Super Bowl Participation and the Local Economy: Evidence from the Stock Market

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Abstract

This paper assesses the impact of a home team's participation in a major sporting event—the Super Bowl—on the local economy. Our identification strategy is to compare the winning and losing cities of the National Football League (NFL) conference championship games under the assumption of similar pre-trends. We use the stock market performance of public companies headquartered in these cities to capture the changing prospects of local economies attributable to Super Bowl participation. The exogenous variation in football game outcomes allows for a straightforward difference-in-differences approach to identify the causal effect. We show that the post-event trends in winning and losing cities diverge despite their similar trends before the end of the regular season. Our empirical results indicate that winning the NFL conference championship game, thus the opportunity to compete in the Super Bowl, has a positive, significant effect on the local economy, particularly the manufacturing and FIRE (finance, insurance, and real estate) sectors. A similar analysis of winning the Super Bowl, however, finds no further significant effect on the local economy.

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1. Introduction

The Super Bowl, concluding the National Football League (NFL) post-season tournament, is the biggest annual sporting event in the U.S. Its wide viewership and commercial success have motivated researchers to examine its impact in many respects.[1]

This study investigates the causal effect of a city's home team participating in the Super Bowl on the local economy. We use the total market value of public companies headquartered in a city as the outcome variable, which is an indicator of expected economic performance in the local area. Our identification strategy is to compare the market trends of the firms in wining and losing home cities at the time of the NFL conference championship, where the winning team earns the right to compete in the Super Bowl and the other does not. The fact that the two conference championship games in each season are always played on the same day creates an ideal context for implementing this strategy.[2] The validity of our identification strategy hinges on the assumption that cities participating in NFL conference championship games followed similar pre-existing trends in their local economies, as measured by the stock market performance of public firms headquartered in the winning and losing cities. Given the design of our identification strategy, we attribute a divergence in their trends after the conference championship game to the causal effect of participating in the Super Bowl.

Our empirical findings show a positive impact of Super Bowl participation, particularly on the manufacturing and FIRE (finance, insurance, and real estate) sectors of local economies. Specifically, in cities whose teams win the opportunity to compete in the Super Bowl, public companies in the manufacturing and FIRE sectors experience an immediate increase in market value, compared to those located in the losing cities. Parallel analysis suggests that this effect is nonexistent for the services sector and slightly negative in other sectors. Appearing in the Super Bowl seems to have particularly helped sectors that benefit the most from an enhancement of the city's image and a general increase in optimism about local economic conditions. We apply the same strategy to examine the effect of winning the

[1] The NBC's live telecast of Super Bowl XLIX on February 1, 2015 had 114.4 million viewers, making it the most watched single television broadcast in the U.S. The Super Bowl's brand value is reported to be worth $580 million in 2015, compared to the Summer Olympics' $348 million, the Winter Olympics' $285 million, and the FIFA World Cup's $229 million (http://www.forbes.com/pictures/mlm45flmjl/1-super-bowl/).

[2] The dates of all NFL conference championship games from the 1966-1967 to 2014-2015 season are listed in an online Appendix available at our personal website.

Super Bowl but find no further significant effect on the local economy.

Our study builds upon an extensive literature that investigates the relationship between professional sports and local economic development using various measures of economic activities. With a few exceptions (e.g., Carlino and Coulson, 2004; Huang and Humphreys, 2014), many studies find no significant effect from the presence of professional sports franchises, building sports facilities, or hosting major sporting events (e.g., Baade and Matheson, 2004; Baade et al., 2008; Coates and Humphreys, 1999, 2003; Noll and Zimbalist, 1997; Siegfried and Zimbalist, 2006).[3] These results cast doubt on the benefits of local sports franchises and public spending on new sports facilities. Some studies suggest that the economic benefits from hosting a major league franchise are smaller than typical public outlays on building a new sports facility (Baade, 1996; Baade et al., 2008; Johnson et al. 2007); others argue that the quality-of-life benefits from hosting a major league team may justify the public spendings (Alexander et al., 2000; Carlino and Coulson, 2004; Rappaport and Wilkerson, 2001).[4]

While the benefits of hosting professional sports teams have been widely studied, the literature on the economic impact of professional sports successes is relatively sparse.[5] Coates and Humphreys (2002) find that winning the Super Bowl has a significant positive effect on per capita income, but winning a conference championship and entering play-offs have no effects. Matheson (2005) reexamines the effect of winning the Super Bowl on per capita income and finds it to be much weaker. Davis and End (2010) show that an increase in the winning percentage of the local NFL franchise increases the growth rate of per capita income. Coffey et al. (2012) find that the Washington Redskins' winning percentage has a positive effect on the bureaucratic output of the federal government.

This study improves upon the existing literature in two respects. First, we develop a new

[3]There is a non-academic literature of "promotional studies," conducted mainly by consulting firms. They tend to use an outdated methodology based on regional input-output models (Siegfried and Zimbalist, 2000). Siegfried and Zimbalist (2002) suggest that such studies, using the standard local economic impact multiplier, could overestimate the stimulative effect of sports expenditures on local economies by over 400%.

[4]Using highly disaggregated data, some researchers examine more localized effects of sports facilities (e.g., Tu, 2005; Ahlfeldt and Maennig, 2009, 2010). In addition, whether the effect on local economies is transitory or long lasting has also been discussed in the literature (Soebbing et al., 2016).

[5]Many studies examine the effect of wins and losses in sports from other perspectives. For example, some studies find that the local crime and violence rates are higher on the game days (Gantz et al., 2006; Rees and Schnepel, 2009; Card and Dahl, 2011). There is a substantial finance literature about the effect of sports success on stock markets (see, e.g., Edmans et al. (2007) and its many follow-ups) which, although related to this study, is not our focus here.

research design. Due to many confounding factors, constructing credible counterfactuals poses a serious challenge for any attempt to identify a causal effect on local economies. We use the losing cities in NFL conference championship games to form a comparison group. At each conference championship game, the two competing cities have had a similarly successful NFL season. But the outcome of the first three rounds of the playoffs, to a large extent random, sends one city to the center of national attention and the other home. If this random outcome is correlated with the market performance of companies in these two cities, it is likely a causal effect. Second, we utilize the relative stock market performance of public firms headquartered in the two cities to capture sudden changes in the prospects of local economies. Previous studies on this topic largely rely on conventional low-frequency measures of economic outcomes, such as per capita income, wage earnings, and local employment. These measures are unable to pick up sudden changes in expected economic performance and vulnerable to measurement errors. Deviating from the tradition, this study focuses on the stock market performance of local economies. This precise, high-frequency measure allows us to narrow the estimation window to a short time span around the conference championship games in each NFL season so as to avoid contamination of effects due to other major events. Although stock market performance is not a commonly used local economic indicator in urban and regional economics, some studies in the finance literature show that stock returns reflect local economic fundamentals (e.g., Kornitotis and Kumar, 2013; Smajlbegovic, 2016), which provides a basis for our empirical strategy.

The rest of the paper is organized as follows: Section 2 discusses the identification strategy in detail; Section 3 introduces data sources; Section 4 presents empirical results; and Section 5 concludes with some remarks.

2. Empirical Framework

Our main empirical challenge is to disentangle the effect of participating in the Super Bowl from the effects of confounding factors. Cities competing in the Super Bowl may differ from other cities (or even themselves at other times) along many dimensions, such as population size, industry composition, and exposure to regional shocks, thus their local

economies may follow different trends. For this reason, even if we find that cities perform better economically after participating in the Super Bowl, it is unclear whether it is the effect of Super Bowl or simply a continuation of a trend that started before the event. In other words, it is difficult to determine what would have happened to a city in the absence of its participation in the Super Bowl.

Our strategy to overcome this challenge is to compare the winning and losing home cities at the time of the NFL conference championship games. For each football season, we refer to the NFL championship games day and the three weeks (15 stock market trading days) before it as the "event period", during which the winning and losing cities are decided.[6] Note that this is a very conservative strategy: we are not only using the randomness of the championship games, but also the unpredictability of the outcome in the three earlier rounds to divide cities into the treatment (winning) and the control (losing) groups. Before the last round of the regular season, which teams will match up in the playoffs are often undecided, thus it is very unlikely to anticipate which cities will win or lose the conference championship games. Therefore, our study design mimics random assignment to the treatment and control groups. The losing cities serve as a counterfactual to identify what would have happened in the winning cities in the absence of the conference championship win. Given this design, we attribute the change in the winning and losing cities' relative economic performance before and after the event period to the causal effect of Super Bowl participation.

Our key identifying assumption is that the two cities competing in an NFL championship game tend to have similar pre-trends.[7] Given that both cities had a rather successful football season, excelling in the regular season and then surviving two rounds of playoffs to reach the conference championship game, their local economies should, on average, have performed equally well before they meet in the game. This seems to be a reasonable assumption especially when averaged over 96 pairs of home cities across 48 seasons.

