

TELEVISION VIEWERSHIP AND RIVALRY IN THE NATIONAL
FOOTBALL LEAGUE

BY

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THESIS

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Abstract

Rivalry is competition for the same objective or for superiority in the same field. Sport is replete of rivalries between teams within region or division, offering a desirable living laboratory. Moreover, rivalry influences demand for sport, infusing significance to each match. Especially in the National Football League, the most watched league in the United States, divisional teams are considered to be in rivalrous relationships. However, relatively little attention have been paid to the rivalry effect in the television viewership, especially examining the within-game changes. Moreover, most of the studies in sport context have heavily focused on home market games. This thesis therefore investigates the effect of rivalry on sports viewership of out-of-market games to shed light on how sports fans may act when rival teams are involved.

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CHAPTER I

Introduction

According to Oxford Dictionaries (2014), rivalry is defined as “competition for the same objective or for superiority in the same field” (p. 2). Moreover, Sanford and Scott (2014) stated that “rivalry is the essence of athletic competition.” Rivalry between sports teams may occur in the context of a single match or competition for league standings. Presumably, no sports team in the world plays to lose, offering their best to defeat the opponent. The reward of defeating a rival, however, amplifies the ecstasy of victory. For instance, Yonsei University and Korea University are the most prestigious rival schools in Korea. This rivalry has developed since they first met in sports competition in 1925. They compete in both in academics and sports. Every year they hold sporting matches between the two universities for two complete days, and even the naming of this annual event is contentious; Yonsei University students call it the “Yon-Ko” match while Korea University students call it the “Ko-Yon” match. During this event, students become more fanatic and loyal to their affiliated school than ever. The two universities prepare for this event by recruiting best student athletes and training them for whole year since the result of this rivalry match is meaningful. The victory or defeat lingers for an entire year, when the next match’s chapter is added to the story. Moreover, exhibition of their superiority in sports by winning alone gives students and athletes the unmeasurable pleasure and pride within this rivalry.

Although sports fans could simply develop animosity towards their opponent through their affiliation, rivalry could also be developed due to regional conflict, political disagreement, or past bad blood. South Korea and Japan, for example, are well-known rivals in East Asia. Due to the proximity of the countries, and through Korea being the closest path for Japan to gain access to the continent, there have been numerous conflicts throughout the history. Among these

conflicts, the invasion of Japan in 1592 – the *Imjin War* – lasted almost a decade and left Korea with devastating political, economic, and cultural troubles. This was the starting point for Koreans to cultivate animosity towards Japan. Moreover, in late 19th century and 20th century, countless military conflicts and political pressure from Japan eventually led colonization of Korea from 1910 to 1945. Even after the independence, numerous issues involving past violence of Japan within Korean territory still continues today.

With the backdrop of all these historical events and political disputes, Koreans have developed deep detestation towards Japan. As a consequence, Koreans tend to compete directly in various areas, such as Samsung and Sony or Hyundai and Toyota in the industrial sector. Moreover, as Mangan, Kim, Cruz, and Kang (2013) stated, sport in contemporary society is used as a mean to bring national interest on the field so that sports games between Korea and Japan are one of the most visible and legitimate ways for Koreans to compete against Japan. That is, political and historical disputes have spilled over to sporting competition. Moreover, and particularly, no Koreans want to see their national athletes being defeated by Japanese athletes. Any sports game that involves Korea and Japan is eagerly anticipated. According to a report of The Asian Football Confederation (2011), 24.46 million audience from Japan and 8 million audience from Korea watched the semi-final of the rivalrous match between Japan and Korea in 2011 Asian Cup, constituting over half of the total viewers of 63 million.

Furthermore, there are abundant examples of sport rivalries that were developed through geographical and historical dynamics in professional sport leagues. One of the well-known rivalries around the world is derbies – sport matches between teams in same local area – in European professional soccer leagues. Among these derbies, one of the intense derbies in

English Premier League is London derby. There are currently 6 teams that play in English Premier League in London district, 13 teams if minor leagues are included. One of the longest standing London derbies is the North London derby between Arsenal F.C. and Tottenham Hotspurs. The rivalry started to burgeon in 1913 when Arsenal moved into the Highbury area in Northern London only 4 miles away from Tottenham's stadium (Tansey, 2013). It was not until 1919 when the rivalry really escalated as Arsenal was selected as a new member of First Division expansion which was to include two more teams to the league, going from 18 teams to 20 teams in total. Arsenal who finished 3rd place in the Second Division was picked over Tottenham as the last member despite that Hotspurs had a more legitimate claim to the promotion to the by being 20th place in the league that year. The rivalry between fans from each team is vicious which is best depicted by two players' transfer cases. Emmanuel Adebayor, once an Arsenal player who transferred to Manchester City only to return to wrong side of the Northern London, has left feeling of betrayal and abhorrence to the Gunners (Melman, 2012). Former captain of Tottenham Sol Campbell received permanent brand as 'Judas' and even received death threats when he decided to transfer to Arsenal from fans of Hotspurs (Dillon & Cross, 2001). In spite of the overall dominance of Arsenal in the North London derby, of late they have been fighting for the fourth place in the league, which along with it, comes the prize and revenues associated with Champions League qualification (Prenderville, 2014).

Another renowned rivalry around the world is El Clasico in Spain's La Liga. El Clasico is defined as any match between FC Barcelona and Real Madrid in the league, Copa del Rey, or Champions League. Over 400 million spectators in more than 30 countries all over the world turn their television on to watch these games (Goal, 2012). This rivalry is also commonly described as competition of best talents in the world, Lionel Messi and Cristiano Ronaldo (Rigg,

2014). More recently, another rivalry was depicted from summer 2013 transfer of Neymar to Barcelona and Gareth Bale to Real Madrid with astronomical contract (Buxton, 2014).

While other heated sports rivalries certainly exist, the preceding examples are but a few of the many supporting the need for further scholarship on sports rivalry. Sports rivalry has an idiosyncratic charm that result in increased competitiveness on field and fanatic support of fans. This thesis offers one manner in which rivalry is connected to other featured areas of sport management literature, in this case the demand for sport.

There is an old adage amongst the U.S. sports fans that can be applied to any teams saying that “my two favorite teams are *my team* and whoever plays *my rival*.” This proverb reflects an interesting implication how fans perceive their rival and any other opponents going against their rival. The term *schadenfreude* is loanword from German, which means ‘pleasure derived from the misfortune of others.’ Hence, the context of the adage reflects *schadenfreude* in a way that it can be interpreted as a notion where sports fans demonstrate higher interest in games where their rivals are failing. This idea was supported by findings of Zillmann et al. (1989), where they found that sports fans not only derived joy from their team winning, but also from their rival losing. Specifically, this thesis examines consumption patterns of the National Football League viewership to test whether fans are more interested in rivals’ matches than other games where the rooting interest is not as defined. The NFL provides an excellent context for examining sport rivalry as detailed in further in next section.

Purpose

As the price of broadcasting rights of sporting contents rises in every contract negotiation, it is yet more important to recognize what draws fans to each contest. Furthermore, the quantity

of games broadcast is as great as ever. It is now easier than ever to access to the televised sport games of home team but also to the games of their rivals. At the same time, consuming sporting games through television has become the most common way a sports fans view games. An average of 15 NFL games are contested per week, a number of them broadcast simultaneously. Rather than attending to a game at certain time, you can now watch multiple games simultaneously through television or internet broadcasts. The NFL signed \$27.9 billion contract with major networks in US from 2014 to 2022, an increase of more than 60% from previous deal (Forbes, 2011; The Wall Street Journal, 2011). FOX will be paying average of \$1.1 billion a season and keeps right for the NFC games under the new contract, while CBS will be paying approximately \$1 billion for the AFC games (Flint, 2011). The new contract includes flexible scheduling so that FOX can air some of the AFC games and CBS to air some of the NFC games. NBC will be paying around \$950 million to carry the prime time package of Sunday night football. The increase in the deal is not surprising considering the fact that NFL draws tens of millions viewers and advertisements for NFL games keep increasing higher compared to other television advertisements. Therefore, viewership data alone carries abundant sources for understanding demand for sport.

In this context, delivering optimal games to sports fans will be vitally important for the NFL and the major networks since the money involved is significant. For instance, number of Super Bowl viewers in 1990 was 73.8 million but it was 111.5 million in 2014, 51 percent increase within 24 years (Statista, 2014). Moreover, one of the major sources of revenue in both US major leagues and European Soccer leagues is from television deals (Alavy, Gaskell, Leach, & Szymanski, 2010). The NFL assumes that the local games to be the most desirable game for sports fans. However, desirability of out-of-market games is yet understudied. Accordingly the

purpose of this thesis is to provide better understanding of consumption pattern of out-of-market games to make suggestions in optimizing the viewership and test desirability. In examining the viewership pattern, rivalry takes center stage in the examination of out-of-market games, both for the practical value it may play in determining viewership and for our enhanced theoretical understanding of how rivalry relates to consumption.

Contextual Setting

National Football League

History. The National Football League is a professional American football league, and is the most watched major sports league in the US. Having evolved from rugby, the early stage form of American football was played between Rutgers and Princeton in 1869, and gained its popularity in eastern area of the US since then (Zimmers & Marini, 2013). The first set of rules was then written in 1876 by Walter Camp, the father of American football. According to the NFL history chronology (Zimmers & Marini, 2013), the competition between the Allegheny Athletic Association (AAA) and the Pittsburgh Athletic Club (PAC) in Pittsburgh area featured the first professional football player in 1892, William Heffelfinger. Latrobe Athletic Association football team became completely professional with only professionals in 1897 and became the first team to play a full season. In the following year, the cornerstone of Morgan Athletic Club formed on the south side of Chicago and remains the oldest club in the NFL, now as the Arizona Cardinals (Zimmers & Marini, 2013).

However, professional football was suffering from some issues such as enormous increase in player salaries, constant movement of players seeking for best contract, and using college players who were still part of the school in the 1920s (Zimmers & Marini, 2013). Hence,

demand for universal agreement on the rules was raised. In August 1920, representatives of the Akron Pros, Canton Bulldogs, Cleveland Indians, and Dayton Triangles met in Canton, Ohio, which gave rise to the foundation of American Professional Football Conference (APFC). In the following month, teams from Ohio, Indiana, New York, and Illinois came together and changed its name to American Professional Football Association (APFA). The headquarters of the APFA was moved to Columbus in 1921, and first draft of the league constitution and by-laws, territorial rights, restriction on player movement, membership of franchises, and issued league standings was created. The APFA increased its membership to 22 teams in the same year. Eventually, the APFA changed its name to the National Football League (NFL) on June 24th, 1922.

Professional football in the US was not considered as a major sport in the early 20th century. College football was mainstream football. Some point to the 1925, signing of Harold Grange of University of Illinois signed with the Chicago Bears as bringing national interest to the NFL (Zimmers & Marini, 2013). 36,000 people gathered to watch Grange play for the Chicago Bears against Chicago Cardinals on Thanksgiving Day, which was the largest number of spectator in the NFL history back then (Zimmers & Marini, 2013). Afterwards, Chicago Bears have left for a barnstorming tour to East, South, and West of the US and more than 70,000 spectators were gathered to watch Chicago Bears playing against New York Giants and Los Angeles Tigers. This is an example of how much college football was popular back then, and how a star college player instigated significant positive media attention and impact to the NFL.

The NFL increased its teams to 22 in 1926; however, the president of the NFL, Joe Carr, dropped financially weak teams and the NFL leaving the league with only 12 teams in 1927 (Zimmers & Marini, 2013). This was when the power of the league shifted from Midwest to East.

The member decrease continued until 1932 when they had only 8 teams in the league, the lowest number in its history. In 1933, the concept of a division was introduced by Halas and Marshall, dividing the league into two divisions with the winners of each division meeting for the championship. The first league championship featuring teams from West and East divisions was contested between Chicago Bears and New York Giants, with Halas' Bears winning the title.

NFL Broadcast History. The focus of this thesis is warranted given the NFL's broadcast history and particularly the impact of television on league growth. In 1939, the NFL first began to televise its games on NBC (Zimmers & Marini, 2013). Approximately five-hundred people watched the first broadcast of a game between the Philadelphia Eagles and Brooklyn Dodgers. The first NFL Championship game broadcast from coast-to-coast was in 1951, and the DuMont Network paid \$75,000 for that game. NBC paid \$100,000 for the exclusive rights to the NFL Championship game in 1955 and CBS became the first network to air NFL regular season games in selected markets in 1956.

For the television policy of the NFL, the blackout of home games was established in November of 1953. League blackout policy states that any broadcasters that have signals within 75 miles of a NFL franchise, can only broadcast home games if they are completely sold out 72 hours before kickoff. This was revised in 2012 requiring teams to set minimum threshold of sold tickets, as low as 85 percent, to allow local games to air (NFL.com, 2012).

Rival Leagues. The NFL has withstood the threat to its professional football monopoly several times in its history. The first was the All-American Football Conference (AAFC) which had eight teams, including Cleveland Browns, San Francisco 49ers, and Baltimore Colts (who later joined the NFL in 1949 after the disbanding of the AAFC; Zimmers & Marini, 2013). The

American Football League (AFL) was formed in 1959 by Lamar Hunt with eight teams established by the league's opening in 1960 (Boston Patriots, Buffalo Bills, New York Titans, Houston Oilers, Denver Broncos, Dallas Texans, Oakland Raiders, and Los Angeles Chargers). The AFL posed as significant rival unlike previous ones and gained national interest. The existence of the AFL caused serious bidding wars for the signature of top college players. Eventually, the AFL agreed to merge with the NFL into one league before the start of 1970 season. The NFL kept its name for the league, and the AFL constituted one of the conferences. The American Football Conference (AFC) consisted of ten AFL teams—the Cincinnati Bengals, Miami Dolphins, Boston Patriots, Buffalo Bills, Denver Broncos, Houston Oilers (Tennessee Titans), Kansas City Chiefs, New York Jets, Oakland Raiders, and San Diego Chargers—and three NFL teams—the Baltimore Colts (Indianapolis Colts), Cleveland Browns, and Pittsburgh Steelers. The other thirteen NFL teams—Atlanta Falcons, Chicago Bears, Dallas Cowboys, Detroit Lions, Green Bay Packers, Los Angeles Rams (St. Louis Rams), Minnesota Vikings, New Orleans Saints, New York Giants, Philadelphia Eagles, St. Louis Cardinals (Arizona Cardinals), San Francisco 49ers, and Washington Redskins—formed the other conference called National Football Conference (NFC). This is the basic structure of the NFL that still exists in form today, with six more teams added since the merger—the Seattle Seahawks, Tampa Bay Buccaneers, Carolina Panthers, Jacksonville Jaguars, Baltimore Ravens, and Houston Texans.

