

Supply and



Demand

An economist goes to

The hardest ticket to get this year was for Super Bowl XXXV. Though the game proved to be a blowout, thousands of fans who were desperately seeking a seat to the spectacle were shut out. One can learn a lot about economics from studying the distribution and pricing of Super Bowl tickets. Herewith, my reports on what I learned from taking my father, Norman, to the game and conducting an informal survey of 316 fans with the aid of four interviewers.

The most obvious fact about Super Bowl XXXV was that the price listed on the tickets – either \$325 or \$400, depending on the section of the stadium – was well below the figure that would have balanced demand with the fixed supply of seats in Raymond James Stadium in Tampa. As a consequence, there was tremendous excess demand. The National Football League held a lottery for the rights to purchase 500 pairs of tickets so ordinary fans would have a shot at going to the game, and it was inundated with 36,000 applications. (The odds of being admitted to Princeton are a lot better.) On game day, at least 1,000 frustrated fans displayed “ticket wanted!” signs outside the stadium, and ticket holders told stories of being offered as much as \$5,000 as they ran the gauntlet.

List prices were set by the NFL commissioner’s office in conjunction with the Super Bowl Policy Committee, which consists of a handful of team owners. Tickets were rationed as follows: The league kept 25 percent, distributing them to the media, advertisers and others. The two teams got 17.5 percent of tickets each, most of which they distributed to their season-ticket holders through lotteries. The host city got 8.35 percent of tickets, and the other teams in the league divided what was left.

Roughly three out of four states and many municipalities regulate the resale of tickets. Nonetheless, a secondary market for Super Bowl tickets operated by scalpers, licensed ticket brokers and online auctions quickly sprang up. A week before the Super Bowl, tickets on Yahoo! Auctions, for example, traded for \$1,500 to \$3,500. Although the Tampa police aggressively discouraged scalping, the prohibition was easily skirted. For example, someone in a state that outlaws the resale

the Super Bowl

By Alan B. Krueger

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of tickets can still purchase a ticket from a broker in a state that allows resales because the states cannot regulate interstate commerce. In addition, although eBay eventually requested that all tickets posted without accompanying amenities be withdrawn, it still permitted auctions for tickets that had been packaged with something else – a hotel stay or a plane ticket.

To economists, scalping is a benign activity that creates value. Those who voluntarily buy and sell tickets do so only because they feel they will benefit from the transactions. Football fans seem to agree with the dismal scientists. Two-thirds of the 316 fans we surveyed thought ticket scalping should be legal. And a slightly higher percentage among those who obtained their tickets (at list price) through a team lottery agreed.

Driving market transactions underground can be quite inefficient. First, there is greater risk of counterfeiting. Second, transaction costs rise, although many transactions still take place. And third, tax revenue is forsaken, as scalpers are unlikely to pay taxes.

Although the “law of one price” tells us that in a competitive market identical goods should sell for the same price, Super Bowl tickets varied widely in the secondary market. Even tickets sold in auctions on the Internet on the same day went for different prices. This phenomenon has been observed in many markets, so I doubt it is due to anti-scalping legislation. Nonetheless, except in markets for goods with regulated prices, I think it is fair to say the law of one price has been repealed by experience. I call the re-

placement, Card’s Law of Infinite Prices, after the University of California economist David Card, who showed that all Boeing 747 pilots were paid the same salary when airlines were regulated and then were paid widely varying salaries after deregulation.

The NFL itself auctioned two pairs of Super Bowl XXXV tickets on eBay, as part of a VIP package that included five or six days of wining and dining in Tampa, an invitation to the half-time show rehearsals, and meetings with players and coaches. One package went for \$22,500 and the other for \$17,100!

There is even evidence that prices vary systematically in auctions for less extravagant items. For example, my Princeton colleague Orley Ashenfelter found that identical lots of wine tend to sell for lower prices in later rounds of an auction. Similar price movements have been identified in auctions for condominiums and artwork. This pattern has been dubbed “the declining price anomaly.”