As mentioned above, we focus on the stock market performance of public companies head-

[6]The design and discussion of our empirical strategy are based on the four-round (wild-card, divisional, conference championship, and Super Bowl) format of the NFL playoffs that started in the 1978 season. The earlier playoffs had fewer rounds, meaning that the "event period" will include a few trading days before the end of the regular season in those earlier seasons.

[7]In spirit, our strategy is similar to the one adopted by Greenstone et al. (2010), who estimate agglomeration economies by comparing cities that won a "million dollar plant" to those that barely lost it.

quartered in a given city as the outcome variable. We implement a difference-in-differences methodology, estimating the following baseline equation:

$$\widetilde{MV}_{its} = \alpha + \beta Win_{is} \cdot Post_{ts} + \theta Win_{is} + \gamma Post_{ts} + \rho\lambda_{ts} + \delta_i + \epsilon_{its} \tag{1}$$

where $\widetilde{MV}_{its}$ represents the normalized aggregate market performance of city i on trading day t in season s, described in detail below; Win_{is} is a dummy variable that equals 1 if city i wins the conference championship game in season s; $Post_{ts}$ is a dummy variable indicating trading day t after the conference championship games in season s; λ_{ts} represents the overall market trend of NFL home cities, which is calculated as the normalized aggregate market performance of all other NFL home cities on trading day t in season s; δ_i represents city-specific fixed effects; ϵ_{its} is an error term with mean zero.

One advantage of using panel data is the ability to control for unobserved effects. City-level characteristics could correlate with potential market outcomes and undermine our assumption of random assignment, we thus control for city fixed effects. Our control for the overall market trend of NFL home cities capture the effect of time-related factors (e.g., the day-of-the-week effects, the turn-of-the-year effects, and other seasonal patterns in stock market returns). The random nature of football games reduces the potential influence of omitted variable bias, especially if we focus on close contests according to the betting market.

Under the identifying assumption, β represents the causal effect of winning the NFL conference championship game and thus participating in the Super Bowl on the stock market performance of winning cities. The coefficient θ captures the effect attributable to differences between winning and losing cities during the pre-treatment period. The coefficient γ captures the average market trend over time.

It is well known that, due to potential serial correlation in the data, the conventional difference-in-differences estimator may overestimate t-statistics and significance levels (Bertrand et al., 2004). Following common practice, we report clustered standard errors to allow for arbitrary auto-correlation patterns. We also try alternative specifications by collapsing the data into pre- and post-event periods in each season.

3. Data

3.1. Data Sources

We use the daily aggregate market capitalization of public companies headquartered in a city to measure the performance of the local economy. Compared with standard measures such as GDP, income, and employment, this measure has its advantages. First, stock price is a high-frequency measure that can capture sudden changes in local economic fundamentals within a short time span. Second, stock price reflects and incorporates all information on realized as well as expected benefits of an event like reaching or winning the Super Bowl.

Data on domestic common stocks come from the Center for Research in Security Prices (CRSP). We obtained daily stock price and number of outstanding shares for all stocks traded on the New York Stock Exchange (NYSE) and NASDAQ between 1967 (the first Super Bowl season) and 2014 (the last year available at the time of data acquisition).

To assign a publicly-traded firm to a city, we use the place of its headquarters. Headquarters are usually located close to a firm's core business activities and serve as the center of information exchange between the firm and its suppliers, service providers, and investors (Davis and Henderson, 2008). This way of determining firm location is rather common in the economics and finance literature (e.g., Coval and Moskowitz, 1999; Loughran and Schultz, 2005). We obtain a firm's headquarters location zip code from the COMPUSTAT annual files and merge its stock prices and number of outstanding shares with the Metropolitan Statistical Area (MSA) zip codes.[8]

Note that more than one MSA can be represented by the same football team. In these cases, multiple MSAs are considered together as a local economy and referred to as a "city." Similarly, one MSA can be affected by two local football teams (e.g., the Giants and Jets in New York city). In each football season, our analysis focuses on the four cities participating in the two conference championship games. Their winning and losing records are manually

[8] A concern of using location information from the COMPUSTAT annual files is that COMPUSTAT only reports the current headquarters location of each company. Pirinsky and Wang (2006) use the Compact disclosure to cross-check the changes of headquarters locations over time. This study, however, does not follow their approach due to the limited access to data. Since only a small share of public companies would ever relocate their headquarters, the lack of historical headquarters location in COMPUSTAT annual files is unlikely to drive the main results of this study.

entered.[9] In total, our analysis sample consists of 31 distinct cities (48 distinct MSAs) that appeared in conference championship games over 48 seasons.

To study the effect on different economic sectors, we use the Standard Industrial Classification (SIC) codes from the CRSP files to divide firms into four major sectors: (1) manufacturing; (2) finance, insurance and real estate (FIRE); (3) services; and (4) other industries. Although the data allow us to classify firms at a finer industry level, we decide to focus on these four major sectors so that the number of firms in each sector is reasonably large and thus their performance is not driven by idiosyncratic shocks.

3.2. Sample Construction

For each football season, we narrow our estimation window to a period of 90 trading days to minimize the confounding effects from other major events. Using the conference championship game day as the anchor, we call the three weeks prior to the date the "event period" and drop all the data for the 15 trading days in this period. Included in our analysis sample are 25 trading days before the event period and 50 trading days after the event period (Figure 1). This time period enables us to determine whether the winning and losing cities in our sample follow a similar trend before and after the event period, and to check whether NFL playoff success has a lasting or only a transitory economic impact. The post-event window is longer in order to conduct further analysis about the potential ensuing effect from winning the Super Bowl. There are 48 seasons (s) in the full sample, and within each season, 75 trading days (t). The number of city-by-trading-day observations is 14,325 in the full sample.

We need to deal with a few issues in constructing the analysis sample. First, entries and exits in the stock market will cause artificial changes in the total market value of public companies. Thus, we exclude the firms that went public or were delisted from the exchange during the estimation window, keeping the sample of firms consistent over the pre- and post-event periods. Second, the largest corporations are unlikely to be representative of a

[9] In the Appendix available on our personal website, we list all the cities whose teams ever competed in NFL conference championship games from the 1966-1967 to the 2013-2014 season, with detailed information on the football teams and the MSAs they represented.

local economy since their core businesses may not be in the local area. Therefore we drop the firms that are above the 95th percentile in market capitalization before aggregating the data at the city level. This will guard against the possibility that the performance of a few largest firms drives the results. Given that our choice of the 95th-percentile cutoff is rather arbitrary, we will check whether our main results are sensitive to it in the robustness analysis below. Third, it is possible that there are unobservable factors correlated with the outcome of NFL championship games, such as the market anticipation of the game outcome. To avoid potential omitted variable bias in estimating the effect of winning the conference championship, we construct a reduced sample of close games that only includes the conference championship games with point spreads smaller than or equal to 5.[10] Because the outcomes of close contests are more uncertain and closer to purely random, the treatment (winning a conference championship) better mimics a controlled experiment.

3.3. Normalization of the Outcome Variable

The stock market data are aggregated at the city level by calculating the total daily market capitalization of all firms headquartered in a particular city. This aggregate market value serves as a measure of local economic activity. In each estimation window, the market capitalization of a city is normalized as follows:

$$\widetilde{MV}_{its} = MV_{its}/(\sum_{k=1}^{25} MV_{iks}/25) \tag{2}$$

where MV_{its} is the total market value of all public firms in city i on trading day t in season s; trading days 1-25 are those in the pre-event period in the estimation window. That is, for each city we divide the market value on each trading day using the average daily market value of the 25 trading days before the event period. This approach removes the underlying

[10] A "point spread" is the number of points a team is expected to lose, which is used in sports betting to even the odds between two unevenly matched teams. For example, if the point spread is 3 for one team against another, a bet on this team will pay off only if it loses by less than 3 points. Thus a smaller point spread means that the game is expected to be more competitive. For each game, the underdog has a positive point spread and the favorite has an equivalent negative value. Throughout this paper, when referring to a game's point spread, we use the underdog's point spread. Betting odds data on NFL games are retrieved from www.vegasinsider.com. These data are not available for the first four seasons (from the 1966-67 to the 1969-70 season), thus all the games in those four seasons are excluded from the subsample of close games.

size differences between different cities. In other words, our empirical analysis focuses on the post-event market outcome relative to its pre-event average. The overall market value of companies in all NFL home cities not playing in the two conference championship games is also normalized in this way.

Table 1 presents the summary statistics for normalized total market value of conference championship winning and losing cities and that of all other NFL home cities from 1967 to 2014, as well as the four different sectors. Due to normalization, each row has a pre-event mean of 1. The post-event mean is always higher because stock market value grows over time. In all other NFL home cities, the growth of the normalized total market value from the pre-event to post-event period is 4.8% on average.[11] The cities that participated in the conference championship games performed better, suggesting that reaching the NFL conference championship games has a positive effect on the stock market performance of public companies in the city. Across different sectors, the market value of companies grow between 4.4% and 7.1% from the pre-event to post-event period. In all but one sector, the post-event average market value is higher in the winning cities than in the losing cities, suggesting an additional effect of winning conference championships. The only exception is the "other" sector, in which winning the conference championship seems to have a slight negative effect.