Structure and Championship. The number of games played by each team during the NFL regular season was 12 in 1935, 11 in 1937, and 10 in 1943 due to the World War II. In the post-war era, the NFL increased the number of games to 14 games in 1961. In 1978, it lengthened the season to include 16 games. Originally west and east division winners met in the Championship game. A one-game playoff was contested only if two teams from each division tied for the top

record. After the merger with the AFL in 1970, the NFL divided teams into two conferences, the NFC and AFC, each with three divisions. Playoffs consisted of eight teams from each conference, including three division winners and one wildcard team. The wildcard was the team with the best record among other teams without divisional title. In 2002, the NFL expanded into 32 teams and realigned its structure to four divisions in each conference. Under this new arrangement, four division champions from each conference and two wildcards from each conference compete in the playoff and the champions of each conference earn the right to play in the Super Bowl, the annual championship game of the NFL.

NFL Rivalries. The rivalry in the NFL is rarely crosstown rivalries since the NFL generally guarantees franchises of regional monopolies with territorial rights. Thus, most of rivalries in the NFL come from historical bad blood or frequency of matches. The current league scheduling produces three types of games. The first type is the intra-divisional games, where teams from same division play each other. Each team meets every other division rival twice during the regular season, a home and an away game. Since only one team from each division automatically qualifies for the playoffs, matches between teams within the division become more significant than other matches. This divisional setting creates rivalry setting that is different from European sport leagues where rivalry is mostly established through regional derbies. The second type is the intra-conference games, where teams from same conference but different division play each other. A team from a division will meet only once with the team from other division and only plays either a home or an away game. The current NFL settings implements rotation system so that each division teams meets the other division once in every four years. The result of this game is also important since it is used as a tiebreaker. The last type is an inter-conference games,

where teams from different conference compete. This game occurs only once in a season, and the NFL also uses rotating system for this type of games.

Due to the significance of the intra-divisional games, it is acknowledged by most sports fans that matches between teams in the same division teams carry added importance. The added importance may, in turn, evolve into a rivalrous relationship. Nonetheless, some of the traditional rivalries in the NFL went through changes in 2002 due to league expansion and division realignment. Following are some of the notable intra-divisional rivalries in the NFL.

Miami Dolphins – Buffalo Bills. This rivalry started in 1966 when Miami joined AFL. Both teams joined AFC East division in 1970 when the AFL and the NFL merged, guaranteeing the teams would meet at least twice a year. Since then, they have met for 96 times, with the Dolphins leading the series by 56 wins against 39 losses and 1 as of 2013. The rivalry intensified when the Bills stopped the Dolphins' 20 winning streak in the 1980 season (Crittenden, 1980). This rivalry has been characterized as “one of the stranger rivalries in sports” due to the fact that one city lies far North and the other far South and sharing no common ground in image or climate these cities have (Iorfida, 2008).

New York Jets – New England Patriots. The beginning of this rivalry dates back to 1960 when the teams started in the AFL as the New York Titans and Boston Patriots. Due to the relative proximity and being among the major cities in the East Coast, this rivalry has both geographical and historical divisional significance. Moreover, Patriots is in an investigation since 2007 known as “Spygate” which was accused in public by the Jets coach Walt Michaels in 1978 saying that the Patriots have stolen the coach signals to win (Ryan, 2013). One of the examples depicting this rivalry is made by Patriots quarterback Tom Brady when he commented on HBO's

annual series *Hard Knocks* in 2010 saying that "...I hate the Jets, so I refuse to support that show..." (Ryan, 2013). Recently the Jets have been trying to emerge as a challenger to the Patriots' dominance within the division. The historic head to head result is in favor of Patriots 54-52 with one tie during the regular season and they lead by 2-1 in playoff competition.

Miami Dolphins – New York Jets. As both teams started as members of the AFL in 1960s, they became the members of AFC East in 1970 and have resided there since. Although the Dolphins are considered as the main rival to the Bills' fans, the Dolphins' fans identify their divisional bitter rival as the New York Jets (Iorfida, 2008). The relationship of this rivalry comes from a common demographic shift, where large quantities of New Yorkers move to South Florida for their retirement. Moreover, before the dominance of Patriots in the 2000s, these teams regularly competed for the divisional championship.

Baltimore Ravens – Pittsburgh Steelers. The rivalry between Ravens and Steelers started when the NFL re-launched the franchise in Baltimore in 1996 with former owner of the Browns, Art Modell. Due to this relocation, some of Steelers' fans considered Ravens as their rival since they believed that Ravens have inherited the spirit of former Browns. Although the history between them is relatively short, this rivalry is considered to be one of the fiercest in the NFL and they have been recently closely matched almost every games (Watkins, 2014). The Steelers were in the way of the Ravens to advance to the playoffs in 2008 and 2010 since the Ravens won the Super Bowl XXXV in 2000 (Hack & Sabino, 2011). The Steelers have won divisional title 20 times since 1972 while the Ravens won 4 times since 2003.

Cincinnati Bengals – Cleveland Browns. This rivalry, sometimes called as the "Battle of Ohio," is one of the few intra-state rivalries, with Cleveland representing northern and Cincinnati

representing southern Ohio and both team using orange as their team color. The rivalry starts with legendary coach and owner Paul Brown. He was hired as the first coach of the Cleveland franchise in 1946 by the owner Arthur McBride, and then the team was nicknamed (Browns) for him. However, after Art Modell bought the Browns in 1961, friction between Modell and Brown started. Eventually Brown was fired in 1963. It was 1967 when Brown bought the Cincinnati Bengals franchise in the AFL bringing life to this rivalry (Smirnoff, 2008). After the AFL and the NFL merger in 1970, both teams were situated in the AFC Central, which then was realigned in AFC North. Nevertheless, this rivalry have been deteriorated due to the fact that the Bengals investing the least money and the Browns' relocation and comeback in late the 1990s which made them to be less successful franchises in the AFC North (Smirnoff, 2008).

Cleveland Browns – Pittsburgh Steelers. The Cleveland Browns were the traditional rival of the Steelers. The Browns and Steelers first met in 1950 and have met 124 times since then (McNamara, 2013). Rivalry ensued in part due to proximity, 137 miles of highway, letting fans of each team easy to travel. Moreover, both cities shares similarity in the population where most of them are blue collared and industrial workers (McNamara, 2013). Although the Browns' operation stopped as the former owner Art Modell decided the Browns to relocate in Baltimore, the Browns came back in 1999 with playing the Steelers as their first home opponent.

Kansas City Chiefs – Oakland Raiders. This rivalry began in 1960 when the AFL was established and they have been playing the in same division since then, first in the AFL West division and currently in the AFC West. This rivalry is one of the most bitter and balanced rivalries in the NFL (Cockerham, 2011), 57-51 and two ties with the Chiefs leading.

Oakland Raiders – San Diego Chargers. This rivalry is known as “The Holy Roller,” which dates back to 1978 when the Raiders wins against the Chargers after the controversial ruling (Villa, 2013). The ball had fumbled 24 yards without any passes or run which led the Raiders inverse the game from 20-14 to 20-21 when only 10 seconds were left until the end. Moreover, the hatred between fans is intense since these fans are known for strong loyalty to their respective teams, proximity they had when Raiders were located in Los Angeles, and always have been the teams representing California since their inceptions.

Denver Broncos – San Diego Chargers. With both teams being original members of the AFL, the rivalry continued when they merged to the NFL and both were placed in the same division. Although the Chargers was known as one of the worst franchises in the NFL, they became the Broncos’ biggest rival in last decade winning five divisional title from 2004 to 2009 except 2005, while the Raiders and the Chiefs were suffering from unsuccessful seasons (Siddiqi, 2013).

San Francisco 49ers – Saint Louis Rams. This rivalry dates back in 1950 when the NFL merged with the AAFC. These were the first two teams located on the West Coast. Although geographical rivalry was lost when the Rams relocated from Los Angeles to Saint Louis, the rivalry did not fade away since they kept playing in the same division. They have played 129 games since 1950 and have head-to-head record of 63-62 and 3 ties by 49ers leading only by one win in the end of 2013 season.

San Francisco 49ers – Seattle Seahawks. It was not until 2002 that these teams became hatred rivals as the Seahawks returned to the NFC West. More recently, the 49ers hired Jim Harbaugh in 2011 and Seahawks hired Pete Carroll in 2010, well-known NCAA hatred football

rival coaches from USC and Stanford (Branch, 2014; Triplett, 2014). They both have met in the 2014 NFC championship which resulted in the Seattle's victory all the way to winning the Super Bowl XLVIII. The head-to-head record is a tie of 15-15.

Dallas Cowboys – Washington Redskins. These teams have been in the same division since 1961. Both have won numerous division championships and multiple Super Bowls. Moreover, these teams are few of the wealthiest teams in the NFL. The Dallas Cowboys' team value was estimated \$2,300 million and the Washington Redskins' team value was estimated \$1,700 million in 2013 with rank of 1 and 3, respectively (Forbes, 2013). They have met for 107 times with record of 63-42 and 2 ties in favor of the Cowboys.

Dallas Cowboys – New York Giants. These teams' rivalry lasted more than 50 years. The first game between the Cowboys and Giants was in 1960 and ended in a 31-31 tie. It was unexpected result since the Giants were one of the teams dominating the league back then. The Giants are also valued in 4th rank with team value of \$1,550 million in 2013. The head-to-head record is 59-42 and 2 ties in favor of the Cowboys.

Philadelphia Eagles – New York Giants. This is one of the fiercest rivalries in the NFL dating back to 1933. The proximity of the two stadiums is less than 100 miles, they have been winning the NFC East titles since 2000, except 2009 and 2012, and their fans have natural geographical animosity toward each other (Brookover, 2008). The head-to-head record is 83-75 and 2 ties in favor of the Giants.

New York Giants – Washington Redskins. This rivalry started in 1932 and deepened during the 1980s when both teams competed for the division championship and Super Bowl title. The Giants and the Redskins each have earned 8 divisional titles, majority being in the 1980s and

the 1990s. The Giants have won the Super Bowl XXI, XXV while the Redskins won the Super Bowl XVII, XXII, XXVI during the 1980s and the 1990s. The head-to-head record is 94-64 and 4 ties in favor of the Giants.

Chicago Bears – Green Bay Packers. This first game in this rivalry took place in 1921 with the Bears beating the Packers 20-0. As of 2013, they have played 184 regular season games. The fans of the two cities have regional hatred with few ties to bind that spillover to the NFL games (Keen & Dodd, 2011). The Bears lead the series 92-88 with 6 ties.

Detroit Lions – Green Bay Packers. The Lions and the Packers are the longest and continuous rivalry in the NFL. They have regularly met at least twice a year with no cancelled games since 1932, almost over 80 years to build up the rivalry (Madden, 2013). The Packers lead the Lions head-to-head 94-66-7 and 2-0 in postseasons, thus this can be considered to be among the most one-sided longstanding rivalries.

Green Bay Packers vs. Minnesota Vikings. Due to the proximity of respective states, Minnesota and Wisconsin, they share a lot of rivalries such as Big Ten rivals. The Packers and the Vikings have been rivals since the Vikings entered the league in 1961. When the Vikings began its operation in Minneapolis, many fans of Minnesota had to choose whether to continuously root for the Packers or the Vikings (Al Bracco, 2009). Some remained loyal to the Packers, and this made yesterday's friend to be today's enemy for the Vikings fans. The Packers lead the series 55-48 and 2 ties as of 2013 season.

Television Viewership

Studying the viewership data of the NFL can offer an advantage of revealing various consumption patterns that were limited in studying attendance (Tainsky, 2010). Although

attendance was the traditional data set that was used to study demand for sport, some limitations exist which hinder accurate understanding (Forrest, Simmons, and Buraimo, 2005; Buraimo and Simmons, 2008; Alavy, Gaskell, Leach, and Szymanski, 2010). First, a majority of attendance are season ticket holders who show high level of loyalty for their home team and attend almost every game. That is, these fans will attend regardless of the game quality or uncertainty of outcome. Second, there is problem of capacity constraint in stadium, where most of the games are sold out so that excessive demand beyond the capacity is difficult to measure. Third and the most importantly, attendance figures can only provide demand information of the home team since majority of season ticket holders are local fans. In other words, it is difficult to measure the demand of non-local fans in different markets with attendance figure. By contrast, the television audience does not possess any of the aforementioned issues.

Furthermore, viewership data is better suited in measuring within game changes that cannot be observed through attendance data. Rather than looking at the static average, this thesis implements an equation that measures the variation during the broadcast. Therefore, for the purpose of this thesis, television ratings will be used as the key data to investigate the fan behavior of out-of-market games to see the rivalry effect.

CHAPTER II

Literature Review

This section of the thesis will look into different fields of studies that are relevant to rivalry. The first part is a review of literature in a sport economic context. Demand for sport is the main interest of this thesis since it is to understand sports fans' consumption patterns of the NFL games through television viewership. Moreover, the majority of studies in demand for sport stem from the Uncertainty of Outcome Hypothesis (UOH) where it assumes that demand will be greater when uncertainty of outcome is greater. Therefore, competitiveness of the game is an important part in consumption of sport. Furthermore, a previous study has found that different patterns exist in viewership of the NFL games according to the result and market types (Sung et al. 2014, May). However, the effect of rivalry in neutral market games was not tested, which led to my interest in extending the study to test different viewership patterns within the neutral market games that were defined in the previous study.

The second part is review of literature on interstate rivalry will offer ideas on how states develop "Enduring Rivalry" and how interstate conflicts influence them. It is easy to see interstate rivalries throughout the history of international conflicts and wars. Moreover, these studies are interested in how rivalries develop and persist throughout times. These rivalries are called enduring rivalries which mostly last for decades, including examples of the US and the Soviet Union during the Cold War and the India – Pakistan rivalry.

The third part of the review covers firm rivalry. As the cases of Pepsi and Coca-Cola, Nike and Adidas, or Apple and Samsung, there are ample examples of well-known firm rivalries. According to Hatten and Hatten (1987), strategic grouping is to cluster companies with similar

strategies or sharing similar characteristics into each group within an industry. With this grouping, rivalry within and between strategic groups is being studied in the stream of strategic management literature, but with no consensus on which rivalry is stronger. Since the divisional setting resembles the features of between group strategic group rivalries, the strategic management literature on this topic offers good insight into understanding the rivalry and league structure of the NFL.

The last part is the research of consumer behaviors related to sports and rivalry. Some literature on sport behavior has found interesting behaviors such as “Basking in Reflected Glory” (BIRG) and “Cutting off Reflected Failure” (CORF), foreshadowing distinctive behaviors of sports fans according to the result of the games. Moreover, there are extended concepts of “Basking in Spite of Reflected Failure” (BIRF) and “Cutting off Reflected Success” (CORF), which implies the opposite behavior of BIRG and CORF.

Uncertainty of Outcome and Rivalry in Sport

The product of team sport is the game or contest between two teams. The aggregation of these games comprises the league product, which offers additional products such as merchandise, league standings, and championships as the collective efforts of the teams and the league (Borland & MacDonald, 2003). The authors divided demand for sport in two ways: direct and derived demand. Direct demand is described as attending games and watching games through media, so that it is primarily through individual sport consumers. Indirect demand is not simply that of the individual sport consumer, but also other businesses or the government. This includes buyers seeking broadcasting rights of the sport, marketing through the sport, a sports team selling naming rights to companies, selling seats and advertisement in stadium, and tourism by sport

events. They also argued that the effect of “contest quality” matters in attendance. They found that attendance is lower in lower divisions, and team success has a positive effect. Moreover, a more compelling argument is that average league standing and team performance have a positive impact on attendance.

