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Is the NFL's Pro Bowl Broken? Considering the Players' Perspective

Philipp Kunz-Kaltenhäuser¹²

Abstract:

This paper examines the growing trend of NFL players to forego participation in the league's yearly All-Star Game, the Pro Bowl. Viewership of the Pro Bowl has been substantially lower than the average game day in recent years, causing controversial discussions about the viability of the game and its future. Since the major determinant of viewership demand is the participation of (superstar) players, this paper analyzes the individual athletes' economic incentives in the decision to participate. To this end, it models the athlete's decision as a rational evaluation of cost-benefit under incentives of monetary reward and punishment.

It uses unbalanced panel data on Pro Bowl players from the Super Bowl era (1971-2019), alongside viewership data and official league data. It applies a range of econometric methods (Pearson-correlations, graphical examination) to evaluate hypotheses about the players' decision-making process. It concludes that the incentives to participate in the Pro Bowl for the majority of players, esp. viewership-driving superstar players are weak. The monetary incentives in their current form are not an efficient way of positively manipulating the percentage of superstars in the game. If the goal is higher demand from players, the incentive structure must be changed. Such changes are *inter alia*, that the positive reputational effects of a Pro Bowl title should be tied to participation, not selection. To increase the monetary incentive, the direct payouts should be adjusted for their relative loss compared to the general income level in the league.

Keywords: sports economics, pro bowl, national football league, league management

JEL-Codes: Z2, Z22, Z28, D8

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1 Introduction & Motivation

Few sporting events can pose an impact of such magnitude to a league as an All-Star game (Baade & Matheson, 2001). They provide an unparalleled opportunity for the league to showcase their most talented superstar players detached from the context of their surrounding teams. Because of the unique aggregation of athletic ability on one playing field, the concept of an All-Star game has a certain allure to fans. As viewed by fans, superstar players are a very specific commodity, because lesser talent is not a good substitute for greater talent (Rosen, 1981; MacDonald, 1988; Fort, 2010; Franck & Nüesch, 2012), demand from viewers is directly tied to the participating players in sports events (Berri & Schmidt, 2006; Deutscher & Büschemann, 2016; Jewell, 2017). Therefore, superstar player's attendance to the All-Star game has an impact on the respective demand (Grimshaw & Larson, 2020). A team's stock of star power influences consumer demand positively even when controlling for various factors like ticket prices and teams success (M. Lewis & Yoon, 2018). They drive consumer interest through their entertaining play and their celebrity status that accompanies their stardom (Grimshaw & Larson, 2020).

The All-Star game of the National Football League is the NFL Pro Bowl. Every season, players from the two conferences get selected by fans, coaches, and players, to have the honor of "Pro Bowler" bestowed upon them, and receive an invitation to play in a physical All-star game.³ The title of Pro Bowler is a prestige that is strongly tied to a player's name, as in "he is a X-time Pro Bowler" and "puts an Asterisk to the name" (Kowalewski, 2010). However, the Pro Bowl has been subject to criticism in recent years. In the past, the NFL tried to make the Pro Bowl more attractive to players and fans, yet still the discussion about a cessation of the entire event arises annually⁴, and was even facilitated by the league's commissioner. A lack in viewership was the major driver in the discussion (ESPN.com, 2012). The number of viewers in TV and streaming services is typically on par with other major league All-Star games (NFL: 8.23m; NBA: 7.65m; MLB: 8.69m in 2018; J. Lewis, 2019) but much lower compared to the average NFL game day audience, e.g. by 48 per cent in 2018 (J. Lewis,

³ This All-Star game has historically been played in Los Angeles, CA (1951-1972), Hawaii (1980-2009), Orlando, FL (2017-2019) and is now part of a full week of Pro Bowl events in Las Vegas, NV (2020).

⁴ Sources are suspecting a permanent termination after the cancellation of the event in the 2020 season due to COVID-19 restrictions (Florio, 2020). For the 2020 season, the NFL and NFLPA agreed on elimination of Pro Bowl pay, likely discarding the Pro Bowl for the season altogether. This translates roughly to US\$ 5m in payouts, to save on pandemic losses (Florio, 2020), and fuels the discussion on the concept of the Pro Bowl as a whole.

2019). In contrast, the NBA's All-Star game draws in higher numbers than the average game day (+305 per cent in 2017; J. Lewis, 2018).

Even though there are considerable incentives tied to becoming a Pro Bowler (Looper, 2020), more and more players reject the invitation to play in the physical All-Star game (Seifert, 2017; see Fig. 1). While the roster size of the Pro Bowl's teams remained largely consistent during the observed time period from 1971-2019⁵, the number of Pro Bowlers varies considerably. There are 82 to 88 spots on the roster for every Pro Bowl, and therefore the same number of Original Ballot Pro Bowlers (*OBPB* for the purpose of this paper) are selected. Yet, the number of Pro Bowlers is commonly higher than 100, especially in recent years. This effect occurs when a player selected to the Pro Bowl declines his invitation, and an alternate is selected for his position. OBPBs receive the honor of the title and an invitation to play in the Pro Bowl independent of their participation. Alternates who receive an invitation but decline, do not become Pro Bowlers. They are considered Pro Bowlers only if they attend the physical game (Brandt, 2020).⁶ The number of Pro Bowlers is limited to double the roster size if every Original Ballot Pro Bowler rejects to play and his spot is taken by an alternate. This translates to a minimum value of 100 per cent of alternates, or zero percent OBPBs if all OBPBs decline participation.

⁵ Over the observed time-period, the size of the roster varied between a 41-man roster in 1971 and a 44-man roster, equaling 82 to 88 player spots to fill in any given season. This analysis focusses on the Pro Bowl in the post-merger NFL after 1970 also referred to as "The Super-Bowl era". Since this time the format has been a conference-based All-Star game, whereas before this the format of the All-Star game was varied regularly. In that approach, I match the official statistics of the NFL (NFL, 2019a).

⁶ Or play in the Super Bowl. The most memorable case may be Tom Brady getting selected to the Pro Bowl 14 times and not attending a single one of them (Little, 2016).

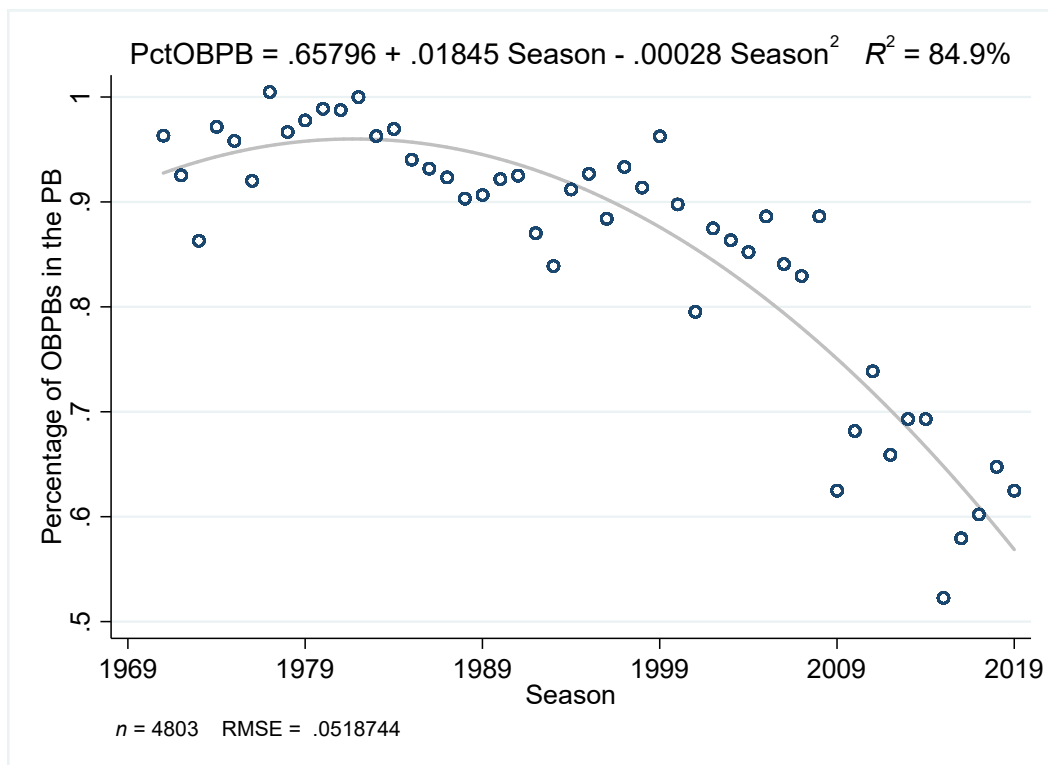


Fig. 1, Percentage of Original Ballot Pro Bowlers attending the Game, 1971-2019.

