THE NFL DRAFT: DOES OFF THE FIELD BEHAVIOR MATTER TO NFL TEAMS?

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Bradley Steven Dsida

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Bradley Steven Dsida

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Abstract

Crime is very prevalent among athletes of all sports at all levels, but it is seen especially often among football players, whether it be in high school, college, or the NFL. In the following study I determine the variables that have significance on where a college player gets drafted and how much that player gets paid in his rookie contract. In this study I used variables in order to forecast where a player will be drafted using a negative binomial count estimator. I then used this forecasted draft position in an OLS regression with the dependent variable of guaranteed money in a player's rookie contract. I found that there were some variables that showed up as significant in many of the regressions, however off the field issues of a player was not significant in the regression analysis.

KEYWORDS: (NFL Draft, NCAA Football, Crime)

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CHAPTER I

INTRODUCTION

The National Football League (NFL) is perhaps the most marketable and profitable professional sporting league in the entire world. For this reason, players in the NFL tend to be paid very well; total player cost in during the 2009-2010 season was 4.5 billion dollars.[1] With salaries that increase on a yearly basis for all players the NFL has been having an issue with the owners and players agreeing on a collective bargaining agreement because there is so much money at stake.

The increasing player salaries can be seen throughout the league but possibly no clearer than the NFL draft. The NFL and media places enormous importance on the draft, because of the excitement it provides to change the makeup and the future of teams. Each year the NFL draft is held in late April, however starting in August media outlets like ESPN talk about the draft and make predictions. As mentioned previously, the increase in player salary can be clearly illustrated by the increasing guaranteed money that the first overall pick receives. Table 1.1 shows how large the first picks contracts are over the last ten years.

[1] http://www.forbes.com/2010/08/25/most-valuable-nfl-teams-business-sports-football-valuations-10-intro.html

TABLE 1.1

Amount of Guaranteed Money for the Number One Overall Picks in the NFL Draft

First Overall Pick	Year	Guaranteed Money
Sam Bradford	2010	50 million dollars
Matthew Stafford	2009	41.7 million dollars
Jake Long	2008	30 million dollars
JaMarcus Russell	2007	29.2 million dollars
Mario Williams	2006	26.5 million dollars
Alex Smith	2005	24 million dollars
Eli Manning	2004	20 million dollars
Carson Palmer	2003	14 million dollars
David Carr	2002	14 million dollars
Michael Vick	2001	15 million dollars

SOURCE:
"Bradford's a Big Deal: Rams Give Rookie QB $50M guaranteed," NFL.com, July 30, 2010, available on http://www.nfl.com/news/story/09000d5d81969c4c/article/bradfords-a-big-deal-rams-give-rookie-qb-50m-guaranteed; Internet; accessed April 2011.

Players in the NFL as well as the NFL itself are seeing increases in money and marketability. These increases can be represented by the NFL's largest event, the Super Bowl. In 2011, the Super Bowl broke US TV ratings for the second year in a row, with an average of 111 million viewers on FOX.[2] Another well-known example of the NFL's marketability during the Super Bowl are the commercials and their prices. In 2011, a 30-second Super Bowl ad started at 3 million dollars.[3]

[2] "Super Bowl 2011 draws highest ever audience for US TV show," www.guardian.co, February 8, 2011, available on http://www.guardian.co.uk/media/2011/feb/08/super-bowl-highest-ever-audience; Internet; accessed April 2011.

[3] "Super Bowl ad: Is $3 million worth it?" www.money.cnn.com, February 3, 2011, available on http://money.cnn.com/2011/02/03/news/companies/super_bowl_ads/index.htm; Internet; accessed April 2011.

With the NFL's popularity being so high in the United States many children look up to players with admiration. These NFL players are seen as role models in our country, to the chagrin of many parents. However, it seems that each new day brings a new story of an NFL player breaking the law. Despite all the illicit actions of these professional football players it seems that NFL teams don't care enough to make a change. The question then turns to the next generation of football players, is this next generation of college football players going to be better role models? The answer to this question seems to be a resounding "no." Table 1.2 illustrates the number of players on teams that were ranked in the top 25 with criminal records.

TABLE 1.2

NUMBER OF PLAYERS ON PRESEASON TOP 25 TEAMS WITH CRIMINAL RECORDS

School	Players Charged	SI Preseason Rank
Pittsburgh	22	16
Iowa	18	6
Arkansas	18	23
Boise State	16	3
Penn State	16	19
Virginia Tech	13	10
Wisconsin	9	11
Oklahoma	9	12
Florida State	9	25
Miami	8	15
Ohio State	7	2
Florida	7	7
Oregon	7	8
USC	7	17
Alabama	5	1
North Carolina	5	13
Cincinnati	5	18
Utah	5	22
Nebraska	4	9
Georgia Tech	4	14
Oregon State	4	20

LSU	3	21

TABLE 1.2 CONTINUED

Texas	2	4
Stanford	1	24
TCU	0	5

SOURCE:
"Criminal Records in College Football," Sports Illustrated, March 7, 2011.

The problems that the NFL faces with player misconduct off the field are seen in college football as well. The question that college coaches and NFL teams encounter is whether to recruit or draft a player who could potentially help the football team win if he is a problem off the field. It seems increasingly often that coaches and team choose to win rather then choose players who are of slightly less talent and less risk of bad off the field issues. The team in the table above with the most players with criminal records is Pittsburgh. According to a study done by Sports Illustrated and CBS News 22 players on the Pittsburgh roster had criminal records.[4] Of Pittsburgh's scholarship athletes, 20 players (23.5%) had criminal records.[5] The complete study performed background checks on 2,837 players and found that 204 of those players had criminal records, with 38 percent being for drugs or alcohol and 20 percent being violent crimes.[6] There clearly is a problem in college football with players having off the field misconduct.

[4] "Criminal Records in College Football," Sports Illustrated, March 7, 2011.

[5] Ibid.

[6] Ibid.

With off the field issues being so prominent in both the NFL and NCAA the question becomes do teams care if a player is a problem off the field. This is the question that I hope to answer in the following study. I intend to look at the NFL draft as way of determining whether football teams care if a player has a criminal history.

The rest of this paper will be organized in the following way: Chapter two will examine the relevant literature with respect to the NFL Draft, player salary, and criminal records. Chapter three will look at the economic theory that is behind this study, based on Marginal Revenue Product of Labor (MRP_L) and how it relates to football. Chapter four will explain the empirical model along with the data used in this paper. The fifth and final chapter I will discuss the results from the model and the conclusions that can be drawn from this study as well as areas for possible future related research.

CHAPTER II

LITERATURE REVIEW

The purpose of this chapter is to examine the previous research and literature on amateur drafts in sports, eventually concentrating on the National Football League (NFL) draft, crime in the general population, and crime with a focus on athletes and the NFL. The first section of this chapter will focus on relevant literature on sports' amateur drafts. The following section will discuss discrimination in the NFL. The third section will explore the available literature on crime and its effect on employment. The final section of the chapter will survey the literature on athletes and crime.

Amateur Drafts in Sports

A significant amount of the literature about sports' amateur drafts is related to the ability to find talent, the value of a prospect, and the returns seen in the career of an athlete. First, I will examine the amateur draft literature in Major League Baseball (MLB), next I will discuss the literature on the National Hockey Leagues' (NHL) amateur draft, and finally I will focus on the National Football Leagues (NFL) amateur draft.

Major League Baseball's Amateur Draft

In Major League Baseball (MLB) the draft was established in 1964 and took effect in 1965.[7] Stephen J. Spurr provided an analysis of the baseball draft with the objective to determine if teams had the ability to find and recognize talent of the high school and college players eligible for the draft. In MLB there is an extensive minor league system, so many prospects that are drafted never make it to the major leagues. Spurr, therefore, defines success by an athlete that makes it to the major leagues. The variables that he looked at in determining whether a player reaches the majors were draft position, schooling level, position, and team drafted by. He looked at data on players drafted from 1966 to 1968 and 1983; this includes 2,708 players, of which 274 reached the major leagues. Spurr found that there was no team that had a statistically significant ability in finding talent in the baseball draft.[8] Second, he predicted, based on the draft position, which he found to be significant, the probability of a player reaching the majors. He found that the predicted probability of the first draft pick reaching the majors to be .444, whereas the predicted probability of the every pick after 250 is less then .099.[9] Spurr also found that if all other variables were held constant, a player in college would have a better probability of reaching the majors, especially if that player went to an elite college program.[10] However, the college and elite college variables were significant in

[7] Stephen J. Spurr, "The Baseball Draft: A Study of the Ability to Find Talent" *Journal of Sports Economics*, Vol. 1, no. 1 (February 2000): 66-85.