Borland and Macdonald (2003) asserted that the main driving element of demand for sport is “fan interest.” Fans benefit themselves from the sport product in a sense of identification and quality of games. Hence, they argue that maintaining quality of games through competitive balance and league structure to retain or maximize fan interest should be prioritized for league organizers. This idea stems from the view of Rottenberg (1956) who hypothesized that competitiveness of each team should be equivalent to ensure outcome uncertainty of the contest. When a single dominant team persists to win a championship every year, the overall fans’ interest in the league will diminish. His Uncertainty of Outcome Hypothesis states that greater uncertainty in sport games will create great demand. More recently, Rottenberg (2000) supported this idea by asserting that a game quality is dependent on uncertainty of outcome and the uncertainty is maximized when the winning probability of each team is even, so that entertainment produced from the contest of two teams is maximized.

In studying the uncertainty of outcome, Alavy, Gaskell, Leach, and Szymanski (2010) tested Uncertainty of Outcome Hypothesis (UOH) through television ratings of English F.A. Premiership matches from 2002 to 2005. This is unlike traditional studies using attendance as proxy of demand since television ratings can capture the viewers who switched off during a game, which cannot be captured in attendance data. They discovered that their data showed consistency with UOH such that more demand were drawn when the gap of winning percentages

between competing teams were small. Moreover, they also found that viewers preferred a game where either team wins to a game that resulted in a draw. Further, their results indicated that viewers appreciated unexpected results after controlling for the expected probability of their team's winning. On the contrary, Buraimo and Simmons (2008) found that attendance in the English Premier League (EPL) decreased in games with a greater uncertainty of outcome. In other words, home fans preferred their team winning rather than losing or closely matched. However, one interesting finding was that relationship of gate receipt and home win probability showed that attendance increased not only when the home team is competing against a team with extremely lower rate of winning but also when their team is going against a team with higher rate of winning; that is, home fans desire to watch their team go against the odds.

Yet, all of these studies were focused on home team games and home fans; hence, it is not evident how fans will react to the neutral market games of their rivals. In terms of rivalry, there was an interesting finding from the study of Alavy et al. (2010) that the average television rating of "big" matches or derby matches was higher compared to non-derby matches in their data which resulted in draw without scores. The total average ratings of the no-score draw games were 2.58; however, the average was 2.04 when they excluded "big" or derby matches. Moreover, Buraimo and Simmons (2008) found that there was slight increase in attendance in derby games in the EPL compared to other games. Nevertheless, these studies are based on European league model, which is clearly different from the US major leagues. Unlike the EPL or other European soccer league, the NFL's division and conference structure makes it even more idiosyncratic with regards to rivalry. Moreover, the focus of their studies was not in the context of rivalry, thus their findings have limitation in explanation of rivalry through television viewership.

Forrest and Simmons (2002), however, argued that uncertainty of outcome and competitive balance should be understood separately. They believed that implementing artificial measures to improve competitive balance to ensure fan interest is vague. The result of their test showed that cumulative quality of the home team influences the attendance, and distance from home has negative influence in attendance. They also discovered that attendance drops according to the declining of uncertainty, where hard-core fans are unaffected. With uncorrected odds, fans liked both closely balanced and imbalanced matches; nonetheless, these researchers could not find evidence that attendance increases when the home team is more likely to win. Therefore, their model proposes that attendance is positively affected when the match is well balanced. However, their findings do not support the idea that improving competitive balance would increase total attendance. They found out that other variables, such as home advantage affects competitive balance, thus uncertainty of outcome cannot be correlated. They discovered that frequency of home wins are twice that of away wins. Therefore, the argument of Rottenberg (2000) that the ideal winning probability should be even would eventually create another imbalance if home advantages exist. In this context, studying both competitive balance and uncertainty of outcome should be carefully defined and researchers should consider multiple variables affecting the outcome.

Tainsky (2010) have studied the consumer demand of the NFL through television viewership instead of attendance data since it is the second greatest revenue source in all major league sports. He tested average ratings of home and away market for each game from 2006 to 2007. This study was the first attempt to identify the incentives of home and away fans to watch the NFL games. Through the regression analysis, he found that primetime, years that a franchise

were present in current market, and expected team quality had positive effect to the average ratings. However, he did not find that divisional games showing significance in his analysis.

Furthermore, Tainsky and McEvoy (2012) studied viewership demands in the markets where there was no NFL franchise. This study also utilized the average ratings of NFL games from 2006 to 2007. Some consistency was found as team quality and age of a team were positively associated with the average ratings. Moreover, they found that geographic proximity of a team to a market without a local team also positively affecting the viewership. However, this study also did not find the effect of divisional games, which they believed that it would be undesirable to the viewership demand due to its limited number of games compared to non-divisional games.

A previous study that shares a similar context to this thesis has examined the patterns of sports fans of home team markets and neutral markets through the NFL regular season television ratings (Sung, Tainsky, & Xu, 2014, May). The authors investigated how viewership demand responds to the competitiveness of the NFL game through television ratings. In this context, the purpose of this study was to examine the NFL's current blowout policy which enables network affiliates in a neutral market to abandon the broadcast of games that they deem to be uncompetitive to a more competitive game. The essence of this policy is that uncompetitive games will be undesirable for the consumers in a neutral market, while this is not the case in home market. The authors examined viewership patterns in three different categories of markets: a winning market, a losing market, and a neutral market. For instance, if the Bears defeated the Vikings, Chicago will be considered a winning home market, while Minneapolis will be the losing home market. Each of the rest of the markets that showed this game will be categorized as

a neutral market. The data was collected by 15 minute intervals over each game from Nielsen Local People Meter (LPM) markets. Then the ratings were calculated by the ratings drop in percentages of each game and compared it by market types, which is the same formula this thesis employed. Details will be presented in next section.

The result of this study has confirmed the UOH where there was increased drop off as score difference have increased (Sung, Tainsky, & Xu, 2014, May). Figure 2 shows one of the results of this study, where average ratings drop increases as the score difference increases. This also shows that there is a similar pattern of losing market and neutral market drop off while winning market shows a comparable difference. Moreover, there was no significant difference between the losing market and the neutral market, while the winning market showed significant difference compared to other markets. From these implications, this thesis will investigate further into viewership of the NFL regular season to see whether rivalry affects the drop off of neutral market games as an extended research.

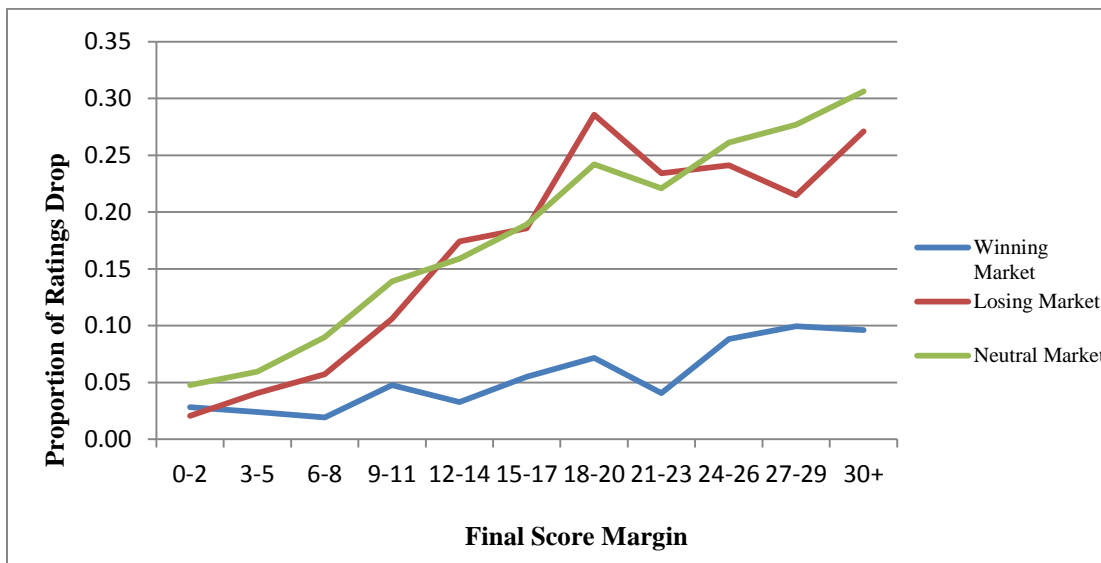


Figure 1. Ratings Drop for each Interval (Sung, Tainsky, & Xu, 2014, May)

Most recently in sport economics, Sanford and Scott (2014) tested the intensity of rivalry in college football, especially in Southeastern Conference (SEC), through secondary data of preseason ticket purchase. In lieu of attendance, competitiveness, and violence measures, the authors utilized a willingness-to-pay approach. Moreover, to control other various factors affecting the ticket price for the games, such as within season winning percent or seat quality, the authors construct more reliable comparison of fans' willingness-to-pay for their team according to different opponents. Their finding was that there were willingness-to-pay differences of several hundred dollars across the SEC school games. In other words, they found evidence supporting that the greater intensity of the rivalry induced a higher willingness-to-pay. In this sense, rivalry in sport is a significant factor that affects demand for sport, so that it needs further and careful investigation. A shortcoming of this study is that it is confined to home market games since their data of ticket sales are only in home markets. Therefore, further investigation on out-of-market games would help to extend the application of these findings.

Enduring Rivalry

Interstate rivalry is one of the most studied areas in political science. Within this subject, enduring rivalry has recently gained some interest. Goertz and Diehl (1993) stated that enduring rivalries require having three dimensions, which are competitiveness, time, and spatial consistency. First, enduring rivalries compete over the same goods and these can be intangible (e.g., political, religious, or ideological control) or tangible (e.g., natural resources). Nonetheless, it is not always true that enduring rivalries compete over consistent matters over the course of time. That is, the issues that enduring rivals challenge change as time shifts. Thus, it is plausible

that rivalry can be conceptualized as persistent competition over one or a series of relevant issues. Moreover, enduring rivalries should be accompanied by hostility that has a potential likelihood of military collision. Secondly, enduring rivalries should be understood as rivalries that continue over decades; however, the precise time frame is rather an empirical than conceptual dimension. Some rivalries can be established within a year, but most of the enduring rivalries establish themselves after a long period time. Lastly, enduring rivalries are mostly between two states; nevertheless, multiple states could be involved in a notion of alliance. Dyadic rivalries are common, but sometimes alliances such as North Atlantic Treaty Organization or the United Nations can come into the equation. Although a form of alliance is not obvious or possible in terms of sport, multiple rivalries can be established through situations where multiple teams are situated within same division or city, creating divisional rivalries and regional derbies.

Arms races are related to the concept of enduring rivalries, and they are one of the characteristics that contribute to enduring rivalries, so that it is common to observe arms races within enduring rivalries. This competition of increasing arms acquisition between rivalries, however, does not occur all the time in enduring rivalries. In the sport context, this can correspond to acquisition of talents among rivals. A recent example would be the case of Real Madrid and FC Barcelona, the well-known rivalry in the contemporary soccer world. Real Madrid signed with Gareth Bale for \$132 Million while FC Barcelona signed with Neymar da Silva Santos Júnior for \$72 Million, and both players are considered to be the among the most talented player in their country (Prince-Wright, 2013).

This study presents several definitions of enduring rivalries. Wayman (as cited in Goertz & Diehl, 1993) defined “dyadic enduring rivalry” as “any instance in which two states oppose

each other in two or more disputes within a ten-year period.” According to Diehl (as cited in Goertz & Diehl, 1993), enduring rivalry is “any situation in which two nations engage in at least three militarized disputes within a period of fifteen years.” A noteworthy point in these definitions is that there are minimum time and number of conflicts that is required to establish enduring rivalries. In sport, it can be assumed that the more games the rivals play, the higher chance of becoming enduring rivalries. This is obvious in cases where two teams dispute over a past incident such as misjudgment calls (e.g., The Holy Roller of the Raiders and the Chargers) that develops bad blood between respective fans for a long period of time.

In studying the origin of interstate rivalry, Vasquez and Leskiw (2001) found out that traditional understanding of enduring rivalry contended the origin of an interstate rivalry as due to repetitive conflicts over periods of times between states while there were emerging ideas arguing that dispute-threshold approaches are limiting the understanding of enduring rivalries. Early endeavors in studying interstate rivalry defined it as to be dyadic rivalries with minimum amount of militarized disputes. All these approaches have assumed that militarized conflict is necessary to establish enduring rivalries. On the other hand, Vasquez (1996) argued that recurring disputes should be taken into primary consideration in defining rivalry rather than number of disputes. In this sense, political hostility and relative gains from disputes become crucial in the formation of rivalry; however, it is yet to be answered how to quantify those hostilities and gains of each state. These efforts are to identify enduring rivalries before its formation. Therefore, Vasquez (1996) defined that both rivals should be competitive and equally capable to cause political or emotional threats to become enduring rivalries. In terms of sport rivalries, it can also be explained by different approaches. One approach can be explained by past bad blood, players’ or coaches’ conflicts on the field, or hatred between fans of respective

teams. The other approach can be from a team's being a threat to one's team to advance to playoffs or achieving playoffs. In order for a team to be a threat, fans must perceive them as the most competitive rivalry to duel with their team.

One of the hypotheses that Vasquez and Leskiw (2001) tested was that two states with continuous territorial disputes will likely to become enduring rivalries compared to other types of disputes. They collected data on conflicts between two states from history with conflicts that resulted in a war. Their data also contains ex ante issues to encompass an enduring rivalries formation before reaching the traditional dispute-threshold that was discussed above. They tested whether territorial disputes have at least a certain proportion in overall disputes, and also measured what kind of dispute dominates interstate relationships. It was confirmed that states involved in frequent territorial disputes were likely to become enduring rivals. This is line with the finding of Stinnett and Diehl (2001), who discovered that territorial disagreements are one of the most powerful conflicts that occur between adjacent groups. Vasquez and Leskiw (2001) also found that states with relative equivalent power (e.g., major-major, minor-minor) had territorial disputes that dominated their relationship before becoming enduring rivals; nevertheless, this was not true in the case of states with different level of power (e.g., major-minor). While majority of minor-minor states became enduring rivals through territorial factors, some major-major states became enduring rivals through political disputes. In sport, rivalry formation through territorial disputes is commonly found in the European soccer leagues such as the derbies. In the NFL, however, territorial disputes may not be in effect in formation of rivalries as European soccer leagues as each team are protected by territorial rights. Moreover, rivalry formation of teams with disparate competitiveness is hardly the case since matches between these teams will mostly be one-sided.