4. Empirical Findings

4.1. Baseline Results

Figure 2 plots the market trends of winning and losing cities before and after the event period. We indicate the "event period" using a vertical bar. For each pre- or post-event day, we take the average of city-level normalized total market value for all winning cities and for all losing cities over 48 football seasons. For comparison, we also calculate the average normalized total market value for all other NFL home cities. We thus plot three series in

[11]This appears to be remarkable growth within a relatively short period of time. It is partly a result of excluding delisted and the largest companies (both of which tend to have below-average market performance) from our analysis sample.

the graph. Panel a shows the whole sample of conference championship participants from the 1966-1967 to the 2013-2014 season; Panel b shows the subset of participants in close contests with point spreads smaller than or equal to 5. Both panels show similar results. Before the event, all three groups of cities follow a similar market trend. However, after the event, winning cities (the series symbolized by dots) jump to a higher trend while losing cities (the series symbolized by squares) and other NFL home cities (the series symbolized by triangles) are together at a lower trend. This suggests that the outcome of the NFL conference championship games has a positive impact on the local economy of winning cities. This effect appears to be larger when comparing winning and losing cities in close contests only (in Panel b). The graphs in Figure 2 also suggest that the effect of winning the conference championship is a lasting one: the trends of total market value in winning and losing cities diverge after the conference championship game and persist through the estimation window.

Regression results of specification (1) are presented in Table 2. Each column represents a different way to implement the regression model. Column (1) averages data across all winning cities over 48 football seasons and across all losing cities over 48 football seasons; that is, the dependent variable values in this case correspond to those winning and losing cities' series depicted in Figure 2. Column (2), in contrast to column (1), averages the data over pre-event and post-event periods in each city and each season, resulting in a panel of only two time periods over 48 seasons. This specification provides one possible solution to mitigating intra-cluster serial correlation by simply ignoring the time series information (Bertrand et al., 2004). Column (3), on the other hand, uses all available city-by-trading-day observations. In each column, the same regression is performed on two different samples: Panel A presents results for the whole sample of cities in all conference championship games and Panel B presents results for the subsample of cities in close contests.

We report clustered standard errors to account for potential intra-cluster serial correlation. In column (1), where we only have two panels (winning and losing cities) of 75 trading days, we cluster standard errors by winning status. In columns (2)-(3), standard errors are clustered by both city and season.

Column (1) reports a significant, positive effect of conference championship wins on the

local economy. The coefficient on the interactive term implies that winning the conference championship (an opportunity to play in the Super Bowl) leads to a 0.51 percentage point increase in the normalized market capitalization in Panel A and a 0.90 percentage point increase in Panel B. This effect is economically significant given the magnitude of the changes in the total market capitalization. Columns (2) and (3) show effects of similar order, but they are not statistically significant. One possible explanation for the loss of statistical significance in columns (2) and (3) might be the presence of heterogeneous effects across sectors, cities, and seasons.

Note that the close-contest sample (Panel B), in which the game outcomes are less predictable, produces a larger positive effect of winning the conference championship. This makes intuitive sense. When a conference championship game has a large point spread, one of the two teams likely performed better than the other during the regular season and the playoffs. In this case it is easier to predict which team will reach the Super Bowl, and the stock market should have incorporated this information before the conference championship game. Consequently, including observations with large point spreads could underestimate the effect of winning the conference championship. Using the sample of close contests avoids this problem and thus gives a larger and more reliable estimate.

The winning dummy variable is insignificant across all specifications and the coefficient size is close to 0, especially in column (1). Since the outcome variable is normalized, the underlying size difference between cities has been removed, we should therefore expect a near-zero, insignificant coefficient on the winning dummy variable.

The coefficient of the post-event dummy captures the boost in the local economy from reaching the conference championship but losing the game in the end. It represents the deviation of the trend in losing cities from the overall market trend. From Figure 2, the market trend of losing cities almost coincides with that of all other NFL cities even after the conference championship, suggesting no significant impact on the local economy in the losing cities. This is consistent with the small (in magnitude) and generally insignificant coefficients of the post-event dummy.

The market value of other NFL cities has a significant coefficient close to 1, meaning that the overall market trend can explain most of the variations in the city-level market

performance in the absence of the championship game. Note that we use the losing city as a counterfactual for what would have happened in the winning city had its team not participated in the Super Bowl. The result suggests that the market trend in the losing cities is similar to the trend in other NFL cities. Therefore, it is reasonable to believe that the winning and losing cities would have similar trends in the absence of the event.

4.2. Heterogeneous Effects across Sectors

We next investigate potential heterogeneous effects in different economic sectors. We divide public companies in a given city into four sectors: manufacturing; finance, insurance, and real estate (FIRE); services; and other (including all other industries). We perform the same type of analysis as in Table 2. Again, results are presented for three sets of regressions: One uses daily market value data averaged across all winning cities over 48 football seasons and across all losing cities over 48 football seasons (column (1) under each sector); one removes time series information by averaging data over all trading days for pre- and post-event periods in each city and each season (column (2) under each sector); and another uses all available city-by-trading-day observations (column (3) under each sector). We also control for city fixed effects and the market trend of all other NFL host cities, and run each regression on both the full sample (Panel A) and the close-contest sample (Panel B).

In Table 3a, we observe a positive, statistically significant effect from Super Bowl participation for both the manufacturing and FIRE sectors when using the data averaged over 48 seasons, as shown in column (1). When ignoring the time-series information and using all city-by-trading-day observations, the coefficient for $Win \cdot Post$ is of the same order of magnitude, but is not statistically significant, as shown in columns (2) and (3). Panels I-II in Figure 3 show that market values of manufacturing and FIRE firms follow similar pre-event trends in winning and losing cities but diverged after the event period, consistent with the regression results. Again, the close-contest sample in Panel B produces a much larger effect. The estimated coefficients in Panel B are very similar in magnitude across different specifications, although they are significant only in one specification for either sector.

The three columns on the left of Table 3b show the results for the services sector. In Panel A, a positive effect of winning the conference championship is consistently found across

different specifications, but it is only significant when using the data averaged over all seasons (column 1). The close-contest sample in Panel B shows small and insignificant effects. Using either sample, data in the service sector seem to violate the assumption of similar pre-event trend in the winning and losing cities (Figure 3, Panel III).

In contrast, we find a negative effect of conference championship wins on the "other" sector (three columns on the right of Table 3b), suggesting a general equilibrium effect in which booming sectors (manufacturing and FIRE) impede the growth of other industries in the local economy. It is possible that an appearance in the Super Bowl boosts a city's image, and consequently increases demand for manufactured goods and financial services in the city. While these sectors are booming, they may drive up local wages and land rents, imposing higher costs on firms in other industries (e.g., agriculture, construction, and mining), thus creating a negative effect on the "other" sector. Note that the negative effect on the "other" sector, although significant in one specification, is consistently small across different specifications and samples. This is why we obtain a positive overall effect when analyzing the whole economy.

Given the similar results on the manufacturing and FIRE sectors in Table 3a, we combine these two sectors to construct a larger sample and re-examine the effect.[12] The results are reported in Table 4. We find a positive, statistically significant coefficient on the win-post interaction term in column (1) when using the full sample of championship games. The estimates in columns (2) and (3) of Panel A are still positive and similar in magnitude, but not statistically significant. When we focus on the subsample of close contests in Panel B, the effect of Super Bowl participation on the market value of manufacturing and FIRE sectors range from 1.1 to 3.6 percentage points. These effect size estimates are much larger than those for all sectors combined (Table 2) and all statistically significant. This is understandable because the effects on the rest of the local economy is either very small (services) or even negative (the other sector).

Figure 4 shows the market trends of the manufacturing and FIRE sectors, which are consistent with the regression results in Table 4. These two sectors follow similar pre-event

[12]The number of distinct firms is 1,695 in manufacturing, 991 in FIRE, 882 in services, and 1,130 in the other sector. Manufacturing and FIRE comprise about 57% of the whole sample.

trends in winning and losing cities, but those in winning cities clearly outperform those in losing cities after the conference championship games. Moreover, this effect seems to be a long lasting one since it persists beyond the post-event period of 50 trading days.

Results presented in Table 4 and Figure 4 indicate that the effect estimated using the subsample of close contests is much larger than that estimated using the whole sample. This, as pointed out above, is sensible.

4.3. The Effect of Winning the Super Bowl

One may wonder whether a Super Bowl win provides a further boost to the local economy. While both Super Bowl participants receive massive media coverage and both home cities will experience increased consumption and business activities related to the big game, winning the trophy may create a halo effect on the city. It may cause changes in investors' moods and expectations, leading to subsequent changes in investment behavior.