[8] Ibid.

[9] Ibid.

[10] Ibid.

1966 through 1968 but in the 1983 data those variables became largely insignificant. This shows that for a significant period of time, at least the three years of 1966 through 1968 and possibly more, baseball teams failed to recognize the true ability of prospects in college and elite college programs.[11]

John D. Burger and Stephen J. K. Walters attempted to quantify the returns to teams in baseball's amateur draft. According to Burger and Walters, the probability of a first-round selection achieving "Star" quality is 4.3%, "Good" quality is 8.3%, and "Regular" quality is 14.0%.[12] These qualities are based on players' marginal products, which is a player's marginal contribution of wins to his team. Burger and Walters go on to estimate the marginal value of a win to a team's revenue, with which they can estimate a player's marginal revenue product. According the authors, a "Star" player with a marginal product of eight wins contributes roughly 9.2 million dollars per year in marginal revenue to his team.[13] Burger and Walters found that teams from 1990 to 1997 overvalued high school players relative to college players, as well as pitchers relative to position players.[14] They also observed that smaller market teams fail to exercise their monopsony power as well as large market teams.[15]

Both of the previous articles have touched on the topic of high school players' and college players' value, Jason A. Winfree and Christopher J. Molitor looked at the value of college to a high school baseball player. The authors examined the lifetime earnings of

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[11] Ibid.

[12] John D. Burger and Stephen J. K. Walters, "Uncertain Prospects: Rates of Return in the Baseball Draft" *Journal of Sports Economics*, Vol. 10, no. 5 (October 2009): 485-510.

[13] Ibid.

[14] Ibid.

[15] Ibid.

a baseball player and inspected the decision to go to the major leagues or to go to college. The findings of Winfree and Molitor are that players who are drafted in the early rounds will maximize their earnings if they skip college to play professional baseball immediately out of high school.[16]. However, high school players drafted in later rounds will maximize their lifetime earnings by going to college after high school.[17] Expected earnings of a high school player drafted in the first round if they decide to go to play professionally is 7.37 million dollars whereas if they enter college their expected earnings are 3.53 million dollars. A high school player drafted in the 25th round has a lifetime expected earnings of 868,938 dollars if he enters the majors directly after high school, however has a expected lifetime earnings of 1.31 million dollars if he goes to college after high school.[18]

National Hockey League's Amateur Draft

Don Dawson and Lonnie Magee examined statistics of National Hockey League (NHL) players selected in the draft to predict performance. Dawson and Magee define how well a player performs by using career games played and they also examined how well NHL teams draft. They found that expected games played declines steeply in early rounds and become flatter later in the draft.[19] The authors also found that Buffalo,

[16] Jason A. Winfree and Christopher J. Molitor, "The Value of College: Drafted High School Baseball Players" *Journal of Sports Economics*, Vol. 8, no. 4 (August 2008): 378-393.

[17] Ibid.

[18] Ibid.

[19] Don Dawson and Lonnie Magee, "The National Hockey League Entry Draft, 1969-1995: An Application of a Weighted Pool-Adjacent-Violators Algorithm" *The American Statistician*, Vol. 55, no. 3 (August 2001): 194-199.

Quebec/Colorado, Winnipeg/Phoenix, and the New York Rangers have draft particularly well, whereas Minnesota/Dallas has not drafted well.[20]

John J. Durocher, Angela J. Guisfredi, Darin T. Leetun, and Jason R. Carter compared on-ice and off-ice exercise testing in college hockey players. Similar to the NFL combine the NHL also has a combine to test athletes before the draft. The authors of this article look at test such as VO2 max and lactate threshold and compare college hockey players results in the combine, which is done by cycle ergometer tests, to on-ice testing conditions. They found that VO2 max was higher on-ice testing than off-ice testing, also that on-ice VO2 max is not correlated with off-ice VO2 max.[21]

Jamie F. Burr, Veronica K. Jamnik, Shilpa Dogra, and Norman Gledhill looked at leg power in relation to where a hockey player was drafted. The authors looked at what test is most accurate in assessing leg power and if leg power has any correlation with draft position. They find that a simple jumping test accounts for 25% of the variation in predicting a player's draft position.[22]

National Football League's (NFL) Amateur Draft

Wallace Hendricks, Lawrence DeBrock, and Roger Koenker examined the uncertainty of hiring and productivity, using the NFL as a case study. The authors used the NFL draft and focused on how much a player plays, how well they play, and how

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[20] Ibid.

[21] John J. Durocher, Angela J. Guisfredi, Darin T. Leetun, and Jason R. Carter, "Comparison of on-ice and off-ice graded exercise testing in collegiate hockey players" *Applied Physiology, Nutrition & Metabolisim* (2010): 35-39

[22] Jamie F. Burr, Veronica K. Jamnik, Shilpa Dogra, and Norman Gledhill, "Evaluation of Jump Protocols to Assess Leg Power and Predict Hockey Playing Potential" *Journal of Strength and Conditioning Research* (2007): 1139-1145

much they get paid based on round drafted, college program, race, and other variables. The most illuminating finding of this paper is that players from lesser-known college programs tend to have better careers based on the round they are drafted in.[23] The authors state, "When teams are choosing between two star athletes at the top of the draft, they seem to act in a risk adverse manner and select the athlete from the more visible football program. In the last rounds of the draft, the reverse appears to be true."[24]

Bryan L. Boulier, H.O. Stekler, Jason Coburn, and Timothy Rankins attempted to answer if NFL owners and teams can predict which quarterbacks and wide receivers will be successful in the NFL. They found that football executives were able to forecast the productivity of quarterbacks and wide receivers to a degree.[25] The authors found that a quarterback drafted in the first round will have a 80 percent chance of playing in the NFL for 5 years, as opposed to a quarterback drafted in the sixth round having a 23 percent chance of surviving in the league for 5 years.[26] However, teams that were able to predict more successful quarterbacks and wide receivers did not have more on the field success over the years of the study, as measured by winning percentage.[27]

Similarly, Kevin G. Quinn, Melissa Geier, and Anne Berkovitz looked at the productivity of quarterbacks chosen in the draft from the year 1999 through 2004. Over this time 70 quarterbacks were drafted, and the paper analyzes college, college career,

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[23] Wallace Hendricks, Lawrence DeBrock, and Roger Koenker, "Uncertainty, Hiring, Subsequent Performance: The NFL Draft" *Journal of Labor Economics*, Vol. 21, no. 4 (2003): 857-886.

[24] Ibid.

[25] Bryan L. Boulier, H.O. Stekler, Jason Coburn, and Timothy Rankins, "Evaluating National Football League Draft Choices: The Passing Game" *International Journal of Forecasting* (2010): 589-605.

[26] Ibid.

[27] Ibid.

NFL combine as a function of draft outcomes, as well as a function of productivity, measured by games played, games started, pass attempts, Pro Bowls made and passer rating. They found that the quarterbacks drafted tended to be taller, heavier, have more pass attempts in college, and come from more recognized college programs then the quarterbacks that weren't drafted.[28] The authors also found that prospects from more highly ranked and well-known college programs actually show a lower average NFL passer productivity.[29]

Jeffrey S. Everson and Paul M. Sommers attempted to answer the question, are first round NFL draft picks better than second round picks? Unsurprisingly, the authors found that first round picks outperformed second round picks, most of the time.[30] They use "Approximate Value" in order to assess a players value; this measurement is based on statistics that contribute to wins. According to Everson and Sommers first round picks don't improve any faster then second round picks.[31] They found that since first-round picks have larger contracts the cost per point of "Approximate Value" is about the same for first round picks and second round picks.[32]

An important part of the NFL draft process is the NFL combine, at the combine players go through a series of physical and intelligence tests. The most well-known general mental ability (GMA) test is the Wonderlic Personnel Test. Brian D. Lyons,

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[28] Kevin G. Quinn, Melissa Geier, and Anne Berkovitz, "Passing on Success? Productivity Outcomes for Quarterbacks Chosen in the 1999-2004 National Football League Player Entry Drafts" *IASE/NAASE Working Paper Series*, Paper No. 07-11.

[29]Ibid.

[30] Jeffrey S. Everson and Paul M. Sommers, "Are First-round NFL Draft Picks Better Than Second-round Picks?" *Middlebury College Economics Discussion* Paper No. 10-31.