Enduring rivalries, however, have a life cycle which has a beginning and an end so that rivalry does not persist forever. Goertz and Diehl (1993) argued that unlike the traditional definition of enduring rivalries, the onset of such relationship does not necessarily start from a war. Rather, it could be starting in advance before an actual war where certain level of conflict arises. The definition of an enduring rivalry in this literature suggests that it begins when a certain but low level of intensity is established between two states. Although most of the previous studies argue that enduring rivalries start when there is “serious threat to use military force,” the authors believe that it would be accurate to consider such an event prior to the military actions. However, the ending of enduring rivalries mostly has an unclear event or incident that clarifies its termination of rivalry. Moreover, it can be clear as they come to an agreement to cease conflict to set peace, but it does not mean that the rivalry will not recur. In terms of sport, relocation of a team or realignment in a division/conference can be an event that sometimes brings an end to enduring rivalries. For example, Seattle Seahawks and Denver Broncos in the NFL were once in the same AFC West division. However, they ended up being realigned to different divisions after 2002. This does not necessarily mean that the rivalry between them has ended, however, the chances of them meeting in the regular season and playoffs are none or relatively thin. Since the enduring rivalries specify that a minimum number of recurring conflicts or competitions should occur between rivals, it would be hard for the Seahawks and the Broncos to keep their rivalrous relationship. Moreover, competitiveness could be an imperative element in life cycle of enduring rivalries in sport. The importance of matches between rivalrous teams will fade away if one or the other team demonstrates on-field incompetence for years. Moreover, it is common to see how recent successful teams establish rivalries with other teams in sport.

Overall, what is important to derive from the idea of enduring rivalry in sport is that there needs to be a sufficient condition to establish such a relationship. Rivalry should have an objective that they compete for with animosity towards the other, although the specific objective can change as the time passes. One objective could be a divisional championship, for instance, while it could be transformed in to national championship over the course of time or as they reach the previous goal. Hatred could be established towards a rival who gets in the way of achieving the objective. Rivalry will ripen as the number of meetings increase given that recurring conflicts is one of the requirements of enduring rivalries, while having similar on-field competitiveness would be a necessary condition.

Firm Rivalry

In strategic management research, firm rivalry is a significant topic that has been discussed for a long time. Although firms would not go to militarized conflicts, the competition among firms has clear strategic moves that ensure competitiveness in the market to restrain their rivals. Firms compete in different markets and segments so that multi-dimensional competition is common in business. Karnani and Wernerfelt (1985) offered one of the early attempts to conceptualize and theorize the topic of multiple point competition, which refers to “a situation where firms compete against each other simultaneously in several markets” for the same product. Moreover, it can be applied to a situation where firms compete in the same market but for different segments. One of the examples for multiple point competition is where firm A—the attacker—cuts the price of the products in one of the markets that they compete with firm B—the responder—where firm B should choose counteraction to firm A’s move. In general, firm B has four options for the responses as follows: disregard the action, respond in the market where firm A initiated attack, initiate a counterattack in another market where both firms compete, or go into

a total war in all the markets in which both firms compete. Although categorizing is useful for the three reactions besides doing nothing, they are not mutually exclusive or discrete; rather, the distinction is made in the degree of the action. Further, disregarding the attack will signal to the competing firm that the firm is weak, so that it is not an ideal option for the most of the cases. Hence, this is rarely an optimal choice if one does not wish to lose their influence in the market. Moreover, going into a total war will be too costly for both of the firms and even open the opportunity for third competitor enter the market. Hence, two strategies are the most viable options: first is to defend in the market where the other firm initiated the attack or second to counterattack in the other market where both firms compete.

The competitions of firms can further explained with the idea of strategic group, which identifies an industry by clustering companies using similar strategies. According to Hatten and Hatten (1987), strategic group is “a grouping of organizations which pursue similar strategies with similar resources” and grouping is used to “segment industries into sets of companies whose competitors, actions and results are relevant to each other” (p. 329). That is, actions of firms within the same strategic group share reciprocal influence with each other and compete with resources that can be used for any of the firms within the group. Although the authors did not explicitly state that firms in these groups compete to achieve the same objectives, it is a reasonable inference to assume that firms have similar goals. In this way, it can be said that each sports league is a set of strategic groups since they compete with similar resources using similar strategies and share the same objectives. For instance, teams in the NFL tap into the same labor market of players, use similar techniques and strategies on-field, and all the teams pursue either a divisional championship or a national championship.

The follow up study of strategic groups and rivalry was done by Smith et al. (1997). They went further to investigate existence and level of intensity of rivalry within and between strategic groups. They found contradicting arguments around rivalry in between and within strategic groups. One argument is that firms within the same group share similar resources, suppliers, and customers so that there will be better communication and cooperation within group and intensity of rivalry will be lower. A mobility barrier, which is known as the entry barrier, is one of the key concepts of strategic group (González-Moreno & Sáez-Martínez, 2008). Such a barrier prevents new entry to the industry and therefore firms within a group have high incentives to put collective efforts to retain or enforce the barrier. In this sense, collusive behavior is highly possible within a strategic group to discourage outside competitors to enter into the industry. If this is true, there will be stronger rivalry between strategic groups since within group firms will have more propensities to cooperate.

On the other hand, there is research arguing that cooperative behaviors in within groups are not affirmative so that a group is vulnerable to various factors such as number of competitors within a group or size of competitors (Smith et al., 1997). Hatten and Hatten (1987) is one of the researchers advocating that stronger rivalry will exist within a strategic group, since similarity of resource utilization enables firms to compete for market position more easily compared to competition with firms in different strategic groups. This is in the same vein as the resource-based perspective, which suggests that rivalry will be intensified within a group when resources are homogeneous. This implies that firms will have similar strategies to achieve the same goal.

Nevertheless, there is no consensus whether rivalry is intense between or within strategic groups. Smith et al. (1997) agreed to the idea of rivalry from Schumpeter (1950) and Porter

(1980) who argued that there have to be actions and counteractions in rivalry. That is, rivalry can only be established in a sense that dyadic firms choose their moves and counter moves according to the other firm's strategy. In this context, Smith et al. (1997) identified pairs of firms with actions and responses as strategic group members in the US airline industry. They tested actions and reactions of the US domestic airlines segmented into strategic groups in an 8-year period to assess inter-firm rivalry. Their results showed no significant implications directing which rivalry is more intense between and within groups.

In examining how an inter-firm rivalry starts, González-Moreno and Sáez-Martínez (2008) adopted a strategic group approach as a tool to analyze formation of firm rivalry. This research attempts to see whether strategic group analysis assists firms to be cognizant of industry and identify main rivals. The authors assumed rivalry as “a subjective and directional phenomenon” and they believe that rivalry occurs when a firm directs their focus and consideration of the other firm's strategic decision. “Directional” in their assumption means that it is not necessarily true for a firm A, for instance, to identify firm B as their main rival despite whether firm B considers firm A as their main rival; therefore, establishing asymmetric strategic group rivalry. In addition, similarity is one important aspect of a firm to identify another firm as their main rival. This judgment of similarity, however, depends on the key decision maker, mostly the manager. Hence, identifying rivalry is subjective in a sense most of the cases are strongly influenced by decisions of the manager and the manager's perception of similarity. In this context, first, the authors believe that there will be higher chance of forming a rivalry when perceived similarity with the targeted firm is greater. Secondly, they believe that firms that represent the strategic group structure of the industry have higher chances of being identified as rivals. The authors consent to the idea of Strategic Reference Point Theory (Fiegenbaum et al.

1996) which says that a manager takes members of its strategic group into account to formulate business strategies, therefore these members become the points of reference. Thirdly, the authors believe that firms with successful past performance will have greater chances to be identified as rivals. Due to the uncertain environment in the industry, most of the firms are likely to imitate strategies of successful firms. Lastly, the authors believe that there will be greater chances of being identified as a rival when the size of the firm is larger. Overall, the findings from their house building industry affirmed that all their beliefs were correct. In other words, firms with a higher perception of similarity, those that are within strategic group, and firms with past successful performance, and large sized firms are highly likely to be identified as rivals. In the context of sport, it can also be argued that teams with a similar history, those within the same division, and teams who have more championships and are known to be big teams are more likely to be identified as rivals.

Rivalry in Fan Behavior

“Basking in Reflected Glory” (BIRG) in sport implies to a phenomenon where sports fans tend to share success of their associated sports team and bolster the relationship (Cialdini et al., 1976). This is known as vicarious achievement, and they suggested that sports fans enjoy their team’s success and express their belonging publicly by wearing apparel or performing any kind of action that shows their affiliation although they never have had any physical contribution to that success. They examined students of seven universities that had a highly recognizable football team to see the effect. The result was in support of the assumption that more students wore apparel that indicated their connection after a recent football team victory, and they inferred that this is positively relevant to self-esteem. On the other hand, “Cutting off Reflected Failure” (CORF) implies to a phenomenon where fans tend to detach from their team due to the

reflected failures (Snyder, Lassegard, & Ford, 1986). The authors argued that people will distance themselves from others' failure to evade negative connection with them. They said that this can be seen as an "image-protection tactic," which is to prevent their affiliation from being negatively assessed.

Furthermore, Campbell Jr., Aiken, and Kent (2004) suggested that there is evidence of sports fans remaining attached with their team despite longitudinal failures, whereas others cut themselves off from the team or the player due to unethical successes, such as use of Physical Enhancing Drugs (PED) or unethical plays. The concepts they suggested are "Basking in Spite of Reflected Failure" (BIRF) and "Cutting off Reflected Success" (CORS). They claimed that BIRFing is related to loyalty and will persist as long as being loyal is perceived as a positive trait and enhances self-esteem. In other words, this phenomenon will be observed in diehard fans. For this kind of fans, CORFing is going against their beliefs, such as being loyal fans, so that it is also related to self-portrayal. Meanwhile, CORSing fans have a strong tendency to preserve consistency in value so that they are resistant to extreme changes in their team, or simply have affection towards underdogs so that winning might keep them away. Moreover, this behavior could be an exhibition of hatred towards fans who cut themselves off when a team is failing but return to bask in recent success.

Conceptual Framework

There is not yet a clear theoretical framework on how rivalry forms, develops, and affects demand in a sport context. Hence, with basis on the theoretical framework of Uncertainty of Outcome Hypothesis, I adopted a combination of applicable conceptual frameworks from other field of study to understand better consumption patterns of the NFL out-of-market games and to

see the rivalry as a central factor in the examination. First of all, unlike the findings of Tainsky (2010) and Tainsky and McEvoy (2012), rivalry would have a positive effect on the viewership demand within out-of-market games in respond to the competitiveness of the game compared to home market games due to the fact that affiliation and loyalty in this type of games are absent. Secondly, literature on enduring rivalry mainly gives an idea of how long-term rivalry is formed and what characteristics they share (Goertz & Diehl, 1993; Vasquez, 1996; Vasquez & Leskiw, 2001). Rivals have to be closely competitive, a certain amount of repetitive competition should be guaranteed, and history involving animosity toward each other should be accompanied. From this context, teams with a relatively longer history will be more likely to develop rivalry compared to the teams that have a relatively shorter history since more competitions or conflicts should have happened compared to the younger teams. Thirdly, a strategic group model is most suitable in applying to the current NFL structure where divisional rivalries act as within strategic group rivalries (Hatten & Hatten, 1987; Smith et al., 1997; González-Moreno & Sáez-Martínez, 2008). Teams in the league compete with compatible resources to each other in pursuit of the same goal. That is, teams within the same division are more likely to compete fiercely in on-field performance, in player labor market, and in procuring home fans. Moreover, it is clear that teams who share analogous history with more previous success and have been assigned to same division are more likely to be identified as rivals. Therefore, it is reasonable to apply strategic group theory as one of the frameworks in the divisional settings of the NFL. Lastly, similar to the BIRGing (Cialdini et al., 1976) and CORFing (Snyder, Lassegard, & Ford, 1986) behavior of local market games, I believe that sports fans would rather see the rivals lose than win. Therefore, sports fans will tend to BIRF when their rival team is losing in out-of-market games and CORS when their rival team is winning (Campbell Jr., Aiken, & Kent, 2004).

CHAPTER III

Research Methods

Data and Procedures

To investigate rivalry effect in neutral markets, I first collected television viewership data of the NFL regular seasons from 2007 to 2009. The data represents all available Nielsen Local People Meter (LPM) markets. These data also include markets with no NFL franchises such as Los Angeles and Portland. The markets utilized in this thesis are those with at least one NFL franchise in order to see the effect of the rivalry since the affiliation of each market needs to be clearly identified. Therefore, the markets with NFL franchise included in the data set are: New York, Chicago, Philadelphia, Dallas, San Francisco, Boston, Atlanta, Washington DC, Houston, Detroit, Phoenix, Seattle, Minnesota, Miami, Cleveland, Denver, Saint Louis, Pittsburgh, Baltimore, Charlotte, and Tampa Bay. Then, the ratings were collected in 15-minute intervals. Since I am interested in the variation of viewership during the game, the following equation has been implemented:

$$RatingsDrop = (Ratings_{Peak} - Ratings_{Last}) / Ratings_{Peak}$$

where the $Ratings_{Peak}$ denotes the maximum rating for any interval within a game and $Ratings_{Last}$ denotes the final rating for each game. The $RatingsDrop$ captures the viewership loss from the maximum number of viewers who tuned in for any interval to the viewers watching in the final interval for each game. If the $RatingsDrop$'s value is zero, there is no viewership lost within the game. This is also a case where $Ratings_{Peak}$ equals $Ratings_{Last}$. Otherwise, the value of this equation takes a positive, non-zero value maximizing at one.

For the next step, the markets were divided into three categories: Winning, Losing, and Neutral. The winning market is where home team has won the game while Losing is the opposite. In other words, if team A defeated team B, team A’s market will constitute the Winning market, team B’s market the losing market, and all other cities that broadcasted the game will fall under the category of Neutral market. To illustrate how the data were treated, on September 9th, 2008, the Browns played Steelers. The Final score was 7 to 34 with the Steelers winning the game. The peak rating for Pittsburgh—the winning market—was 40.2 and final rating was 39.6, yielding a Ratings Drop of 0.015. The peak rating for Cleveland—the losing market—was 35.1 and final rating was 26.7, yielding a Ratings Drop of 0.239. This game was also shown in Baltimore—the neutral market—where the peak rating was 9.1 and final rating was 4.2, yielding a Ratings Drop of 0.538

Analysis

In the previous study of Sung et al. (2014, May), they found out statistical evidence of the winning market showing a lower viewership ratings drop over all the score intervals compared to losing and neutral markets, while losing and neutral markets showed no statistical difference in viewership pattern in the NFL regular season from 2008 to 2009. The data for this thesis was collected in a same way but from 2007 to 2009 of the NFL regular season. Following is the summary of statistics of ratings drops according to the market type and each market.

Table 1. Summary Statistics of Ratings Drop according to Market Type and LPM Markets

Market	Mean	Standard Deviation	Median	Min	Max	Obs
Winning	0.045	0.075	0.007	0.000	0.508	516
Losing	0.130	0.135	0.099	0.000	0.654	545
Neutral	0.145	0.145	0.105	0.000	0.657	629
NY	0.195	0.187	0.182	0.000	0.744	183
LA	0.128	0.146	0.079	0.000	0.556	296

Table 1. Summary Statistics of Ratings Drop according to Market Type and LPM Markets (cont.)