To examine the potential effect of a Super Bowl win on the local economy, we add two dummy variables to the baseline regression model. The first one "Super Bowl Win" turns on after the city wins the Super Bowl. It remains zero if a city loses the Super Bowl or fails to make it to the game at all (i.e. loses the conference championship game). The second dummy variable "Super Bowl Loss" is constructed in a similar way.

To make the results comparable to those presented above, we use the sample of all conference championship participants. We cannot run parallel analysis using the sample of close contests, because they are defined based on the betting odds in conference championship games (instead of the Super Bowl). The results are reported in Table 5. We find statistically insignificant effects of winning the Super Bowl on the local economy in almost all specifications. One exception is the "other" sector (column 5), in which the "Super Bowl Win" dummy variable has a statistically significant, negative coefficient. Even for this sector, the null hypothesis of equal coefficients on Super Bowl win and loss dummies cannot be rejected, suggesting no ensuing winning effect on the local economy of participating cities.

In an alternative analysis (not reported here), we keep a sample of only those cities that participated in the Super Bowl and perform a similar difference-in-differences regression. That is, we check whether cities winning the Super Bowl experience a jump in overall market

value relative to those losing the Super Bowl. We also find no statistically significant effect of winning the Super Bowl.

One possible explanation for this insignificant effect of winning the Super Bowl could be that there is no appreciable difference in the city-image-enhancing effect of winning the Super Bowl. Despite the disappointment of losing the NFL championship, losing cities generally benefit as much as winning cities through a high level of media exposure during the two weeks before and at the Super Bowl. Teams losing the conference championship, however, are generally ignored by the media following the championship game. While teams appearing in the Super Bowl are remembered for a long time, those failing to reach the Super Bowl are soon forgotten. It is thus plausible that winning conference championships produces positive effects on local economies, whereas winning the Super Bowl has no additional effect.

4.4. Pre-event Differences

The difference-in-differences approach works best when pre-event differences are negligible between comparison groups. That is, our assumption of a common pre-event trend is crucial for estimating the causal effect of Super Bowl participation. We perform a test to check the validity of this identifying assumption.

Our test involves estimating the presence of a difference in time trends during the pre-event period. Using only the data prior to the conference championship game, we regress a city's market value on a linear time trend and the interaction between the win dummy the time trend, while controlling for the market trend in other NFL host cities. The coefficient on the linear time trend captures trends common to both winning and losing cities, while the coefficient on its interaction with the win dummy variable captures the difference in trends between winning and losing cities. Our difference-in-differences strategy is valid when winning and losing cities follow the same market trend prior to the event, requiring a near-zero coefficient on the interaction term.

Results from this test are reported in Table 6. The coefficient on the interaction term is close to zero in all specifications, although some are statistically significant. Even the largest pre-event difference is two orders of magnitude smaller than the effect we estimated in the baseline regressions. Therefore, our identifying assumption is met and it is unlikely that our

main results are driven by pre-event differences.

4.5. Robustness Checks

Here we present results from several robustness checks. In each case, the robustness test is performed for all sectors and for manufacturing and FIRE sectors, using the whole sample of NFL conference championship games (Table 7a) and the subsample of close contests (Table 7b).

4.5.1. Heterogeneous effects over time

We first examine whether the effect of Super Bowl participation is consistently positive over the 48 seasons. People may respond differently to football game outcomes in early years compared with recent years. The Super Bowl era started in the late 1960s, when football was less popular than today. It was not until the mid-1980s that the NFL had replaced Major League Baseball as America's most favorite sport. While the NFL's popularity has continued to grow during the past two decades, it has to compete with an increasingly wider range of leisure activities (such as movies, TV shows, social media, etc.) for people's attention. Thus individuals' reaction and the local economic response to the Super Bowl could change over time.

We test this hypothesis by interacting an *Early Seasons* dummy with our independent variables (including $Win \cdot Post$, Win, and $Post$). This dummy variable equals one if the game is from the first 24 NFL seasons (1966-67 to 1989-90 season), and equals zero in the recent 24 seasons (1990-91 to 2013-2014 season). The results are presented in columns (1) and (5) of Table 7a-b. Using the whole sample of conference championship participants, we find a positive, significant coefficient on the $Win \cdot Post$ and *Early Seasons* interaction, implying that the effect of Super Bowl participation is larger in the early seasons. However, results from the close-contest sample are mixed; the manufacturing and FIRE sectors appear to have benefited less in early seasons, although the coefficient is not statistically significant.

4.5.2. First-time Super Bowl appearances

We next test whether cities winning the conference championship for the first time tend to benefit more. Overall, 27 of 96 conference championship games have first-time winners. Among these 27 games, 17 were in the early 24 seasons and the remaining 10 games were in the later 24 seasons. We suspect that the first appearance in the Super Bowl could have larger effects on the local economy, since the boost in city image from winning the conference championship could decrease with repeated Super Bowl participation.

Columns (2) and (6) of Table 7a-b interact the first-time-win dummy variable with the independent variables. We find that the effect is consistently larger when a city's team wins a conference championship and participate in the Super Bowl for the first time. The only statistically significant coefficient, in column (2) of Table 7a, suggests that the Super Bowl participation effect is 2.9 percentage points higher during the first appearance, while the effect is not significantly different from zero in repeated appearances.

4.5.3. Home-field advantage

Another concern is the possible presence of home field advantage. Different from the Super Bowl, the host city of the conference championship is chosen from the two participating cities based on their performance in the regular season, which remains unclear (depending on team matchup) usually until a week before the event. Given that the home team often enjoys substantial advantages over the visiting team, the announcement of the host city is likely to be a strong predictor of the game outcome. Thus, a large portion of the effect from winning the conference championship might have already been absorbed by the stock market since the announcement of the host city. In addition, the host city of the conference championship game usually experiences a sharp increase in local economic activity related to the game and its image may be elevated during the game regardless of its outcome. It is thus difficult to disentangle the effect of a conference championship win from that of hosting the event. Adopting a close-contest sample may not fully remove this home field bias.

To address this issue, we compare the conference championship games won by home teams with those won by visiting teams[13] by interacting $Win \cdot Post$ with a $Home\ Win$ dummy

[13]The full sample contains 96 conference championship games, in which 62 (65%) games are won by home

variable, equal to one if a team wins the conference championship at home. The results are in columns (3) and (7) of Table 7a-b. Note that if investors anticipated a home team win and started to trade on such information before the conference championship game, then our approach would underestimate the effect for cities winning at home. Three out of the four coefficients on the interaction term of $Win \cdot Post$ and the $Home\ Win$ dummy are positive (although none of them is statistically significant), suggesting that, if anything, winning the championship game at home has a larger effect on the local economy.

4.5.4. City size

The effect of Super Bowl participation may be heterogeneous across cities depending on how well-known the city is. For instance, large and high-profile cities (such as New York City) have greater and more frequent media exposure, and thus may get less of a boost from an appearance in the Super Bowl. To test this hypothesis, we use the real total market capitalization of all public firms headquartered in a city as a proxy for the size and notability of the city. Specifically, we interact the real market value with the independent variables in our regression. The results are in columns (4) and (8) of Table 7a-b. The consistently negative coefficients on the interaction term indeed imply a smaller effect for larger and better-known cities, but none of these coefficients is statistically significant.

4.5.5. Choice of cutoff point to exclude the largest firms

Lastly we examine whether our arbitrary choice of cutoff point used to trim the largest firms influence our results. We alter the cutoff point from the 90th to the 100th percentile to check the sensitivity of the estimates to the choice of these cutoffs. The results show that the estimated effect is generally consistent across different cutoff points, alleviating the concern that the arbitrary choice of cutoff point drives our main result.[14]

teams and 34 by visiting teams. The close-contest sample has 45 games in total, 27 (60%) of which are won by home teams.

[14]The results from this robustness test are not presented here but available upon request.

4.6. Discussion of Potential Mechanism

We have shown that participating in the Super Bowl has a positive effect on a home city's local economy, in particular the manufacturing and FIRE sectors. We argue that this boost to the local economy is due to the image-enhancing effect of Super Bowl participation. In cities all over the world, local leaders and policymakers engage in "place marketing," creating an image of a city attractive to residents, tourists, investors, and entrepreneurs in order to improve the local economy. Common practices include advertising logos and slogans, offering business-friendly subsidies, undertaking "flagship" development projects, making statements through flamboyant architectural and urban designs, celebrating cultural and historic heritage, and hosting major events such as the Olympic Games and the World Cup. Indeed, a substantial urban planning and regional development literature has documented these practices (e.g., Kearns and Philo, 1993; Ward, 1998). Not surprisingly, cities have often used sports-based strategies to elevate their images, for the sake of attracting tourists, bounding communities, and stimulating investment (Gratton and Henry, 2001). From this perspective, the Super Bowl provides an ideal advertising campaign opportunity for participating cities. During the two weeks leading to the Super Bowl, the two teams and their home cities experience intensive media exposure, culminating in the game day when they become the center of attention. The game's high viewership makes its commercial time one of the most expensive on television. While large businesses pay several million dollars for a 30-second television commercial during the Super Bowl, the home cities of the two competing teams get extensive coverage for free.[15] Just like a Super Bowl commercial helps to put a product on the market, a Super Bowl appearance helps to put a city on the map; this is especially the case if the city has few other opportunities to be featured.

