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## A House Divided

### The economics of discounting tickets

*'For those of you in the cheap seats I'd like ya to clap your hands to this one; the rest of you can just rattle your jewellery!' - John Lennon*

While discounted tickets have long been a part of live music industry, Live Nation's recent deal with Groupon has sharply divided opinion on this practice.

Here we explore case studies and relevant economic concepts to inform the debate, especially when dealing with empty seats, or 'distressed inventory'.

Much hinges upon how positively you view the health of the live music industry, but equally we should understand when art and commerce don't mix.

The economics of scarcity can help explain both the decline of recorded music revenues and the success of the live sector. The former lacks scarcity in a digital age; we could consume all the iTunes downloads on the web today and they would still be there tomorrow. The latter possesses both scarcity, in that there are only so many tickets for a show, and excludability, in that you have security guards to enforce ticketed entry. This has enabled live to increase the supply of events and, in response, demand has continued to grow.

So, when Live Nation announced a partnership with Groupon to aggressively discount distressed inventory tickets online at the last minute, the industry was sharply divided in its view. Nothing unusual there; there is always a debate about introducing variable pricing to the live

industry. However, the debate has intensified. While discounting has been part of the sector for some time, Groupon entices a last minute discounting culture that attracts customers like moths to a light, and that didn't previously exist.

We draw upon recent case studies of the live sector using Groupon to sell distressed inventory tickets for Britney Spears and Bon Jovi in the UK, as well as the use of variable pricing and market segmentation by The Eagles in the US. We then turn to the economics, and develop a yield management model for promoters to consider before choosing Groupon. We conclude by considering the outlook for the UK live music sector as well as shedding light on situations where art and commerce don't mix: fair prices as opposed to variable prices.

### **A house divided: the pros and cons of Groupon ticketing**

On 9 May 2011, Live Nation announced a deal with online discount operators Groupon to sell tickets under GrouponLive for the US market. The brand was launched in time for the summer concert season and offered fans exclusive deals on Live Nation events and at venues using Ticketmaster. Live Nation Entertainment president and CEO Michael Rapino stated: 'GrouponLive represents a new channel to drive value for fans, while helping artists to reach ever larger audiences'. Pricing would be determined by the artist or venue, and AEG Live quickly followed suit by using Groupon to market slow-selling Bon Jovi tickets.

The idea was that Groupon could introduce a discount culture in the live sector to address empty seats. Rapino told US Congress in 2010 that 40 percent of seats go unsold. He also noted that ancillary sales average \$12 to \$14 per head as concertgoers spend on food, beverage and merchandise. Therefore, Groupon not only has the potential to generate something out of nothing as some seats would have been otherwise empty. Indeed, discounting tickets might mean more ancillary spend on items as consumers shift their budget round. However, as is often claimed, discount sites attract coupon-cutters who rarely spend more than the minimum required to participate in the offer.

There are plenty of critics of Groupon. Festival Republic chief Melvin Benn recently told BBC Radio 1 that he expects an increasing number of live music promoters to start using Groupon style discount sites. Benn observed: 'In tough economic times people will look at varying ways of pricing their tickets'. However, he added that in his own business within the festival space he'd be too concerned about consumers starting to expect last minute discounts, and therefore damaging early sales, to go the Groupon route. He concluded, 'People would come to expect it year on year and it would damage the viability of the festival in the long-term'.

### **Britney and Bon Jovi**

Despite lack of consensus, there has been enough experimentation with Groupon deals to consider recent activities with Britney Spears and Bon Jovi as case studies. Each display contrasting results, but we should be wary of the benefit of hindsight when learning from them. For example, when ticketing inventory becomes distressed and artist guarantees have already been paid, the textbook solutions can often take a back seat when the deadline-driven reality of cutting your losses and maintaining relationships looms large.

On 27 October 2011, Pollstar reported that Britney Spears was in danger of bombing in Birmingham when her show at the 16,000-capacity LG Arena on 30 October appeared to be falling way short of selling out and UK media jumped on the story. Special offers such as £30 tickets, almost half the £55 top price, and two extra

tickets for anyone who bought 10, helped to stimulate sales. The cut-price £30 ticket deal was brokered by tour promoter Live Nation with Groupon.

Live Nation told *The Mercury* newspaper: 'Offering a discounted deal on Groupon is not a reflection of the quality or status or sales of a show but rather segmented marketing and a way to reach new and additional consumers.' When *The Mercury* went to press it wasn't possible to gauge if the Birmingham sales were an indication that Britney's UK tour wasn't doing well. A spokesman for Manchester Evening News Arena told *The Mercury* that its 6 November show was close to selling out its 16,000 seats, but several websites were offering discounted tickets for her London show. Anecdotal reports suggest that several thousand Britney Spears tickets were eventually sold through discounted routes, demonstrating the merits of such a route when faced with distressed inventory.

On 25 June 2011, Bon Jovi gave their first live show in Edinburgh in over 25 years. Interestingly, the show was promoted as a great Father's Day gift, yet the demand for tickets was not enough to fill out Murrayfield Stadium. Groupon ran with the promotion of 'get half way there', offering £25 tickets – half the face value. Multiple purchases were available to a single buyer, with rumours of them appearing on secondary markets soon after, and tickets were available for collection the day before the concert.

***'GrouponLive represents a new channel to drive value for fans, while helping artists to reach ever larger audiences'.***

However, the demand for the discounted tickets was overshadowed by the press coverage. On 10 July, *The Daily Record* reported: 'Groupon in "dodgy" gig deal as fans are given tickets with restricted views', as customers who thought they were purchasing tickets with a face value of £50 found themselves in restricted view areas with a face value of just £15. Whilst refunds were offered, this news was

followed by a probe into Groupon by consumer watchdog Which?, following reports of more misleading deals. Moreover, there were numerous anecdotes that many fans felt ripped off by the band, and not Groupon, due to the different prices. Finally, the show did not sell out.