At the Super Bowl, however, prices did not decline as the kickoff approached. Indeed, the supply of tickets all but dried up a few days before the game. I would estimate that thousands of fans were stranded outside the gates, even though they were willing to pay substantially more than many of those seated inside. There was thus a declining supply anomaly, not a declining price anomaly. The fear of this happening might explain why prices typically decline in later rounds of auctions; those who want something the most buy early in case it won’t be available later – and pay a premium to avoid the risk.

In view of the predictable excess demand, it is natural to ask why the NFL doesn’t charge more. Although the face value of Super Bowl tickets has increased, almost quadrupling since 1987, tickets on the secondary market still sold for \$1,000 to \$4,000 more than list. By charging a market price for tickets – say, an

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average of \$2,300 – the NFL could have increased its revenue by some \$150 million.

That's a lot of money to leave on the table. By contrast, the television ad revenue generated from the game was \$200 million.

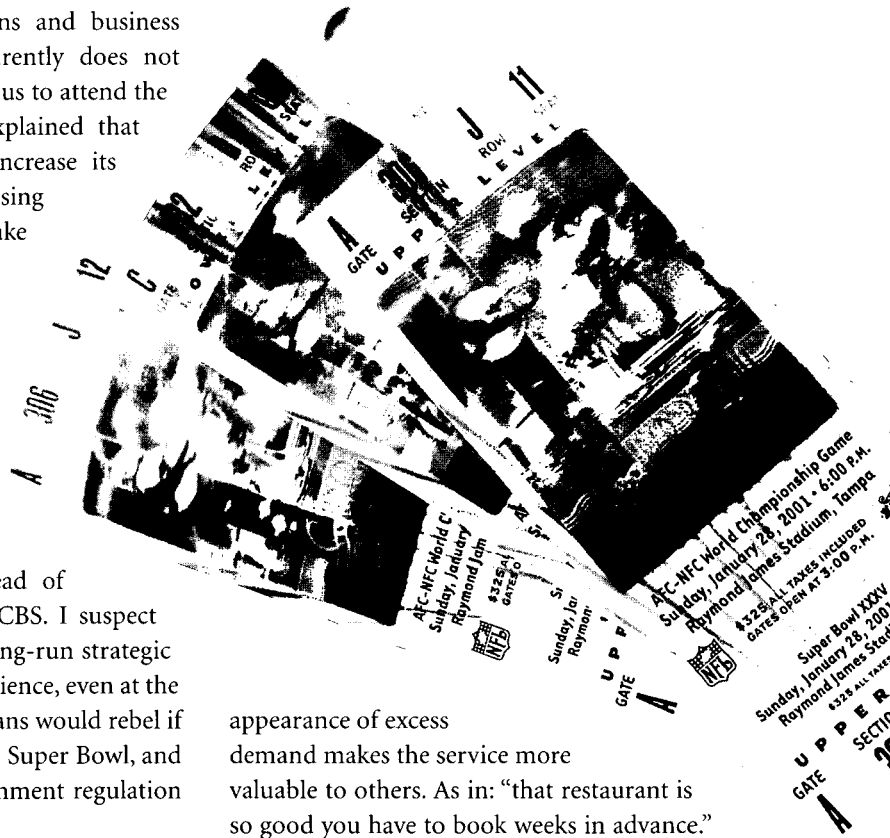
So why doesn't the NFL charge more? I put the question to Greg Aiello, the NFL's vice president for public relations. He explained that the league tries to set "a fair, reasonable price" because it wants to maintain an "on-going relationship with fans and business associates." The NFL apparently does not want only the rich and famous to attend the Super Bowl. He further explained that although the NFL could increase its "present-day profit" by raising ticket prices, it prefers to take "a long-term strategic view."

A related phenomenon concerns television rights. With almost one billion viewers worldwide, the NFL could surely raise more revenue by selling television access to the Super Bowl on pay-per-view, like prizefights, instead of selling broadcast rights to CBS. I suspect the league feels it is in its long-run strategic interest to attract a wide audience, even at the cost of short-term profits. Fans would rebel if they had to pay to watch the Super Bowl, and the league might fear government regulation if it restricted TV access.

