

# Creating an NFL Dynasty: There's Always Next Year

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## Abstract

The National Football League (NFL) has gone to great lengths to ensure that there is parity in today's game. Since NFL teams have to deal with salary caps, with free agency, with higher rated recruits going early in the NFL draft, and common scheduling with division and conference rivals, is it even possible to create an NFL "dynasty" these days? Specifically, do successful teams have better odds of being successful the next year than mediocre teams?

Our results show that, compared to teams that did not make the playoffs, teams that made the playoffs are 45 times more likely to make the playoffs, 104 times more likely to win their division, and 28 times more likely to win their conference title the next season. Similar analyses were completed for the regular season divisional champions and conference champions. In each case, teams with success the previous season were more likely to succeed in the next season.

**Key Words:** National Football League, Dynasty, Parity, Persistence, Success

## 1. Introduction

Ask 20 football pundits or fans to name the top 10 teams in the National Football League (NFL) and you are likely to get 20 separate lists. However, each list will most assuredly include the Green Bay Packers, New England Patriots, New Orleans Saints, Baltimore Ravens, Pittsburgh Steelers, San Francisco 49ers, and Seattle Seahawks.

To be sure, some of the covariates that affect the list include the age of the respondent, the geographic location of the respondent, and the respondent's favorite team. However, time is also a covariate. To elaborate, if this same question was asked in the 1990s, then the Dallas Cowboys and Denver Broncos would almost certainly be mentioned while the Saints and Ravens would not have been. If asked in the 1980s, the Chicago Bears and Oakland Raiders would be high on the list. So, what happens over the course of time that affects our collective opinions about the dominance and superiority of specific NFL teams?

While we are trying to quantitatively distinguish between superior and weak teams, the NFL has put in place procedures that try and put parity into the game. Scheduling is one of these mechanisms. Each team in a division plays 14 games against common opponents. In addition, every team in a division plays the other three teams in their conference that finished in the same position the previous year. In this manner, good teams are scheduled to beat up on each other and thereby increase the chances that each team will suffer some losses.

In addition, non-playoff teams from the previous year are awarded the first and best picks in the NFL Draft. Since weaker teams are allowed to draft the highest rated recruits earlier in the NFL draft, stronger teams are unable to build up enough reserves to ensure their continued success well into the future.

Moreover, NFL teams have to deal with the salary cap. The salary cap limits how much each team can spend on their salaries. This ensures that teams with large metropolitan fan bases and/or rich owners like the New York Giants, Chicago Bears, and Dallas Cowboys cannot just acquire the best talent on the market by paying them exorbitant salaries, thus pricing other teams out of the market.

Finally, in the era of free agency, players are free to move around from club to club in search of a bigger and better pay day. This means that even if a player is contracted to play for one team, if a suitor calls, the player is free to play for the new team once the contract with the first team is up.

These four NFL specific processes help to ensure that parity is introduced to the game. How then is it possible for the same few teams to be mentioned as the best in the league?

From first glance, it would appear that championships won would be an obvious measure of dominance and superiority. But, it is very difficult to win multiple Super Bowls in the NFL. Even winning one is difficult as the probability of winning the championship at the beginning of the season is 1:32 as there are 32 teams in the league, each of which starts the season with an 0-0 record. Winning two in a row is highly unlikely, nearly improbable. At the beginning of the season, the probability of winning the championship this year and next year is equal to the probability of winning it this year (1:32) times the probability of winning it next year given the fact that the team already won it this year (1:32), or 1 in 1,024. Indeed, since the NFL's most recent expansion to 32 teams in 2002, only one team has repeated as American Football Conference (AFC) champions, the 2003-04 New England Patriots. No National Football Conference (NFC) team has ever repeated as conference champions. And since only the conference champions are invited to play in the Super Bowl, Super Bowl championships alone cannot be the only factor in determining dominance and superiority.

Since it is improbable that a team will repeat as Super Bowl champions, it may be necessary to identify other metrics to determine team dominance. Should this be determined by reputation? Is it determined by the size of their market and exposure to national platforms? How about by their wins and loss record or number of divisional championships won?

If dominant teams are determined strictly by their performance on the field, do successful teams have better odds of being successful the next year than mediocre teams? If so, then dominant teams should remain dominant and weaker teams remain weak. This study aims to answer this last question. The specific research questions investigated in this study are listed:

- Do playoff teams have a better chance than non-playoff teams of either making the playoffs, winning their division, or winning their conference title the following year?
- Compared to teams that do not win their division, do division champs have a better chance of making the playoffs, winning their division again, or winning their conference title the following year?
- Compared to the other teams in the NFL, do Super Bowl teams have a better chance of making the playoffs, winning their division, or winning their conference title again the following year?