[31] Ibid.

[32] Ibid.

Brian J. Hoffman, and John. W Michel looked at whether the Wonderlic Personnel Test affects NFL performance. Their sample includes 762 NFL players, which represents three years of the NFL draft. The authors found that the Wonderlic Personnel Test had no correlation to future NFL performance and was unrelated to draft selection in the NFL draft.[33]

Discrimination in the NFL Draft

A paper by Michael Conlin and Patrick M. Emerson concerns the NFL draft and discrimination in the hiring stage (ie the draft) and how it differs from the discrimination in retention and promotion (ie having an active contract and playing time). The approach taken by the authors was to have active contracts and playing time as functions of draft position, team, draft year, college division, team wins in the previous season, and race. They find that after controlling for the other variables white players have a 0.13 lower probability of having an active contract and start 1.56 less games than non-white players.[34] This is evidence that NFL owners discriminate against non-white players, because it shows that given a draft position an NFL owner will take a white player of less talent compared to a non-white player with more talent.

Mikaela J. Dufur and Seth L. Feinberg look at race in the NFL draft. Their paper suggests that there is potentially discrimination in the NFL draft. They find that "minority

[33] Brian D. Lyons, Brian J. Hoffman, and John. W Michel, "Not Much More Than g? An Examination of the Impact of Intelligence on NFL Performance" *Human Performance* (2009): 225-244.

[34] Michael Conlin and Patrick M. Emerson, "Discrimination in Hiring Versus Retention and Promotion: An Empirical Analysis of Within-Firm Treatment of Players in the NFL" *The Journal of Law, Economics, & Organization*, Vol. 22, no. 1 (2005): 115-136.

athletes were subject to greater scrutiny concerning their backgrounds and families."[35] One athlete said that they asked him about his uncle who had been in jail because of drug use and they asked him how much they talked and when he was getting out if they would see each other often.[36]

Matthew Bigler and Judson L. Jeffries looked at NFL draft experts evaluation of black quarterbacks and white quarterbacks. The findings of this paper are that when it comes to black quarterbacks they face unfair and stereotypical evaluations.[37] Black quarterbacks tend to be described as physical specimens without the mental capabilities to play quarterback at the professional level, whereas white players are often described as mentally strong and NFL ready.[38] NFL draft experts described black quarterbacks athleticism as a positive attribute 63 percent of the time whereas they described white quarterbacks athleticism as a positive attribute 29 percent of the time.[39] Whereas black quarterbacks intelligence and decision-making was described as a positive attribute just 24 percent, compared to white quarterbacks being described positively as intelligent 38 percent of the time.[40]

Similar to Bigler and Jeffries, Eugenio Mercurio and Vincent F. Filak looked at descriptions of black and white quarterbacks in major sports publications leading up to

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[35] Mikaela J. Dufur and Seth L. Feinberg, "Race and the NFL Draft: Views from the Auction Block" *Qualitative Sociology*, Vol. 32, no. 1 (March 2009): 53-57.

[36] Ibid.

[37] Matthew Bigler and Judson L. Jeffries, "An Amazing Specimen': NFL Draft Experts' Evaluations of Black Quarterbacks" *Journal of African American Studies*, Vol. 12, no. 2 (June 2008): 120-141.

[38] Ibid.

[39] Ibid.

[40] Ibid.

the draft. Their sample included 4,745 attributions that were given to 231 total quarterbacks. They found that black quarterbacks averaged 19.86 attributions, whereas white quarterbacks averaged 20.78 attributions.[41] Mercurio and Filak discovered that black players received on average 9.20 positive physical, 3.83 negative physical, 3.61 positive mental, and 3.21 negative mental attributions.[42] Compared to white quarterbacks that received on average 7.76 positive physical, 4.74 negative physical, 6.35 positive mental, and 2.01 negative mental attributions.[43] These results clearly agree with the findings of Bigler and Jeffries that black quarterbacks are described as physically gifted but don't have the mental abilities to play at the professional level and that white quarterbacks are intelligent and NFL ready.

Crime and Future Employment of Criminals

When looking at the literature on the economics of crime a good starting place is Gary S. Becker's paper "Crime and Punishment: An Economic Approach." One of the goals of Becker's paper is to use economics in order to develop optimal public and private policies to combat crime. Gary Becker started by examining the cost of crime, which in the United States in 1965 was almost 21 billion dollars according to the President's Commission on Law Enforcement and Administration of Justice.[44] In

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[41] Eugenio Mercurio and Vincent F. Filak, "Roughing the Passer: The Framing of Black and White Quarterbacks Prior to the NFL Draft." *The Howard Journal of Communications*, Vol. 21, no. 1 (2010): 56-71.

[42] Ibid.

[43] Ibid.

[44] Gary S. Becker, "Crime and Punishment: An Economic Approach" *Journal of Political Economy*, Vol. 76 (1968): 169-217.

Becker's model he split cost into five categories of relationships: the number of offenses and the cost of offenses, the number of crimes and the number of punishments, the number of offenses and the public expenditures, and the number of offenses and the private expenditures.[45]

Devah Pager looked at the consequences of incarceration on black and white job seekers. In the three decades leading up to the millennium the number of prisoners in the United States grew by more then 600% and the US had the highest incarceration rate in the world.[46] Pager found that the effect of a criminal record for whites was that those applicants without a criminal record 34 percent got called back, whereas only 17 percent with a criminal record got called back.[47] The effects on black job applicants was even more extreme, only 15 percent got called back for blacks without a criminal record, and a miniscule 5 percent of black applicants with a criminal record got called back.[48] Pager's study shows that there is a large effect of a criminal record and there is also a large effect of race on employment opportunities.

Jeffrey Grogger attempted to estimate the effect of arrests on employment and earnings on those individuals arrested. According to the National Longitudinal Survey of Youth, men who had been arrested before 1980 had average annual earnings of 7047 dollars (in $1980) and those who had no record had average annual earnings of 8083

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[45] Ibid.

[46] Devah Pager, "The Mark of a Criminal Record" *American Journal of Sociology*, Vol. 108, no. 5 (March 2003): 937-975.

[47] Ibid.

[48] Ibid.

dollars.[49] The conclusion that Grogger came to was that the effect of arrests on employment and earnings are moderate but short-lived.[50] He also found that jail terms also have a relatively short-lasting effect on employment and earnings.[51]

Daniel Nagin and Joel Waldfogel studied the impact of a criminal conviction on income and employment over the lifetime of the convict. Interestingly enough the authors found that the effect of a conviction on lifetime income depends on the convict's age.[52] First time convictions for young convicts raise their lifetime income, but for older convicts it reduces their lifetime income.[53] The authors attempted to explain this phenomenon through assuming "that first time conviction moves workers off of career income profiles to less steeply sloped spot market profiles."[54] According to the sample taken by Nagin and Waldfogel the effect of larceny conviction on income for offenders under the age of 25 income increases by 3.6 percent, whereas for offenders over the age of 59 income decreases by 24.7 percent.[55]

Jeffrey Kling looked at the effect of incarceration length on employment and earnings. Kling used data from the Florida state system and the California federal system. Kling found that in the short term a longer sentence, all else held constant, is associated

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[49] Jeffrey Grogger, "The Effect of Arrest on the Employment and Earnings of Young Men" *The Quarterly Journal of Economics* (February 1995): 51-71.

[50] Ibid.

[51] Ibid.

[52] Daniel Nagin and Joel Waldfogel, "The Effect of Conviction on Income Through the Life Cycle" *International Review of Law and Economics* (1998): 25-40.

[53] Ibid.

[54] Ibid.

[55] Ibid.

with positive labor market outcomes; he concludes that this could possibly be because of the characteristics of the offenders and the conditions of the corrections environment.[56] He also found that in the medium term the length of incarceration had no negative effect on employment.[57]

Ann Dryden Witte used a sample of men imprisoned in 1969 and 1971 in a region of North Carolina to examine earnings and jobs of former prisoners. Witte found that the former prisoners worked mostly in low-skill and low-wage jobs.[58] The author concluded that the income of the ex-prisoners started low and rose sharply during the first year then slowed the second year and tapered off the third year after release; after the third year the former prisoners earned 70 percent of the average income for adult men.[59]

Crime, Athletes, and the NFL

Anthony Stair, April Day, Daniel Mizak, and John Neral wrote a paper that examined the factors that affect team performance in the NFL, specifically focusing on if off field conduct matters. The authors used regular season data in the NFL from 2003 to 2007. Along with looking at how many times players were arrested, they also took into account variable like quarterback rating, rushing yards a game, field goal percentage, and opponent passing yards. They found that the most important variable was quarterback rating, which had a elasticity of .70, meaning that a one percent increase in quarterback

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[56] Jeffrey Kling, "Incarceration Length, Employment, and Earnings" *The American Economic Review* (June 2006): 863-876.