### **Getting to grips with the economics**

With this crash course in the Groupon debate now behind us, we turn to the economics. The purpose is to draw upon an established economic tool kit to inform the debate over the pros and cons of discounting tickets. In this section, we will offer a refresher on scarcity, an illustration of market segmentation and variable pricing, develop a framework for yield management and price anchoring, and introduce game theory to inform the discount decision-making process. We will then conclude by considering the upside and downside risks to the live music sector going forward.

### The economics of scarcity, and why it's so valuable to music

The concept of scarcity is illustrated below using a matrix defining economic goods. At the top-left, a 'private good' is excludable, where the owner of the good can deny others access, and also scarce, in that if I consume it, you can't. A 'public good', like national defence, is non-excludable and non-scarce, as you cannot prevent a particular person from its protection, and the benefits of that person getting

protected doesn't interfere with your own. A 'common good', like fish stocks, is scarce but nonexcludable, hence the 'Tragedy of the Commons' as fishermen drain the sea of fish. Finally, a 'toll good' is characterised by excludability yet no scarcity, such as a bridge toll, where my use doesn't affect yours but we both have to pay or face being excluded.

Public, private, common and toll goods in economic theory		
	Excludable	Non-excludable
Scarce	Private good (e.g. food, furniture)	Common good (e.g. the fish in the sea)
Non-scarce	Toll good (e.g. bridge toll)	Public good (e.g. national defense)

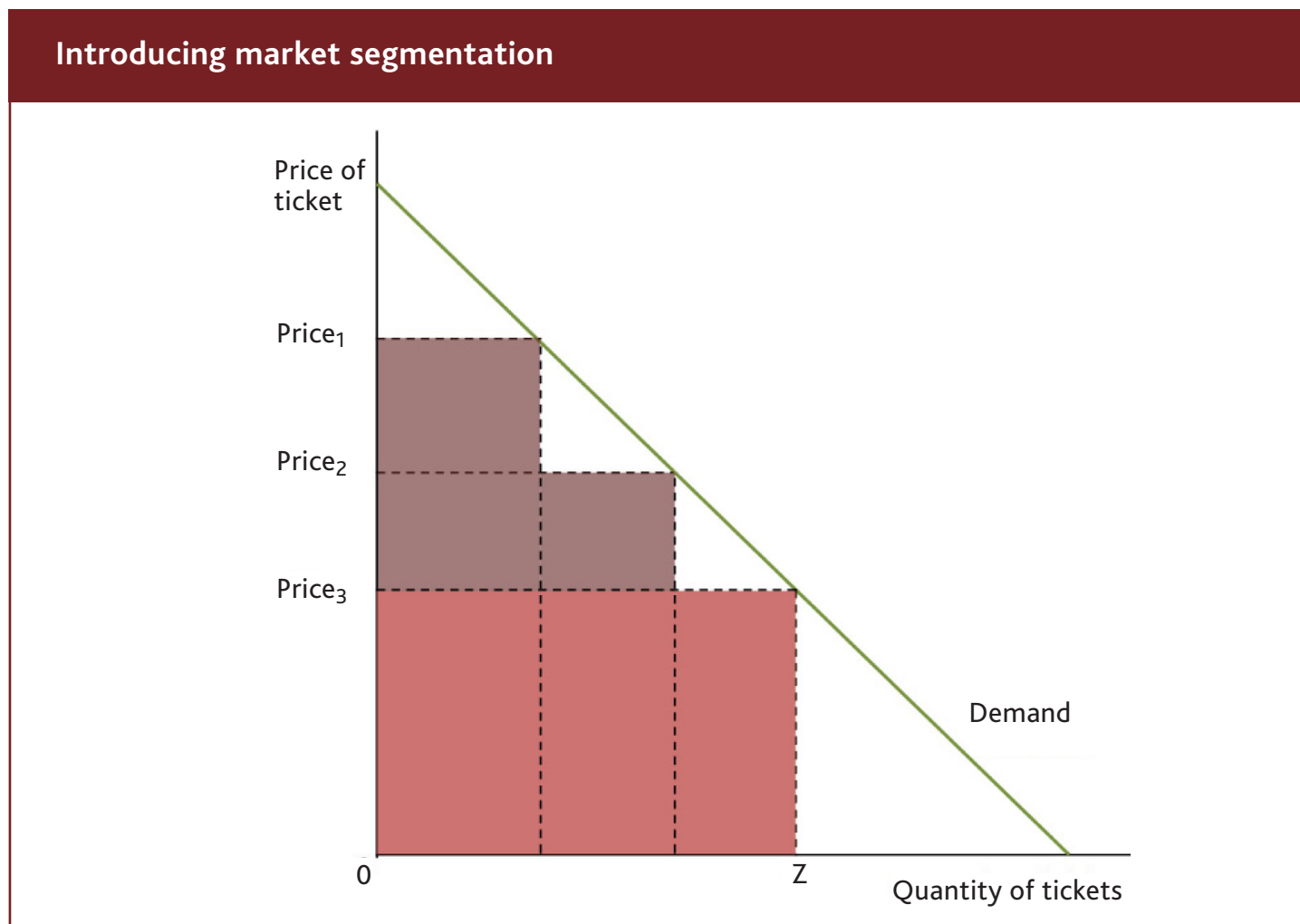
Below, we have transposed this matrix onto the music industry. A private good used to be a CD, as there was a security guard in the store meaning you had to pay and if I purchased it you couldn't. The dual effect of digital media removing scarcity and peer-to-peer (P2P) eroding excludability has pushed recorded music towards a public good. A concert ticket is scarce and excludable as it retains private good properties, and thanks to this the live industry, has doubled in

size in less than a decade. Bottom left in the matrix, broadcast licensing introduces a 'toll', where a broadcasters' consumption of media does not affect anyone else's, yet the license forces an element of excludability in its access. Finally, to complete this matrix a common good could be a free-for-all, open air live music event with the threat of 'tragedy' should it be cancelled due to overcrowding and lack of regulation.