The explanation the NFL gives for setting the price of Super Bowl tickets below what the market will bear seems consistent with a model proposed by the economist David J. Salant almost a decade ago. Salant argued that professional sports teams have an implicit long-term contract with their season-ticket holders. The fans agree to support the team in lean years, and the team agrees to treat loyal

fans fairly. Thus, the spot market price is not the relevant price in this market.

Nobel Prize winner Gary Becker's innovative model of restaurant pricing offers an alternative interpretation. Becker argues that restaurants (and sports teams) sometimes fail to raise prices despite long queues because the



appearance of excess demand makes the service more valuable to others. As in: "that restaurant is so good you have to book weeks in advance." If this is indeed the case, restaurants and sports teams can maximize profit by rationing access. I suspect the Salant fairness model provides a better description of Super Bowl ticket pricing in view of the NFL's explanation of its behavior and the way it treats season-ticket holders.

Nonetheless, the NFL's behavior raises serious questions from the standpoint of con-

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ventional economics. Wouldn't it be more efficient for the NFL to sell tickets at market value and give season ticket holders and business associates some of the extra cash? Moreover, one would expect that allocating tickets in a lottery at a below-market price would not determine who is in the stands – those who want tickets the most and have the wherewithal would buy them from lottery winners.

In fact, the NFL seems to know what it's doing. According to our survey, 28 percent of fans attending the game received tickets in a lottery, and another 11 percent received them from the NFL. Forty percent of attendees received tickets as gifts for which they paid nothing in 85 percent of these instances and just the face value in 14 percent.

Only 20 percent of attendees paid more than face value for their tickets. This finding raises an interesting question: since the effective supply of Super Bowl tickets to the market may have been only 15,000 or so, maybe the market value of a ticket if the entire stadium were on the auction block would be substantially less than the prices attained in the secondary market. Although we cannot estimate this hypothetical price, I suspect that the stadium would still have sold out if the NFL had raised the face value of Super Bowl tickets to \$1,500. As explained below, a force greater than rational economic self-interest might explain the limited resale market for Super Bowl tickets even at exorbitant prices.

Ninety-two percent thought it would not "be fair for the NFL to raise the face value to \$1,500 if that is still less than the amount most people are willing to pay for tickets." Even among those who paid more than \$1,500 for their own ticket, 83 percent still thought it would be unfair for the NFL to charge more than \$1,500! Evidently, belief in free markets is the first casualty when it

comes to Super Bowl tickets.

The finding that fans consider it unfair to raise prices in response to excess demand should not come as a surprise in view of a pair of papers published in the *American Economic Review*, one by Daniel Kahneman, Jack Knetsch and Richard Thaler, the other by Robert Shiller, Maxim Boycko and Vladimir Korobov. The first trio of researchers found that people consider it unfair for businesses to raise prices in response to excess demand (for example, it is considered unfair to raise the price of shovels after a blizzard) or to monopoly power, but it is fair to raise prices in response to an increase in costs.

The second trio found that Muscovites and New Yorkers had essentially the same perceptions of what constituted fair business dealings in 1990. For example, in both cities, two-thirds of the respondents thought it was unfair for flower shops to raise prices on holidays, when there is great demand for flowers.

The NFL has more reason to worry about perceived fairness than most businesses. Over the course of a season, 60 percent of the NFL's \$4 billion in revenue comes from TV. So maintaining a positive relationship with fans and advertisers is important, and arguably worth the sacrifice of short-term profits. Drastically higher ticket prices would undoubtedly hurt the NFL's image.