This poses a major problem to the Pro Bowl. The selection of OBPBs (first-best) includes the superstar players, so a higher number of alternates (second-best) indicates a smaller number of them in the game.

The reasons to decline an invitation to the Pro Bowl are often vague, and rarely explicitly discussed. Official player's statements list reasons like injuries, personal reasons, and participation in the league's final, the Super Bowl (Seifert, 2017), releasing them from the obligation. Unofficially suspected reasons for absence from the Pro Bowl are the risk of possible injury in the game, a lack of public interest/viewership, a insufficiency of fame & prestige, and the overall absence of intensity of play in the game. This begs the research questions: Why do players reject the honor to participate in the Pro Bowl? What are influence factors and the economic incentives for players to participate or to forgo the event? And how can these incentives be revised by the league to increase the number of OBPBs?

This research paper investigates the utility of the Pro Bowl to players and suggests possible reasons for the observed behavior on league level. It uses on an empirical approach based on economic decision theory in combination with a range of descriptive and analytical econometrics (Pearson-correlations, graphical examination) to raise a discussion about the players' decisions. It seeks to propose hypotheses and discuss their explanatory viability for the observed

market outcomes. What are viable explanations for the intertemporal development in the variance of player's decision in Pro Bowl participation? Which explanatory approaches are valid? It focuses on the supply-side problem of players not participating, yet as argued, the demand-side problems are likely an effect of supply-side causes. It concludes that the current incentive structure is not conclusive to a high percentage of OBPBs participating. The rewards are detached from participation. Recent measures attempting to increase the percentage of superstar players participating miss the goal of efficiently and effectively adjusting the incentive structure. The implications of this are valuable to the NFL as a league and as an enterprise. They also contribute to the discussion around All-Star games in Major sports leagues in general. As a first step, this paper proposes a model of the player's decision to participate in the Pro Bowl and reviews related literature. In chapter 3, it proposes and empirically analyses factors that are likely to influence the cost/benefit-decision of participation in the Pro Bowl game, and their dynamic evolution over the examined time period. Chapter 4 draws implications and concludes.

2 A Model of Athletic Utility

This chapter derives an individual *athletic utility function* that is maximized by rational choice over time. The model is related to the model of Berentsen (2002), which examines the decision of players to consume performance-enhancing drugs in sports competitions. It is related to the literature of Preston & Szymanski (2003), which explore the economic decision of contestants to cheat in sports contests. It is also connected to Vroom's (1964) expectancy theory, where workers tend to behave in a particular way according to the expected result associated with the behavior to maximize utility under valence. This paper models the athletes' decision as a rational evaluation of cost-benefit under incentives of monetary reward and punishment. The final decision is binary (as in to dope or not to dope; attend the Pro Bowl or forego) and subject to external regulations (institutions) imposed by a market-internal regulator (IOC; NFL). Assume that players have rational preference relations over participation, therefore make decisions consistent with their individual cost-benefit analysis. The league-wide outcome of Original Ballot Pro Bowler participation percentage rate is understood as the sum of all individual decisions of players. Hence, the following discussion is aimed at factors in individual cost-benefit considerations, but seeks to explain composite effects on the aggregated level of all players invited to the Pro Bowl.

Suppose that the decision to participate D_p of a Player p is a function of the utility gained from participating in the Pro Bowl U_p , and the cost function C_p . If D_p is positive, therefore the individual evaluation of cost-benefit is positive, the player participates. If it is negative he foregoes the event.

$$(1) D_p = U_p - C_p$$

Factors in the utility function (U_p) include incentives by direct monetary rewards from participation (payouts), indirect monetary rewards (from contractual premiums, bargaining power with teams, media, sponsors), and further obliquely related utility factors like fame, and prestige. In this model, non-monetary incentives are modeled as incentives that do not directly carry monetary rewards. Here, non-monetary incentives are understood as outcomes satisfying the individual's preference for non-monetary value and the utility associated with it. These can carry monetary rewards, but only indirectly/obliquely. For example, the incentive from fame can be strong for an individual that has a strong preference for being famous in itself. It may still translate to better sponsorship deals etc. in later time periods. The error terms ε_p ; φ_p cover individual variance that is not explained by the explanatory factors of the model.

$$(2) U_p = \alpha U_{Direct\ Payouts} + \beta U_{Indirect\ Payouts} + \gamma U_{Non-Monetary\ Incentives} + \varepsilon_p$$

Factors in the cost function include opportunity costs of participation, and possible costs/risk from participation (future costs). Direct costs of participation like travel expenses are covered by the league, and are therefore not relevant to the players decision and eliminated from the model (NFL Players Association, 2020).

$$(3) C_p = \mu C_{Indirect\ Costs} + \tau C_{Opportunity\ Costs} + \varphi_p$$

Utility factors U and cost factors C model the value of the incentive. Apart from the objective value, the strength of the incentive is understood as the utility (or cost) that it provides to the individual. Hence, weighing coefficients are included for each factor (α, β, \dots). These include the risk aversion of individuals towards the factors (e.g. risk of injury in the Pro Bowl), and discount factors i.e. bias towards the present (preference for immediate payouts for fear of a short career; Régnier & Huels, 2013). They adjust the strength of the incentive to the individual player. As an example, the direct payouts from the Pro Bowl are more relevant to a player that fears getting released by his team a couple of days later when the season ends, than they are for somebody anticipating a long and highly successful career.

2.1 Direct Payouts

One approach is to examine the direct monetary incentives of athletes ($\alpha U_{Direct\ Payouts}$). Research on monetary incentives in sports seems to agree on the overall efficacy in influencing athletes behavior to a desired outcome (Ehrenberg & Bognanno, 1990; Lehn, 1990; Becker & Huselid, 1992; Frick, 1998; Kahn, 2000). In auto racing, larger monetary rewards lead to lower individual finishing times and greater risk taking (a higher number of accidents, Becker & Huselid, 1992). In marathon running, Frick (1998) found that positive incentives as in higher prize money and rewards for setting new records lower individual running times. Extrapolating to the Pro Bowl, higher payouts should lead to a lower percentage of players rejecting the invitation by raising the utility for players ($U_{Direct\ Payouts}$, Schottey, 2013):

H1: The higher the direct monetary reward the higher the probability that a player will make the decision to attend the Pro Bowl.

The strength of the monetary incentive is dependent on the relative value of the direct payouts in relation to the other payments that players receive ($U_{Direct\ Payouts}$). For an incentive to be effective, it must be valuable to the individual and, as such, must meet the physiological and psychological needs of the player (Maier et al., 2016). To analyze this, the payouts are put into relation to the general level of income in the league. The general level of income is used as an estimation for the monetary expectations of players and proxied by the NFL's salary cap. As overall income level in the league increases, opportunity costs of participation increase ($C_{Opportunity\ Costs}$). If the relative value of the payout from the Pro Bowl changed, an effect on the incentive to participate is suspected:

H2: The lower the relative value of the direct payouts in relation to the general income level in the league, the lower the likelihood that players will attend.

2.2 Indirect Payouts

On top of the direct payouts that Pro Bowlers receive, there are monetary incentives through indirect payouts ($U_{Indirect\ Payouts}$). These indirect payouts and their utility to players are more complex to grasp than the direct payouts, yet their effect is economically relevant to the players decision as these payouts often exceed the direct payouts discussed in the previous section (Brandt, 2020). This paper discusses incentives from two sources, contractual premiums and bargaining power in contract negotiations.