Public, private, common and toll goods in the music industry		
	Excludable	Non-excludable
Scarce	Private good (e.g. concert ticket)	Common good (e.g. free open air concert)
Non-scarce	Toll good (e.g. broadcast licence)	Public good (e.g. P2P)

### Introducing market segmentation

Let's now consider the initial pricing strategy where supply is scarce, where market conditions do not change over time and where demand is known. This allows us to consider the impact of single pricing and market segmentation – different prices for different tickets.



To sell total supply  $Z$ , we have two options. In the first approach, **Price<sub>3</sub>** could be charged to all consumers; known as a single price approach. The revenue in the market would be the pink box. The second approach is, where possible, three different prices can be charged: **Price<sub>1</sub>** for the VIP seats, then **Price<sub>2</sub>** for the premier fan club and **Price<sub>3</sub>** for the cheap seats.

We can see how single pricing for different products can result in distressed inventory. Tickets towards the back of the O2 arena are valued by consumers less than tickets slightly forward at the same price. If a single price is charged, it will reflect the average value of the tickets. Distressed inventory of lower quality tickets (for their sale price) is therefore a symptom of insufficient market segmentation. The more price points, the closer each ticket can be to its valuation by consumers; the lower distressed inventory we have.

Subsequently, the advantage of market segmentation is that greater revenue is extracted, captured by the purple area, leaving the remainder consumer surplus as the white triangles above the purple area. If every consumer's willingness to pay could be known, perhaps through an auction, then all white areas of surplus could be removed. It is worth noting that the benefit of extracting additional revenue may not be split between the promoter and the artist.

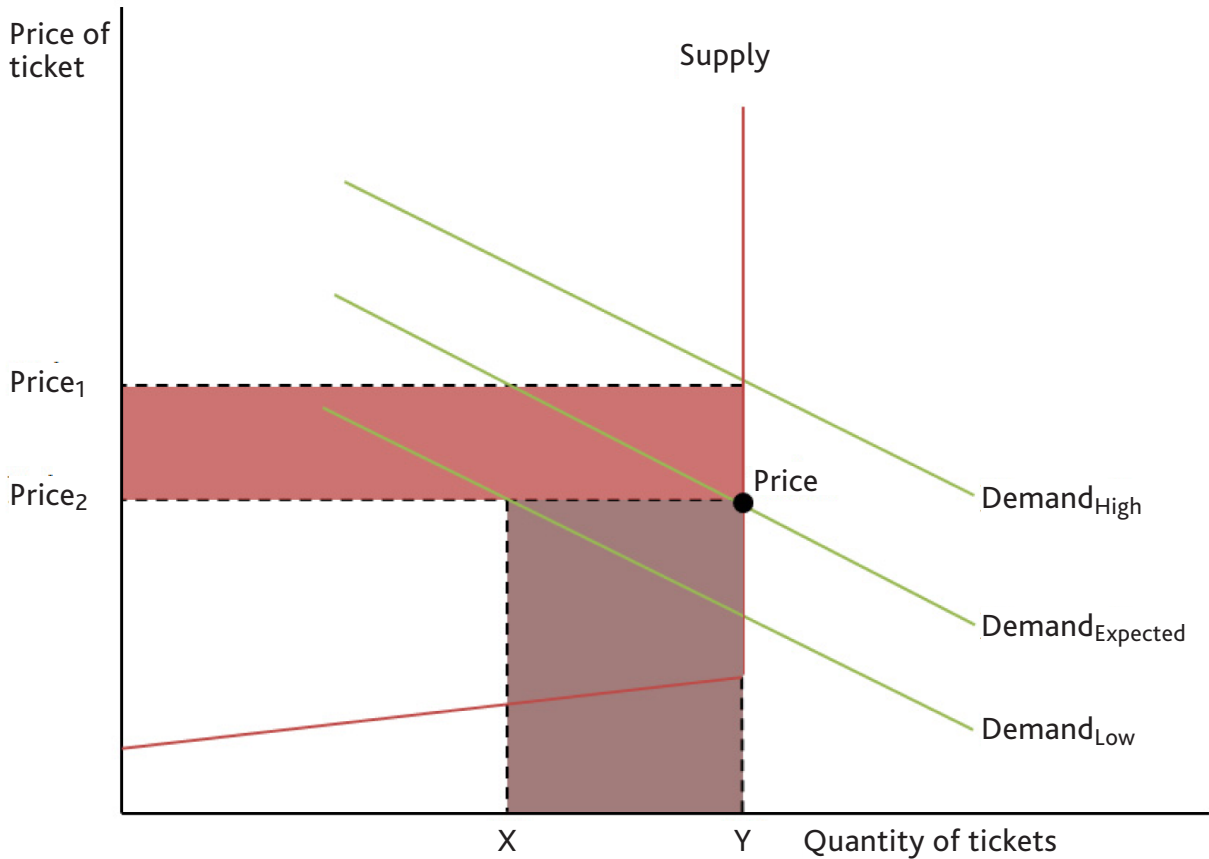
Depending upon the promoter's contract to acquire the performance, there may be no additional benefit to the artist if the promoter has paid a significant guarantee and/or has a high royalty rate. This is an important point when we consider motivations for and against discounting.