If fans acted like rational economic agents, then fairness considerations wouldn't matter and the tickets would end up in the hands of those willing to pay the most for them. One thing we learned from our survey, though, is that rationality was in short supply at the Super Bowl. We asked fans who had won the right to buy a pair of tickets for \$325 or \$400 each in a lottery whether they would have been willing to pay \$3,000 a ticket if they had lost in the lottery and whether they would have sold their tickets if someone had offered

The Super Bowl Fan Survey

The survey described in the article was conducted by four professional survey interviewers from Tampa FL, and designed by Alan Krueger with the assistance of the Princeton University Survey Research Center. The four interviewers arrived at the stadium shortly after noon on game day and asked fans in a catch-as-catch-can fashion whether they would answer eight short questions. They continued working until around 6 pm; kickoff time was at 6:25 pm and most fans filed into the stadium before then to hear Ray Charles sing "America the Beautiful."

A total of 316 fans were interviewed; hardly anyone who was asked refused to be interviewed. Indeed, tailgating fans seemed eager to tell their stories of how they got to the game. The survey participants were not a representative sample of Super Bowl attendees, however. For example, fans who arrived early were more likely to be interviewed. Nevertheless, it is unclear in which direction, if any, the non-

random sampling design might affect the results.

To warm up the respondents, the first two questions on the questionnaire were: "Which team do you want to win?" and "Which team do you think will win?" The answers to these questions, cross-tabulated below, are interesting in their own right. By and large, football fans expect that the team they want to win will win. To the author's regret, more Ravens fans than Giants fans were right.

NUMBER OF RESPONDENTS WHO:

	Expect to Win			TOTAL
	Giants	Ravens	Don't know	
	Giants	Ravens	Don't know	
Want to Win	148	7	6	161
	13	109	3	125
	9	16	5	30
TOTAL	170	132	14	316

them \$3,000 apiece. (The order of these two questions was randomly changed on the questionnaire.) Ninety-four percent said they would not have bought for \$3,000, and 92 percent said they would not have sold at that price. Fully 86 percent answered "no" to both questions, seemingly unconcerned by the contradiction. (When the willingness to sell question was asked first, 93 percent answered no to both questions; if the willingness to buy question came first, 80 percent answered no to both questions.)

It is, of course, possible that the fans who

had already showed up at the game were more reluctant to sell than the larger population; that is, our results could have been affected by selection bias. Moreover, the fans at the game might have been more willing to sell if they had been offered \$3,000 per ticket before booking their airplane and hotel reservations and traveling to Tampa, or if they had been given genuine offers of cash at the game instead of a hypothetical question from an interviewer. But researchers have documented a significant divergence (about 2:1) between the price at which individuals are will-

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ing to sell and willing to buy other items in experimental settings, so this finding is probably not an artifact of my survey. Richard Thaler of the University of Chicago calls this an “endowment effect,” because the value people place on a good increases once it is added to their possessions.

The endowment effect helps explain how the NFL can influence who goes to the Super Bowl by distributing tickets in a lottery, and why there was apparently such a small resale market for tickets.

The existence of the endowment effect raises three important, interrelated issues for economics. First, markets may be missing, or “too thin,” because people are (irrationally?) reluctant to part with their possessions. Second, if the price at which an individual is willing to accept or sell an item is different, it is unclear how prices should be used in traditional cost-benefit analysis commonly used in public policy decisions. Which value really makes sense, the minimum selling price or the maximum buying price? Third, and most profound, the endowment effect poses a challenge to a fundamental theorem underlying modern economics – namely, after free markets work their magic, no one can be made better off without making someone else worse off.

But if the endowment effect induces people to overvalue what is already in their possession, then the voluntary trades that produce this “Pareto optimal” distribution may not take place. Conceptually, at least, it might be possible to rearrange goods so some individuals’ welfare rises without causing anyone else’s to fall. It is far from clear, however, whether such Pareto-improving transfers could be made in practice.

A further fly in the ointment for any policy decision based on the endowment effect is

that it does not apply to everyone. Before the kickoff, I asked Karen McClearn, an exuberant Ravens season-ticket holder from Baltimore seated next to my father, whether she would have sold the ticket that she and her husband obtained in the lottery for \$325 if someone had offered her \$4,000 for it. She said no. She added she might have been willing to pay up to \$5,000 for a ticket if she had not been selected in the lottery. Her husband, Richard, interjected the obvious fact that this was why they would not have sold their tickets for \$4,000.