Contractual premiums as positive incentives in sports contracts influence players behavior strongly (*inter alia*, Lehn, 1990; Mondello & Maxcy, 2009). For Baseball players, those with contractual premiums incentivizing their availability to play had a 2.4x lower injury time (Lehn, 1990), not considering the moral hazard problem of players who have no incentives. Incentive bonuses account for about 25 per cent of player compensation in today's NFL (Mondello & Maxcy, 2009), so a interaction with Pro Bowl incentives and the players' participation must be suspected. Concerning bargaining power, the title and the additional exposure of the game leads to bargaining power with prospect future teams, and therefore obliquely, to more bargaining power with the current team. The title is valuable to a team, because the more votes the player received the higher the popularity of a player. Higher popularity translates to higher WTP of fans for merchandise (Garcia-del-Barrio & Szymanski, 2009), higher stadium attendance (Jewell, 2017), revenue in broadcasting rights etc. This so-called "Pro Bowl Problem" (Brandt, 2010) is well known amongst players and agents: players return from the Pro Bowl with updated beliefs about their value to the team, and tend to start re-negotiations on their contracts with their current team. Even though this behavior is often frowned upon by fans and management (Brandt, 2020), it is highly interesting to analyze from an economic perspective:

H3: Contractual premiums and bargaining power positively influence the players' decision to attend the Pro Bowl.

2.3 Non-monetary Incentives

Other than monetary incentives, there are non-monetary incentives which are relevant to the decision ($U_{Non-Monetary\ Incentives}$). The research on non-monetary incentives in sports and their relationship to monetary incentives is sparse (Maier et al., 2016). Nicholson, Hoye, & Gallant (2011), and Price, Morisson, & Arnold (2010) propose strong effects of non-monetary incentives in the context of professional sports clubs. This model focusses on reputational effects of the Pro Bowl for players. In the context of the model of athletic utility from Pro Bowl participation, fame is understood as the positive reputational effects that a player gains with fans, sponsors, media and teams through participation in the game. Preston & Szymanski (2003) mention reputational effects as a reason for the prohibition of doping. In their analysis, the negative reputational effects of specific behavior (doping) strongly affect the sport as a whole in the public perception. Therefore, the market-internal regulator (IOC) disincentivizes this behavior through punishment. In contrast, the model of this analysis focusses on the positive reputational effects for individuals through a Pro Bowl title and participation and the pos-

itive incentives by the market-internal regulator. These positive reputational effects are important for oblique non-athletic career goals that players might have. With higher fame come greater surpluses from sponsorships as their willingness-to-pay for an athlete's sponsorship depends on the exposure of this athlete to viewers. More importantly, it relates to his ability to positively represent the sponsors product in an honorary game. Positive exposure of the product to consumers translates to greater sales for the sponsoring companies. Furthermore, the higher the fame that a player gathers during his athletic career the more likely he is to be employed by a sport-related or even sports unrelated organization after his athletic career has ended⁷. It is therefore probable that an individual's maximization of utility during his athletic career includes maximization of fame. The Pro Bowl allows for exposure on national television, creating fame for its participants. Viewership numbers are an adequate proxy of fame because they represent a measure of exposure to the public. The higher the viewership the larger the amount of fame to be gathered (Grimshaw & Larson, 2020):

H4: The higher the viewership the more likely players are to attend the Pro Bowl game.

As argued previously, teams value the title as a signal of quality of a player, esp. as a marker for popularity. Passing on the invitation to alternates under current regulations does not lower the utility of the Original Ballot Pro Bowlers significantly, but allows the alternates to become Pro Bowlers as well. If more players are awarded with the title, the strength of the signal decreases due to decreased exclusivity of the title ("title inflation"). This depicts a decrease in the prestige of the title. Prestige is included in the model, as some players have an intrinsic motivation to maximize their "athletic legend", their standings in the all-time ranking of greats. The lower the number of Pro Bowlers, the higher the exclusivity. The higher the exclusivity the more prestige to be collected for a player with the title in comparison to the players without it. The more prestige from a Pro Bowl title, the higher likelihood for a player to participate:

H5: The more Pro Bowlers there are the less exclusive the title and the less desirable a spot on the roster.

2.4 Cost Factors

The timing of the Pro Bowl compared to the season could reasonably be suspected to be part of the player's consideration ($C_{\text{Opportunity Costs}}$). Therefore, the league has experimented

⁷ The NFL The Broadcast Boot Camp is one of several career and professional development programs NFL Player Engagement offers to current players, legends and their families (NFL, 2019c).

with two different approaches to the timing of the All-Star game: after the Super Bowl to finish out the season (1971-2009), and the weekend before the Super Bowl in between Conference Championship Weekend and the Super Bowl (2010-2019). Compared to other major North American leagues e.g. MLB and NBA hold their All-Star game mid-season, which comes with its own set of problems. When held during the regular season, players anticipate the risk of injury from the All-Star game that would be detrimental to their regular season performance. Anecdotally, players have mentioned the shortened off-season as a reason to decline their invitation (Seifert, 2017). There are two diverging dynamics at play here. On the one hand, the move of the Pro Bowl before the Super Bowl prolongs the off-season for all non-Super bowl players, expecting a positive impact on non-Super Bowlers participation by decreasing opportunity costs of a slightly longer off-season. On the other hand, for Super Bowl players the move of the Pro Bowl before the Super Bowl makes participation prohibitively expensive, because the Super Bowlers favor the final game over the all-star game in any circumstance. The earlier in the season an All-Star game is played, the higher the opportunity cost for players (increasing $C_{Opportunity\ Costs}$), making any single player more likely to forego the Pro Bowl. If the Pro Bowl is played before the Super Bowl, stronger cannibalizing effects are expected:

H6: The earlier the date in the season the lower the participation because of opportunity costs.

Injuries obtained during the season, or players feeling “worn out” by a long season may keep players from participating (Seifert, 2017). Since injuries are a popular named reason among players to decline an invitation, rules that make injuries during the regular season less likely should increase the number of accepted invitations (Schottey, 2013; Brandt, 2020). This analysis focusses on the implementation of the regulations not their effect, due to the difficulty of measuring the number and severity of injuries during a season:

H7: A higher number of health protecting regulations leads to more healthy players that participate in the Pro Bowl.

3 Discussion of Economic Incentives for Players

For the empirical examination of the model, pro-football-reference.com provided data on the Pro Bowl players from 1971-2019 (so the 1972 Pro Bowl until the 2020 Pro Bowl). The panel data is unbalanced and complete. Throughout these 48 seasons, 4803 Pro Bowl titles were awarded to a total of 1735 Players. Players were between 21 and 41 years old (mean=27,5;

median= 27,3). They had zero to 15 years of experience in the league (mean=4.85; median= 4.6) and were selected into the Pro Bowl one to 14 times (mean=2,77; median= 2). As supplemental data sets, TV Viewership Data is provided by Nielsen and ESPN, as well as Official League Data provided by the NFL on Collective Bargaining Agreements, Salary Cap, and rule changes.

3.1 Direct Payouts

Absolute Value

The official direct payouts for Pro Bowlers are codified by the Collective Bargaining Agreement (CBA) between the league and the National Football League’s Players Association (NFLPA)⁸. In general, the Pro Bowl prize money increased with every new CBA (1968, 1970, 1977, 1982, 1993, 2006, 2011, 2020; NFL Players Association, 2020), leading to a general upward trend even when adjusted for inflation. The winners’ payout from the Pro Bowl constantly increased⁹. The losers’ share however dropped in 2010 from \$27,1600 to \$26,820 (in 2020 US\$), in correlation to the general salary cap of the league¹⁰.