## 2. Data and Methodology

This observational study collected box scores and final standings from the past eleven NFL seasons (2002-2011) from three internet sites. For each team and each season, indicators were created to determine whether or not the team made the playoffs, won their division, or won their conference title. Then, various 2x2 contingency tables (tables 1, 3, and 4) containing the indicator information were analyzed, controlling for the league in which each team plays. Odds ratios, confidence intervals, and various contingency table statistics including the Mantel-Haenszel statistic and phi coefficient were calculated (tables 2, 5, and 6).

The unit of analysis in this study is the year-team combination. Since there are 32 teams in the NFL, there is 320 year-team quasi-independent combinations from 2002-2011. For example, the Ravens made the playoffs every year since 2008 and twice from 2002-2007. During this 10 year stint, 59 playoff teams made the playoffs again the following year while the remaining 61 playoff teams did not play in the post season the following year. Hence, the Ravens were counted four times in the 59 “playoff repeat” group (2008-2009, 2009-2010, 2010-2011, and 2011-2012) and twice in the “playoff non-repeat” group (Ravens made the playoffs in 2003 but not 2004, and in 2006 but not in 2007). To reiterate, while teams may be counted multiple times in the analyses, each year-team unit of analysis is counted just once.

## 3. Results

### 3.1 Dominance Definitions

Of the 32 NFL teams that start each season, only 12 of them will become playoff teams, six from both the AFC and NFC. The regular season division winners (North, South, East, and West divisions) each have an automatic bid to the playoffs. The remaining 12 teams in each conference (AFC and NFC) are ranked against each other and the top two from each conference are also invited to play in the post season as wild card teams. Teams that continually make the playoffs are extremely successful. In fact, the “ability to make the playoffs consistently” is one potential definition of an NFL dynasty.

Each regular season division winner is crowned as the division champion. This title is a real title in the NFL record books and so another definition of success is proposed. Teams that win their division have dominated their peers throughout the regular season. Clearly, this is a successful feat. Hence, the “continual domination of peers throughout the regular season” is another potential definition of a dynasty.

But making it to the post season is one thing and winning in the post season is another. If a team can win when it counts (i.e. the post season), then surely this team should be considered successful. While winning in the regular season is captured in the division title, winning in the post season is captured in the Super Bowl title. However, there have only been 10 Super Bowl winners since the 2002 expansion through the 2011 season. And only one of these teams has repeated as champs the following year. Because of this, the “number of consecutive trips to the Super Bowl” was used as another metric to identify dynasties in the NFL.

### 3.2 Making the Playoffs

By definition, 12 teams every year will make the playoffs. This means that there are 120 teams that have made the playoffs since the 2002 NFL expansion through the end of the 2011 season. That is, 120 of the 320 year-team units (37.5%) during this time span have

made the playoffs. Only 59 of the 120 year-team units (49.2%) also made the playoffs in the following year. In comparison, only 4 of the 200 teams (2%) that did not make the playoffs in one season made the playoffs the next (table 1). After accounting for the conference in which they play, an NFL team that has made the playoffs is 45 times more likely than a team that did not make the playoffs to make the playoffs the following year (table 2).

**Table 1: NFL Success Contingency Tables**

NFL (AFC & NFC)		Playoffs (next yr)			Division (next yr)			Conference (next yr)		
		Yes	No	Total	Yes	No	Total	Yes	No	Total
Playoffs	Yes	59	61	120	43	77	120	14	106	120
	No	4	196	200	1	199	200	0	200	200
	Total	63	257	320	44	276	320	14	306	320
Division	Yes	39	41	80	31	49	80	11	69	80
	No	24	216	240	13	227	240	3	237	240
	Total	63	257	320	44	276	320	14	306	320
Conference	Yes	11	9	20	9	11	20	1	19	20
	No	52	248	300	35	265	300	13	287	300
	Total	63	257	320	44	276	320	14	306	320

Each 3x3 cell represents a contingency table with the row variable identifying whether or not a team had made it to the playoffs, won their division or conference respectively and the column variable identifying how the team placed the following season.

**Table 2:** 2x2 Contingency Table Statistics of NFL Records from 2002-2011

Comparison Variables	General Association Mantel-Haenszel (MH)	MH p-value	Odds	95% CI Odds
(statistics are calculated controlling for League)				
Playoffs vs. Playoffs+1	105.03	< 0.0001	44.88	(15.86, 127.00)
Division vs. Playoffs+1	56.71	< 0.0001	8.45	(4.61, 15.50)
Conference vs. Playoffs+1	16.75	< 0.0001	5.87	(2.31, 14.93)
Playoffs vs. Division+1	78.56	< 0.0001	104.41	(14.55, 749.50)
Division vs. Division+1	55.94	< 0.0001	10.73	(5.27, 21.84)
Conference vs. Division+1	17.48	< 0.0001	6.24	(2.41, 16.15)
Playoffs vs. Conference+1	24.27	< 0.0001	27.97*	(3.64, 214.83)
Division vs. Conference+1	22.29	< 0.0001	12.43	(3.39, 45.52)
Conference vs. Conference+1	0.02	0.8881	1.16	(0.14, 9.40)

This table shows that the odds of having success (+1) are higher if the team had success the previous year. The \* indicates that the calculation is an adjusted odds ratio calculated using the logit function.