But when the Ravens took a 17-0 lead – and Karen concluded her rendition of the Ravens’ bird dance, which almost inadvertently knocked my dad out – she volunteered that she would have been willing to pay \$1 million for her ticket.

Although football fans are subject to psychological biases in judgment, they apparently don’t let emotion cloud their minds when it comes to taking account of tax rules. Some of the tickets sold on eBay and Yahoo! were auctioned on behalf of charities, which makes the purchase price above the face value tax-deductible for the buyer. In these cases, tickets sold for a premium. For example, two upper-level seats auctioned for the Boomer Esiason Foundation to help fight cystic fibrosis sold for \$7,300, which amounts to an after-tax price of \$4,667 at the top marginal tax rate of 39.6 percent – quite close to the typical price for a comparable pair of tickets in the secondary market.

Overall, I have become persuaded that Berkeley economist George Akerlof’s “gift exchange” model has much to offer in understanding how the market for Super Bowl tickets really works. Akerlof’s view is that transactions in some markets involve a gift exchange motive. Employees work harder if they feel they are treated fairly; they exchange

the gift of high effort in exchange for the gift of fair pay. Within limits, social norms determine the fair price.

I suspect the gift exchange motive explains how most fans ultimately get to the Super Bowl. It is socially unacceptable to resell a present to the highest bidder – at least if the person who gave the present might find out that it was resold. Also, if you do accept payment for a gift, it is socially unacceptable to charge a friend more than you paid for the item, which is why an overwhelming majority of those who received tickets as gifts paid nothing at all or face value for them.

Indeed, even after the game the clash between the gift and transactions exchange motive of Super Bowl tickets continued. Several people offered to pay \$10 for my ticket stub as we exited the stadium. When I said no, the price jumped to \$20. But I wouldn't sell: I planned to give the stub to my children. I didn't see many others in the exiting crowd selling their ticket stubs, either.

The ticket stub market, incidentally, may be a highly profitable one. While writing this paragraph, I tapped into eBay to see how much stubs were selling for. The bidding was between \$52 and \$71 for Super Bowl XXXV ticket stubs in mint condition. For reasons only a true collector could understand, stubs for seats located in better sections of the stadium were selling for more.

I suspect that the gift exchange and the thinness of markets is one reason the Super Bowl, and sporting events more generally, are so appealing to businesses. Many bring their clients to games to schmooze with them to make deals, or give their clients tickets to win them over. How else could one justify business expenses on luxury boxes? Indeed, even the NFL itself says it retains a sizable share of Super Bowl tickets to maintain good relations with its business associates. From a narrow

economic standpoint, it would make more sense to add some of the money spent on these endeavors to the economic transactions and retain some as profits.

I shall conclude with a modest proposal. The NFL has good reason to eschew short-run market forces in setting Super Bowl ticket prices. Nonetheless, the current method for allocating tickets is highly inefficient. Tickets do not always go to those who value them most highly, a great deal of time and energy is wasted searching for tickets, taxes are evaded, and people who buy tickets from scalpers run the risk of receiving a counterfeit ticket and of being arrested.

So let's change the rules. The NFL should set aside 5,000 tickets scattered through the stadium to sell in an open, online auction for whatever price the market will bear. The proceeds of this auction, above the face value of the tickets, should be donated to charity. For example, the NFL could use the proceeds to take inner-city kids to games during the regular season. The NFL auction should be held shortly after the AFC and NFC championship games, so that fans would know whether their favorite teams will play and would have enough time to make travel plans.

This proposal would seem to have several advantages over the current system. First, those who really want to attend the game would be able to attend, at a market-determined price. Second, the charity that receives the proceeds would obviously benefit, and the NFL would also benefit from the resulting goodwill. Third, the auction would establish a market price for legitimate tickets throughout the stadium; scalpers would find it difficult to charge more than the price obtained in this open auction. Fourth, buyers would be confident that the tickets they purchase are not counterfeit.

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