[57] Ibid.

[58] Ann Dryden Witte, "Earnings and jobs of ex-offenders: a case study" *Monthly Labor Review* (December 1976): 31-39.

[59] Ibid.

rating causes a .70 percent increase in team wins.[60] Along with this finding the authors concluded that number of arrests was not significantly correlated with number of team wins.[61]

Steve B. Chandler, Dewayne J. Johnson, and Pamela S. Carroll examined if college athletes were more likely to partake in abusive behaviors off the field. Their study used a 40-item questionnaire that was completely voluntarily by 342 college students at Southeastern University. The authors found that there was a higher rate of physical abuse of the same sex for athletes then for non-athletes.[62] They also found that athletes reported being more sexual active and that athletes were more likely to have forced sex, 7 percent, as opposed to non-athletes, 2 percent.[63]

Raul Caruso looked at the question of what is the impact of sports participation on society? Caruso did the study to see if there was a relationship between sports participation and crime. He used data from the Italian National Statistically Office from 1997 to 2003, because he is examining the relationship in Italy. Caruso has three main conclusions regarding participation in sports and crime. He found that there is a negative correlation between sports participation and property crime, along with a negative

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[60] Anthony Stair, April Day, Daniel Mizak, and John Neral, "The factors affecting team performance in the NFL: does off-field conduct matter?" *Economics Bulletin*, Vol. 26, no. 2 (2008): 1-9.

[61] Ibid.

[62] Steve B. Chandler, Dewayne J. Johnson, and Pamela S. Carroll, "Abusive Behaviors of College Athletes" *College Student Journal*, Vol. 33 (1999): 1-10.

[63] Ibid.

correlation between sports participation and juvenile crime.[64] However, Caruso found that there is a positive correlation between sports participation and violent crime.[65]

Todd W. Crosset, James Ptacek, Mark A. McDonald, and Jeffrey R. Benedict wrote a paper concerning male student athletes' treatment of women. The authors used data from Division I institutions over a 3-year period from 1991 through 1993. They found that male student athletes represented just 3 percent of the male populations yet were responsible for 35 percent of the domestic violence reported.[66] Another discovery of the authors was that male student athletes committed 19 percent of sexual assaults despite being just 3 percent of the population.[67]

Jeffrey Benedict and Alan Klein examined the arrest and conviction rates for student athletes that were accused of sexual assault. They compiled a data set of 217 felony complaints that were attributed to professional or collegiate athletes from 1986 to 1995. The authors found that of the 217, 172 were arrested or charged, and of the 172 athletes only 53, or 31 percent, were convicted.[68] They compared their findings to the national statistics on the conviction rates for rape in 1990. Police arrested a significantly lower percent of the general population just 32 percent of the rapes reported in 1990, compared to the arrest rate of athletes from 1986 to 1995, which was 79 percent.[69]

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[64] Raul Caruso, "Crime and Sports Participation in Italy: Evidence from Panel Data Regional Analysis over the Period 1997-2003" *IASE/NAASE Working Paper Series*, Paper No. 09-04.

[65] Ibid.

[66] Todd W. Crosset, James Ptacek, Mark A. McDonald, and Jeffrey R. Benedict, "Male Student-Athletes and Violence Against Women" *Violence Against Women*, Vol. 2, no. 2 (June 1996): 163-179.

[67] Ibid.

[68] Jeffrey Benedict and Alan Klein, "Arrest and Conviction Rates for Athletes Accused of Sexual Assault" *Sociology of Sport Journal* (1997): 86-94.

[69] Ibid.

However, when looking at the percent of athletes convicted, 31 percent, it is significantly lower then the rate for the general population, 54 percent.[70]

David Smith and Sally Stewart did a study that investigated the relationship between sexually aggressive attitudes and tendencies and non-athletes, contact sport athletes, and non-contact sport athletes. The authors distributed 350 questionnaires to men at a large university, 298 were returned. The results showed that men who are more competitive and win-oriented reported being more sexually aggressive.[71] An interesting finding of the paper was that contact sport athletes were no more likely to be more sexually aggressive or support sexually aggressive thoughts and tendencies then non-contact sport athletes or non-athletes.[72]

Similar to the previously mentioned studies, Sandra L. Caron, William A. Halteman, and Cheri Stacy asked the question if there is a connection between athletes and rape. The authors sent out surveys to 100 randomly selected male athletes and 100 random non-athletes at a University, 104 surveys were returned. They found that athletic participation was highly correlated with competitiveness, win orientation, and goal orientation.[73] They also found high correlation between competitiveness and win

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[70] Ibid.

[71] Dave Smith and Sally Stewart, "Sexual Aggression and Sports Participation" *Journal of Sport Behavior*, Vol. 26, no. 4 (2003): 384-395.

[72] Ibid.

[73] Sandra L. Caron, William A. Halteman, and Cheri Stacy, "Athletes and Rape: Is There a Connection?" *Perceptual and Motor Skills* (1997): 1379-1393.

orientation with hostility towards women and the sexual experience survey, which measures sexual aggression.[74]

Timothy Jon Curry investigates the type of bonding and talking that goes on inside of an athletic locker room. Curry went about this by getting approval to record conversations that went on in the locker room. Curry concludes that, "sexist locker room talk is likely to have a cumulative negative effect on young men because it reinforces the notions of masculine privilege and hegemony, making that world view seem normal and typical."[75]

Conclusion

This chapter has summarized relevant research as it pertains to this paper. I reviewed research on the amateur draft in sports, discrimination in the NFL, crime and crime in sports. This chapter serves as a baseline of this study and the direction in which it will go. The next chapter discusses the economic theory related to this study.

[74] Ibid.

[75] Timothy Jon Curry, "Fraternal Bonding in the Locker Room: A Profeminist Analysis of Talk About Competition and Women" *Sociology of Sport Journal* (1991): 119-135.

CHAPTER III

THEORY

The purpose of this chapter will be to discuss the relevant theory and how it is applied to the NFL more specifically the NFL draft. The first section of this chapter will look at the basic economic theories of profit maximization as well as the labor market. The second section will focus on examining how the theory can be tuned to fit the NFL draft.

Profit Maximization

Each individual NFL team can be viewed as an individual firm and depending on the goals of the team it is trying to maximize profits, and to some extent wins. Lets assume that an NFL team trying to win has the ultimate goal of profit maximization, because if a team is winning more fans will attend the games, which in turn means more profit for the teams.

In the following theory there needs to be a key assumption that needs to be examined. Although many would consider NFL teams Monopsonys for the following model we must take a closer look at this, however this fact ignores that the players have bargaining power. In the NFL draft there are many players who hold out and have significant bargaining power in the process. The following model represents the fact that players have bargaining power.

Looking at the definition of profit as the difference between total revenue and total cost we see that a firms profit, π, can be seen equation 3.1.

$$\pi = TR - TC \tag{3.1}$$

Where π is profit, TR is total revenue, and TC is total cost. Breaking total revenue and total cost down we find that there are more specific equations for both total cost and total revenue. Total revenue can be represented in the following equation 3.2.

$$TR = P * Q \tag{3.2}$$

In this equation P is the price of the output of a firm and Q is the quantity of the output sold. Relating to the NFL, total revenue is generate from four main sources: ticket sales, local and national broadcasting rights, licensing income, and other stadium related revenues (i.e. luxury boxes, concessions, stadium naming rights).[76] Similarly total cost can also be shown broken down farther into equation 3.3 show below.

$$TC = wL + rK \tag{3.3}$$

In equation 3.3, L is equal to the units of labor, K is equal to the units of capital, *w* represents the wages earned by each unit of labor, and *r* represents the amount of rent for each unit of capital. In terms of total cost and its relation to the NFL the most important variable is *w*, which is the players' salaries. The salaries are determined by many different variables, especially those players' who are in the NFL draft, the next chapter will look into the variables more in depth. The later sections of this chapter will discuss the total cost of off the field issues of players as well as the risk of drafting players with criminal histories.