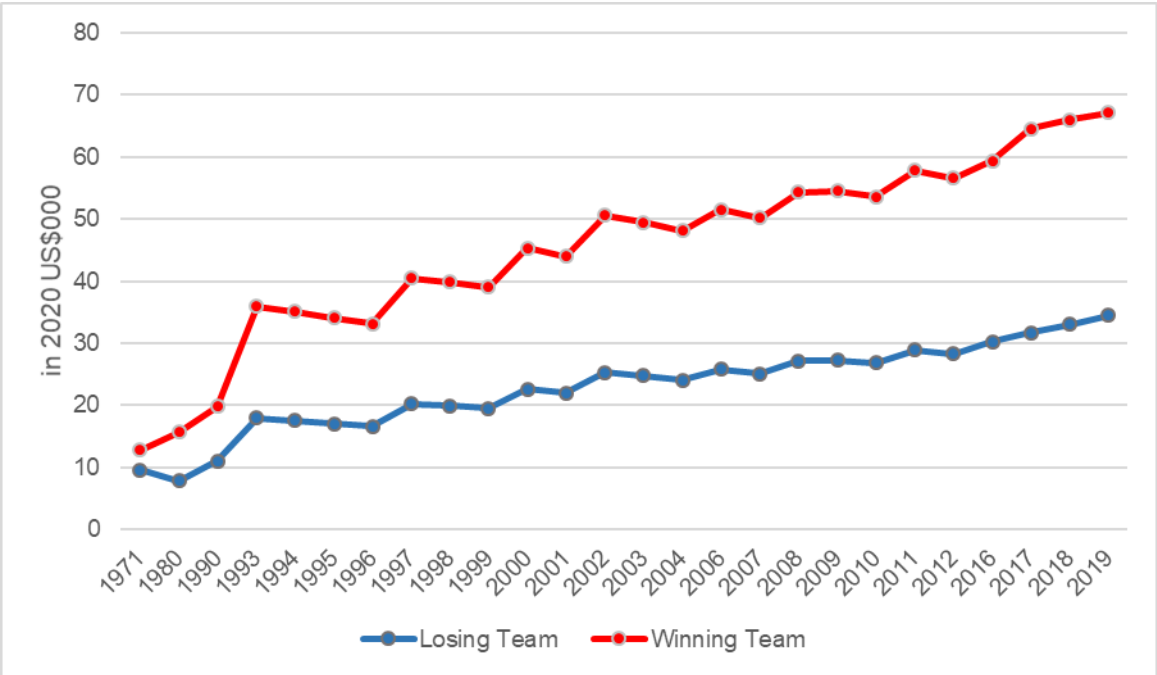


Fig. 2, Development of Pro Bowl players compensation/payouts for winning and losing teams, in 2020 US\$. Data: (NFL Players Association, 2006; NFL, 2019a; NFL Players Association, 2020; Ross, 2020)

⁸ This does not include personal bonuses in the player’s individual contracts which regularly exceed the direct payouts from the prize money (Brandt, 2010).

⁹ Adjusted for inflation.

¹⁰ This effect was most likely due to the 2007/2008 Global Financial Crisis hitting all home markets.

$$r_{\%OBPB,AbsPayoutWin} = -0.811$$

$$r_{\%OBPB,AbsPayoutLoss} = -0.795$$

A higher absolute payout for both teams strongly correlates with a lower percentage of Original Ballot Pro Bowlers. On the flipside of that correlation, a higher percentage of alternates correlates with higher payouts. In this case, the strategy of raising the direct payout does not seem effective at increasing the percentage of Original Ballot Pro Bowlers that attend the game. If the monetary incentives were effective at increasing Pro Bowl participation and actually affecting the decision positively D_p , a positive, not a negative correlation would be expected.

The league's intention behind increasing the direct payouts was to increase the direct monetary incentive for both teams in an attempt to get more OBPBs to attend and therefore make the game more attractive (Breech, 2018). However, OBPB receive either the winning or losing teams payout, depending on the team's conference side for which they would have played (Horgan, 2019). They are paid as long as they are officially relieved from the obligation, e.g. are medically excused (Brandt, 2020). The Pro Bowl payouts are the equivalent of a fixed salary for Original Ballot Pro Bowlers. Maxcy, Fort, & Krautmann (2002) found that these types of salaries provide an significant incentive for shirking. This leads to a situation where the decision to forego the Pro Bowl is more likely to be the utility-maximizing decision ($D_p < 0$). The incentive is weak if the costs of circumventing all *de facto* costs of participation in the cost function is low, while still collecting full utility from direct payouts ($U_{Direct Payouts}$). As a result, the monetary rewards for OBPB do not provide the intended incentives. The idea to reward both teams equally to have a higher guaranteed expected value of participation and therefore a higher participation has been raised in the discussion (*inter alia*, Ross, 2020). The value difference between winning teams and losing teams pay outs has not changed (NFL Players Association, 1993), so the argumentation that an equal pay of both teams would increase participation rates is unfounded (at least from this data set). The hypothesis that the difference between winners' and losers' share in the Pro Bowl is a driver in the decision is therefore not supported by this analysis.

From an economic perspective, the way that the direct monetary incentives are set up now is not an effective adjustment to manipulate the percentage of Original Pro Bowlers as the reward of the prize money is detached from the action of participation. Increasing prize money is not going to result in more OBPB participating, at least with very low efficiency. Overall,

the proposition that the direct monetary payouts are an efficient way of setting positive incentives influencing the players decision is unfunded. Therefore, H1 is rejected.

Relative Value

The NFL’s salary cap was introduced in 1994 (NFL, 2010), therefore all argumentations regarding the salary cap relate only to the time frame from 1994 until now. The 2010 season was uncapped due to no CBA¹¹.

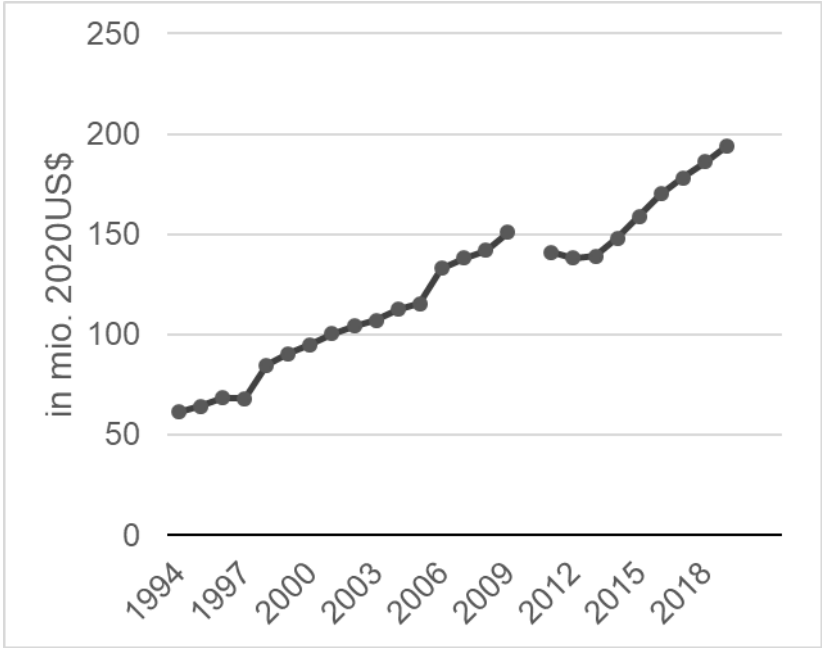


Fig 3, Development Salary Cap in the league in 2020 US\$, Data: (NFL, 2010)

Even though the direct monetary rewards to participate in the Pro Bowl grew consistently (compare Fig. 2), their development did not match the growth of the overall income level in the league (see Fig. 4). With a higher Salary Cap in the league, the relative value of the direct payouts shrinks, and *ceteris paribus* the monetary incentive becomes weaker. The lower the perceived value of the payouts in relation to a player’s yearly earnings, and future earning potential, the lower the likelihood of him attending (D_p more likely negative). Therefore, the incentive to participate in the Pro Bowl after the introduction of the salary cap became weaker. Fig. 4 presents this fact by expressing the absolute value of payouts for both teams through the level of the general salary cap.

¹¹ As owners opted out of the collective bargaining agreement, the 2010 season was uncapped. However, the league took measures to prevent clubs from front-loading contracts (NFL, 2008). The few teams who did front-load were punished over the next two seasons, leading to a lawsuit between the NFL and the NFLPA. Most teams spent as if a cap was in place, hence the effects for this analysis are negligible.