Market	Mean	Standard Deviation	Median	Min	Max	Obs
CH	0.166	0.184	0.104	0.000	0.778	237
PH	0.168	0.175	0.120	0.000	0.694	239
DL	0.143	0.160	0.093	0.000	0.718	249
SF	0.132	0.150	0.067	0.000	0.550	182
BN	0.228	0.213	0.189	0.000	0.878	238
AT	0.171	0.176	0.115	0.000	0.729	241
DC	0.161	0.171	0.109	0.000	0.709	235
HN	0.169	0.169	0.126	0.000	0.792	217
DE	0.191	0.182	0.152	0.000	0.727	234
PX	0.137	0.152	0.076	0.000	0.619	241
SE	0.164	0.168	0.121	0.000	0.824	235
MN	0.191	0.200	0.137	0.000	0.765	235
MI	0.179	0.170	0.146	0.000	0.644	229
CL	0.212	0.199	0.172	0.000	0.863	231
DV	0.159	0.179	0.090	0.000	0.677	238
OR	0.180	0.185	0.128	0.000	0.733	292
SM	0.132	0.145	0.087	0.000	0.613	293
SL	0.139	0.158	0.094	0.000	0.680	238
PT	0.211	0.204	0.169	0.000	0.833	234
PD	0.142	0.159	0.076	0.000	0.909	296
BL	0.176	0.171	0.138	0.000	0.689	233
CT	0.217	0.195	0.176	0.000	0.720	233
TP	0.206	0.194	0.187	0.000	0.786	232

As it was revealed in the previous study of Sung et al. (2014, May), the average ratings show that winning market were more likely to stay tuned despite the increased score differences while there was higher drop off in ratings of losing and neutral markets. Nevertheless, this study has not considered the characteristics of each game such as divisional games. Therefore, there will be difference within the neutral market category by using divisional games to identify its effect on the viewership demand. In this sense, the first null hypothesis for this study is as follows:

Hypothesis 1: The ratings drop of neutral market games with a divisional team will be equal to that of neutral market games without a divisional team.

$$H_0 : RatingsDrop_{Nd} = RatingsDrop_{Nn}$$

where *Nd* represents neutral market games with divisional teams while *Nn* represents neutral market games with non-divisional teams. The following table is the summary of statistics for the data:

Table 2. Summary Statistics of Ratings Drop in Nd and Nn

Market	Mean	Standard Deviation	Median	Min	Max	Obs
Nd	0.165	0.166	0.123	0.000	0.625	728
Nn	0.180	0.185	0.131	0.000	0.878	3919

Furthermore, I believe that sports fans will respond to the neutral market games with divisional teams differently than they will to their home team games. In lieu of BIRGing when their team is winning while CORFing when their team is losing, sports fans will BIRF when their rival team is losing and CORS when their rival team is winning (Campbell Jr., Aiken, & Kent, 2004). In other words, sports fans will be more likely to watch divisional team losing rather than winning. Moreover, I expect that the pattern of neutral market games with divisional team winning will resemble that of losing market while the pattern of neutral market games with divisional team losing will resemble that of winning market. Hence, the second null hypotheses are as follows:

Hypothesis 2-A: The ratings drop of neutral market games with divisional team winning will be equal to that of home losing market games.

$$H_0: RatingsDrop_{Ndw} = RatingsDrop_L;$$

Hypothesis 2-B: The ratings drop of neutral market games with divisional team losing will be equal to that of home winning market games.

$$H_0: RatingsDrop_{Ndl} = RatingDrop_w$$

where *Ndw* represents a neutral market game with divisional team winning while *Ndl* represents neutral market game with divisional team losing, and *W* and *L* each represent the winning market and losing market, respectively. *Nn* represents neutral market games with non-divisional team playing from all the markets. The summary of statistics of *Ndw*, *Ndl*, and *Nn* is as follows:

Table 3. Summary Statistics of Ratings Drop in Ndw, Ndl, and Nn

Market	Mean	Standard Deviation	Median	Min	Max	Obs
Ndw	0.182	0.170	0.140	0.000	0.614	380
Ndl	0.146	0.159	0.087	0.000	0.625	348
Nn	0.180	0.185	0.131	0.000	0.878	3919

I then have set the data according to the score interval. One of the most common ways to score in football game is by field goal and its three points. Hence, I first created ten 3 points intervals with an interval of margins 30 and over. Following is the result of the average ratings drop of each market type in accordance with the score intervals (Figure 2). Nevertheless, there was unexpected inconsistency within the data, likely due to the small sample size within each interval (Table 4). Therefore, I then reorganized the data using 6 points intervals (Figure 3).

The New York market and the San Francisco market each have two NFL franchises (i.e., the Giants and Jets in New York, the 49ers and the Raiders in San Francisco) and the viewership of each team is consolidated in Nielsen Local People Meter (LPM) market data, which makes it

difficult to see which ratings representing which team. Therefore, further analysis omits these markets to avoid confusion within the data, and renamed the market types to be *Ndw2*, *Ndl2*, and *Nn2*. Table 5 is the summary statistics of the data without the New York and San Francisco markets and Figure 4 & 5 is the ratings drop according to 3 point intervals and 6 point intervals.

Table 4. Number of Observations in Each Interval according to Market Type

	0-2	3-5	6-8	9-11	12-14	15-17	18-20	21-23	24-26	27-29	30+
Ndw	18	68	61	47	32	19	42	29	20	14	30
Ndl	27	80	51	38	25	19	28	30	15	9	26
Nn	260	966	718	397	263	241	267	294	145	89	279
Ndw2	15	59	54	39	26	17	35	27	16	12	27
Ndl2	25	71	44	32	24	16	24	26	13	7	23
Nn2	244	900	675	372	244	226	250	279	139	86	263

Table 5. Summary Statistics of Ratings Drop in Ndw2, Ndl2, and Nn2

Market	Mean	Standard Deviation	Median	Min	Max	Obs
Ndw2	0.178	0.167	0.134	0.000	0.614	327
Ndl2	0.144	0.158	0.083	0.000	0.625	305
Nn2	0.182	0.186	0.133	0.000	0.878	3678

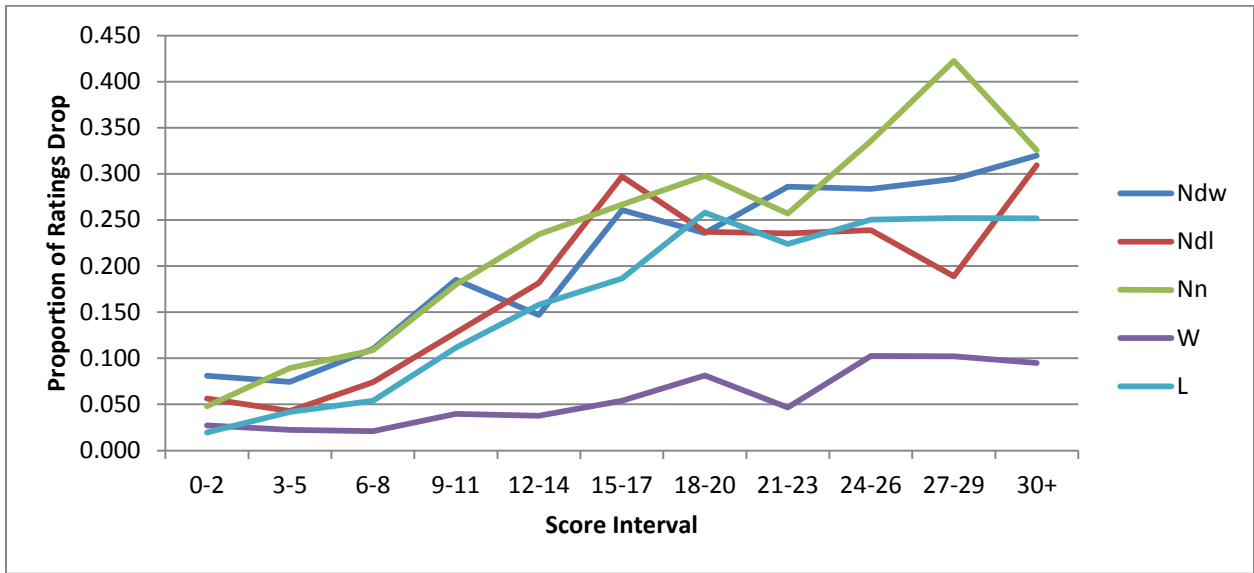


Figure 2. Average ratings drop of each market types with 3 points score intervals

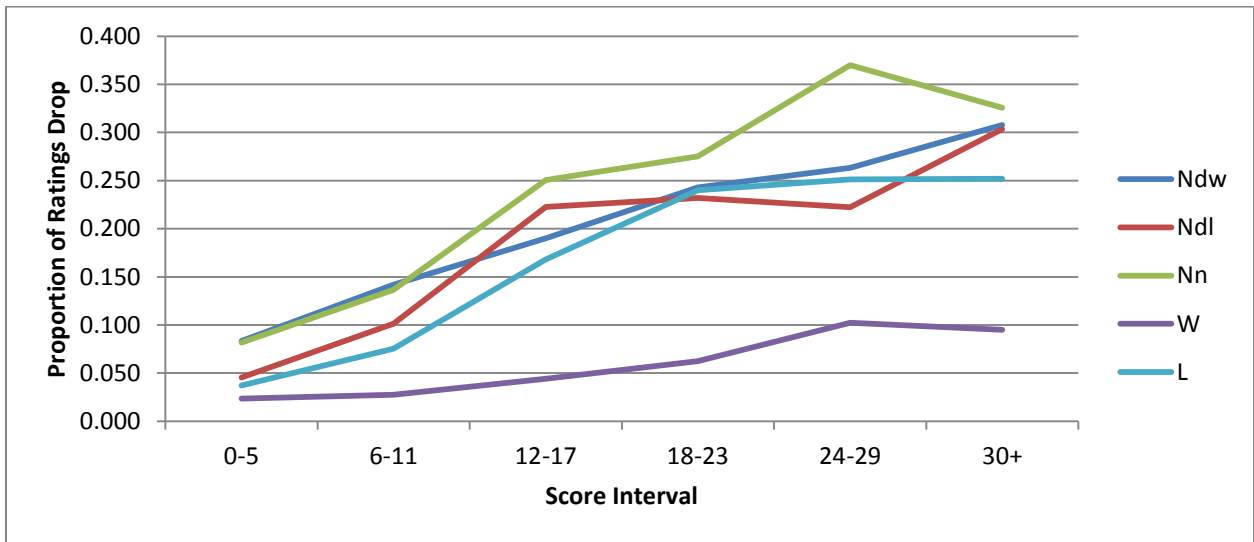


Figure 3. Average ratings drop of each market types with 6 points score intervals

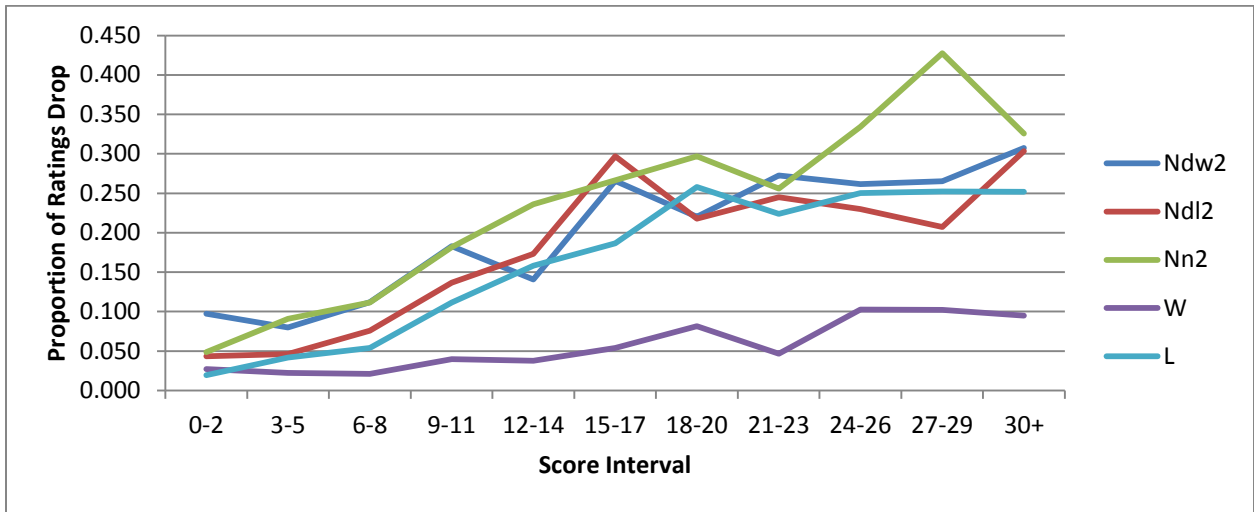


Figure 4. Average ratings drop of each market types with 3 points score intervals without NY and SF

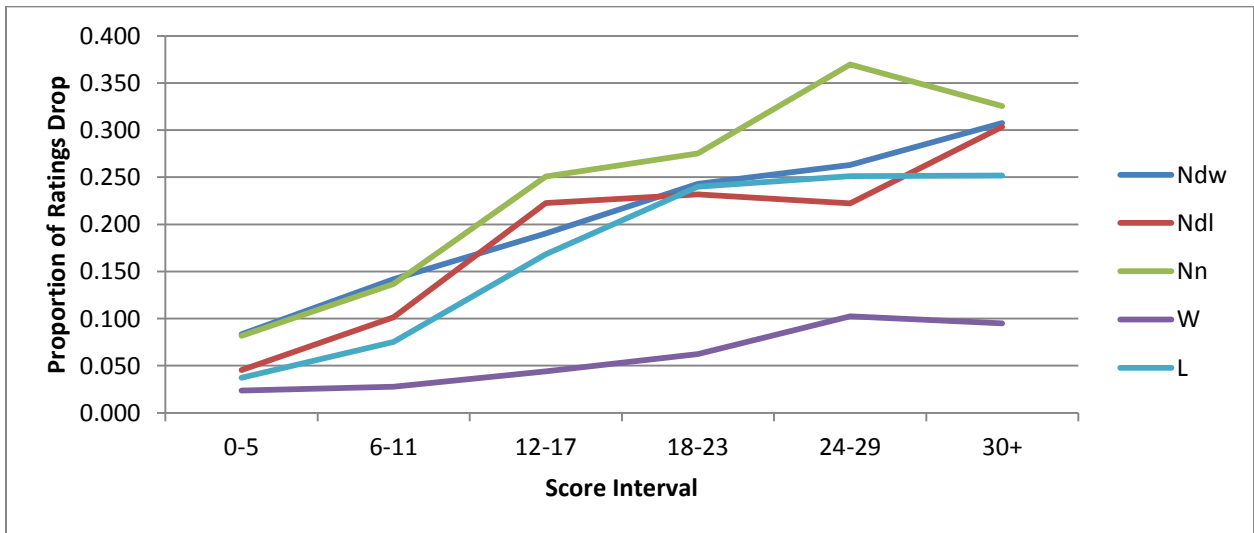


Figure 5. Average ratings drop of each market types with 6 points score intervals without NY and SF

After organizing these analyses according to the score intervals, I reorganized the data to run regression analysis to understand further determinants of the ratings drop. The general linear model for each game i in market type j follows as:

$$\begin{aligned} RatingsDrop_{i,j} = & \beta_1 TotalLagWinPct_{i,j} + \beta_2 WinPctDiff_{i,j} + \beta_3 AgeDiff_{i,j} + \beta_4 DivAgeDiff_{i,j} + \\ & \beta_5 Regional_{i,j} + \beta_6 Distance_{i,j} + \beta_7 Rivalry_{i,j} + \beta_8 ScoreMargin_{i,j} + \beta_9 ScoreMargin^2_{i,j} + \epsilon_{i,j} \end{aligned}$$

Moreover, further regression analysis was performed in each market and in each division to see the divisional effect. The general linear model for each game i in market k follows as:

$$\begin{aligned} RatingsDrop_{i,k} = & \beta_1 TotalLagWinPct_{i,k} + \beta_2 WinPctDiff_{i,k} + \beta_3 AgeDiff_{i,k} + \beta_4 DivAgeDiff_{i,k} + \\ & \beta_5 Regional_{i,k} + \beta_6 Distance_{i,k} + \beta_7 Rivalry_{i,k} + \beta_8 ScoreMargin_{i,k} + \beta_9 ScoreMargin^2_{i,k} + \\ & \beta_{10} Divisional_{i,k} + \epsilon_{i,k} \end{aligned}$$

The *RatingsDrop* is a dependent variable that captures the viewership loss of each game, measured by the equation in the previous page. Paul and Weinbach (2007) have included the sum of winning percentage as an independent variable to see the expected quality of the game in their study of Monday Night Football. They argued that winning percentage is in positive relation with the quality of the game. Thus, the *TotalLagWinPct* variable is in the same context to capture the expected quality of a game. On the other hand, the *WinPctDiff* is the absolute value of winning percent difference between home and away teams in the current season which captures the expected competitiveness of each game so that a smaller value indicates more competitiveness and close games.