[76] Leeds, Michael A. and von Allmen, Peter. *The Economics of Sports.* Boston, Massachusetts: Pearson Education, Inc, 2008.

Marginal Revenue Product of Labor

The marginal revenue product of labor (MRP_L) is important to any firm that is trying to profit maximize. MRP_L is the additional revenue generated by each additional unit of labor. The marginal revenue product of labor is the marginal revenue (MR) multiplied by the marginal product of labor (MP_L) and can be seen represented in equation 3.4.

$$MRP_L = MR * MP_L \tag{3.4}$$

Marginal revenue is the increase in revenue due to a change in the units of output. Marginal product of labor is the increase in out put due to an additional unit of labor. When looking at this through the lens of the NFL, the marginal product of labor is the increase in revenue or sales due to the addition of a player.

Now let's look at Marginal Revenue Product of Labor and how it relates to profit maximization. Dissecting equation 3.2 further we can see that quantity is a function of labor and capital and that price is a function of quantity, therefore we get the following equations:

$$Q = f(L,K) \tag{3.5}$$

and

$$P = P(Q) \tag{3.6}$$

These two equations can then be substituted into the profit maximization equation in place of total revenue and the total cost can also be inserted into this equation (equation 3.1). The profit maximization equation now looks like this:

$$\pi = P(Q) * f(L,K) - wL - rK \tag{3.7}$$

Now deriving the profit maximization equation (3.7) with respect to L and setting this first order condition to zero, the result we get is equation (3.8).

$$\frac{\delta\pi}{\delta L} = P(Q) * \frac{\delta f(L,K)}{\delta L} + Q * \frac{\delta P}{\delta f(L,K)} * \frac{\delta f(L,K)}{\delta L} - w = 0 \tag{3.8}$$

Rearranging the equation (3.8) above we can see that the profit maximization equation is the following.

$$\frac{\delta\pi}{\delta L} = (P + Q * \frac{\delta P}{\delta Q}) * \frac{\delta f(L,K)}{\delta L} = w \tag{3.9}$$

Now using the definition of Marginal Revenue Product of Labor we see that this equation is the same as,

$$MRP_L = (P + Q * \frac{\delta P}{\delta Q}) * \frac{\delta f(L,K)}{\delta L} = w \tag{3.10}$$

So we see that from this equation (3.10) Marginal Revenue Product of Labor is equal to wage. This makes sense from a logic standpoint as well. Each additional unit of labor will bring in a certain amount of revenue and that should be the wage received in order to maximize profit.

Marginal Revenue as Applied to the NFL Draft

When looking at the Marginal Revenue as it applies to the NFL and the NFL draft there are a few things that we must consider. When looking at the NFL although the game is the product, players are necessary parts of the game and player marketability is very important. The fans perception of players as good role models or as negative impacts can have an effect on if they buy tickets or watch the games. Fans obviously are going to watch more NFL games if they like the players more.

There are many variables that effect how much a player gets paid in the NFL; most of these variables are based on previous performance. The challenge of this study is that when looking at the NFL draft the players have no previous experience in the NFL, so teams don't truly know the ability of a player. The risk and reward nature of the NFL draft is why it is so highly publicized, each NFL has to gamble on players that they think will turn out to be good pros. There are many examples of highly drafted players becoming stars like John Elway. There are many examples of highly drafted players playing very poorly or very little in the NFL, like Ryan Leaf. And there are also a fair number of players that are drafted low but become stars, like Tom Brady. This is part of the excitement of the draft. However, the unknown changes how much teams are willing to pay players, so in the NFL draft the most highly drafted players are the ones that are seen as having more potential to become great, thus they get paid the most money.

Another aspect of the NFL draft as well as the NFL itself is off the field misconduct. It seems as though every day a superstar makes a poor decision off the field that effects how people view him. The fact that NFL players often commit crimes makes their Marginal Revenue Product of Labor decrease as well as makes them more of a risk because they could miss football games, which further decreases their MRP_L. An example of this would be Michael Vick, who was a highly talented quarterback for the Atlanta Falcons, however got arrested and incarcerated because of dog fighting. Not only did he miss many games due to his incarceration, but also his public image took an enormous hit so people are less likely to pay to see Michael Vick play. Despite many players have off the field issues there are many players who participate in different types

of service and commercials and are players that are very popular, like Payton Manning. This contributes positively to a team's revenue.

As mentioned above the NFL draft has many unknowns. However, the information that teams do have is based on their collegiate careers. College players have statistics, film, and combine results teams can base how well their skills will translate to the NFL. NFL teams also can see based on interviews and their college career how well liked the player is and if they have been convicted of a crime or NCAA violation.

The aforementioned facts change the profit maximization and Marginal Revenue Product of Labor. The profit maximization changes because players can have a positive or negative effect on the Total Cost, so the equation looks like this.

$$TC = wL + rK + bL \tag{3.11}$$

In this equation the symbols are the same with the addition of *b*, which represents the positive, and negative off the field behavior of the player. For a player that gets arrested or has been arrested this will be a negative and a player that is a good role model or a popular player this will be positive.

Now inserting this equation into the profit maximization equation we see the following result.

$$\pi = P(Q) * f(L,K) - wL - rK - bL \tag{3.12}$$

Once we have the profit maximization equation (3.12) we can derive it with respect to labor, like we did in the first part of this chapter. When we set the first order condition equal to zero we get the following equation.

$$\frac{\delta\pi}{\delta L} = P(Q) * \frac{\delta f(L,K)}{\delta L} + Q * \frac{\delta P}{\delta f(L,K)} * \frac{\delta f(L,K)}{\delta L} - w - b = 0 \tag{3.13}$$

And now we see that the MRP_L is equal to wage plus the off the field behavior.

$$MRP_L = (P + Q * \frac{\delta P}{\delta Q}) * \frac{\delta f(L,K)}{\delta L} = w + b \quad (3.14)$$

This is significant because the wage of the player is now the MRP_L minus the off the field behavior. So theoretically the players that have off the field issues will be paid less than players who don't and players who are popular and do community service will get paid more than players who don't.

Conclusion

In this chapter we have seen the theoretical framework behind the study presented in this paper. The first part of the chapter went over the relevant theory that currently exists, specifically Marginal Revenue Product of Labor. The second part of the chapter applies and modifies the theory to fit the NFL and more specifically the NFL draft. The next chapter will examine the data and methodology used in this paper.

CHAPTER IV

DATA AND METHODS

This chapter will examine the data, methodology, and empirical model, which are used to determine the draft order and compensation of NFL draft picks and the effect of crime, NCAA violations, and suspensions. This chapter will start off with a discussion of the data used in the study, followed by an explanation of the independent and dependant variables. The dependant variables are draft position and guaranteed money in a player's rookie contract. The independent variables include the college a player attended, physical size, race, athletic ability, and position specific statistics, as well as arrest, suspension, and NCAA violation record.

Data Set

The empirical model in this study uses a data set that spans two NFL drafts, 2009 and 2010. However, for some of the players drafted in these two drafts there wasn't all the relevant data necessary to include them in the model. The largest problem was players who attended small schools (i.e. Division II or Division III) and didn't have all there position specific statistics available. Another issue that effected less players were those who played a different position in college then they were drafted to play in the NFL, an example is Zach Miller, played quarterback at Nebraska-Omaha but at the Cactus Bowl (division II all star game) played TE and caught five passes for 116 yards and a

touchdown. In this example Miller was not included in the data because he was drafted to become a TE and played his collegiate career as a quarter back, so he didn't have the position specific statistics for the position he was drafted to play.

The goal of this study is to determine if the behavior, whether it was on or off the field, of a player in college effects where they got drafted and the amount they signed for in their rookie contract. In this study I split up the data by positions, quarterback, running back, wide receiver, tight end, offensive lineman, defensive end, defensive tackle, linebacker, cornerback, and safety.

Dependent Variables

The first dependent variable is draft position. The draft position will be looked at with respect to all of the dependent variables; the study wants to see what affects where a player gets drafted. The draft position will then be used to forecast draft position base on the significant variables, and this forecasted draft variable will be used in a regression with the other dependent variable, guaranteed money.

Every NFL contract is different, although almost every contract consists of a few key features. When a player signs a contract they get a signing bonus or insured that no matter what happens they are guaranteed a certain amount of money. This is very important in an NFL contract because the players are paid for the games they play. So if a player is cut or gets injured they often don't receive the money that they signed the contract for. This shows the importance of guaranteed money in the NFL, especially because so many people get injured. Typically players that sign large contracts also get more guaranteed money.