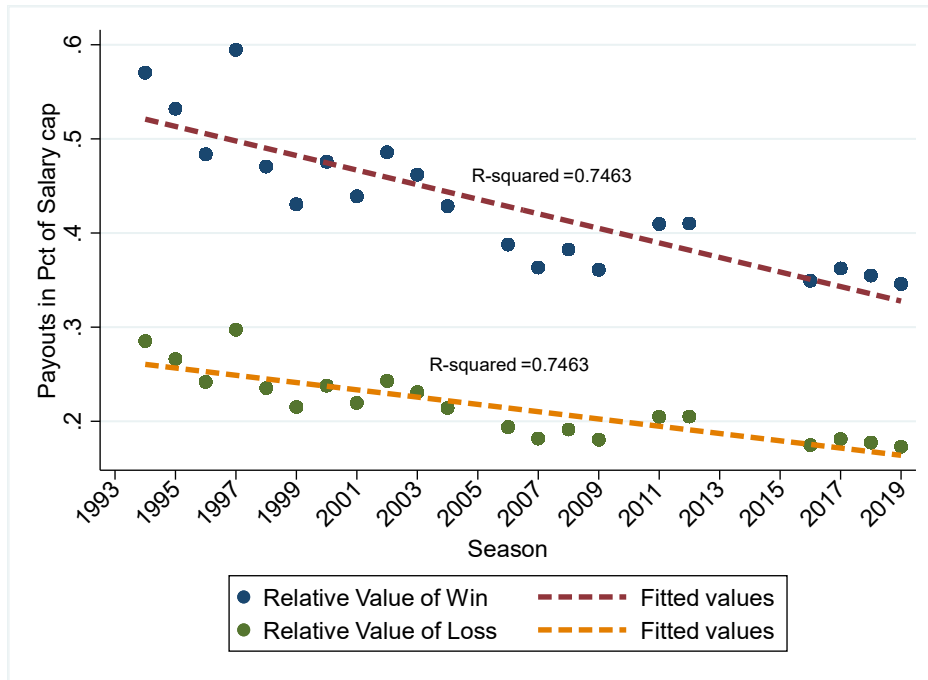


Fig. 4, relative value of the direct payouts.

The objective decline of the value of the prize money in comparison to the overall income level in the league could very well be a reason for players to decline, even if their weighing of this factor is consistent over time and did not adapt intertemporally (α consistent) and especially if this factor is weighted highly (α high or increasing). These empirics imply a cross-prize effect between the salary and the percentage of players that skip the game: demand for Pro Bowl roster spots is negatively correlated with the salaries, so an increase in salary negatively effects demand for Pro Bowl roster spots. The lack of full recovery in the off-season caused by a possible injury or a shortened career can impede the players ability to maximize his total career earnings during his athletic life-span. Players are exchanging (substituting) Pro Bowl participation for future earnings. From an economic perspective, a negative cross price effect between the two implies their substitution. The null hypothesis to H2, that the relative value of the direct payouts does not matter for the value of the monetary incentives to the players decision, is rejected. An adjustment to the general level of income in the league most likely influences the attractiveness of participation to alternates but is irrelevant for OBPB.

3.2 Indirect Payouts

Contractual Premiums

For superstar players, Pro Bowl-level performance is often assumed when bargaining contracts and taken into calculation when negotiating the salary. Therefore, a selection does not

trigger any specific premiums (Brandt, 2020). Since it is common for superstars to lack contractual premiums tied to their Pro Bowl selection, this is likely not an incentive in a large portion of the OBPB athletes' decision, at least in the short run. Depending on the time preference of the individual, for example the anticipation of future injuries or an early end to his career, this factor is strongly weighed by a discount factor (**decreasing β**). For alternates, Pro Bowl selection rarely triggers premiums in contracts (Corry, 2019; Brandt, 2020). There is a systematic difference of Original Ballot vs Alternate Pro Bowlers in their incentive structure when it comes to participation. It is valid to examine contractual premiums as a driver in a small fraction of the individual athletes' decisions, esp. the ones with a high time preference/discount rate on future earnings. Overall however, contractual premiums are likely a minor influence on a small number of individuals, so do not drive the league-wide effect.

Bargaining Power

In bargaining with a team, Pro Bowl selections are a determining factor in the bargaining power of an individual (Kowalewski, 2010). By the team's evaluation of competing players against each other, the teams demand determines the value of the title. Therefore, teams' utility functions influence the utility that players gain from the Pro Bowl. In an OLS regression across all skill positions, the Pro Bowl selections had a positive and significant effect on a player's future salaries.

Variable	QB	RB	WR	OL	LB	CB	DL	S
Total Pro Bowl selections (t-2)	0.121*	0.061*	0.065*	NS	0.067*	NS	0.051*	0.097*
Selected to Pro Bowl (t-1)	NS	NS	NS	0.182*	0.198*	0.319*	0.277*	0.249*

Dependent Variable=LNTOTSAL; * 10% sig level; NS = not significant.

Tab. 1, see Kowalewski (2010).

For Quarterbacks, the overall number of Pro Bowl selections had a positive and significant effect on salaries. For them, every Pro Bowl selection lead to an average increase of 12% in salary depending on the player's experience in the league (accrued seasons), which through minimum salaries translates to US\$ 36,000-66,000¹² per Pro Bowl selection. The impact was close to the equivalent of the number of super bowl appearances (15%). For positions with fewer individual performance measures (OL, LB, CB, DL, and S), the number of Pro Bowl selections also lead to significant and large increases (5.1%-9.7%). For these positions, the

¹² Assuming 2020 minimum salaries.

effect of the most recent Pro Bowl selection in t-1 was strongest overall. The general number of selections was only significant for Defensive Linemen, Linebackers, and Safeties (see Tab. 1). The more recent Pro Bowl selections impacted salaries to a larger extent than past ones. Concluding, all Pro Bowl selections had a positive (or insignificant) impact which supports the hypothesis, that Pro Bowl selections lead to a better bargaining position for the player when negotiating for salary. For free agents, the indirect payouts from bargaining power equate to a similar amount as the direct payouts. For starters/regular players, the bargaining position is even stronger because of the attachment of fans to this player and their investment to vote him into the Pro Bowl.

The anticipated athletic production and tactical fit to the team can be traded (to a certain extent) for a player's popularity. For a profit-maximizing team/owner/club-manager it is advantageous to select for popularity of player and risk a trade-off in their athletic ability to maximize profit. For a win-maximizing owner this incentive is weaker because the deficit in athletic ability translates to a non-optimized winning-percentage. So, a discussion about the utility maximization of owners/teams is in order to evaluate the value of a Pro Bowl title to players. The research in sports economics on win- vs. profit maximization has found mixed results. Ferguson et al. (1991) found profit-maximizing behavior in the NHL, where Zimbalist (2003) concludes that owners likely maximize global, long term returns.¹³ For the NFL, Atkinson, Stanley & Tschirhart (1988) found that in the 1980s wage rates for player exceed their estimates of marginal revenue, and concluded a mixed strategy of owners instead of a strictly profit-maximization strategy (Garcia-del-Barrio & Szymanski, 2009). This does not deny the viability of a marginal argument of differences in player choices depending on the owners' utility functions. A purely win-maximizing management will reinvest all profits back into the team to maximize athletic performance. This strategy is only viable to a certain extent in the NFL, as spending on players is limited by the salary cap. Yet with the current level of the salary cap where even the lowest earning teams turn a (positive) profit (Forbes.com, 2020), incentives to win-maximize are weak. Investment in the team's facilities, coaching staff, nutrition etc. would yield positive results in athletic performance. It can reasonably be suspected that teams lean more towards a strategy of profit-maximization than win-maximization considering the more than 3-fold increase in average overall profit of teams in the league over the last 20 years¹⁴. With the trade-off between (win-maximizing) athletic ability and (profit-

13 Romer (2006) finds evidence that in the context of American football coaches do not maximize profits, yet the impulse decision to go for it on fourth down differs a lot from the lengthy and well-thought out decision to employ a certain player.

14 Referring to operating income, see Fig. 8 (Appendix).

maximizing) popularity, the teams' usage of the number of Pro Bowl selections in the assessment of a player's quality further indicates a tendency of profit-maximization. If teams weigh the popularity of a player more highly, it becomes more likely for players to forego the Pro Bowl as the signal of the title can be achieved without the cost factors ($C_{Indirect\ Costs}$; $C_{Opportunity\ Costs}$) in the cost function. Players anticipate that teams do not show additional willingness-to-pay for their physical participation in the game over a non-participating player, and therefore the participation does not translate to bargaining power and additional WTP. This leads to an outcome where players optimize their position to reflect the preferences of the hiring teams. They deviate from the strategy of optimizing their athletic ability (talent-based Rosen-type superstars; Rosen, 1981) to a mixed strategy of also becoming popular (popularity-based Adler-type superstars; Adler, 1985; Humphreys & Johnson, 2020).