Similarly, division winners in one year are more likely than non-division winners of making the playoffs the following year. Nearly 40% of the teams that won the division in one year made the playoffs the following year. On the other hand, only 13 of 240 (or 5.4%) non-division winning teams actually made the playoffs the next year (table 1). From this, we see that a team that has won its regular season division title is 8.5 times more likely to make it to the post season the following year than a team that did not win its division (table 2).

Similarly, fifty-five percent (11/20) of the conference champions made it back to the playoffs the following year. Just 17.3% (52/300) of the other teams made it to the playoffs the following year (table 1). After controlling for league, we see that the conference champions are six times more likely to make the post season the following year than the other 30 teams in the league (table 2).

### 3.3 Winning the Division

The historical records suggest that the division winner the following season will most likely be from one of the teams that made the playoffs the previous year. Forty-three of the 120 teams (35.8%) that made the playoffs in one year won their division title the

following year while only one of the non playoff bound teams have ever won their division the following year (table 1). This suggests that playoff teams are 104 times more likely to win their division the following year than teams that do not win their division (table 2). Interestingly enough, division champions are nearly 11 times more likely to repeat as champions than the other non-division winning teams (table 2).

Similarly, the conference champions are six times more likely to win their respective division the following year than the other non Super Bowl teams (table 2). The chances of winning are pretty robust regardless of conference played. In the AFC, if a team represents the conference in the Super Bowl in one year, there is a 50-50 chance that the team will win their respective division the following year (table 3).

**Table 3: AFC Success Contingency Tables**

AFC		Playoffs (next yr)			Division (next yr)			Conference (next yr)		
		Yes	No	Total	Yes	No	Total	Yes	No	Total
Playoffs	Yes	33	27	60	24	36	60	8	52	60
	No	1	99	100	0	100	100	0	100	100
	Total	34	126	160	24	136	160	8	152	160
Division	Yes	23	17	40	19	21	40	7	33	40
	No	11	109	120	5	115	120	1	119	120
	Total	34	126	160	24	136	160	8	152	160
Conference	Yes	6	4	10	5	5	10	1	9	10
	No	28	122	150	19	131	150	7	143	150
	Total	34	126	160	24	136	160	8	152	160

Each 3x3 cell represents a contingency table with the row variable identifying whether or not a team had made it to the playoffs, won their division or conference respectively and the column variable identifying how the team placed the following season.

In the NFC (table 4), the chances are lower at 40% (4/10) but substantially higher than the chances of a generic team winning the division. Generally speaking, there is a 25% chance that any NFL team will win their division as there are four teams in each division.

**Table 4:** NFC Success Contingency Tables

NFC		Playoffs (next yr)			Division (next yr)			Conference (next yr)		
		Yes	No	Total	Yes	No	Total	Yes	No	Total
Playoffs	Yes	26	34	60	19	41	60	6	54	60
	No	3	97	100	1	99	100	0	100	100
	Total	29	131	160	20	140	160	6	154	160
Division	Yes	16	24	40	12	28	40	4	36	40
	No	13	107	120	8	112	120	2	118	120
	Total	29	131	160	20	140	160	6	154	160
Conference	Yes	5	5	10	4	6	10	0	10	10
	No	24	126	150	16	134	150	6	144	150
	Total	29	131	160	20	140	160	6	154	160

Each 3x3 cell represents a contingency table with the row variable identifying whether or not a team had made it to the playoffs, won their division or conference respectively and the column variable identifying how the team placed the following season.

### 3.4 Winning the Conference

Of the 120 playoff teams, just 14 of them (or 11.7%) managed to become conference champions the following year. No non playoff team has ever become conference champions the following year (table 1). From this we see that a necessary step to winning the conference is to first make it to the playoffs the previous year. In fact, using an adjusted odds ratio to account for the zero cell, we show that playoff teams are 28 times more likely than non playoff teams to win their conference championship the following year (table 2).

Chances are that the conference champion in any given year will be one of the division winners from the previous year. Eleven of 80 (13.8%) division winners became conference champions the following year (table 1). On the other hand, only 3 of the 240 non division winning teams (or 1.3%) represented their conference the following year at the Super Bowl (table 1). To put it plainly, division champions are 12 times more likely than the other 24 teams to win the conference title the following year (table 2).