An enhanced city image could, in turn, boost the local economy in three ways. First, the successful football team brings pride to the city and gives bragging rights to the local residents, making the city a more livable place. This helps local business to recruit and retain talent, which will give them competitive advantage and enable them to thrive. It may also help improve local workers' morale and productivity (Coates and Humphreys,

[15]The average cost of a 30-second TV commercial during the Super Bowl reached $3 million in 2011, $4 million in 2014, and $5 million in 2017.

2002; Davis and End, 2010; Coffey et al., 2012). Second, the increased fame and popularity of the city may create a halo effect for products and services from the city, so that local businesses will benefit from growing demand. And third, a better city image helps bring new investment, leading to improved infrastructure and creating new businesses. Both could help existing businesses. Although these benefits take time to materialize, investors on the stock market would recognize them right away and thus they should be reflected in the stock prices immediately.[16]

This enhanced city image does not likely affect all sectors in the same way. While the Boston-based insurer Liberty Mutual and biotech company Biogen may benefit from the New England Patriots' success, the nearby office supply retailer Staples may not enjoy the same kind of spillover. On the one hand, investors may see Liberty Mutual's and Biogen's strong presence in the Boston area but fail to identify Staples with the area because the retailer has stores all over the country. On the other hand, companies like Liberty Mutual and Biogen could benefit more from the local team's success simply because they tend to employ the type of workers whose morale and productivity rise with the fame of their favorite sports team. Indeed, our results demonstrate that the effect of Super Bowl participation varies across sectors.[17]

5. Conclusion

In this paper we examine whether competing in the Super Bowl helps a city's local economy. There are two innovations in our research design. First, our empirical analysis focuses on the cities that reached NFL conference championship games. We identify the effect of Super Bowl participation by comparing stock market trends in cities that won and lost conference championship games. Since the two groups of cities on average follow

[16]Given our use of stock market performance as the outcome variable, one might ask whether the identified effects reflect investors' behavioral responses (e.g., a result of their mood swings) rather than changes in economic fundamentals. We believe that our results should be interpreted as the latter because behavioral responses are unlikely to last for an extended period after the event.

[17]It is perhaps not a coincidence that among the corporations that have bought naming rights of NFL stadiums, most are manufacturers (Ford, Gillette, Heinz, Levis, Lucas Oil, Nissan, and Qualcomm), banks (Bank of America, EverBank, M&T Bank, and TCF Bank), and insurance or other financial companies (Edward Jones, Lincoln Financial, MetLife, Raymond James, and Sun Life).

similar trends before the playoffs, the divergent performance of their local economies after the championship games can be interpreted as the causal effect of Super Bowl participation. We further focus on the subsample of cities competing in close (point spread ≤ 5) conference championship games, enhancing the credibility of our identification strategy. Second, unlike earlier studies that use low-frequency data such as employment and earnings to measure the performance of local economies, we examine high-frequency stock market data. Since stock prices reflect all immediate and future gains, we are able to identify the effect of Super Bowl participation within a narrow time frame.

Our empirical results show a positive effect of Super Bowl participation on the local economy. We find that this effect varies across different sectors; the manufacturing and FIRE sectors benefit more than services and "other" sectors. Further analysis suggests that the positive effect appears to be much larger for cities competing in the Super Bowl for the first time. Interestingly, this effect comes from participating in the Super Bowl; winning or losing the Super Bowl does not significantly influence the local economy. Taken together, these findings help us better understand the spillover effects from a successful football team.

We argue that the positive effect of Super Bowl participation is mainly a result of enhanced city image due to enormous media exposure during the Super Bowl. This explanation is consistent with the fact that the positive effect materializes the moment a city earns the ticket to the Super Bowl and no further benefit is derived from actually winning the Super Bowl. While this mechanism is plausible, it is only a speculation. It will be useful to present some hard evidence to pin down the actual mechanism. We leave this for future work.

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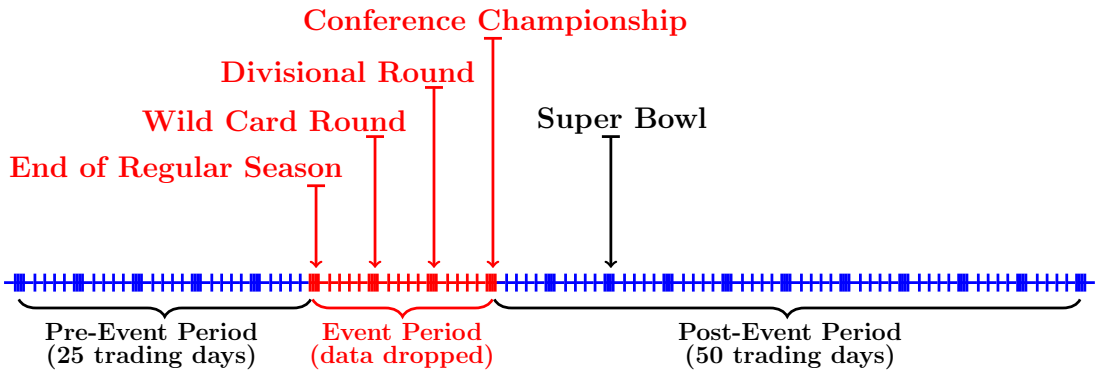
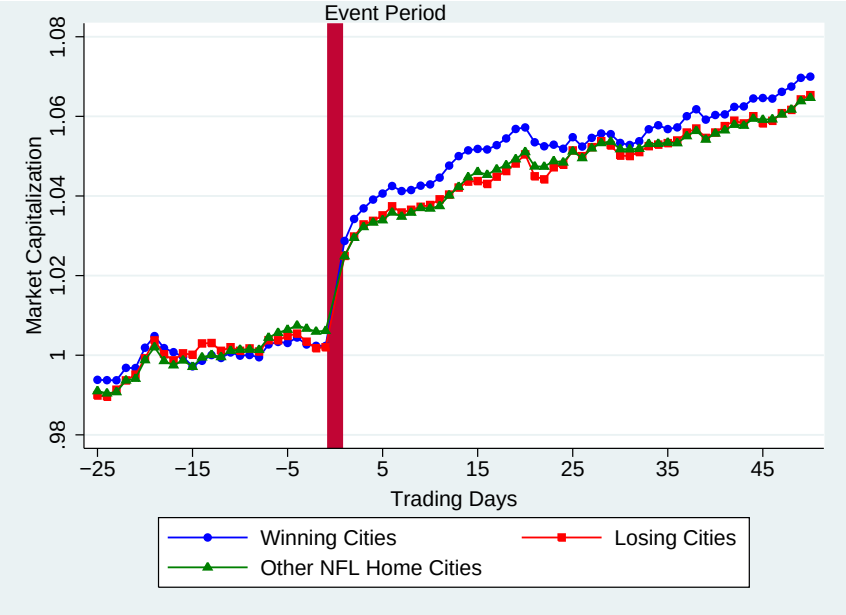
Figure 1. Timeline of NFL Playoffs and Sample Time Frame

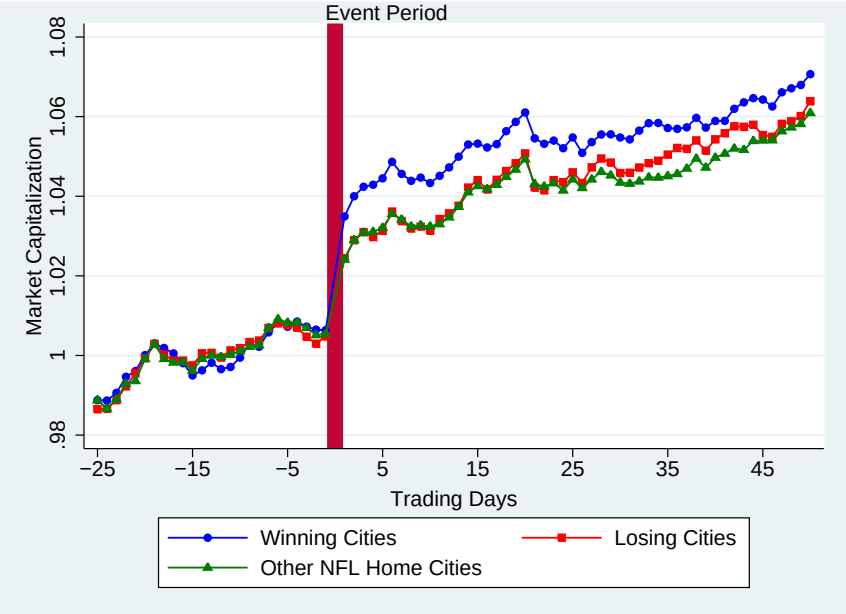


Note: The space between two tick marks represents a stock market trading day, for which the market performance data are available. A typical week (without stock market holidays) has five trading days. This sampling design is based on the recent format of NFL playoffs that has four (wild card, divisional, conference championship, Super Bowl) rounds, all happening during weekends (i.e., non-trading days). Prior to 1978, NFL playoffs had fewer rounds. Thus, in every season, dropping 15 trading days before the conference championship weekend guarantees that our pre-event sample only includes trading days before the end of the regular season.