### Enter variable pricing

A more realistic model is dynamic, where it is difficult to accurately price concerts. The diagram below illustrates the concept. First, each event is unique – there is no directly comparable event now or in the future. The artist may not have toured there recently, and other

artists who may have a very different customer base. Second, demand fluctuates over time, particularly where the sales window for a concert is long, such as festivals and big tours; enough time for wallet size and preferences to change.

## How can we price in a dynamic world?



Let's run through the implications of a fixed price throughout the sales window. The price initially set is  $\text{Price}_2$  because  $\text{Demand}_{\text{Expected}}$  is estimated, with tickets available  $Y$ . It is not known how different consumers currently value the event or will do throughout the sales window. For simplicity, there is no market segmentation; we assume a single price is charged.

However, demand may not have been estimated correctly, or demand may change over time to  $\text{Demand}_{\text{High}}$  or  $\text{Demand}_{\text{Low}}$ .

Given  $\text{Demand}_{\text{High}}$  the event is in a low-price world, where the promoter has underpriced the show, given what the market is willing to pay. Consequently, the price set is too low;  $Y$  tickets are sold at price  $\text{Price}_2$ , where they could have sold out at  $\text{Price}_1$ , meaning potential revenue has been missed, equal to the pink box.

If  $\text{Demand}_{\text{Low}}$  is the actual demand curve, the event is in a high-price world, where the promoter overvalues the show, given what the market is willing to pay. The price set is too high, and  $X$  tickets are sold at  $\text{Price}_2$ , with excess stock  $Y - X$ , known as distressed inventory, offered to consumers towards the end of the sales window. If this distressed inventory is not sold, the expected revenue foregone is equal to the purple box.

Pricing too high in a fixed price world can create distressed inventory. Inventory must either go unsold, or be sold off at a large discount, given that such tickets are unlikely to be sold before the end of the sales window. Provided marginal costs are covered, some money is better than none. Unfortunately, this means trading off potential return to reduce risk by under-pricing the remaining stock.

Again, given that tickets usually sell from the furthest forward backwards, we're often left with the lower quality tickets as distressed inventory, although the mix of distressed ticket inventory can include better quality tickets that are significantly overpriced by the promoter or undervalued by the customer.

An alternative is a variable pricing mechanism, where prices fluctuate with underlying demand patterns. If demand begins strongly, prices can be raised; when demand is sluggish, prices can fall to allow the gradual sale of inventory. As will be explored in the next section, the airline industry is well known for doing this.

First, let's understand a variable pricing and market segmentation success story closer to home with a recent case study from the US rock band The Eagles.

### The Eagles fly with variable pricing

The Eagles were the first band ever to charge \$100 for a ticket sixteen years ago and they are once again pioneering ticket strategies. On 24 February 2011, Bloomberg reported that The Eagles were raising prices on prime seats, making the cheap ones cheaper and squeezing scalpers. The band's 27 April show in Sacramento, California used Live Nation's dynamic ticketing service that mimics airlines' approach – a first for a major group. By setting 10 prices based on anticipated demand, instead of the usual two to five, The Eagles were selling seats closer to what they fetch on resale sites such as eBay and StubHub.

The economic objective of variable pricing is to shift the economic value from the brokers, who get the difference between the face value and the resale value, to the primary ticketing market where it can go to the artists, promoters and venue operators. Tickets for The Eagles priced as high as \$250 were being used to reduce others to as little as \$32, the lowest for the band since 1980. Analysts point to this case study to highlight ticketing changes that are now possible due to the Live Nation merger with Ticketmaster. Indeed, Live Nation's deal with discounter Groupon should be seen in a 'see-saw' context as the year prior saw them work with Tickets Now to up-sell premium seats, thus catering for both ends of the market.

### Yield management: airlines and arenas

The term 'yield management' neatly merges the concept of scarcity and pricing for live music ticketing by adjusting price to demand over time. There are three essential conditions for yield management:

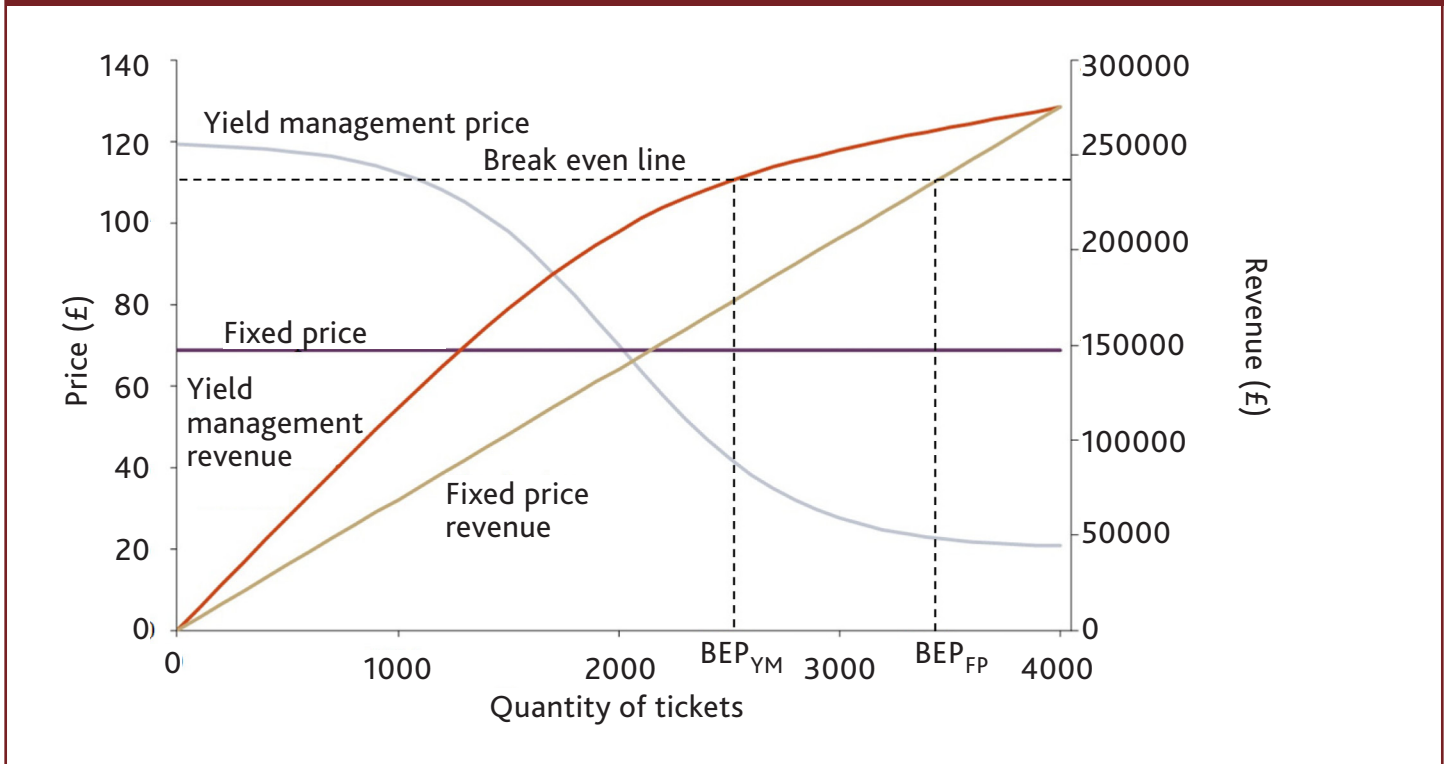
- There is a fixed amount of resources available for sale
- The resources sold are perishable
- Different customers are willing to pay a different price for the same resources

It is best known in the airline industry where capacity is regarded as fixed. Changing what aircraft flies a certain service based on the demand is the exception rather than the rule. When the aircraft departs, the unsold seats cannot generate any revenue and thus can be said to have perished. Airlines use statistical software to monitor how seats are being reserved and react accordingly, for example by offering discounts when it appears that seats will remain unsold.

We have worked with Oxera, an economic consultancy, to develop a simple illustration of yield management applied to ticketing. The diagram below illustrates two forms of pricing and their impacts on total revenues. The first form is a fixed-price system and the second is a system where prices follow a yield management curve.

One of the key benefits of yield management is that it can permit a promoter to sell capacity that would otherwise remain unsold. This can be seen in the diagram below by imagining that the last ten attendees have a willingness to pay of £60. They would not choose to buy a ticket under the fixed-price system, but would under the yield-managed system. This system may therefore be win-win, since it increases revenues for the promoter as well as increasing consumer satisfaction.

## Yield management for concert ticketing



The issue of risk can also be seen in the diagram above from the fact that, under this form of yield management, the total revenue curve is above that of the total revenue with a fixed-price regime, until the show is sold out. The break-even points  $BEP_{YM}$  and  $BEP_{FP}$  show where the concert's revenue covers all expenses of putting the concert on for yield management and fixed price respectively. This break-even point is reached at a lower quantity of tickets for yield management ( $BEP_{YM}$ ) than fixed price ( $BEP_{FP}$ ). If all tickets sell out, both yield management and fixed price lead to the same profit, but if only 3000 are sold, the concert makes a loss under a fixed price system. Yield management may therefore provide a cash-flow benefit to promoters, in that while the revenue is the same under both scenarios, the cash is front-loaded and the risk of a loss is therefore reduced. Finally, in interpreting the chart, it is worth differentiating yield management (the blue curve) versus the reality of Groupon, which is a cliff-edge reaction to the fixed price (purple line).

This form of yield management may also match most closely with the consumers' willingness to pay. Dedicated fans are most likely to secure a ticket well in advance and hence pay the associated price associated with that. Despite this, there is an incentive to wait for the chance of a discounted ticket. However, yield management can also be conducted in a way where prices can either increase or decrease. If the model was such that prices only increased, as is often the case in airline ticketing, then there would be no incentive to wait before purchase. A further issue is that this form of yield management relies on the ability to limit the functioning of secondary markets, such as eBay, hindering the ability to charge different prices to consumers. In airline pricing, the fact that passengers are named on their non-transferable tickets helps to facilitate yield management.

### Price anchoring: where perception drives valuation

Our last concept is price anchoring. This is where people focus on one piece of information during decision-making, known in academia as a focusing illusion. Most notably, people are seen to overestimate income's effect on happiness, undervaluing other aspects.

Price anchoring means people focus greatly on the price when valuing the concert; a higher price is seen as a sign of higher quality. Consider a price-anchoring case study; the market for university degrees. Recent plans by the UK Government to privatise higher education saw Oxford and Cambridge move first in setting the perceived value of a degree to £9,000 per year. Rather than undercutting Oxford and Cambridge, competing universities matched their fees, not wanting to be perceived as offering an inferior good, with the result being that, arguably, education becomes overpriced. Once you grab the concept of anchoring you can see it everywhere, in the pricing of smartphones or in groceries.