Interestingly enough, teams generally do not repeat as conference champions from year to year (table 1). Since 2002, only one AFC team (the 2003-04 New England Patriots) repeated as conference champions. To this end, no NFC team has ever repeated as conference champions during this same time period.

## 4. Discussions and Conclusions

This study attempted to determine if it is possible to create an NFL dynasty in today's game. Teams can be identified as dynasties if they are perennially "successful" – that is consistently successful over some amount of time. But what does success mean? Here, we used three separate metrics (making the playoffs, winning the division, and winning the conference) to identify the successful teams.

If a team consistently makes the playoffs, then we consider the team successful because of its ability to regularly be in contention for a world championship. If a team consistently wins its division, then we also consider this team a successful team since it indicates the dominance of the team over its peers throughout the regular season. Finally, winning the conference is also a solid measure of success. If a team rakes up multiple appearances in the Super Bowl, then the dominance of that team is clear and obvious.

Having said this, do successful teams have better odds of being successful the following year as compared to non-successful (or mediocre) teams? It depends on how “success” is measured. There is evidence to suggest that teams that at least make the playoffs have a considerable advantage against the other 20 teams when it comes to making the playoffs the following season or even winning their division the next season (tables 5 and 6).

**Table 5:** 2x2 Contingency Table Statistics of AFC Teams from 2002-2011

AFC	Chi Squared ( $X^2$ )	$X^2$ p-value	Phi	Fisher's p-value
(statistics are calculated controlling for League)				
Playoffs vs. Playoffs+1	65.34	< 0.0001	0.6391	
Division vs. Playoffs+1	41.88	< 0.0001	0.5116	
Conference vs. Playoffs+1			0.2446	0.0068
Playoffs vs. Division+1	47.06	< 0.0001	0.5423	
Division vs. Division+1	44.18	< 0.0001	0.5255	
Conference vs. Division+1			0.2531	0.0076
Playoffs vs. Conference+1			0.2962	$2.87 \times 10^{-4}$
Division vs. Conference+1			0.3311	$2.6 \times 10^{-4}$
Conference vs. Conference+1			.0592	0.4104

This table shows that generally speaking, the odds of an AFC team having success the following year (+1) is dependent upon whether or not the team had success the previous year, regardless of the definition of success applied. One exception: winning a conference championship does not provide AFC teams with an edge when it comes to winning the title the following year.



**Table 6:** 2x2 Contingency Table Statistics of NFC Teams from 2002-2011

NFC	Chi Squared ( $X^2$ )	$X^2$ p-value	Phi	Fisher's p-value
(statistics are calculated controlling for League)				
Playoffs vs. Playoffs+1	41.11	< 0.0001	0.5069	
Division vs. Playoffs+1	17.20	< 0.0001	0.3278	
Conference vs. Playoffs+1			0.2136	0.0183
Playoffs vs. Division+1	32.24	< 0.0001	0.4489	
Division vs. Division+1	14.93	< 0.0001	0.3055	
Conference vs. Division+1			0.2147	0.0231
Playoffs vs. Conference+1			0.2548	0.0024
Division vs. Conference+1			0.1899	0.0347
Conference vs. Conference+1			-0.0510	1.0000

This table shows that generally speaking, the odds of an NFC team having success the following year (+1) is dependent upon whether or not the team had success the previous year, regardless of the definition of success applied. One exception: winning a conference championship does not provide NFC teams with an edge when it comes to winning the title the following year.

However, the advantage disappears when it comes to conference championships. Teams generally do not repeat as conference champions. The conference title is truly up for grabs every year.

So, is it possible to create an NFL dynasty today? Again, it depends on how the dynasty is being defined. If we consider a dynastic team one that consistently makes the playoffs, then yes. It is clear that dynasties can be created in the NFL. For example, from 2002-2011, the Baltimore Ravens and New York Giants have appeared in the post season six times, and the Green Bay Packers have appeared seven times.

Even if consistently winning the division is the measure used, there still appears to be dynasties in the NFL. For example, the New England Patriots have won the AFC East from 2003-2007 and from 2009-2011. Similarly, the Indianapolis Colts have been AFC South Champions from 2003-2007 and from 2009-2010.

Now, if we define a dynasty as one that continually represents their conference as Super Bowl champions, then the NFL has done a great job of interjecting parity into the league

as there does not appear to be any dynasties. The only time that a team represented their conference in the Super Bowl in back to back years was the 2003-2004 New England Patriots. This was also the only team to have won back to back Super Bowls (Super Bowls XXXVIII and XXXIX). At least for the ultimate prize of winning a Super Bowl, the procedures that the NFL has put in place seem to have hindered any one mega-team from consistently winning the only true title that matters year after year.

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