Figure 2. Market Trends of All Sectors



a. All NFL championship games

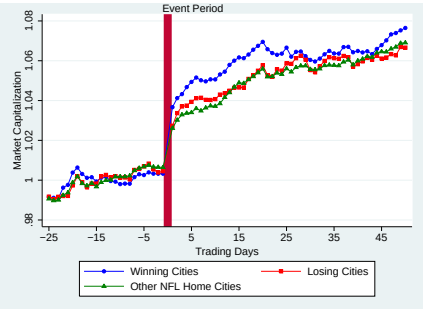


b. Close NFL championship games (point spread$\leqslant$5)

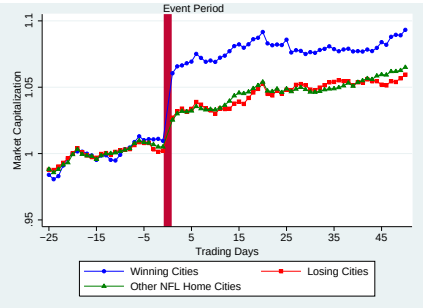
Note: The vertical bar in each graph represents the "event period," including the NFL championship game day and the 15 trading days before it.

Figure 3. Market Trends of Different Sectors

I. Manufacturing

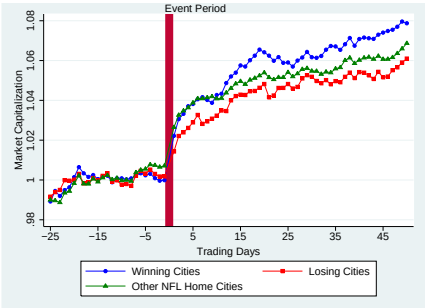


I-a. All NFL championship games

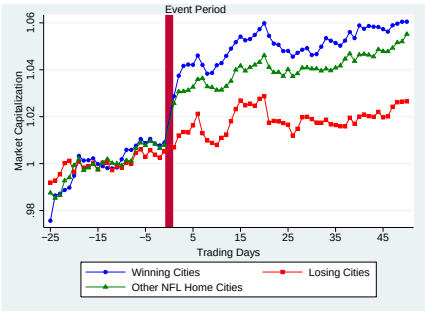


I-b. Close games with a point spread⩽5

II. FIRE

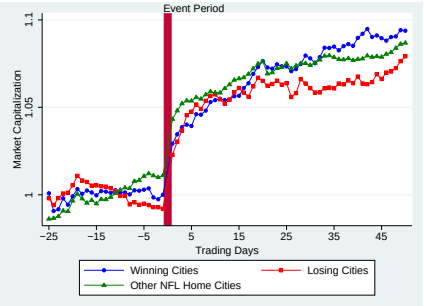


II-a. All NFL championship games



II-b. Close games with a point spread⩽5

III. Service

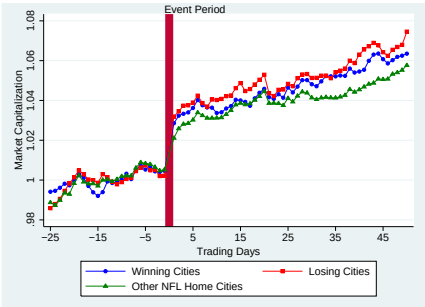


III-a. All NFL championship games

III-b. Close games with a point spread⩽5

IV. Other

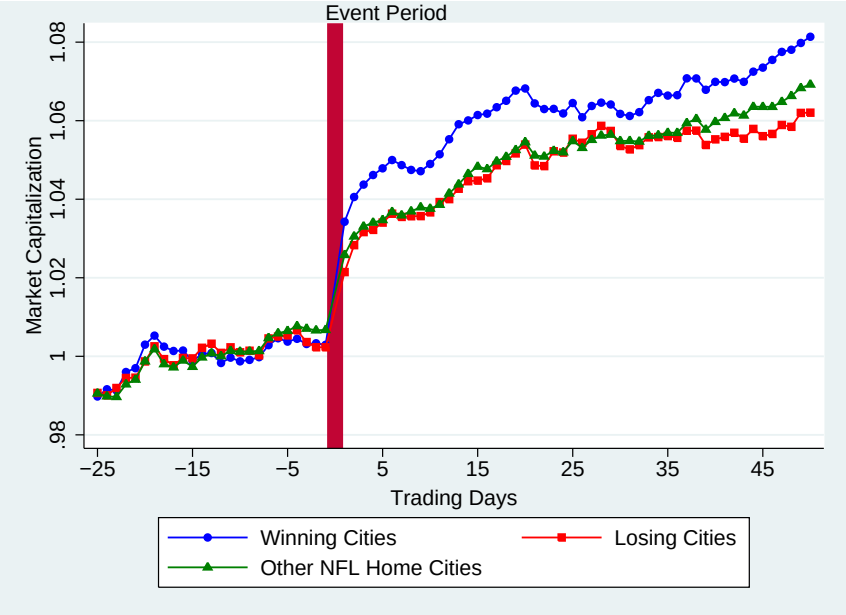
IV-a. All NFL championship games



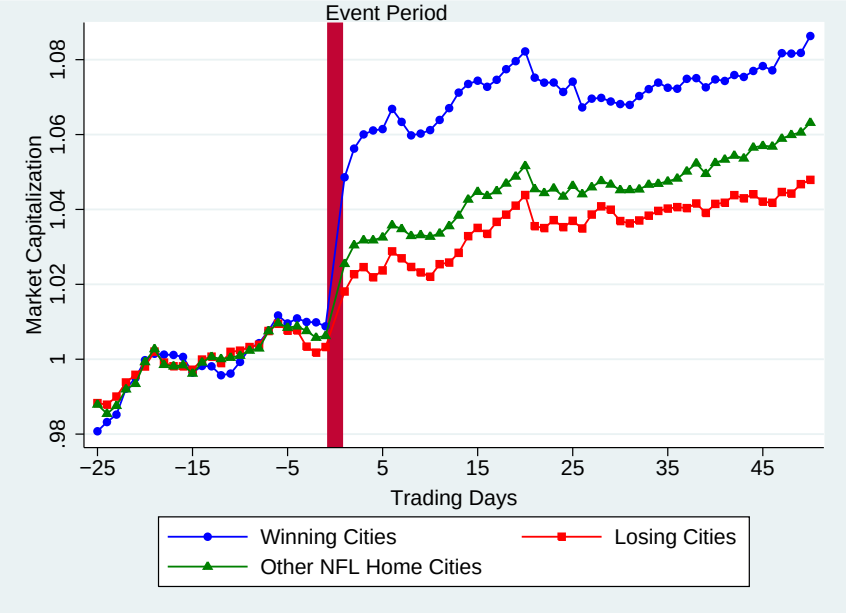
IV-b. Close games with a point spread⩽5

Note: The vertical bar in each graph represents the "event period," including the NFL championship game day and the 15 trading days before it.

Figure 4. Market Trends of Manufacturing and FIRE Sectors



a. All NFL championship games



b. Close NFL championship games (point spread$\leqslant$5)

Note: The vertical bar in each graph represents the "event period," including the NFL championship game day and the 15 trading days before it.

Table 1. Summary Statistics of Normalized Total Market Value

Sector Samples	City Samples	Mean			Standard Deviation
		Overall	Pre-event	Post-event	Overall
All Sectors	Winning Cities	1.036	1.000	1.053	0.082
	Losing Cities	1.032	1.000	1.048	0.080
Other NFL Cities	N/A	1.032	1.000	1.048	0.065
Manufacturing	Winning Cities	1.041	1.000	1.061	0.111
	Losing Cities	1.035	1.000	1.053	0.103
FIRE	Winning Cities	1.039	1.000	1.059	0.121
	Losing Cities	1.030	1.000	1.044	0.113
Services	Winning Cities	1.047	1.000	1.071	0.138
	Losing Cities	1.040	1.000	1.060	0.129
Other	Winning Cities	1.031	1.000	1.046	0.095
	Losing Cities	1.032	1.000	1.048	0.083
Manufacturing & FIRE	Winning Cities	1.042	1.000	1.062	0.097
	Losing Cities	1.033	1.000	1.049	0.090

Note: In each row, when the market value is calculated for a city, it is renormalized using the city's pre-event average daily value, thus resulting in a pre-event mean of 1.