The live industry operates in much the same way. Tickets are priced at a value that promoters believe the public will pay for them, prices that are in many ways self-perpetuating by being heavily influenced by the ticket price of similar artists. As such, the public perceives the price of a ticket to be X because the price of a comparable concert is similar. The effect of discounting primary tickets in the public eye, such as through Groupon, is that this perception is undermined. A prime example of this is Live Nation's discounting of amphitheatre tickets in the US in 2009, where heavy demand for 'no service fee Wednesdays' saw a raft of other discounting measures introduced. Live Nation sold more tickets, but the 2010 season suffered dramatically with many waiting until tickets were once again discounted. By undermining the perception of the face value of a face ticket, Live Nation had effectively converted some of its ticket buyers from face value payers to discount hawks.

So, rather than a conventional market competing prices downwards, anchoring may give promoters the ability to increase the actual and perceived value of the event, which if done right, will in turn sell more tickets. As one venue owner explained, if you were to put a global megastar in his arena for less than £40, fans will perceive it as a skeleton show that lacks the necessary extravaganza and may not bother going. Push the price above £50 and the fans come flocking and you're adding a second night.

### The promoter's dilemma

Tickets are predominantly fixed-price with little market segmentation, typically fewer than five price points across a venue. If sales are allowed to continue without achieving the correct price points, this can result in distressed inventory, and the need to discount quickly, often at the last minute.

The sale of discount tickets provides consumers with value points better matching their expectations. The discount sites provide promoters access to a large market at short notice. While there is a value for promoters in discounted ticket sites, this is not to say that the current fixed, single price

strategy is best for the industry. The rational decision to use Groupon, despite distressed inventory being a sign of coordination failure, shall be termed the 'promoter's dilemma'. Our understanding here borrows from the prisoner's dilemma, a well known two-player, one-period game in game theory, where players maximise their own expected return, given the expected actions of other actors. In the absence of the ability to coordinate, without future periods, and knowing the incentives of the other prisoner, both prisoners confess and frame the other prisoner. However, if they had been able to coordinate, both stay silent.

The prisoner's dilemma		
	Prisoner B stays silent	Prisoner B confesses
Prisoner A stays silent	Each serve three months	Prisoner A: 2 years Prisoner B: one month
Prisoner A confesses	Prisoner A: one month Prisoner B: 2 years	Each serves a year

Similarly, promoters will weigh up the costs and benefits of using Groupon. In this hypothetical scenario, no other 'player' makes a decision, but the promoter's decision is influenced by single, fixed price and the previous deal made with the artist.

We can now work through the scenario that promoters face when dealing with distressed inventory. Let's say in a 2,000 capacity venue, only 30 to

50 percent sold with two weeks to go before the event. Groupon deals are structured so that tickets are sold at half the face value and the online discounter will keep approximately 35 percent of the net-of-VAT revenue, passing approximately 65 percent back to the promoter. In terms of cutting the losses, the promoter will see just over 25 percent of the original face value, a scalable value that can be deemed worthy of the discount. The math behind a typical Groupon deal is laid out in the table below.

Discounting a £100 ticket with Groupon	
Face value of a concert ticket	£100.00
Groupon discount offer	£50.00
Ticket receipt net of VAT	£41.67
Of which Groupon keep 35%	£14.58
Of which 65% passed to promoter	<b>£27.08</b>

Should the show be less than 30 percent sold with only two weeks to go, then the 'nuclear' options of downsizing, postponement, and cancelling can all be considered as an alternative to discounting. It should also be understood that profitability of ancillary revenue streams outside of ticket sales are often higher, given the deals struck with artists. Where the artist secures a higher percentage of ticket revenue, the incentive for the promoter to pursue other revenue streams and spend less time worrying about this dilemma is intensified.

More often than not, promoters work with artists on a long term basis, which means decisions made today can affect relationships tomorrow, or on the next tour. For example, SJM and other leading concert promoters offer bands lifetime deals, and get involved over the lifecycle of an artist, meaning promoters' fortunes are often tied in with their artists. Game theory also allows for multi-period games to be modelled which enables the impact of actions over time to be understood. Introducing a discount factor to a multi-period game implies that we value now more than the future. In the context of ticketing, should a discount culture persist, or even intensify, this would erode future revenues as the notion of a face value would be lost and the perception of price anchoring would be undermined.

In the appendix, we offer a technical decision rule which can inform a promoter of the tipping point, where the benefits of discounting tickets for a concert today off-set losses incurred by introducing the discounting culture to future tours.

Consequently, Groupon makes sense when the benefits outweigh the costs over time. The benefits however are likely to be front-loaded, and the scale of the discount factor offered in the decision rule determines how costly this route would be over the longer term as expectations and anchoring drive future revenues down. The more promoters' value the link with their artists, and value income in the future, the less inclined they might be to use Groupon.

This dilemma also reminds us of an important rule in ticketing; selling inventory to capacity does not necessarily equal success. It may be better to accept empty seats, keep prices high and monetise the 'river of nickels' which can be found in the ancillary revenue streams.

Moreover, recall the prisoner's dilemma, where both prisoners couldn't coordinate to achieve the best outcome. Similarly, promoters make rational decisions in an industry where coordination of segmentation and pricing doesn't take place.

Finally, a neat way of putting this isolated decision rule into a broader context came from one promoter who said: 'Groupon only makes sense when your show stiffs and you're staring down the barrel of a gun. As a promoter, if you're doing your job properly, you should never find yourself staring down the barrel of a gun'.