Players can use the title as a form of signaling their value to prospect new employers alleviate asymmetric information. If Pro Bowl selections are popularity-driven and not necessarily ability-driven (Schottey, 2013) then it can only be used as a signal of a player's popularity, not his pure athletic ability. The evaluation of the ability of a player must therefore be separated from his Pro Bowl titles, esp. for non-skill position players. This signal appears to be strongest for positions with fewer individual performance measures. Consistent with the economic consideration proposed in the model (chapter two), this leads to more OBPBs rationally declining their invitation to attend the game, if the impact of the indirect payouts from additional bargaining power is lower compared to the bargaining power from receiving the title. So, is it the title or the participation that counts? In bargaining with the team, the "asterisk to the name" of the title is likely more important than an additional 60 minutes of playtime in a game that has considerably lower than average viewership. If the WTP of teams is dependent on the title status of a Pro Bowler as a proxy for popularity, not their physical participation, the status of Pro Bowler has a comparatively higher impact on the bargaining power of a player than the participation in the physical game. Empirical evidence discussed above suggests that this is true. The utility gain is skewed toward the title. For alternates, the indirect payouts from bargaining power influence the decision to participate because they do not receive the title if they do not attend. For Original Ballot Pro Bowlers, this is not the case because the major influence on their bargaining power comes from the title which they are awarded nonetheless.

Contractual premiums are only relevant for a small number of athletes, and most likely not the OBPB superstars. Bargaining power however is highly likely a positive factor in the player's decision, but the strength of the incentive differs strongly between alternates and OBPB. The

disconnect between the title and the participation is crucial to the incentive structure of the Pro Bowl. The two factors in H3 are not uniformly relevant to the decision. H3 is therefore partly rejected.

3.3 Non-monetary incentives

Fame

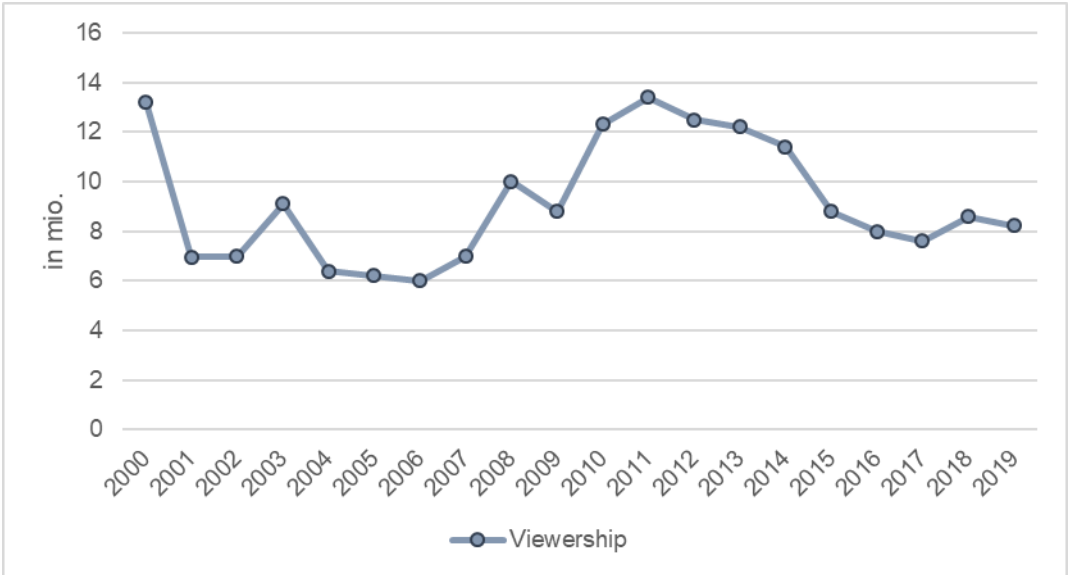


Fig 5, Media viewership of the Pro Bowl, Data by ESPN/ABS/Nielsen (via J. Lewis, 2019).

$$r_{\%OBPB,Viewership} = 0.1694$$

Over the last 2 decades, there is a small positive correlation of viewership and the percentage of OBPBs attending. In comparison to all the other correlations in this analysis, this correlation is very small in value, indicating a minor relationship. The considerable variance in viewership numbers (*sd* = 2.562; *variance* = 6.618) does not reflect in the number of OBPBs participating. Therefore, fame from the game as proxied by exposure does appear to be a suitable empirical indicator of OBPB Pro Bowl participation rates, at least not in the observed time frame from 2000 until now. Note that this weak relationship is positive which would be expected if H5 was to uphold. A full empirical analysis that includes data from the higher participation rate decades (1970s-1990s) would bring more light to this discussion of this factor. This analysis does not support H5.

Prestige

$$r_{\%OBPB, NoOfPB} = -0.9926$$

The percentage of Original Ballot Pro Bowlers is almost perfectly negatively correlated with the total number of Pro Bowlers. This analysis only allows for a statement of the concurrence of these two variables. Consider that this is a correlation of percentage numbers, hence not only the absolute number of OBPB decreases with an increase, but the percentage increases as well. As a caveat to this, these two variables likely suffer from reverse causality. By default, a higher number of OBPBs declining the invitation causes the number of overall Pro Bowlers to increase. The idea of lowered prestige leads to a situation where a higher number of overall Pro Bowlers coincides with a lower participation rate of OBPBs. If the factor of prestige was relevant to the decision, a lag in the number of Pro Bowlers is expected to highly negatively correlate with the percentage of OBPBs.

	<i>Pct Original Ballot Pro Bowlers_t</i>
	[r =]
<i>Pct Original Ballot Pro Bowlers_t</i>	1.0000
<i>Number of Pro Bowlers_{t-1}</i>	-0.8810
<i>Number of Pro Bowlers_{t-2}</i>	-0.8314
<i>Number of Pro Bowlers_{t-3}</i>	-0.8614
<i>Number of Pro Bowlers_{t-4}</i>	-0.7714
<i>Number of Pro Bowlers_{t-5}</i>	-0.7914
<i>Number of Pro Bowlers_{t-6}</i>	-0.8249
<i>Number of Pro Bowlers_{t-7}</i>	-0.6768
<i>Number of Pro Bowlers_{t-8}</i>	-0.7716
<i>Number of Pro Bowlers_{t-9}</i>	-0.6726
<i>Number of Pro Bowlers_{t-10}</i>	-0.4616

Tab. 2, Correlations of exclusivity.

A time lag on the absolute number of Pro Bowlers is also negatively correlated with the percentage of OBPBs: The higher the number of Pro Bowlers in previous years, the lower the participation rate of Original Ballot Pro Bowlers (see Tab. 2). In general, the further away in the past the less correlation with the current original ballot pro bowler rate. An effect appears in the data, where the correlation breaks its overall downward trend in a pattern of lower and higher correlation. This indicates that the influence of exclusivity comes in waves. It could be suspected that it takes a year for a back-and-forth effect of inflation of the title by increase in

the absolute number to catch on in the prestige consideration of players. In the short run, it is a utility optimizing strategy for the individual player to pass on the title to an alternate, because he is circumventing the cost of participating while gaining full benefit of prize increase by prestige. In the long run, with the exclusivity of the title decreasing by more and more alternates also becoming Pro Bowlers lowers the impact of the title. It should therefore be a factor in the consideration of the original ballot pro bowlers. However, all of this supports H6.

3.4 Costs of Participation

Injuries

For this analysis, I use the cumulative number of health regulations after 1985 (NFL, 2019b). In that, I follow the approach of Mastromarco & Runkel (2009) in assuming an average impact of a regulation across all seasons.