Table 2. Baseline Difference-in-Differences Estimation Results

Dep. Var.: Normalized Aggregate Market Value			
		All Sectors	
	(1)	(2)	(3)
Panel A: All Contests			
Win·Post	0.0051***	0.0037	0.0037
	(0.0006)	(0.0074)	(0.0073)
Win	0.0000	0.0018	0.0024
	(0.0005)	(0.0025)	(0.0033)
Post	0.0030***	-0.0018	-0.0013
	(0.0009)	(0.0060)	(0.0059)
MV of Other NFL Cities	0.9351***	1.0627***	1.0534***
	(0.0167)	(0.0471)	(0.0373)
N	150	382	14325
# of Firms	4662	4662	4662
(Adj.) R^2	0.9957	0.7810	0.7735
Panel B: Close Contests			
Win·Post	0.0090***	0.0090	0.0090
	(0.0006)	(0.0087)	(0.0080)
Win	0.0000	0.0024	0.0032
	(0.0005)	(0.0034)	(0.0041)
Post	0.0013	-0.0017	-0.0018
	(0.0009)	(0.0088)	(0.0076)
MV of Other NFL Cities	1.0150***	1.0713***	1.0736***
	(0.0176)	(0.0754)	(0.0547)
N	150	180	6750
# of Firms	3320	3320	3320
(Adj.) R^2	0.9959	0.8008	0.8024

Note: All regressions include a constant and a city fixed effect, except in column (1) where the specification precludes a fixed effect. Standard errors are in parentheses, clustered by winning status in column (1) and by both season and city in columns (2) and (3). In Panel A, the sample contains all conference championship games. In Panel B, only conference championship games with point spreads less than or equal to 5 are selected.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table 3a. Estimation Results for Different Sectors

Dep. Var.: Normalized Aggregate Market Value						
	Manufacturing			FIRE		
	(1)	(2)	(3)	(1)	(2)	(3)
Panel A: All Contests						
Win·Post	0.0079***	0.0066	0.0066	0.0147***	0.0116	0.0117
	(0.0009)	(0.0127)	(0.0123)	(0.0012)	(0.0184)	(0.0177)
Win	-0.0000	0.0020	0.0027	0.0000	-0.0056	-0.0074
	(0.0007)	(0.0040)	(0.0051)	(0.0010)	(0.0047)	(0.0060)
Post	0.0122***	-0.0005	-0.0004	-0.0166***	-0.0086	-0.0073
	(0.0013)	(0.0086)	(0.0085)	(0.0020)	(0.0152)	(0.0142)
MV of Other NFL Cities	0.7881***	1.0602***	1.0599***	1.1772***	1.0607***	1.0342***
	(0.0212)	(0.0918)	(0.0711)	(0.0345)	(0.1040)	(0.0809)
N	150	378	14175	150	370	13875
# of Firms	1659	1659	1659	991	991	991
(Adj.) R^2	0.9926	0.5408	0.5484	0.9846	0.5533	0.5551
Panel B: Close Contests						
Win·Post	0.0325***	0.0329	0.0329	0.0320***	0.0320	0.0320
	(0.0013)	(0.0228)	(0.0210)	(0.0012)	(0.0336)	(0.0308)
Win	-0.0000	0.0011	0.0015	-0.0000	-0.0078	-0.0104
	(0.0010)	(0.0105)	(0.0129)	(0.0010)	(0.0153)	(0.0185)
Post	0.0092***	-0.0085	-0.0073	-0.0156***	-0.0240	-0.0233
	(0.0019)	(0.0134)	(0.0113)	(0.0020)	(0.0281)	(0.0247)
MV of Other NFL Cities	0.7830***	1.1467***	1.1228***	0.8398***	0.9726***	0.9552***
	(0.0347)	(0.1611)	(0.1055)	(0.0436)	(0.1907)	(0.1367)
N	150	176	6600	150	180	6750
# of Firms	1182	1182	1182	702	702	702
(Adj.) R^2	0.9879	0.5282	0.5578	0.9760	0.4801	0.5260

Note: All regressions include a constant and a city fixed effect, except in column (1) of each sector where the specification precludes a fixed effect. Standard errors are in parentheses, clustered by winning status in column (1) and by both season and city in columns (2) and (3) for each sector. In Panel A, the sample contains all conference championship games. In Panel B, only conference championship games with point spreads less than or equal to 5 are selected.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table 3b. Estimation Results for Different Sectors (Continued)

Dep. Var.: Normalized Aggregate Market Value						
	Service			Other		
	(1)	(2)	(3)	(1)	(2)	(3)
Panel A: All Contests						
Win·Post	0.0112***	0.0112	0.0112	-0.0024**	-0.0037	-0.0037
	(0.0027)	(0.0228)	(0.0220)	(0.0011)	(0.0092)	(0.0092)
Win	0.0000	0.0093*	0.0123*	0.0000	0.0022	0.0030
	(0.0022)	(0.0054)	(0.0069)	(0.0009)	(0.0040)	(0.0051)
Post	-0.0096*	0.0044	0.0054	0.0020	0.0119	0.0107
	(0.0050)	(0.0125)	(0.0121)	(0.0017)	(0.0085)	(0.0085)
MV of Other NFL Cities	0.9805***	0.8973***	0.8810***	1.1158***	0.9079***	0.9374***
	(0.0661)	(0.0889)	(0.0802)	(0.0372)	(0.1084)	(0.0907)
N	150	336	12600	150	382	14325
# of Firms	882	882	882	1130	1130	1130
(Adj.) R^2	0.9475	0.5206	0.4673	0.9828	0.4969	0.4895
Panel B: Close Contests						
Win·Post	0.0036	-0.0025	-0.0027	-0.0044***	-0.0044	-0.0044
	(0.0025)	(0.0299)	(0.0273)	(0.0012)	(0.0122)	(0.0115)
Win	0.0000	0.0096	0.0129	0.0000	0.0075	0.0100
	(0.0020)	(0.0096)	(0.0118)	(0.0009)	(0.0055)	(0.0068)
Post	0.0085**	0.0076	0.0065	0.0058***	0.0197*	0.0184**
	(0.0043)	(0.0157)	(0.0147)	(0.0017)	(0.0101)	(0.0093)
MV of Other NFL Cities	0.7708***	0.9408***	0.9622***	1.1159***	0.8054***	0.8385***
	(0.0670)	(0.1376)	(0.0998)	(0.0376)	(0.1383)	(0.1061)
N	150	168	6300	150	180	6750
# of Firms	551	551	551	885	885	885
(Adj.) R^2	0.9349	0.4819	0.4674	0.9824	0.5266	0.5151

Note: All regressions include a constant and a city fixed effect, except in column (1) of each sector where the specification precludes a fixed effect. Standard errors are in parentheses, clustered by winning status in column (1) and by both season and city in columns (2) and (3) for each sector. In Panel A, the sample contains all conference championship games. In Panel B, only conference championship games with point spreads less than or equal to 5 are selected.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table 4. Estimation Results of Manufacturing and FIRE Sectors

Dep. Var.: Normalized Aggregate Market Value			
	Manufacturing & FIRE		
	(1)	(2)	(3)
Panel A: All Contests			
Win·Post	0.0132***	0.0116	0.0117
	(0.0008)	(0.0095)	(0.0092)
Win	0.0000	0.0010	0.0013
	(0.0006)	(0.0025)	(0.0032)
Post	0.0028**	-0.0070	-0.0060
	(0.0011)	(0.0065)	(0.0061)
MV of Other NFL Cities	0.9014***	1.1219***	1.1021***
	(0.0195)	(0.0569)	(0.0441)
N	150	382	14325
# of Firms	2650	2650	2650
(Adj.) R^2	0.9941	0.7258	0.7159
Panel B: Close Contests			
Win·Post	0.0356***	0.0356**	0.0356**
	(0.0009)	(0.0161)	(0.0150)
Win	0.0000	0.0004	0.0006
	(0.0007)	(0.0041)	(0.0051)
Post	-0.0027**	-0.0159	-0.0155
	(0.0013)	(0.0129)	(0.0109)
MV of Other NFL Cities	0.8461***	1.1057***	1.0961***
	(0.0254)	(0.1159)	(0.0783)
N	150	180	6750
# of Firms	1884	1884	1884
(Adj.) R^2	0.9931	0.6626	0.6764

Note: All regressions include a constant and a city fixed effect. Standard errors are in parentheses, clustered by winning status in column (1) and by both season and city in columns (2) and (3) for each sector. In Panel A, the sample contains all conference championship games. In Panel B, only conference championship games with point spreads less than or equal to 5 are selected.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table 5. Effect of Super Bowl Wins