### The decision to discount depends on whether you're long or short

One of the first macroeconomic lectures a student will come across will feature a demand and supply chart and display the impact of a recession under rigid and flexible prices. As demand shifts inward, a flexible labour market allows prices (wages) to fall, reducing the impact of the recession on demand and helping restore the market to full employment. Rigid prices and fixed wages, on the other hand, intensify the impact of the contracting economy and hinder the ability for the market to correct itself.

Not only does this theory illustrate the difference between classical and Keynesian schools of thought, but it provides a neat backdrop to the question of discounting tickets. That is, if live music has peaked or worse, if it's about to enter a downturn, then discounting tickets can help manage the slide. Conversely, refusing to discount tickets can risk aggravating the problem of empty seats even more. The debate over discounting hinges on whether you perceive the fortunes of the live music industry as positive (long) or negative (short) going forward.

It's worth illustrating how high the stakes are, by reminding ourselves of the gravity-defying performance of live music throughout the recession. Live has not only increased the inventory but also the ticket prices during the downturn and still sold out. Hence, if you had been thinking like a rational economist and cut ticket prices in response to a downturn, you would have foregone revenues. One line of thought, explored in more depth in a paper titled *Wallet Share*, is that people are cutting back on luxury goods, such as short trips abroad and going to more concerts instead. Nevertheless, as Melvin Benn mentioned earlier, the economic downturn and 'wallet squeeze' will continue to adversely affect demand over the medium term and the industry needs to take a view on this before debating discounting.

Here, we will consider upside and downside risks, as well as contrasting with other events industries to help develop that view:

- **Upside opportunities** to the future of live music revolve around the technology space, and the ability to get people off sofas and into theatres. Developments such as the integration of Facebook and Ticketmaster allow fans to see where their friends are sitting and buy tickets accordingly. Similarly, Songkick is designed to 'grow the size of the overall pie' by introducing you to shows that you want to see, and the viral growth of this service, which is now integrated into Spotify, can only be a plus for the industry over the medium term.

*'Groupon only makes sense when your show stiffs and you're staring down the barrel of a gun. As a promoter, if you're doing your job properly, you should never find yourself staring down the barrel of a gun'*

- **Downside considerations** revolve around the domination of live by heritage acts in their 50s and 60s, which stifles the stadium acts of the future. BPI research showed that 2010 saw the number of breakthrough acts – those who have surpassed 100,000 album sales for the first time – fall from an average of 25 to a new low of 17 – with X-Factor acts increasingly prominent in that reduced list. Moreover, some bands that might have been once touted as tomorrow's heritage acts have seen their seven-figure album sales fall dramatically in recent times.
- **Considering the broader event economy** includes (i) the phenomenal growth of overseas events like Serbia's Exit Festival which is dominated by British, German, and Dutch festival-goers, (ii) football, where watching live or in pubs, or even at your home stadium is common, (iii) theatre, where discounting has always been present and (iv) tourism, where statistical methods of yield management balance demand and supply. Ignoring the strategies of events' industries competing for shrinking entertainment dollar risks undermining your own.

A balanced view would favour a positive outlook, due to the unprecedented scale of technological advancements impacting the live industry. While Facebook is helping you buy tickets today, it could be selling them to you tomorrow. Similarly, festival technology company Intellitix, which activated one million Radio Frequency Identification (RFID) wristbands in North America this summer, has developed cashless payment systems that will remove the need for cash, cards and tokens in the UK next year. Sometimes it feels like recorded music grabbed the lions' share of digital innovations in the last decade, and this decade will see it shift towards live. The economist's hunch is that digital innovation plus scarcity equals growth.

### When art and commerce don't necessarily mix

Even if you are a proponent of Groupon style discounting, you still need to balance rational expectations, as concert goers may well expect further last minute discounts to appear next time round. While this might work with clothing stores and beauty spas, it does not sit easily with the intimate relationship of a band and their own fans.

A good example is Bruce Springsteen, who has been performing to his fans around the world for more than thirty years. On 4 February 2009, *Rolling Stone* reported that 'Bruce Springsteen "Furious" At Ticketmaster, Rails Against Live Nation Merger'. Ticketmaster was redirecting Springsteen's fans to its secondary site TicketsNow, which specialises in up-selling tickets at above face value. They did this even when other seats remained available at face value. 'We condemn this practice,' Springsteen and his tour team said in an angry and emotional letter posted on his official website.

### Whose ticket is it anyway?

There is however a flip side to this notion of fair prices for the fans, which is to consider if there is a fair allocation of risk.

For top-tier headline acts with strong bargaining power, the promoter's share of the gross has increasingly been squeezed in recent years, evolving from a fixed fee for the artist to offering them not only a minimum guarantee but also a percentage break (after agreed show costs). The artist split has also been increasing, to the point where it has even been known to exceed the 100 percent show gross. Some major acts even hire the local territorial promoter, keen to be associated with the artist's profile and business.

This obviously affects the risk-reward balance, as one person's gain will be another's pain. In this case, the gains of the artist lie in reducing risk (upfront guarantees) while increasing total potential reward (higher revenue shares). This obliges the promoter to develop creative solutions to accommodate the higher risk and lower potential reward they now bear.

To some extent there is nothing new here: the booking fee has long been a source of revenue for promoters squeezed by artist demands. At the margin though, a shift in the risk-reward balance will force those on the losing end towards what Mark Wienkes, analyst at Goldman Sachs, identified as a 'river of nickels' strategy, seeking value wherever they can find it. This could be a diversification play, where the promoter becomes the venue owner and monetises everything from the bar to the car park - monies that neither the artist, nor the songwriter for that matter, would see. It could also involve up-selling on TicketsNow or it could extend to deep discounting on Groupon.