The *AgeDiff* variable indicates the age gap between home and away teams while *DivAgeDiff* variable indicates the age gap between teams being placed in their division. These

variables are in same context of enduring rivalries of Goertz and Diehl (1993), Vasquez and Leskiw (2001), and within strategic group rivalry theory of González-Moreno and Sáez-Martínez (2008) in a sense that history and age of teams are highly relevant to the rivalry. Each divisional age of home and away teams was calculated by how long a team was staying in the division and from the time they were founded to each season of 2007 through 2009 accordingly. However, the years are only calculated for the years that they have spent in same location as same franchise. In other words, if a team was relocated and came back to original location or if a team had periods where they ceased to operate, those years are not counted into the age of the teams. In one case, NFL Central Division was renamed NFC North, so that teams who belong in this division were calculated from the years they started to play in the Central division. However, in the cases such as teams being realigned from AFC West to AFC South or changing their conference were calculated from the current division since realignment brings whole different settings to the division. Moreover, for the St. Louis Rams, since they were the Los Angeles Rams until 1994, their age for 2007 regular season is 12 years but their presence in the NFC West was counted from 1970 so that their divisional age is 37 years. That is, although teams relocate or change their names but stayed in same division, then they will be considered as the same team.

The *Regional* variable is a dummy variable which denotes the games where teams from the same state are playing. Although current divisional alignment of the NFL gives relatively weak significance to the games between teams in the same state but different division, it can be said that locality of teams could have some influence in viewership patterns. The *Distance* variable is the distance between each team's stadium to stadium. This variable is in similar context with the *Regional* variable in a sense that proximity of each team will have effect on the interest of the games. The *Rivalry* variable is a dummy for the games with teams that were

identified as a rival in the contextual setting section (e.g., 1 for rival teams). If a game is between well-known rivalry, it is likely that viewers will be more interested in these games compared to other neutral market games. The *ScoreMargin* variable is to see how ratings drops correspond to the competitiveness and linear trend at the same time. Following the UOH, the interest in the game will decrease as the score difference increases since a larger margin indicates less competitiveness.

Then, I separated the data according to each market with local teams to explain the divisional effect on rivalry. For these data, the *Divisional* dummy variable was added for the games that have at least one of the divisional teams (e.g., 1 for one divisional team playing, 2 for games against two divisional teams) in accordance to the market divisional affiliation. Previously, Tainsky and Jasiolec (2014) found that the average ratings for the out-of-market games in the NFL increased when the division or conference teams were featured. Therefore, this variable is to capture the effect of the divisional rivalries as in the similar context but measuring within game change rather than static average. Table 6 shows all the variables that are used in this research and its definition.

Table 6. Definition of Variables

Variables	Description
Nd	Neutral market games with divisional team
Ndw	Neutral market games with divisional team winning
Ndl	Neutral market games with divisional team losing
Nn	Neutral market games with non-divisional team
Nd2	Neutral market games with divisional team without NY and SF
Ndw2	Neutral market games with divisional team winning without NY and SF
Ndl2	Neutral market games with divisional team losing without NY and SF
Nn2	Neutral market games with non-divisional team without NY and SF

Table 6. Definition of Variables (cont.)

Variables	Description
TotalLagWinPct	Sum of previous season winning percentage of home and away team
WinPctDiff	Absolute value of winning percent difference between home and away teams in the current season
AgeDiff	Difference between age of home and away teams
DivAgeDiff	Difference between divisional age of home and away teams
Regional	Dummy variable for the games where teams from the same state are playing
Distance	Distance between each team's stadium to stadium
Rivalry	Dummy variable for the rival teams identified in the contextual setting section
ScoreMargin	End score difference of each game
ScoreMargin ²	Squared end score difference of each game
Divisional	Dummy variable for the games with at least one of the divisional teams (e.g., 1 for one divisional team playing, 2 for games against two divisional teams)

Results

Hypothesis 1

To test the difference within the neutral market according to the divisional games, I ran a pairwise comparison ANOVA with SAS 9.3. As noted earlier, the New York and San Francisco markets are omitted in all the following analyses. The result of the hypothesis 1 is as shown in the Table 7. The result shows that there exists difference between the neutral market games with divisional team and neutral market games without divisional team although it was only 0.02 differences in average ratings drop. This is in support of my first hypothesis that there will be some significance of rivalry in the out-of-market game preference of sports fans. In other words, sports fans perceive out-of-market game with divisional teams as more interesting than truly neutral market games.

Table 7. Comparison of Nd2 to Nn2

Market type Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
Nd2 – Nn2	0.020	0.005	0.035	***

Comparisons significant at the 0.05 level are indicated by *.**

Moreover, I ran a pairwise ANOVA analysis comparing neutral market games with divisional teams and neutral market games with non-divisional teams across the range score intervals defined earlier (Table 8).

Table 8. Comparison of ND and NN according to Score Interval

Score Interval	Market Type Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
Interval 0-2	Nd2 – Nn2	0.015	-0.019	0.050	
Interval 3-5	Nd2 – Nn2	-0.029	-0.054	-0.005	***
Interval 6-8	Nd2 – Nn2	-0.016	-0.045	0.013	
Interval 9-11	Nd2 – Nn2	-0.020	-0.060	0.021	
Interval 12-14	Nd2 – Nn2	-0.080	-0.129	-0.030	***
Interval 15-17	Nd2 – Nn2	0.014	-0.045	0.074	
Interval 18-20	Nd2 – Nn2	-0.077	-0.128	-0.027	***
Interval 21-23	Nd2 – Nn2	0.003	-0.049	0.055	
Interval 24-26	Nd2 – Nn2	-0.087	-0.155	-0.018	***
Interval 27-29	Nd2 – Nn2	-0.183	-0.296	-0.071	***
Interval 30+	Nd2 – Nn2	-0.020	-0.080	0.040	

Comparisons significant at the 0.05 level are indicated by *.**

The result indicates that there were differences only in certain intervals (e.g., intervals of 3-5, 12-14, 18-20, 24-26, 27-29) with no clear pattern emergence. That is, despite the presence of statistical differences between neutral market games with divisional teams and neutral market games with non-divisional teams, it is unclear at which point that they show consistency in the pattern of ratings drop.

Hypothesis 2

I have also ran pairwise comparison ANOVA with SAS 9.3 to see whether there is difference in ratings drop of divisional neutral market winning games to that of losing market games, and difference in the ratings drop of divisional neutral market losing games to that of winning market games. The base assumption here is from the previous study of Sung et al. (2014, May), which found out that the winning market shows less drop off in ratings compared to losing and neutral markets. That is, the winning market tends to BIRG while losing and neutral market tends to CORF. The result of the hypothesis 2-A and 2-B are as shown in the Table 9.

Table 9. Comparison of Ndw2 and Ndl2 to W and L

Market Type Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
Ndw2 - W	0.134	0.101	0.167	***
Ndw2 - L	0.048	0.016	0.081	***
Ndl2 - W	0.010	0.066	0.133	***
Ndl2 - L	0.014	-0.019	0.048	

Comparisons significant at the 0.05 level are indicated by *.**

The comparison of average ratings drop of neutral market games with divisional team winning showed that they were statistically different from both winning and losing market. This indicates that fans watching neutral market games with divisional team winning did not resemble the

CORFing patterns of the losing market or CORSing, which does not support the hypothesis 2-A. Moreover, the comparison of neutral market games with divisional team losing to winning market showed statistical difference. This also does not support the hypothesis 2-B in way that fans watching neutral market games with divisional team losing did not resemble the BIRGing patterns of winning market or BIRFing. Nevertheless, neutral market games with divisional team losing and losing market showed statistical similarity in average ratings drop. In other words, sports fans tend to CORF when their rival team is losing which is analogous to the behavior when their affiliated team is losing.

Further, I also ran pairwise comparison ANOVA of neutral market game with divisional team winning and losing, winning market games, and losing market games according to 3 points score interval. Following Table is the result of the analysis.

Table 10. Comparison of Ndw and Ndl to W and L according to Score Intervals

Score Intervals	Market Type Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
Interval 0-2	W – L	0.008	-0.057	0.072	
	Ndw2 – Ndl2	0.054	-0.031	0.139	
	Ndw2 – W	0.070	-0.011	0.151	
	Ndw2 – L	0.078	-0.005	0.160	
	Ndl2 – W	0.016	-0.053	0.085	
	Ndl2 – L	0.024	-0.046	0.094	
Interval 3-5	W – L	-0.019	-0.065	0.026	
	Ndw2 – Ndl2	0.034	-0.027	0.094	
	Ndw2 – W	0.058	0.002	0.113	***
	Ndw2 – L	0.038	-0.017	0.093	
	Ndl2 – W	0.024	-0.029	0.076	
	Ndl2 – L	0.004	-0.047	0.056	

Table 10. Comparison of Ndw and Ndl to W and L according to Score Intervals (cont.)

Score Intervals	Market Type Comparison	Difference			
		Between Means	Simultaneous 95% Confidence Limits		
Interval 6-8	W – L	-0.033	-0.083	0.016	
	Ndw2 – Ndl2	0.036	-0.033	0.106	
	Ndw2 – W	0.091	0.033	0.149	***
	Ndw2 – L	0.058	-0.000	0.116	
	Ndl2 – W	0.055	-0.007	0.117	
	Ndl2 – L	0.022	-0.040	0.084	
Interval 9-11	W – L	-0.072	-0.150	0.006	
	Ndw2 – Ndl2	0.046	-0.050	0.143	
	Ndw2 – W	0.143	0.058	0.229	***
	Ndw2 – L	0.071	-0.013	0.156	
	Ndl2 – W	0.097	0.006	0.188	***
	Ndl2 – L	0.025	-0.065	0.115	
Interval 12-14	W – L	-0.120	-0.201	-0.040	***
	Ndw2 – Ndl2	-0.032	-0.147	0.082	
	Ndw2 – W	0.103	0.005	0.201	***
	Ndw2 – L	-0.017	-0.115	0.080	
	Ndl2 – W	0.136	0.035	0.236	***
	Ndl2 – L	0.015	-0.085	0.115	
Interval 15-17	W – L	-0.133	-0.240	-0.025	***
	Ndw2 – Ndl2	-0.031	-0.176	0.113	
	Ndw2 – W	0.212	0.087	0.336	***
	Ndw2 – L	0.079	-0.048	0.207	
	Ndl2 – W	0.243	0.116	0.370	***
	Ndl2 – L	0.110	-0.020	0.240	
Interval 18-20	W – L	-0.177	-0.291	-0.062	***
	Ndw2 – Ndl2	0.003	-0.121	0.126	
	Ndw2 – W	0.139	0.023	0.255	***
	Ndw2 – L	-0.038	-0.148	0.072	
	Ndl2 – W	0.136	0.009	0.264	***
	Ndl2 – L	-0.040	-0.163	0.082	

Table 10. Comparison of *Ndw* and *Ndl* to *W* and *L* according to Score Intervals (cont.)

Score Intervals	Market Type Comparison	Difference		Simultaneous 95% Confidence Limits	
		Between Means			
Interval 21-23	W – L	-0.177	-0.280	-0.075	***
	Ndw2 – Ndl2	0.027	-0.097	0.152	
	Ndw2 – W	0.226	0.111	0.341	***
	Ndw2 – L	0.049	-0.063	0.160	
	Ndl2 – W	0.198	0.082	0.315	***
	Ndl2 – L	0.021	-0.092	0.134	
Interval 24-26	W – L	-0.148	-0.269	-0.026	***
	Ndw2 – Ndl2	0.031	-0.130	0.193	
	Ndw2 – W	0.159	0.019	0.299	***
	Ndw2 – L	0.011	-0.124	0.146	
	Ndl2 – W	0.128	-0.022	0.277	
	Ndl2 – L	-0.020	-0.165	0.125	
Interval 27-29	W – L	-0.150	-0.319	0.019	
	Ndw2 – Ndl2	0.058	-0.205	0.321	
	Ndw2 – W	0.163	-0.034	0.360	
	Ndw2 – L	0.013	-0.189	0.215	
	Ndl2 – W	0.105	-0.133	0.344	
	Ndl2 – L	-0.045	-0.287	0.198	
Interval 30+	W – L	-0.157	-0.277	-0.036	***
	Ndw2 – Ndl2	0.004	-0.140	0.148	
	Ndw2 – W	0.213	0.081	0.344	***
	Ndw2 – L	0.056	-0.072	0.183	
	Ndl2 – W	0.208	0.071	0.346	***
	Ndl2 – L	0.052	-0.082	0.185	

Comparisons significant at the 0.05 level are indicated by *.**

Although there was no statistical difference of ratings drop in all the markets in interval of 0-2, the result shows that *Ndw2* shows significant difference from winning market in all of the intervals except 27-29 while *Ndl2* shows significant difference from the winning market in

intervals of 9-11, 12-14, 15-17, 18-20, and 21-23. In other words, the ratings drop of neutral market games with the divisional team winning is statistically different than BIRGing pattern of winning market games from 3 points up while the neutral market with the divisional team losing showed statistical difference from 8 points up, except in intervals of 24-26 and 27-29. Therefore, it can be said that the fans watching out-of-market games are more responsive to the competitiveness of the game when their divisional team is winning. The most reasonable explanation of no statistical difference between all market in the interval of 27-29 is due to the relatively small sample size (refer to Table 4). However, there was no statistical difference between the neutral market with divisional team winning and losing.

