has changed how people buy the complementary goods. Today artists make complementary goods available for purchase online. Thus, the demand for merchandise does not rely on the price of the ticket or the quality of the performance. Marburger claims the existence of the secondary market is due to complementary goods. However, the secondary market still exists today, even with complementary goods available to all. In this case, his theory no longer makes sense.

IV. Analysis

Marburger's analysis is recreated without ticket prices and performance quality in the equation for complementary good demand. The quantity demanded for tickets remains:

$$\mathbf{Q = Q(P, q, m)} \quad \mathbf{(1)}$$

Where P is the price of the ticket, q is the performance quality, and m is the characteristics of the local market. An updated equation for the quantity demanded for complementary goods is:

$$\mathbf{S = S(R)} \quad \mathbf{(2)}$$

Where R is the price of the complementary goods.

These two equations yield total revenue, total cost, and profit:

$$\mathbf{TR = (P) *Q + (R) *S} \quad \mathbf{(3)}$$

$$\mathbf{TC = hQ + rS + F^{Q} + F^{S} + w(q)q} \quad \mathbf{(4)}$$

$$\boldsymbol{\pi} \mathbf{= TR\text{-}TC = (P\text{-}h)*Q - F^{Q} + (R\text{-}r)*S - F^{S} - w(q)q} \quad \mathbf{(5)}$$

Where h is the cost per seat, r is the cost per complementary good sold, and F^{Q} and F^{S} are the fixed costs (e.g. wages) with respect to seats and complementary goods, respectively. W(q)q is the term describing the cost of the performing artist. Wages paid to artists are dependent on the quality of the performances they provide (Marburger 1997, 376-378).

While Marburger takes the first order condition of the profit function in terms of P, R, and q, the point of interest here is P:

$$\boldsymbol{\pi}^{\mathbf{l}}\mathbf{(P): [(P\text{-}h)*Q_p+Q]} \quad \mathbf{(6)}$$

Where Q_p is the partial derivative of Q with respect to P. This equation diverges from Marburger's analysis. Since the demand for complementary goods no longer relies on the price of the ticket, there is no concession term in equation (6). Coincidentally, this matches Marburger's equation (6), in which he excludes the term for concessions. Marburger then manipulates the equation, factoring out Q and rearranging terms, which shows:

$$\mathbf{Q(P/Q*Q_p+1) = hQ_p} \quad \mathbf{(7)}$$

Which can also be written as:

$$\mathbf{Q(\varepsilon_p+1) = hQ_p} \quad \mathbf{(8)}$$

Where $\boldsymbol{\varepsilon_p}$ is the price elasticity of demand. As Marburger acknowledges, equation (8) shows a potential monopolist pricing decision. Since the capacity of a venue for a single event cannot change, variable costs and marginal costs are minimal. Allowing h to approach zero gives:

$$\mathbf{Q(\varepsilon+1) = 0} \quad \mathbf{(9)}$$

Equation (9) shows that without the term for concessions, profits will be maximized when the price is set at the unit elastic portion of the demand curve. Here Marburger adds in the concession term, and ends

with a conclusion showing that profit maximization occurs in the inelastic section of the demand curve. In other words, prices would be set below equilibrium, thus leading to the excess demand, eventually leading to the secondary market for tickets. However, since the updated function for complementary goods does not include the price of the ticket, the additional analysis does not occur.

V. Discussion/Limitations

The results of our analysis are simultaneously clear cut and ambiguous. The updated theoretical analysis shows that complementary goods are not the driving factor behind lower-than-equilibrium prices in the primary market. Marburger's theory is incorrect. However, the analysis does not provide an answer. The economic theory provided does not match reality. The simplest solution suggests bands and promoters are not attempting to maximize profit. While it goes against economic theory, artists may just want to provide entertainment at a reasonable rate. When asked if overpaying for concert tickets was a bad idea, country performer Tyler Childers said this:

> Yes, it is bad. Let them keep their bot bought tickets…we will play to an empty room, and some poor bastard will be stuck with 150 tickets to a Tyler Childers show he had no intention of going to anyways. They only do it because they know you will buy it. Tell you what, give ME $50 and I'll give you a backstage pass, I'll let you drink our beer, eat our hummus, give you a naked picture of Bea Arthur, and a shirt.

While using humor, Tyler Childers declares what seems so be the sentiment for many artists. Profits are not the only motivation for performers. They are also concerned about "fairness" and maintaining a loyal fan base. (Tyler Childers, Twitter post, March 13th, 2018 [3:09 P.M.], accessed April 29th, 2020.)

Due to time and resource constraints, this analysis is unfortunately less significant than it could be. An empirical analysis would be a strong addition to the theoretical analysis. An extension would include an empirical model, as well as a more expansive theoretical analysis in a more general form. An optimization problem including all actors in the market would be potentially beneficial. An ideal analysis would include the profit maximizing levels for artists as well as promoters and venues. Only one piece of a very large puzzle was analyzed.

VI. Conclusion

Advancements in online consumerism have eliminated complementary goods as a factor in the ticket pricing decision. While tickets are still underpriced in the market, this analysis shows that it may not be due to complementary goods. The attraction of easily selling out or creating a more consistent fan base may be more applicable. These factors may create the surplus demand, leading to the creation of the secondary market. As the theoretical analysis shows, profits are maximized when prices are set at the unit elastic portion of demand, leaving no excess demand. Simply put, artists do not conform to the "rationality" of economic theory.

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