Such strategies are a rational response to the increasing power of top-tier acts. Economists often refer to a waterbed effect, where the application of bargaining power on one side of the market results in a re-balancing on the other side. If artists oppose ticketing practices like TicketsNow and Groupon, the market solution would be for them to bear more risk and in return have more control over the price of their performance, though there is no real evidence of such a trend emerging.

The economics of concert ticketing should not be considered in isolation however. A number of other factors also dominate the debate and no matter how you explore ways to maximise revenues and reduce risk, ticket price can never just be a numbers game. The imperfect science of price-setting includes keeping a sharp eye on comparative artists, thus anchoring occurs across tours, regions and genres, which goes some way to explaining the exception of Lady Gaga pricing tickets at a level close to Madonna.

The notion of one price for all was debunked years ago and to a large extent the only people to benefit have been the secondary market operators, for whom it has until now been a one-way bet. Playing them at their own game is the only way, but as the market shows signs of slowing growth there is a risk in establishing patterns of discount behaviour. The live industry should look to the airlines to learn how to manage capacity, which will show that to win in this game you have to master the data and mix it up. Perhaps, then, Live Nation's acquisition of media metrics company BigChampagne illustrates the importance of harnessing data to drive the sector forward, which can only mean fewer empty seats.

### Acknowledgments

Craig Wylie (Consultant Concert Promoter, Mean Fiddler), Greg Parmley (Intellitix), Steve Machin (Storm Crowd), Tim Chambers (LNE), Rory Sutherland (Ogilvy), Kevin Leflar (Official Community), Paul Oxley (Oxera), John Sharkey (Glasgow SECC), Trish Gorman (Dean of the Jack Welch Management Institute), Chris Deering (former president of Sony Europe), Matt Jones (Crowd Surge), Geoff Meall (Agency Group), Chris Carey (EMI Group), Gordon Masson (IQ Magazine), Steve Parker (Audience and Live UK magazines), Manfred Tari (Pop 100), Robbie Towns (Nesta), Kevin Leflar (Official Community), Deborah Hyacinth (Universal Group), Pete Downton (Imagination Technologies), Dana al Salem and Nadim Tannous (Fan Shake), Joe Kennedy (Pandora) and Duncan Gray (Oliver & Ohlbaum). Finally, thanks to PRS for Music colleagues, Robert Ashcroft, Gary Eggleton, Scott Taylor, Anita Awbi, Paul Nichols and Steve Cole.

### Appendix: a decision rule for promoters

We introduce a technical decision rule for a one-period game. Importantly, we make a number of assumptions to keep the model easy to use. First, promoters would be able to sell a fraction of distressed inventory through existing sales channels at the fixed price, without using Groupon. Secondly, all available stock is sold using Groupon. Thirdly, other than VAT and

royalty, there are no additional costs of using Groupon other than the commission fee. We're now ready to introduce the one-period model, where promoters choose Groupon when the gross income is higher than using existing sales channels.

#### One period model

Promoters will determine where to sell distressed inventory to maximise their income. They weigh up the costs and benefits of two alternatives, using Groupon and using existing sales channels. Six variables are needed to map out the promoter's income from both alternatives.

$D$  = Distressed inventory |  $c(\text{VAT}, R_0)$  = costs from VAT and royalty liabilities |  $P$  = face value of ticket

$R$  = new value as a percentage of face value [0-1] |  $C$  = commission rate [0-1]

$F$  = percentage of tickets sold if Groupon not used

In this one period model that ignores future events, a promoter would choose Groupon when the income for the current period  $G_0$  exceeds the income from not discounting  $ESC_0$ .

- Promoter's income from using Groupon ( $G_0$ ):  $D(RP - CPR - c(\text{VAT}, R_0))$
- Promoter's income from using existing sales channels ( $ESC_0$ ):  $DF(P - c(\text{VAT}, R_0))$

**The promoter should use Groupon when they are likely not to sell many tickets otherwise (low  $F$ ) and so long as they can get good terms from Groupon (high  $R$ , low  $C$ )**

However, as we've already discussed, this one-period model is not realistic, for two reasons. First, promoters are interested in any effect that decisions now will have on future income. Second, promoters are also interested in any effect that current decisions now have on the relationship with their artists.

Therefore, a multi-period model is provided below. We introduce a discount factor which implies that money now is of a higher value than

money later. This discount factor is applied to the loss in future periods,  $L$ , caused by the effect Groupon will have on driving expectations of value down due to anchoring, and the rational expectations that such discounting will continue. This means a potential inability to sell stock at face value, because of the expectation it will be lower on Groupon soon. One additional assumption is required to add to assumptions under the one period model: the gap between periods is equal to retain simplicity of the model.

#### Multi-period model

Promoters again determine where to sell distressed inventory to maximise their income, but under this model, their income is considered over a longer time, and is likely tied up with the artist's fortunes. As mentioned, two additional variables are needed to map out the promoter's income from the same two alternatives.

$L$  = Loss in future period (1, 2, n) from Groupon |  $\delta$  = discount factor [0-1]

A promoter should choose Groupon when the income across all periods from Groupon  $G_{0-n}$  exceeds the income from not discounting  $ESC_{0-n}$  over the same periods.

- Promoter's income from using Groupon ( $G_{0-n}$ ):  $(G_0) - \delta L_1 - \delta^2 L_2 - [\dots] - \delta^n L_n$
- Promoter's income from using existing sales channels ( $ESC_{0-n}$ ):  $(ESC_0)$

**The promoter should use Groupon when they are likely not to sell many tickets otherwise (low  $F$ ) and so long as they can get good terms from Groupon (high  $R$ , low  $C$ ), but are unlikely to use Groupon when future income streams are still important (high  $\delta$ )**