When looking at the NFL Draft signing the draft picks can be very challenging. Many of the rookies hold out for money and often receive absurd compensation before even playing a snap in the NFL. For example, JaMarcus Russell the top pick in 2007 NFL draft held out until September 12 and signed a contract for 61 million dollars over 6 years, with 32 million dollars guaranteed. In the NFL Draft, the top players have significant leverage in the negotiation process. In 2008, the top pick, Jake Long, agreed to a contract that 57.75 million dollars over 5 years that included 30 million dollars guaranteed. The contract the Long signed made him the highest paid offensive lineman in NFL history before he had shown what he was capable at the next level.

The guaranteed money is very important in the signing of rookies because they are an unknown product. Both the NFL team and the rookie try to reach an agreement that will make them both happy and allow the player to play for that team. The top picks receive very lucrative contracts and are guaranteed to make a ton of money. Looking at the 2010 NFL Draft top pick Sam Bradford, a quarterback from Oklahoma, signed a 6 year 78 million dollar contract with 50 million guaranteed, this is largest contract by an NFL rookie to date. As the draft goes on the contracts become less as do the agreement for how much guaranteed money the player will sign for. For example, sixth rounder (181^{st} pick) Dan LeFevour, a quarterback from Central Michigan, signed a four year contract for 1.9 million dollars with 107,673 dollars guaranteed.

Guaranteed money is the dependent variable in this study. This is because guaranteed money is a pretty accurate indication of draft order and the players are trying to maximize the money they receive. The reason that guaranteed money is the dependent variable and not contract size is because guaranteed money is a good gauge for how large

the contract is and contracts are very complicated and different. Rookies sign contracts for different lengths of time and some of the contracts contain incentives that are different for different players. The rookie contract information was found on USATODAY.com[77], ESPN.com[78], and Rotoworld.com[79].

The Determinants of Contract Size

There are many different aspects of an NFL draftee that could contribute to how much an NFL rookie signs for. Many of these are variables like leadership, knowledge of the game, commitment, and drive, which are intangibles variables that are hard to quantify. Another variable that contributes to where a player gets drafted and how much they sign for is how they look on tape and how scouts think their game will translate to the NFL. This too is not included in the study because of the difficulty to quantify. I will first focus on explaining the general variables that pertain to all the players in the draft and then I will discuss test results and the implications of the, I will later follow with more specific position variables and then finally will detail the crimes and violation variables.

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[77] "NFL Player Salaries," *USATODAY.com*, http://content.usatoday.com/sportsdata/football/nfl/salaries/player (accessed February 2011).

[78] "NFL Training Camps," *ESPN.com*, http://sports.espn.go.com/nfl/news (accessed February 2011).

[79] "NFL Team Contracts," *Rotoworld.com*, http://www.rotoworld.com/teams/contracts/nfl (accessed February 2011).

General Variables

The first variable that has a large impact on how the player's collegiate accomplishments are seen is what school they attended and played at. After high school, players have many different types of schools that they can attend. There are some schools that are big time division one schools; these would be schools like Southern California, Texas, Alabama, or Florida. These schools all belong to large conferences such as the Pac 10, Big 12, SEC, and SEC respectively and all of these schools have historically had strong programs and success. Another type of school that a player can attend is a division one school that is in a big conference, which has other powerhouse teams, even though these schools are not necessarily thought of as football schools. Such as Kansas State, Virginia, Indiana, these schools are a part of conferences like the Big 12, ACC, and Big 10 respectively. Another option is attending a division one school that is neither a powerhouse or in a strong football conference such as Temple, Alabama-Birmingham, and Middle Tennessee State. These schools are not traditional football powerhouses and belong to conferences like the Atlantic 10, Conference USA, and the Sun Belt respectively. Then there are division two, division three schools, and NAIA schools that are not on the same scale as the division one schools, these are schools like Abilene Christian, Monmouth, and Kansas Wesleyan University. The reason for looking at what type of school and what type of schools the team plays is important because the better the school or schools the team plays the more accurately a scout and team can judge a college athlete compared to other NFL bound football players. For this reason I used a dummy variable and included any team in the following conferences: Pac 10, Big 12, Big 10, Big East, SEC, and ACC, in this I also included Notre Dame because they do not belong to a

conference but clearly belong in the discussion of programs with storied and successful histories they also tend to play other very good teams. The team is assigned a 1 if they are a "big program" and a zero if they are not. The school the players attended was found along with the draft information on NFL.com[80].

Another variable is the race of the player. There is some previous work done on race in the NFL draft, which is discussed previously in Chapter 2. Much of the work concentrates on black versus white quarterbacks. However the reason I chose to include this variable for all positions to see if there is discrimination in the NFL draft. Given a white and non-white player of equal talent is one favored by NFL teams? If they committed a crime do NFL teams penalize them differently? These are two of the questions that I hope to answer with the aid of this variable.

The next variable is size of the player. I used variables for height and weight. The height is in inches and the weight is in pounds. These size variables are more relevant to some positions, like how tall a quarterback or receiver is, is more important then the height of a running back or safety. The weight of a lineman or linebacker is more important than that of a cornerback. The size of players is an important variable in how scouts see them. With a lot of quarterbacks scouts will criticize their height saying, "They aren't tall enough to throw over the line." The NFL is a physical league and the size of a player could make a significant difference in where the player is drafted.

Another variable is whether or not a player was an All-American. All-American is awarded to the players that play the best at their position during the season. The All-American team is composed of the players who are named first team All-Americans from

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[80] "NFL Draft," *NFL.com*, http://www.nfl.com/draft/2011 (accessed October 2010).

the following: Associated Press (AP), Football Writers Association of America (FWAA), American Football Coaches Association (AFCA), Walter Camp Foundation (WCFF), The Sporting News (TSN), Sports Illustrated (SI), Pro Football Weekly (PFW), ESPN, CBS Sports (CBS), College Football News (CFN), Rivals.com, and Scout.com. In this study uses the aforementioned definition of all American, if the player was named to any of these first teams.

An important process is the NFL combine and Pro Days. The players run a series of physical tests, like the forty-yard dash, vertical jump, and bench press. NFL teams and the media tend to place importance on these tests, because it allows them to quantify how fast or strong the players are. Not every player is invited to the combine but often players will have workouts on their college campus that have the same tests. I chose three of the tests that represent different aspects of strength and athleticism. I look at the forty-yard dash, vertical jump, and bench press. Some players participated in a combine and a pro day on their campus, I took the best result that they had, because this shows their potential better then taking the worst result or a middle result.

The forty is a test of speed and quickness. The player runs forty yards as fast as they can. This distance allows for scouts to see how quick they are in accelerating as well as to see their top speed. The forty has different importance for each position. It is very important for running backs, cornerbacks, and receivers, and isn't as important for lineman or quarterbacks. For example, in 2009 NFL combine the top five performances ranged from Darrius Heyward-Bey running 4.30 to Deon Butler running 4.40 and all five of these players were wide receivers. Similarly, in 2010 NFL combine there were 12 players who ran 4.43 or faster and all except one were wide receivers, defensive backs, or

running backs. Jacoby Ford running a 4.28 posted the fastest time in 2010. On the other in hand, the fastest offensive lineman in 2010 was Bruce Campbell and he ran the forty in 4.85. In 2009 the fastest offensive lineman was Lydon Murtha completing the forty yards in 4.89, he was the only offensive lineman to run faster than 5.00 seconds in 2009. This shows that the forty-yard dash has different importance to different positions.

The vertical jump test to see how high players can jump from a standing position. Like the forty this has difference importance depending on the position the player plays. Wide receivers and defensive backs are often competing for jump balls thrown by the quarterback, so this test has more of an impact on how scouts see these players then players like lineman or quarterbacks. Combining the combine results from 2010 and 2009 of the top 13 performances 6 were defensive backs, 4 were wide receivers, and 1 linebacker, running back and tight end. The jump was Donald Washington at 45 inches in 2009. Compared to the top offensive lineman Travis Bright jumping 35.5 inches in 2009. However, offensive linemen don't need to jump nearly as much as receivers or cornerbacks.