Dep. Var.: Normalized Aggregate Market Value						
	(1) All	(2) Manuf.	(3) FIRE	(4) Service	(5) Other	(6) Manuf. & FIRE
Win·Post	0.0080	0.0068	0.0003	0.0046	0.0056	0.0086
	(0.0075)	(0.0121)	(0.0167)	(0.0192)	(0.0096)	(0.0091)
Win	0.0022	0.0027	-0.0066	0.0128*	0.0025	0.0015
	(0.0033)	(0.0051)	(0.0061)	(0.0068)	(0.0051)	(0.0032)
Post	-0.0014	-0.0005	-0.0072	0.0056	0.0106	-0.0059
	(0.0059)	(0.0087)	(0.0141)	(0.0122)	(0.0085)	(0.0061)
MV of Other NFL Cities	1.0548***	1.0611***	1.0322***	0.8782***	0.9402***	1.1004***
	(0.0359)	(0.0709)	(0.0785)	(0.0782)	(0.0870)	(0.0428)
Super Bowl Win	-0.0126	0.0075	0.0185	0.0087	-0.0277**	0.0048
	(0.0089)	(0.0211)	(0.0211)	(0.0196)	(0.0118)	(0.0124)
Super Bowl Loss	-0.0008	-0.0069	0.0148	0.0100	-0.0013	0.0041
	(0.0060)	(0.0124)	(0.0134)	(0.0226)	(0.0117)	(0.0085)
N	14325	14175	13875	12600	14325	14325
(Adj.) R^2	0.7749	0.5493	0.5565	0.4676	0.4954	0.7160

Note: All regressions include a constant and a city fixed effect. Standard errors are in parentheses, clustered by season and city. All specifications use the full sample that contains all conference championships from 1967 to 2014.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table 6. Pre-Event Differences between Winning and Losing Cities

Dep. Var.: Normalized Aggregate Market Value						
	(1) All	(2) Manuf.	(3) FIRE	(4) Service	(5) Other	(6) Manuf. & FIRE
Panel A: All Contests						
Time Trend·Win	-0.0000	-0.0001*	-0.0000	0.0001*	-0.0001*	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0000)
Time Trend	-0.0003***	-0.0003***	-0.0004***	-0.0008**	-0.0002**	-0.0004***
	(0.0001)	(0.0001)	(0.0001)	(0.0003)	(0.0001)	(0.0001)
MV of Other NFL Cities	1.1697***	1.2037***	1.0076***	0.5528**	0.9083***	1.2500***
	(0.1104)	(0.1456)	(0.1099)	(0.2678)	(0.1683)	(0.1101)
N	50	50	50	50	50	50
(Adj.) R^2	0.8724	0.8329	0.7633	0.1644	0.5696	0.8897
Panel B: Close Contests						
Time Trend·Win	-0.0000	0.0001**	0.0002**	0.0004***	-0.0000	0.0001*
	(0.0000)	(0.0000)	(0.0001)	(0.0001)	(0.0000)	(0.0000)
Time Trend	-0.0001	-0.0001	0.0001	-0.0010***	-0.0002*	-0.0001
	(0.0001)	(0.0001)	(0.0002)	(0.0003)	(0.0001)	(0.0001)
MV of Other NFL Cities	1.0063***	1.1194***	0.6998***	0.6476*	0.9612***	1.0480***
	(0.0738)	(0.1154)	(0.1714)	(0.3315)	(0.1343)	(0.1100)
N	50	50	50	50	50	50
(Adj.) R^2	0.9454	0.8957	0.7419	0.2701	0.7735	0.9068

Note: All regressions include a constant and a city fixed effect. In Panel A, the sample contains all conference championship games. In Panel B, only conference championship games with point spreads less than or equal to 5 are selected.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table 7a. Robustness Checks: All Contests

Dep. Var.: Normalized Aggregate Market Value								
	All Sectors				Manufacturing & FIRE			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Win·Post	-0.0076	-0.0046	0.0093	0.0058	0.0037	0.0026	0.0103	0.0140
	(0.0099)	(0.0075)	(0.0124)	(0.0074)	(0.0156)	(0.0092)	(0.0149)	(0.0099)
Win	0.0008	0.0036	0.0008	0.0020	0.0000	0.0026	0.0009	0.0003
	(0.0045)	(0.0033)	(0.0033)	(0.0033)	(0.0047)	(0.0035)	(0.0037)	(0.0034)
Post	0.0048	0.0065	-0.0113	-0.0024	-0.0043	-0.0012	-0.0056	-0.0051
	(0.0090)	(0.0058)	(0.0095)	(0.0062)	(0.0104)	(0.0062)	(0.0090)	(0.0062)
MV of Other NFL Cities	1.0522***	1.0512***	1.0630***	1.0527***	1.1011***	1.1018***	1.1025***	1.1007***
	(0.0385)	(0.0404)	(0.0339)	(0.0374)	(0.0442)	(0.0442)	(0.0422)	(0.0441)
Win·Post·Early Seasons	0.0227*				0.0161			
	(0.0119)				(0.0172)			
Win·Early Seasons	0.0039				0.0026			
	(0.0055)				(0.0055)			
Post·Early Seasons	-0.0123				-0.0033			
	(0.0087)				(0.0116)			
Win·Post·1st Conf Champ Win		0.0290*				0.0322		
		(0.0175)				(0.0228)		
Win·1st Conf Champ Win		-0.0022				-0.0041		
		(0.0058)				(0.0065)		
Post·1st Conf Champ Win		-0.0272**				-0.0168		
		(0.0138)				(0.0127)		
Win·Post·Home Win			-0.0088				0.0020	
			(0.0137)				(0.0180)	
Win·Home Win			0.0028				0.0006	
			(0.0050)				(0.0055)	
Post·Home Win			0.0149				-0.0007	
			(0.0108)				(0.0126)	
Win·Post·Market Value				-0.2604				-0.4692
				(0.2587)				(0.4261)
Win·Market Value				0.0691				0.1946**
				(0.0695)				(0.0904)
Post·Market Value				0.1391				-0.1675
				(0.2261)				(0.3541)
N	14325	14325	14325	14325	14325	14325	14325	14325
(Adj.) R^2	0.7773	0.7805	0.7767	0.7738	0.7178	0.7189	0.7159	0.7168

Note: All regressions include a constant and a city fixed effect. Standard errors are in parentheses, clustered by season and city. The sample used in this table contains all conference championships from 1967 to 2014. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table 7b. Robustness Checks: Close Contests

Dep. Var.: Normalized Aggregate Market Value								
	All Sectors				Manufacturing & FIRE			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Win·Post	0.0041	0.0018	0.0061	0.0139*	0.0470	0.0216*	0.0128	0.0423**
	(0.0138)	(0.0093)	(0.0111)	(0.0080)	(0.0299)	(0.0129)	(0.0184)	(0.0172)
Win	-0.0007	0.0041	0.0033	0.0021	-0.0041	0.0037	0.0031	0.0012
	(0.0056)	(0.0034)	(0.0037)	(0.0056)	(0.0048)	(0.0053)	(0.0057)	(0.0067)
Post	0.0000	0.0044	-0.0066	-0.0048	-0.0219	-0.0079	-0.0071	-0.0163
	(0.0117)	(0.0088)	(0.0083)	(0.0065)	(0.0176)	(0.0142)	(0.0120)	(0.0112)
MV of Other NFL Cities	1.0763***	1.0580***	1.0827***	1.0721***	1.0978***	1.0909***	1.0952***	1.1055***
	(0.0565)	(0.0558)	(0.0535)	(0.0570)	(0.0784)	(0.0934)	(0.0747)	(0.0806)
Win·Post·Early Seasons	0.0100				-0.0233			
	(0.0157)				(0.0344)			
Win·Early Seasons	0.0096				0.0080			
	(0.0090)				(0.0082)			
Post·Early Seasons	-0.0041				0.0130			
	(0.0122)				(0.0214)			
Win·Post·1st Conf Champ Win		0.0296				0.0573		
		(0.0234)				(0.0366)		
Win·1st Conf Champ Win		-0.0034				-0.0120		
		(0.0122)				(0.0107)		
Post·1st Conf Champ Win		-0.0227*				-0.0298		
		(0.0128)				(0.0267)		
Win·Post·Home Win			0.0049				0.0381	
			(0.0190)				(0.0316)	
Win·Home Win			0.0012				-0.0023	
			(0.0074)				(0.0072)	
Post·Home Win			0.0073				-0.0138	
			(0.0139)				(0.0211)	
Win·Post·Market Value				-0.5027				-1.1917
				(0.4637)				(0.8772)
Win·Market Value				0.1595				0.1197
				(0.1845)				(0.2712)
Post·Market Value				0.3080				0.0670
				(0.4161)				(0.6477)
N	6750	6750	6750	6750	6750	6750	6750	6750
(Adj.) R^2	0.8049	0.8070	0.8052	0.8041	0.6781	0.6845	0.6823	0.6816

Note: All regressions include a constant and a city fixed effect. Standard errors are in parentheses, clustered by season and city. Panel B only includes conference championship games with point spreads smaller than or equal to 5. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$