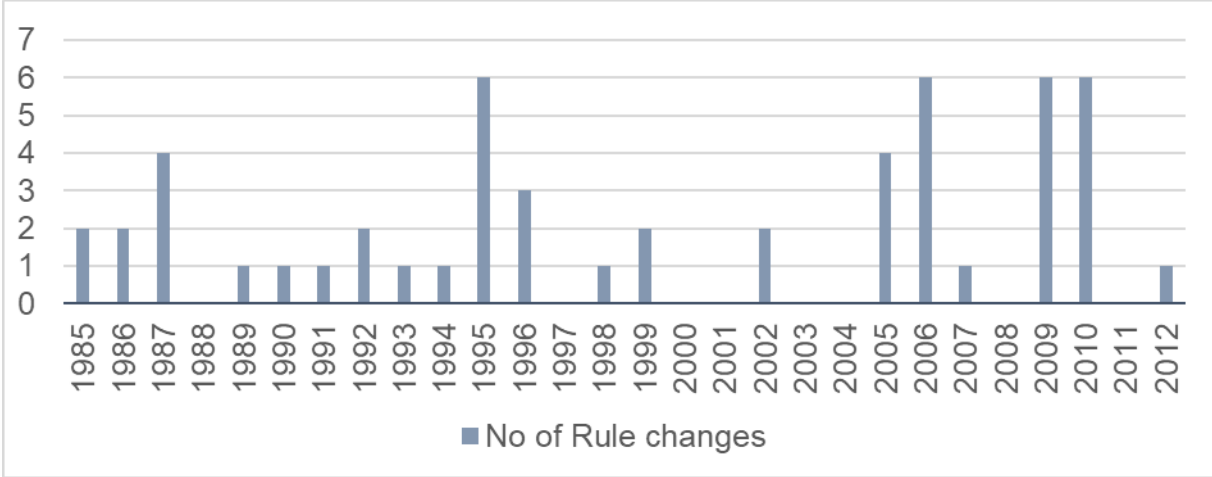


Fig. 6, Number of new Health & Safety regulations implemented by the league per season, 1985-2012

$$r_{\%OBPB,RuleChanges} = -0.9060$$

Safety Rule changes are very highly negatively correlated with the number of original ballot Pro Bowlers. More rules do not coincide with more Original Ballot Pro Bowlers participating. Health and safety rules do not seem to be an effective measure to raise the percentage of OBPB participating. On the contrary, the game as a whole is getting more and more regulated while demand from OBPB does not increase. With an increase in health and safety regulations the trend in OBPBs foregoing the event remains strong. This leads to a rejection of H5.

So, what about the risk of injury in the Pro Bowl itself? The lack of intensity due to the rules in the Pro Bowl have been part of the controversial discussion around the utility of the event.

The comparatively conservative regulations on athletic competition in the Pro Bowl (no blitzing, no motions or shifts, no kickoffs, onside kicks can be replaced by a 4th & 15, etc.) should lead to a situation where all players, even the ones with high opportunity cost/ a strong preference for safety are attending. Compensation for missed time due to injuries from the Pro Bowl is installed in the Collective Bargaining Agreements in an attempt to make this factor irrelevant to the players decision ($\tau = 0$; NFL Players Association, 1993, 2006). Yet, the incentive does not seem strong enough, esp. in light of the inefficacy of direct payouts to manipulate the percentage of OBPB. OBPB are especially sensitive to an increase in opportunity cost because they have higher cost to finishing their career early (Seifert, 2017). On the one hand, their athletic career stat line could suffer, which negatively affects opportunity costs and therefore the decision to participate. An injury in the Pro Bowl and losing out on regular season play time causes higher opportunity cost ($\tau C_{\text{Opportunity Costs}}$) to a superstar building his “legacy”, than to a 2-string player who might not be on a team next year. On the other hand, they have higher future monetary value assigned to their contracts, so irrespectively of their individual discount factors on these (τ), an effect on league-level would likely occur. The CBA regulations on paid compensation of Pro Bowl injuries has an economic effect on teams. By Art. 38 Sect. 4 of the 2020 NFLPA Collective Bargaining Agreement, a team employing an injured player in the following season is generally obligated to compensate him if he was to miss any regular season games (exceptions apply). Teams have an incentive to influence the decision of their players towards not attending. All revenue from the Pro Bowl is unrelated to the team’s earnings (media broadcasting, merchandise), yet they cover a large portion of the risk if the player is unable to play. The majority of the positive reputational effects for the team come from the player’s selection not his participation. Teams internalize this risk into the decision of the player by raising his opportunity cost of future unemployment.

The current regulations are not sufficient to cover a possible career influencing/ending injury, so the incentive to forego is strong. The lack of intensity cannot be addressed by alteration of the regulations without the expectation of further decline in superstar players. It is likely that the risk of injury in the Pro Bowl game influences players decision to attend or decline’, and teams preferences play a large part in that. The conservative rules in the Pro Bowl appear to be the only feasible way.

Date in the season

In the time from 1971-2009, when the Pro Bowl was played the weekend after the Super Bowl, the average (mean) percentage of Original Ballot Pro Bowlers attending was 91.75 per

cent (min= 72.73%, max= 100%, n=3610). After moving it before (2010 until now), this percentage increased to 73.78 per cent (min= 67.7%, max= 79.3%, n=1193). When considering decades (as in Fig. 6), the mean of percentages has constantly decreased in the SB era (1970s: 0.949; 1980s: 0.908; 1990s: 0.857; 2000s: 0.641) where the maximum followed with a lag. The minimum was lower in the 1980s (0.903) than in the 1970s (0.863). Since the 1990s, there has not been a single Pro Bowl where all OBPBs participated.



Fig. 6, Percentage of Original Ballot Pro Bowlers participating, by decade, 1971-2019.

$$r_{\%OBPB, PBbeforeSB} = -0.853$$

This is contrary to the development of the OBPB percentage considering the before/after numbers of the move. The date change earlier in the post-season prolongs the off-season, so the significant decrease in OBPB after the date change makes the validity of this argument doubtful (depending on a drastic change in the weighing factor τ , increasing opportunity costs in the cost function from a slightly shortened off-season). On further examination of the special sub-group of Super Bowlers in the Pro Bowl, contrary evidence shows. There is an intersection of Super Bowlers that are selected to the Pro Bowl. The overall number of Super Bowlers that get selected to the Pro Bowl decreases over the observed time frame (from max = 15 in 2012 to min = 6 in 2018). Pro Bowl voting concludes in (mid-)December, when the playoff chances of teams are largely established. Therefore, voters can adjust to the super

bowl chances of players by not voting for them if they are not able to attend in any case. This could well be suspected as the driver behind the negative trend of the absolute number of SBF. Hence, the hypothesis that the temporal proximity inherently causes cannibalizing effects between the All-star game and the championship game is valid. If the Pro Bowl is played after the Super Bowl, Super Bowlers could attend the Pro Bowl. If the other case is true, Super Bowlers will forego the Pro Bowl in favor of Super Bowl preparations. Fig. 7 shows the percentage of players that played in the Super Bowl and did not participate in the Pro Bowl (blue line, PctSBFG), and the percentage of players that did not make the Super Bowl and still did not participate in the Pro Bowl (red line, PctNonSBFG)¹⁵.

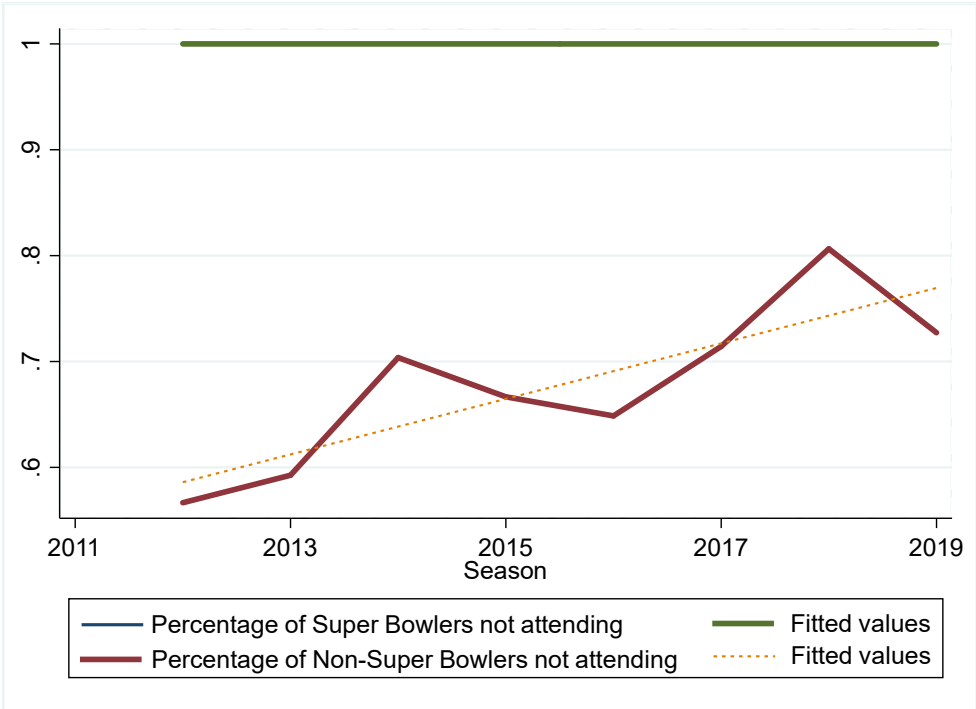


Fig. 7, Percentage of Super bowlers and non-Super bowlers foregoing the Pro Bowl, 2012-2019.