The last physical test that I used as a variable was the bench press. In the bench press every player does as many repetitions of 225 pounds. This test is much more relevant to positions on the field where strength is necessary, like offensive and defensive lineman. It is also important for tight ends and linebackers to be strong, however this is not as important for positions like cornerback and quarterback. Lineman are pushing players around all game so it is not surprising that lineman have historically dominated the bench press at the combine. At the 2010 NFL combine of the top 15 performances came from 13 came from linemen with two coming from linebackers, with the best

performance coming from Mitch Petrus with 45 repetitions. The 2009 combine wasn't much different, with the top 12 performances in the bench press coming from linemen, with Louis Vasquez completing 39 repetitions for the best mark of the year. Compare this to the top results for cornerbacks over the span of 2010 and 2009, there were two players who put up the 225 pounds 25 times. The results of the bench press are more applicable for the positions that strength is more important, like linemen.

Position Specific Variables

The position specific variables are variables, in this case statistics, which apply to certain positions. In this study I split up the players into the positions that they play, because what teams looking for in an offensive lineman is different then what teams are looking for in a defensive back. In a game the statistics that a player racks up depends on what position the athlete plays, a quarterback's statistics are different from a lineman's statistics. The following sections will explain the variables used for each position. The data was found ESPN.com[81], CBSSports.com[82], and if unavailable on those two websites I went to the archives on the college team's website.

Cornerbacks

The main purpose of cornerbacks is to cover receivers, defend against the pass, and make tackles for the defense. There are many different statistics that defensive players can have, but for the purpose of this study I chose to look at interceptions and

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[81] "NCAA College Football Stats," *ESPN.com*, http://espn.go.com/college-football/statistics (accessed October 2010).

[82] "NFL Draft – Draft Prospects," *CBSSports,com*, http://www.cbssports.com/nfl/draft/prospectrankings/ (accessed October 2010).

tackles for the cornerback. Interceptions are when the quarterback is throwing a pass to the receiver that the cornerback catches and tackles are when a cornerback takes down a player from the other team. I chose to look at a player's best season, most recent season, and career season average for interceptions and tackles.

Defensive Ends

Defensive ends are lineman that play defense and apply pressure from the outside to quarterbacks and running backs. Defensive ends need to be quick and strong, and the statistics I chose to look at for them are tackles and sacks. Sacks are when the defensive end tackles the quarterback for a loss. I took the statistics from the player's best season, most recent season and career season average for sacks and tackles.

Defensive Tackles

Defensive tackles make up the second half of the defensive line. The reason that I chose to split up the defensive tackles and defensive ends is because although they are similar they also have a few key differences. Defensive tackles purpose is to alter and stop running plays as well as try to sack the quarterback on passing plays, however defensive tackles tend to be bigger and stronger then defensive ends; while defensive ends tend to be faster and quicker then defensive tackles. Defensive ends are more important in pressuring the quarterback in passing plays and defensive tackles are more important in running plays. Using this logic number of tackles and number of sacks have slightly different meanings for defensive tackles and defensive ends.

This being said I did chose to use the same variable as I did for defensive ends, sacks and tackles, for the defensive tackles. I looked at their best season, most recent season, and career average season for sacks and tackles.

Linebackers

Linebackers are the quarterbacks of the defensive and are responsible for defending the run and pass. Linebackers need to very versatile, they need to be fast enough to run down a receiver or running back and strong enough to fight through the offensive line. The statistics I chose to be variables for linebackers was tackles and sacks. I looked at the best season they had in college, their most recent season, and the average season over the course of their career.

Offensive Linemen

The offensive linemen are different from every other position in the way that there are no individual statistics readily available. There are team statistics available such as sacks given up, however I chose not to use this as a variable because it doesn't represent the individual player that is in question for the draft. The study does include the offensive linemen and uses only the general variables previously mentioned.

Quarterbacks

Quarterback is the position that gets the most media attention and is always in the spot light. A quarterback's main job is to pass the ball to receivers, tight ends, and running backs and lead their team downfield. They have many possible statistics to

choose from. I chose to look at passing yards, passing touchdowns and passer rating. Passing yards is how many yards a quarterback throws for during the game and passing touchdowns are touchdowns that a quarterback throws to an eligible receiver.

Passer rating is also known as passer efficiency, and represents how efficient a quarterback is. Passer rating takes many different statistics into account. The formula for passer rating is,

$$PasserRating = \frac{(8.4 \times YDS) + (330 \times TD) + (100 \times COMP) - (200 \times INT)}{ATT} \qquad (4.1)$$

In this equation YDS is passing yards, TD is passing touchdowns, COMP is completions, INT is interceptions, and ATT is passing attempts. The highest possible passer rating, also known as a "perfect passer rating", in college football (the NFL uses a different formula) is 1261.6. The record for best passer rating for a career belongs to Oklahoma's Sam Bradford at 175.6 from 2007 to 2009. The single season record is Hawaii's Colt Brennan when in 2006 season Brennan had a 180.6 passer rating. Passer rating is seen as a representation of how well a quarterback plays.

The quarterback statistics used as variables in this study are passing yards, passing touchdowns in the quarterback's best season, most recent season, and career average season. The passer rating for the quarterback's best season and most recent season are also variables.

Running Backs

Running backs play a very key role in the offense. They need to be able to block, catch passes, and most importantly run the ball. However, for this study I will focus on the statistics of their main role, which is running the football. Running backs statistics are

rushing attempts, or how many times they get the ball, rushing yards, or how many yards they run for, and rushing touchdowns, or how many touchdowns they score on the ground.

Running backs encompass two different positions, halfback and fullback. Halfbacks are also often just called running backs, but typically they carry the ball more often and need to be smaller, quicker, and faster. The fullback carries the ball less but has a lot more blocking responsibilities and are often bigger and stronger. I distinguish the halfbacks from the fullbacks using a dummy variable, 1 denotes if the player is a fullback and 0 is used otherwise.

Safeties

Safeties play an important roll in the run game but are even more important in the passing game. The safeties have similar responsibilities as linebackers and cornerbacks. The variables I used for safeties are tackles and interceptions, which is the same that I used for cornerbacks. However even though safeties and cornerbacks make up the secondary and are both considered defensive backs, they do have distinctly different roles on defensive. Another difference is that safeties are often not as quick as cornerbacks but are often bigger. That is why cornerbacks and safeties are not grouped together in this study.

As I mentioned I use the same variables for the safeties and cornerbacks. So for safeties I look at their best season, most recent season, and career season average for interceptions and tackles.

Tight Ends

Tight ends play on the offensive line and often go out and receive passes. Since offensive linemen as explained above don't have any individual statistics the tight ends statistics are based on their pass catching and route running ability. The variables for tight end are receptions, or how many passes they catch, receiving yards, or how many yards they gain from passes, and receiving touchdowns, or touchdown passes that they catch. The variables are split into the tight end's best season, most recent season, and career average season.

Wide Receivers

Wide receivers main responsibility is to find an opening in the defense and catch balls thrown by the quarterback. In this way receivers are similar to tight ends, however tight ends are separate because on many plays they need to help block lineman and linebackers. Wide receivers are often smaller than tight ends however they are often quicker and faster. Wide receivers have the same statistics as tight ends and for the purpose of this study the receivers have the same variables as the tight ends. I looked at the best season, most recent season, and career average season for receivers for touchdowns, receptions, and receiving yards.

Player Misconduct Variable

The player misconduct variable is a dummy variable 1 meaning the player has broken the law or committed and NCAA violation. This is one of the main variables that this study is interested in. This is a dummy variable if the player has committed a crime

or NCAA violation then the player is given a 1, otherwise a 0. There are many interesting questions that this variable will be able to answer. Do NFL teams care if a player has been an issue off the field? Do they see these players as riskier to draft? These questions and more will be answered and discussed in more details in the following chapter.

Empirical Model Prediction Methodology

In this study there are two different methods of estimation that I used. The first is a negative binomial count estimator and the second is Ordinary Least Squares (OLS). These two estimators were used in order to empirically model the size of the rookie contract of a player drafted in the 2009 and 2010 NFL drafts. By minimizing the sum of the squared vertical distances of the observed data points Ordinary Least Squares attains coefficient estimations for the variables. The following table shows the definitions as well as the predicted signs for the empirical model.