Regression Analysis

The following tables are the result of the regression analysis of winning, losing, and neutral markets (Table 11-1, 11-2, 11-3).

Table 11-1. Regression Analysis of Winning Market

Variable	t-value	Parameter
Intercept	-0.99	-0.016
TotalLagWinPct	1.70	0.020*
WinPctDiff	-2.77	-0.023***
AgeDiff	0.34	0.000
DivAgeDiff	-1.55	-0.000
Regional	-0.41	-0.012
Distance	0.71	0.000
Rivalry	0.43	0.004
ScoreMargin	3.96	0.004***
ScoreMargin ²	-1.31	-0.000

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .1348$.

Table 11-2. Regression Analysis of Losing Market

Variable	t-value	Parameter
Intercept	-2.53	-0.059**
TotalLagWinPct	0.94	0.016
WinPctDiff	-1.20	-0.014
AgeDiff	0.99	0.000
DivAgeDiff	-0.02	-0.000
Regional	-0.40	-0.012
Distance	1.58	0.000
Rivalry	0.93	0.012
ScoreMargin	10.76	0.017***
ScoreMargin ²	-5.56	-0.000***

*Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .4149$.*

Table 11-3. Regression Analysis of Neutral Market

Variable	t-value	Parameter
Intercept	-2.10	-0.051**
TotalLagWinPct	2.69	0.046***
WinPctDiff	-2.38	-0.028**
AgeDiff	0.55	0.000
DivAgeDiff	0.39	0.000
Regional	0.17	0.006
Distance	0.10	0.000
Rivalry	0.72	0.010
ScoreMargin	10.28	0.014***
ScoreMargin ²	-4.63	-0.000***

*Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3685$.*

The variables included explain 13.48 % of the winning market while it explains 41.49 % of the losing market and 36.85% of neutral market. Variables displaying significance in the winning market are *TotalLagWinPct*, *WinPctDiff*, and *ScoreMargin*, which has the closest relevance to the uncertainty and competitiveness of the game. These variables indicated that the ratings drop increased as sum of the previous season winning percentages of both team increased and as score margin increased, while ratings drop decreased as the winning percent difference increased *ceteris paribus*. Moreover, the winning market shows a linear trend but does not show quadratic trend. Significant variables both in losing market neutral market were shown in *ScoreMargin* and *ScoreMargin*², which indicates that ratings drop increase as the game become less competitive and there is a quadratic trend in ratings drop. However, neutral market showed significance in *TotalLagWinPct* and *WinPctDiff*. Increased winning percentage difference between two teams have decreased ratings drop as winning market; however, increase in expected game quality increased ratings drop.

To see what motivates NFL consumers to watch neutral market games, regression analysis of each market including *Divisional* variable were performed for further understanding of market characteristics along with the rivalry effect.

Table 12-1. Regression Analysis of Chicago Market

Variable	t-value	Parameter
Intercept	-2.139	-0.110**
TotalLagWinPct	0.738	0.027
WinPctDiff	-1.34	-0.030
AgeDiff	0.792	0.000
DivAgeDiff	0.110	0.000
Regional	0.166	0.012
Distance	1.943	0.000*
Rivalry	1.196	0.029
Divisional	-2.289	-0.048**
ScoreMargin	8.770	0.022***
ScoreMargin ²	-4.798	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .4686$.

Table 12-2. Regression Analysis of Philadelphia Market

Variable	t-value	Parameter
Intercept	-0.578	-0.030
TotalLagWinPct	0.936	0.034
WinPctDiff	-2.084	-0.047**
AgeDiff	-0.478	-0.000
DivAgeDiff	-0.477	-0.000
Regional	0.309	0.020
Distance	-0.357	-0.000
Rivalry	1.494	0.035
Divisional	-0.349	-0.006
ScoreMargin	5.700	0.016***
ScoreMargin ²	-2.375	-0.000**

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3820$.

Table 12-3. Regression Analysis of Dallas Market

Variable	t-value	Parameter
Intercept	1.660	0.090*
TotalLagWinPct	-1.385	-0.055
WinPctDiff	-0.739	-0.016
AgeDiff	-1.077	-0.001
DivAgeDiff	0.175	0.000
Regional	-1.335	-0.092
Distance	0.385	0.000
Rivalry	-0.967	-0.023
Divisional	-1.140	-0.018
ScoreMargin	6.384	0.016***
ScoreMargin2	-4.048	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2799$.

Table 12-4. Regression Analysis of Boston Market

Variable	t-value	Parameter
Intercept	-0.120	-0.009
TotalLagWinPct	0.641	0.034
WinPctDiff	-2.528	-0.076**
AgeDiff	0.557	0.000
DivAgeDiff	-0.854	-0.001
Regional	-0.600	-0.075
Distance	-1.026	-0.000
Rivalry	1.744	0.054*
Divisional	-1.611	-0.044
ScoreMargin	5.736	0.024***
ScoreMargin ²	-3.188	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3611$.

Table 12-5. Regression Analysis of Atlanta Market

Variable	t-value	Parameter
Intercept	-0.766	-0.043
TotalLagWinPct	1.110	0.043
WinPctDiff	-1.993	-0.050**
AgeDiff	-0.615	-0.000
DivAgeDiff	-0.761	-0.001
Regional	-0.000	-0.000
Distance	0.397	0.000
Rivalry	0.442	0.011
Divisional	1.216	0.036
ScoreMargin	7.502	0.019***
ScoreMargin ²	-5.009	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3079$.

Table 12-6. Regression Analysis of Washington D.C. Market

Variable	t-value	Parameter
Intercept	1.132	0.067
TotalLagWinPct	-0.564	-0.024
WinPctDiff	-1.033	-0.026
AgeDiff	0.335	0.000
DivAgeDiff	-1.766	-0.001*
Regional	1.290	0.109
Distance	-0.126	-0.000
Rivalry	0.139	0.004
Divisional	-0.944	-0.015
ScoreMargin	4.356	0.014***
ScoreMargin ²	-1.725	-0.000*

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2942$.

Table 12-7. Regression Analysis of Houston Market

Variable	t-value	Parameter
Intercept	0.446	0.027
TotalLagWinPct	-0.328	-0.015
WinPctDiff	-2.078	-0.054**
AgeDiff	-1.340	-0.001
DivAgeDiff	0.133	0.000
Regional	0.552	0.078
Distance	1.879	0.000*
Rivalry	0.287	0.007
Divisional	-1.161	-0.026
ScoreMargin	5.354	0.017***
ScoreMargin ²	-3.273	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2853$.

Table 12-8. Regression Analysis of Detroit Market

Variable	t-value	Parameter
Intercept	-0.498	-0.019
TotalLagWinPct	1.602	0.044
WinPctDiff	-0.818	-0.015
AgeDiff	-0.078	-0.000
DivAgeDiff	-1.164	-0.001
Regional	1.133	0.067
Distance	-0.974	-0.000
Rivalry	-0.588	-0.010
Divisional	-1.364	-0.019
ScoreMargin	11.705	0.021***
ScoreMargin ²	-6.746	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3884$.

Table 12-9. Regression Analysis of Phoenix Market

Variable	t-value	Parameter
Intercept	-1.690	-0.078*
TotalLagWinPct	1.289	0.044
WinPctDiff	-0.760	-0.016
AgeDiff	-0.864	-0.000
DivAgeDiff	1.206	0.001
Regional	0.943	0.060
Distance	0.122	0.000
Rivalry	1.551	0.033
Divisional	1.109	0.034
ScoreMargin	8.071	0.018***
ScoreMargin ²	-4.809	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3805$.

Table 12-10. Regression Analysis of Seattle Market

Variable	t-value	Parameter
Intercept	0.569	0.033
TotalLagWinPct	-0.185	-0.008
WinPctDiff	0.9533	0.026
AgeDiff	-0.405	-0.000
DivAgeDiff	-0.202	-0.000
Regional	-0.942	-0.075
Distance	-0.157	-0.000
Rivalry	0.492	0.014
Divisional	0.345	0.012
ScoreMargin	5.648	0.019***
ScoreMargin ²	-3.792	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2248$.

Table 12-11. Regression Analysis of Minnesota Market

Variable	t-value	Parameter
Intercept	-0.181	-0.010
TotalLagWinPct	0.964	0.039
WinPctDiff	-0.655	-0.017
AgeDiff	0.736	0.000
DivAgeDiff	-1.722	-0.002*
Regional	-1.065	-0.083
Distance	-1.286	-0.000
Rivalry	-0.665	-0.017
Divisional	-2.069	-0.046**
ScoreMargin	6.851	0.019***
ScoreMargin ²	-3.164	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .4147$.

Table 12-12. Regression Analysis of Miami Market

Variable	t-value	Parameter
Intercept	0.114	0.006
TotalLagWinPct	0.388	0.016
WinPctDiff	-0.856	-0.022
AgeDiff	-0.247	-0.000
DivAgeDiff	0.296	0.000
Regional	-0.136	-0.014
Distance	0.627	0.000
Rivalry	0.185	0.005
Divisional	-1.691	-0.036*
ScoreMargin	4.905	0.015***
ScoreMargin ²	-1.693	-0.000*

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3621$.

Table 12-13. Regression Analysis of Cleveland Market

Variable	t-value	Parameter
Intercept	-1.038	-0.064
TotalLagWinPct	0.963	0.045
WinPctDiff	-0.190	-0.006
AgeDiff	0.202	0.000
DivAgeDiff	0.996	0.001
Regional	-0.492	-0.082
Distance	1.526	0.000
Rivalry	0.931	0.028
Divisional	-1.391	-0.030
ScoreMargin	6.854	0.021***
ScoreMargin ²	-3.952	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3360$.

Table 12-14. Regression Analysis of Denver Market

Variable	t-value	Parameter
Intercept	0.250	0.014
TotalLagWinPct	-0.172	-0.007
WinPctDiff	-1.948	-0.050*
AgeDiff	0.071	0.000
DivAgeDiff	-0.982	-0.001
Regional	0.083	0.009
Distance	0.666	0.000
Rivalry	-0.424	-0.011
Divisional	-1.526	-0.037
ScoreMargin	6.596	0.017***
ScoreMargin ²	-3.295	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3654$.

Table 12-15. Regression Analysis of St. Louis Market

Variable	t-value	Parameter
Intercept	-1.226	-0.059
TotalLagWinPct	1.793	0.061*
WinPctDiff	-0.477	-0.011
AgeDiff	-1.214	-0.001
DivAgeDiff	-1.080	-0.001
Regional	1.847	0.167*
Distance	0.302	0.000
Rivalry	1.202	0.027
Divisional	0.426	0.011
ScoreMargin	6.376	0.014***
ScoreMargin ²	-3.416	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3317$.

Table 12-16. Regression Analysis of Pittsburgh Market

Variable	t-value	Parameter
Intercept	-0.258	-0.018
TotalLagWinPct	0.996	0.051
WinPctDiff	-1.918	-0.060*
AgeDiff	0.716	0.001
DivAgeDiff	0.521	0.001
Regional	0.340	0.034
Distance	-1.087	-0.000
Rivalry	1.333	0.046
Divisional	-1.960	-0.051*
ScoreMargin	5.404	0.018***
ScoreMargin ²	-3.088	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2627$.

Table 12-17. Regression Analysis of Baltimore Market

Variable	t-value	Parameter
Intercept	0.828	0.046
TotalLagWinPct	-0.174	-0.007
WinPctDiff	-2.328	-0.056**
AgeDiff	-0.146	-0.000
DivAgeDiff	0.992	0.001
Regional	1.699	0.129*
Distance	-0.796	-0.000
Rivalry	0.658	0.017
Divisional	-2.592	-0.050**
ScoreMargin	6.342	0.016***
ScoreMargin ²	-3.445	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3470$.

Table 12-18. Regression Analysis of Charlotte Market

Variable	t-value	Parameter
Intercept	-0.677	-0.047
TotalLagWinPct	1.421	0.069
WinPctDiff	-0.903	-0.028
AgeDiff	1.588	0.001
DivAgeDiff	-0.839	-0.001
Regional	-0.137	-0.012
Distance	-0.834	-0.000
Rivalry	1.138	0.033
Divisional	1.276	0.041
ScoreMargin	5.466	0.021***
ScoreMargin ²	-3.533	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2344$.

Table 12-19. Regression Analysis of Tampa Bay Market

Variable	t-value	Parameter
Intercept	-0.470	-0.029
TotalLagWinPct	1.323	0.056
WinPctDiff	-1.365	-0.039
AgeDiff	0.693	0.000
DivAgeDiff	-2.334	-0.002**
Regional	1.018	0.118
Distance	-0.441	-0.000
Rivalry	0.287	0.008
Divisional	1.523	0.041
ScoreMargin	5.217	0.019***
ScoreMargin ²	-2.809	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3094$.

The result is consistent with the neutral market regression analysis in that all the markets show significance in *ScoreMargin* and *ScoreMargin*² variable. Beside these variables, each market displayed significance in other variables except a few markets (e.g., Detroit, Seattle, Cleveland, and Charlotte). *TotalLagWinPct* only showed significance in St. Louis market; however, it indicated increase in ratings drop as the sum of winning percentage of both team increased. *WinPctDiff* displayed significance in Philadelphia, Boston, Atlanta, Houston, Denver, Pittsburgh, and Baltimore market, indicating a lower ratings drop as competing teams' current season winning percent difference increased. *DivAgeDiff* displayed significance in the Washington D.C., Minnesota, and Tampa Bay markets, indicating a lower ratings drop as divisional age difference of the two teams playing increased. *Regional* displayed significance in the St. Louis and Baltimore markets, indicating a higher ratings drop when teams from the same state are playing.

Distance displayed significance in the Chicago and Houston markets, indicating a higher ratings drop as distance between competing teams increased. *Rivalry* displayed significance only in Boston market, indicating a higher ratings drop when well-known rivals are playing. Lastly, *Divisional* displayed significance in the Chicago, Boston, Minnesota, Miami, Pittsburgh, and Baltimore markets, indicating a lower ratings drop when divisional teams are playing.

Lastly, regression analysis of each division in both NFC and AFC was performed. Each division does not necessarily include all 4 teams since it only covers LPM markets that were available in Nielson data. Following tables are the result of this analysis.

Table 13-1. Regression Analysis of AFC East

Variable	t-value	Parameter
Intercept	0.349	0.016
TotalLagWinPct	0.492	0.016
WinPctDiff	-2.502	-0.050**
AgeDiff	0.173	0.000
DivAgeDiff	-0.355	-0.000
Regional	-0.469	-0.038
Distance	-0.543	-0.000
Rivalry	1.365	0.027
Divisional	-2.515	-0.043**
ScoreMargin	7.297	0.019***
ScoreMargin ²	-3.304	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .3341$.

Table 13-2. Regression Analysis of AFC North

Variable	t-value	Parameter
Intercept	-0.313	-0.011
TotalLagWinPct	1.007	0.027
WinPctDiff	-2.565	-0.042**
AgeDiff	0.586	0.000
DivAgeDiff	1.377	0.001
Regional	1.039	0.059
Distance	-0.117	-0.000
Rivalry	1.761	0.030*
Divisional	-3.456	-0.043***
ScoreMargin	10.789	0.018***
ScoreMargin ²	-6.109	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2978$.