Note that the two lines are distinct, so there is a difference in the OBPB attendance rate between Super Bowlers and non-Super Bowlers. Consistently, all Super Bowlers are foregoing the Pro Bowl (100%), whereas a varying percentage of non-Super Bowlers not attending. The trend of Pro Bowlers that did not make the super bowl yet forego the event is positive in the observed time period. The date of the Pro Bowl did not move during this time. Therefore, the non-Super Bowlers are the driver behind the market-wide development. The cannibalizing effects between the two events are consistent over the observed time period, so it is most likely that the effect is not due to the date of the all-star game in relation to the final. The increase

¹⁵ Due to data restrictions, this analysis is done for the 2012 until the 2019 season.

in non-Superbowl foregoers (NOSBFG) relative to the number of Super Bowl foregoers might be explained by the preferences of players for 1-2 weeks more recovery in the off-season increasing in the last decade. This could be due to a more heterogeneous talent pool where the replacements are better substitutes today than they have ever been (e.g. more running back tandems used; Wong, 2009) and a marginally larger amount of recovery can bring over proportionally large increases in play time and player value to a team. All this leads to one conclusion: major factors in the athletes' decision are independent of the Pro Bowl date relative to the season. There was a negative trend in percentage before the decision to move the date, which was intensified by the move. The date relative to the Super Bowl is most likely not the determining factor. H6 is rejected.

4 Conclusions & Implications

The incentive structure of the Pro Bowl as it is, is broken, and must be changed if the league is pursuing a goal of higher demand from players. Overall, incentives for players to participate esp. demand-driving superstar players are weak. NFL regulations are not conducive to high participation. Therefore, the trend in behavior at league level is economically predictable. The league-wide market outcome seems consistent with the cost-benefit consideration proposed in the model. Low viewer demand is the logic consequence. Beyond the problem of low consumer demand, the league has an incentive to increase the percentage of OBPBs to decrease costs. A lower percentage of OBPBs participating increases the number of overall Pro Bowlers that receive payment. To make the game more successful, the following recommendations for revision of the incentive structure are drawn from the analysis.

For superstar players, the incentives from direct payouts are ineffective because they receive the benefit of the prize money at the small cost of being excused. For alternates, the prize money is an incentive as for them it is attached to participation. The detachment of the payouts from participation is crucial as it renders the direct monetary rewards ineffective for the outcome of player participation. The relative value of the direct payouts is only relevant to alternates. The objective decline in comparison to the general income level is weakening the incentive by increasing opportunity cost. Indirect monetary payouts from contractual premiums and bargaining power have divided effects. For superstar players the detachment of the selection/title of a Pro Bowler eliminates the incentive from bargaining power, that would otherwise be a strong incentive since it leads to large amounts of indirect payouts throughout the rest of a player's career. The bargaining power is very relevant for alternates, and positions where individual markers of performance are hard to measure (non-skill positions). The

combination of those two multiplies the strength of this incentive. The two groups differ majorly in their incentive structures and management needs to be aware of this situation when adjusting the incentives. The disconnect between the title and the participation is a major incentive to forego the event. The positive reputational effects of a Pro Bowl title could be tied to participation, not selection.

Contractual premiums likely do not affect OBPB percentage to a large extent. Incentives through contractual premiums are rare, esp. not for superstar players lacking them in their contracts. League management should negotiate with teams for a new CBA that includes obligations for contractual premiums if players attend the Pro Bowl. This would make for a much more efficient use of the money that is spent on direct payouts (prize money) right now. Fame is largely uncorrelated with the percentage of OBPB. There might be threshold effects to this factor of fame where, if viewership hits a certain height of numbers, its relevance might increase (Humphreys & Johnson, 2020). The effect of the declining prestige of the title is evident. Implications of this are that if the incentive for OBPBs to participate should be increased, the number of overall Pro Bowlers should be held as low as possible. This could be done by eliminating the incentive of the title being awarded to alternates while increasing the monetary incentive for them. This way the league can prevent title inflation while still guaranteeing the option of backfilling of all spots on the Pro Bowl roster. Concerning the date in the season, the development in Pro Bowlers behavior seems to be largely independent from the date/timing of the Super Bowl. Drawing from this analysis, the cannibalizing effects between the two games are small. Moving the date of the Pro Bowl to increase the number of OBPBs is not supported. However, a more drastic approach of moving it to mid-season could have a divergent impact on the economic incentives. This would exclude the second half of the season in the voting decision. For an empirical evaluation to this proposed solution, the NBA's mid-season All-Star game can provide insights.

The injuries in the season in general, and risk of injuries in the Pro Bowl seem to have a small effect. Also, the efficacy of adjusting them is doubtful, because likely they are just not a major consideration in the economic decision of players. The risk of injury in the season in general as well as in the all-star game might not be as substantial to this discussion as generally suspected. However, the teams have an incentive to influence the players decision negatively, which must be mitigated. This is the reason to strongly consider the teams when revising the incentive structure of the Pro Bowl. Financial incentives for teams that have the most participants could be implemented into the incentive structure so that coaches are not able to convince their players to forego when their injuries do not warrant such behavior (Schottey,

2013). For health concerns and private reasons, the option of declining an invitation should be available to players. Awarding them with the title and the prize money independent of their participation leads to the outcome that we observe over the last decade. Otherwise the league, media and community as a whole need to decrease the value that they assign to the Pro Bowl title. Teams valuing popularity of players in their price considerations cannot reasonably be excluded. After all, popularity is an important metric for the entertainment aspect of sports goods.

Further sports economic research should profit from the proposed factors in the discussion, and examine them empirically in greater detail to test the hypotheses that are explicitly expressed or implicitly implied in this analysis. The optimal time in the season to play an all-star game needs to be analyzed empirically.

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5 Appendix

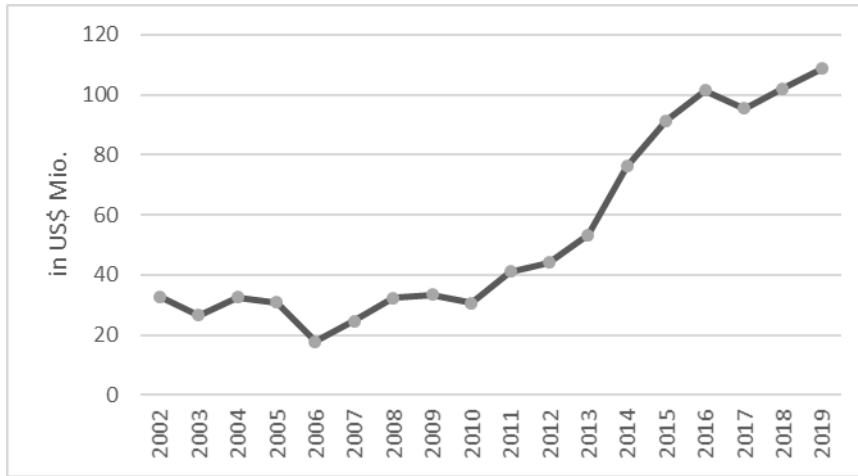


Fig. 8, Average operating income per franchise, 2002 to 2019 (Forbes.com, 2020)

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