Table 13-3. Regression Analysis of AFC South

Variable	t-value	Parameter
Intercept	0.446	0.027
TotalLagWinPct	-0.328	-0.015
WinPctDiff	-2.078	-0.054**
AgeDiff	-1.340	-0.001
DivAgeDiff	0.133	0.000
Regional	0.552	0.078
Distance	1.879	0.000*
Rivalry	0.287	0.007
Divisional	-1.161	-0.026
ScoreMargin	5.354	0.017***
ScoreMargin ²	-3.273	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2853$.

Table 13-4. Regression Analysis of AFC West

Variable	t-value	Parameter
Intercept	0.250	0.014
TotalLagWinPct	-0.172	-0.007
WinPctDiff	-1.948	-0.050*
AgeDiff	0.071	0.000
DivAgeDiff	-0.982	-0.001
Regional	0.083	0.009
Distance	0.666	0.000
Rivalry	-0.424	-0.011
Divisional	-1.526	-0.037
ScoreMargin	6.596	0.017***
ScoreMargin2	-3.295	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2978$.

Table 13-5. Regression Analysis of NFC East

Variable	t-value	Parameter
Intercept	0.958	0.030
TotalLagWinPct	-0.387	-0.009
WinPctDiff	-2.385	-0.032**
AgeDiff	-0.485	-0.000
DivAgeDiff	-1.436	-0.001
Regional	0.154	0.006
Distance	0.083	0.000
Rivalry	0.475	0.007
Divisional	-1.223	-0.011
ScoreMargin	10.082	0.016***
ScoreMargin ²	-5.248	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2975$.

Table 13-6. Regression Analysis of NFC North

Variable	t-value	Parameter
Intercept	-1.658	-0.064*
TotalLagWinPct	1.370	0.038
WinPctDiff	-1.355	-0.023
AgeDiff	0.977	0.000
DivAgeDiff	-1.215	-0.001
Regional	-0.686	-0.036
Distance	0.285	0.000
Rivalry	0.272	0.005
Divisional	-2.915	-0.044***
ScoreMargin	11.043	0.021***
ScoreMargin ²	-5.627	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .4252$.

Table 13-7. Regression Analysis of NFC South

Variable	t-value	Parameter
Intercept	-1.162	-0.042
TotalLagWinPct	2.262	0.057**
WinPctDiff	-2.371	-0.038**
AgeDiff	1.060	0.000
DivAgeDiff	-2.270	-0.001**
Regional	0.445	0.024
Distance	-0.501	-0.000
Rivalry	1.274	0.020
Divisional	2.277	0.038**
ScoreMargin	10.713	0.020***
ScoreMargin ²	-6.746	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2678$.

Table 13-8. Regression Analysis of NFC West

Variable	t-value	Parameter
Intercept	-0.975	-0.029
TotalLagWinPct	1.430	0.030
WinPctDiff	-0.034	-0.000
AgeDiff	-1.421	-0.000
DivAgeDiff	-0.159	-0.000
Regional	0.733	0.032
Distance	0.202	0.000
Rivalry	1.720	0.024*
Divisional	0.807	0.014
ScoreMargin	11.144	0.017***
ScoreMargin2	-6.573	-0.000***

Note: *** $p < 0.01$.; ** $p < 0.05$.; * $p < 0.1$.
 $R^2 = .2835$.

For the interpretation of the result, AFC South will be omitted since only Houston was included in the data. *TotalLagWinPct* showed significance in NFC South division while *WinPctDiff* showed significance in all AFC divisions and NFC East and South divisions. *DivAgeDiff* showed significance only in NFC South and *Rivalry* showed significance in AFC North and NFC West divisions. Lastly, *Divisional* showed significance in AFC East, AFC North, NFC North, and NFC South divisions. Nevertheless, unlike other markets and divisions that showed significance in *divisional* variable, NFC South showed that ratings drop increased when divisional team was playing.

CHAPTER IV

Discussion

As one of the first empirical findings of this thesis, divisional games in the NFL offer some significance to sports fans so that they are more interested in neutral market games with divisional team playing. It turns out that fewer people were tuning out when at least one divisional team was playing compared to other “truly” neutral market games. That is, even within the out-of-market games, there existed a difference in the consumption pattern according to the rivalry. The effect was a 2 percent difference in average ratings drop. Moreover, no consistent pattern emerged of this effect according to score margins. Therefore, as a practical implication, there is a small extra premium to choose divisional games over other non-divisional games but with no clear pattern according to the competitiveness, so that it is difficult to conclude that divisional games are always desirable.

Secondly, in the comparison analysis between winning, losing, and neutral market games with the divisional team winning and losing, the divisional team losing showed an interesting result. It was hypothesized that sports fans will tune out when their rival team is winning but stay tuned when their rival is losing. However, contrary to my initial expectation, divisional teams winning did not resemble the CORFing behavior of losing markets; in other words, there was no clear CORSing behavior in these games. As these games showed statistical differences with both winning and losing markets, it is hard to conclude how sports fans respond to these games yet. On the other hand, fans watching divisional teams losing did not stay tuned or BIRF; rather, it showed statistical similarity to CORFing of the losing market. The implication of this finding is that divisional teams might be sports fans’ second favorite teams. The base assumption of

BIRGing and CORFing stems from interconnection and association to a sports team. It is generally accepted that sports fans are less interested in out-of-market games since these games lack strong allegiance with fans. However, as the result shows, fans watching divisional games which ended up losing showed CORFing behavior. In other words, they are not enjoying the misfortune of their rivals; rather they are losing interest when their rivals are losing. Hence, there is a possibility that sports fans feel a sense of belonging to their divisional teams when there is no local market game. This might imply that divisional structure is not only creating rivalry within the division, but also creating a sense of belonging to the division. Sports fans are not only affiliated to their local team, but also affiliated to their division so that it offers some loyalty and pride. Therefore, in this sense, they are acting as if their team is losing when their divisional team is losing.

Nevertheless, comparative analysis of the score intervals of these market types revealed that there is some *schadenfreude*-like behavior. Although both neutral market games with divisional teams winning and losing showed statistical significance to winning markets from margins of 9 points and up, neutral market games with divisional teams winning showed statistical difference from winning markets even at smaller margins (i.e., from margins of 3 points and up). The winning market here is chosen as a point of reference since this market shows a relatively low ratings drop in general, and since there is no statistical difference between neutral market games with the divisional team winning or losing. That is, sports fans are more responsive to the competitiveness of the game when their rival team is winning compared to when their rival team is losing. In spite of the previous results of the comparative analysis of the average ratings drop, it becomes clear that sports fans enjoy the game when their divisional rival is losing compared to when their divisional rival is winning. That is, sports fans lose interest

when their rival team is winning even at the lower score difference while this happens at higher score difference when their rival team is losing. Therefore, it can also be said that competitiveness becomes the primary factor in deciding viewership demand of divisional neutral market games from the margin of 9 points.

There were numerous findings and implications through the regression analysis of ratings drop. Firstly, *ScoreMargin* was found to play a huge role in ratings drop in all of these markets from the regression analysis of neutral market games in each LPM market. The result indicated that competitiveness of the game is a major factor for sports fans in deciding whether to stay tuned or switch off. Therefore, in all cases, competitiveness of the game is a significant element in out-of-market games in all markets.

Alavy, Gaskell, Leach, and Szymanski (2010) found evidence that more people watched games that have closer winning percent difference. The regression analysis of the *WinPctDiff* in this research, however, showed that ratings drop decreased as the variable increased in Philadelphia, Boston, Atlanta, Houston, Denver, Pittsburgh, and Baltimore, and this was also true in all of the AFC divisions and NFC East and South. It showed that sports fans tend to drop less when the difference is higher; that is, viewers are more interested in the games when expected result is more certain. Does this mean that fans do not appreciate the uncertainty nature of sport? Rather, as Buraimo and Simmons (2008) found, it is that sports fans are more likely to watch the *Goliath* team fall to the *David*. As Rottenberg (1956) argued, sports fans do not want a single champion or a few champions to dominate the league, so that it could be that they do not want to see the dominant team win repeatedly. Therefore, it can be argued that sports fans would

appreciate the games where a lower quality team defying expectation to defeat higher quality team.

Furthermore, it was interesting to find that the *AgeDiff* variable did not show any significance in any of the markets tested since strategic group literature suggested that sharing a similar history would carry more significance to the game. The result showed significance in the *DivAgeDiff* variable which indicates that fans tend to be more interested in the games of divisional rivals who have a larger difference in division history. This implies that sports fans are more responsive to the duration of a team being placed within same division rather than its history within the league.

This result supports the idea that the divisional setting in the NFL follows strategic group theory with implication of a sport franchise with a longer history within the division having a higher chance to be identified as a rival. This may be that a younger team's acquiring legitimacy by defeating a well-established older team may be in effect. Singh, Tucker, and House (1986) found that new organizations increased their liability in the industry by retaining external legitimacy. Acquiring external legitimacy facilitates an organization's accessibility to resources and endorsements, and increases its chance of survival in the industry, which is imperative for both young and old organizations. Sports teams can gain external legitimacy by increasing their number of winning games. For instance, one of the markets that showed significance was the Minnesota Vikings, a relatively younger team than any of the other teams within the NFC North division. As the Bears, the Lions, and the Packers are few of the oldest franchises in the NFL history, the Vikings would want to obtain legitimacy within the market through defeating such deep-rooted teams. Hence, every divisional match will have greater significance to their

respective fans. Another market that showed significance was Washington D.C., one of the oldest franchises in the NFL and within the division. This variable may have shown significance since one of its main rival is the Cowboys, the youngest and wealthiest team within NFC East division. The fans of the Redskins may want to see their team defeat the Cowboys, claiming the legitimacy of the team historically. Moreover, although the age of a team bolsters the organization's influence within the market (Singh, Tucker, & House, 1986), losing competitiveness on field will negatively affect the interest of local fans and the liability within the market even for the old organization. Therefore, the implication in here is that sports fans are interested in the matches of its rival according to its divisional age, which has significance in acquisition or preservation of legitimacy within the division.

The *Distance* variable showed significance in two markets—Chicago and Houston—showing a higher ratings drop as the distance grows. Although the NFL guarantees the regional monopolies and divisional structure, so that neighboring teams do not necessarily compete regularly, it can be inferred that proximity plays its role in these markets. Nonetheless, the Chicago market has its divisional teams located in close proximity to all other NFL teams. Thus, it can also be argued that distance is in play for the Chicago market since all other non-divisional teams are farther than any of its divisional teams, so that the divisional effect has higher relevance rather than the proximity.

Finally, regression analysis of the *Divisional* variable showed significance in the Chicago, Miami, Pittsburgh, and Baltimore markets. It was also found to be significant in AFC East, AFC North, NFC North, and NFC South divisions. The result suggests evidence of lower drop off in viewership when divisional teams were playing. This is the most important finding for the

purpose of this study, which indicates that rivalry has a positive effect in sports fans' interest in out-of-market games. Although the markets showing this trend cannot entirely represent all of the markets in the NFL and it was only examined within neutral markets, rivalry should be considered as one of the important determinants in studying demand for sports. Moreover, leveraging rivalry as a key factor in out-of-market games is strongly encouraged to effectively program and schedule games in the NFL to increase the fan interest and satisfaction.

Limitations

One of the limitations of my thesis is that not all of the markets that have an NFL franchise are accounted for as only nineteen markets were utilized in the analysis. Additionally, this thesis did not examine the rivalry effect in the local markets, so that it is unclear how rivalry affects the viewership demand in the home market games. Moreover, in spite of the fact that there is an increase in viewership of sports through internet media, this demand was not examined in this thesis. The consumption patterns in this type of media could be different than those found in this research.

Secondly, with the macro-level television viewership data it is impossible to separate sports fans according to their level of commitment. That is, die-hard fans and casual fans are not distinguished; rather they are consolidated within the ratings data. As such differences in viewership exist between them, it is not possible to see accurately which group tunes out at which score intervals using these data. Moreover, the number of professional franchises residing in each market could be influencing the drop off of the game. For instance, perhaps more people will be loyal to a local NFL franchise in the market where there is no other team or major league teams compared to the market where there are numerous alternatives to choose.

Lastly, since the data used in this thesis were based on the final result of each game, looking into the variation of scoring during each quarter of the game could enhance the understanding. For instance, a game that ended with a huge score difference could have been a close match until the final period of the game. In this case, it can be expected that the viewers of this game were highly engaged until the last minute, so that the ratings drop in the final interval would not be the most appropriate way to measure the desirability of the game.

Conclusion

The central purpose of this thesis was to suggest a better understanding of out-of-market games of the NFL as the viewership demand of sports has become more important than ever. Sports fans are swamped with sporting events through easily accessible television and it is imperative to understand what makes them watch each game. As Tainsky and McEvoy (2012) stated, failure in offering optimal games to viewers will eventually damage the profitability of the league and all other stakeholders involved as viewers lose their interest. However, previous studies have not yet taken rivalry as a significant factor in consumers' choice of sport games. Thus, this study attempted to discover theoretical and empirical evidence of rivalry in sports rather than relying on the common belief that rivalry is a good thing. Specifically, the viewership demand of the NFL out-of-market games showed a small but positive association with divisional matches with evidence that some neutral market games could be desirable for sports fans. Moreover, sports fans tuned out even at the slight score difference when their rival was winning rather than losing. That is, there exists a *schadenfraude*-like behavior—seeking pleasure in another's mishap—within the NFL out-of-market games and sports fans respond differently to the competitiveness of the game when a divisional team is playing. Therefore, considering rivalry as an imperative determinant in investigating consumption patterns of sports fans in

future research of demand for sports is highly encouraged. However, it is plausible that further study in other Major Leagues in the U.S. or other non-divisional structure leagues could yield different results.

As Sanford and Scott (2014) stated, rivalry is one of the significant elements for sports fans to watch sports. Then one might ask the question, “Will it be possible to manipulate or create rivalry within sports artificially?” It is plausible through the divisional structure to achieve this as it highlights some of the features that can form a rivalry. A divisional setting guarantees a certain number of repetitive matches between divisional teams and embeds significance to these games by offering a limited prize, the divisional championship. Thus, this structure can effectively construct or reinforce the rivalry in sports rather than letting history and animosity build up on its own. Additionally, geographical proximity can increase chances of teams to be in rivalrous relationships as can be seen from traditional derby matches, where taking regional elements in divisionalization of a league could intensify the rivalry effect. Moreover, divisionalization of a league increases the chances for each team to advance to the playoff since teams do not have to face all of the teams in the league, mainly focusing on the divisional matches. This can allow a team to allocate its resources more efficiently due to reduced competition so that it is possible for teams to become more competitive in such environment compared to non-divisional settings. Closely matched teams have a higher chance of becoming rivals. Therefore, divisional structure can be an optimal setting for rivalry in sports. In this sense, a divisional setting can be used in a relatively new or existing sports leagues seeking for improvement in their demand. To do so, it is also imperative to understand in which conditions and environment divisional structure would be effectively implemented, which I will leave for the future research.

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