TABLE 4.1

Definitions and Predicted Signs of the Variables in the Model

Variable	Variable Name in Regression	Definition	Predicted Sign
Guaranteed Money	GUARANTEED	The amount of guaranteed money in the player's rookie contract after being drafted.	Dependant Variable
Draft Position	DRAFT	The draft position of the player, or what number they got picked in the NFL draft.	Dependent Variable
Forecasted Draft Position	DRAFTF	The forecasted draft position based on the first equation were draft position is the dependent variable.	Negative
Big Program	BIGPROGRAM	A dummy variable indicating if the player attended a "big time" football or played against predominately "big time"	Negative

		programs. If the player attended a school in a big conference (ACC, Big 10, Big 12, Big East, Pac 10, or SEC) or Notre Dame, a value of 1 will be given to that player and 0 otherwise.	
Race	WHITE	A dummy variable indicating if the player is white or non-white. The value 1 is given to white players and 0 otherwise.	Unknown*
Height	HEIGHT	The player's height in inches	Unknown*
Weight	WEIGHT	The player's weight in pounds	Unknown*
All-American	AA	A dummy variable indicating whether or not a player was named as an All-American. The value 1 is given to those players awarded All-American and 0 otherwise.	Negative
40-Yard Dash	FORTY	The time a player ran at the NFL Combine or at their respective Pro Day.	Positive**
Vertical Jump	VERT	The vertical jump of a player at the NFL Combine or at their respective Pro Day, measured in inches.	Negative
Bench Press	BENCH	The number of repetitions of the bench press at the standard weight of 225 pounds at the NFL Combine or at their respective Pro Day.	Negative
Interceptions (Best)	BINT	The number of interceptions a player made in their most successful collegiate season.	Negative
Interceptions (Recent)	RINT	The number of interceptions a player made in their most recent collegiate season.	Negative
Interceptions (Average)	AINT	The number of interceptions a player made in their career divided by the number of collegiate season they played.	Negative
Tackles (Best)	BTACKLES	The number of tackles a player made in their most successful collegiate season.	Negative
Tackles (Recent)	RTACKLES	The number of tackles a player made in their most recent collegiate season.	Negative
Tackles (Average)	ATACKLES	The number of tackles a player made in their career divided by the number of collegiate season they played.	Negative
Sacks (Best)	BSACKS	The number of sacks a player made in their most successful collegiate season.	Negative
Sacks (Recent)	RSACKS	The number of sacks a player made in their most recent collegiate season.	Negative
Sacks	ASACKS	The number of sacks a player made in	Negative

(Average)		their career divided by the number of collegiate season they played.	
Passing Yards (Best)	BYARDS	The number of passing yards a player had in their most successful collegiate season.	Negative
Passing Yards (Recent)	RYARDS	The number of passing yards a player had in their most recent collegiate season.	Negative
Passing Yards (Average)	AYARDS	The number of passing yards a player had in their career divided by the number of collegiate season they played.	Negative
Passing Touchdowns (Best)	BTDS	The number of passing touchdowns a player had in their most successful collegiate season.	Negative
Passing Touchdowns (Recent)	RTDS	The number of passing touchdowns a player had in their most successful recent season.	Negative
Passing Touchdowns (Average)	ATDS	The number of passing touchdowns a player had in their career divided by the number of collegiate season they played.	Negative
Passer Rating (Best)	BRATING	The passer rating of a player in their most successful collegiate season.	Negative
Passer Rating (Recent)	RRATING	The passer rating of a player in their most recent collegiate season.	Negative
Rushing Yards (Best)	BYARDS	The number of rushing yards a player had in their most successful collegiate season.	Negative
Rushing Yards (Recent)	RYARDS	The number of rushing yards a player had in their most recent collegiate season.	Negative
Rushing Yards (Average)	AYARDS	The number of rushing yards a player had in their career divided by the number of collegiate season they played.	Negative
Rushing Attempts (Best)	BATTEMPTS	The number of rushing attempts a player had in their most successful collegiate season.	Negative
Rushing Attempts (Recent)	RATTEMPTS	The number of rushing attempts a player had in their most recent collegiate season.	Negative
Rushing Attempts (Average)	AATTEMPTS	The number of rushing attempts a player had in their career divided by the number of collegiate season they played.	Negative
Rushing Touchdowns	BTDS	The number of rushing touchdowns a player had in their most successful	Negative

(Best)		collegiate season.	
Rushing Touchdowns (Recent)	RTDS	The number of rushing touchdowns a player had in their most recent collegiate season.	Negative
Rushing Touchdowns (Average)	ATDS	The number of rushing touchdowns a player had in their career divided by the number of collegiate season they played.	Negative
Fullback	FB	A dummy variable indicating if the running back is a fullback. The value 1 is assigned to fullbacks and 0 otherwise.	Unknown*
Receptions (Best)	BREC	The number of receptions a player made in their most successful collegiate season.	Negative
Receptions (Recent)	RREC	The number of receptions a player made in their most recent collegiate season.	Negative
Receptions (Average)	AREC	The number of receptions a player made in their career divided by the number of collegiate season they played.	Negative
Receiving Yards (Best)	BYARDS	The number of receiving yards a player had in their most successful collegiate season.	Negative
Receiving Yards (Recent)	RYARDS	The number of receiving yards a player had in their most recent collegiate season.	Negative
Receiving Yards (Average)	AYARDS	The number of receiving yards a player had in their career divided by the number of collegiate season they played.	Negative
Receiving Touchdowns (Best)	BTDS	The number of receiving touchdowns a player had in their most successful collegiate season.	Negative
Receiving Touchdowns (Recent)	RTDS	The number of receiving touchdowns a player had in their most recent collegiate season.	Negative
Receiving Touchdowns (Average)	ATDS	The number of receiving touchdowns a player had in their career divided by the number of collegiate season they played.	Negative
Criminal Record	LAW	A dummy variable if the player has a criminal record this variable is a 1, otherwise 0.	Positive
Suspension History	NCAA	A dummy variable if the player has a committed any NCAA violations this variable is a 1, otherwise 0.	Positive

*In this table unknown is used for a few different reasons, the first is the simplest and is because there is no prediction one way or the other, the other is when it is positional dependent (ie height for linemen or receivers the predicted sign may be positive whereas for running backs the predicted sign may be negative.)

**For the 40-yard dash the reason that the predicted sign is positive is because the faster the time the lower the value of the time. Since it is rational to assume that the NFL favors faster players the 40-yard dash time is predicted to be positive.

Conclusion

This chapter had an in depth discussion of the data used in the empirical model in order to determine the size of the rookie contract and draft order based on a NFL prospect's college career, athletic ability, and character issues on and off the field. The chapter also discussed the estimating process that will be used, which is OLS. The final chapter will show the results of the application of the data and model.

CHAPTER IV

RESULTS AND CONCLUSIONS

This final chapter will examine the results of the empirical models and data that were laid out in the previous chapter. The results will be presented with two equations for each position on the field. The first equation used for each position will use a negative binomial count predictor and the second will use the forecasted value of draft in an ordinary least squares (OLS) predictor. The variables in each equation are different because only the variables that are significant are used in order to get a more accurate prediction and more significance. The final part of this chapter will discuss any conclusions drawn from the results as well as possible further research into the NFL and NFL draft.

General Model

In this study each of the positions are split up due to the different statistics and emphasis on different aspects of the game given each position. As mentioned previously there are 11 different positions that are examined in this model, defensive ends, cornerbacks, defensive tackles, linebackers, offensive lineman, quarterbacks, running backs, safeties, tight ends, and wide receivers, each position and their purpose is explained in the previous chapter.

Each position will have a couple different equations. First using the negative binomial count estimator each position will have an equation that looks something like the following general equation.

$$DRAFT = \beta_1 AA + \beta_2 BIGPROGRAM + \beta_3 HEIGHT + \beta_4 WEIGHT + \beta_5 FORTY + \beta_6 VERT + \beta_7 BENCH + \beta_8 PositionSpecificVariables \quad (5.1)$$

Then once this equation was examined, I looked at the variables that were significant and included them in the following equation with the same dependent variable being draft position. The results of the each of these equations with the variables that were significant are represented in tables later in the chapter. Using this equation I then forecasted the predicted value of the draft and used that as my independent variable in the OLS model. All of the OLS models follow the same general formula seen in equation 5.2.

$$LOG(GUARANTEED) = C_0 + \beta_1 DRAFTF \quad (5.2)$$

In this equation (5.2) we can see the relationship between the predicted draft position based on the variables described in equation 5.1 and the log of guaranteed money in the rookie contract.

This was the general model used in the equations for each position, the next part of this chapter will lay out the exact equations that were used for each position as well as the results of these empirical models.

Defensive Ends

As mentioned in the previous chapter the defensive ends are responsible for pass rushing the quarterback as well as containing running plays to the outside of the field. The first step is to use a general equation where variables can be identified to be

significant using a negative binomial count estimator. The general equation format in order to find out which variables are significant looked like the following equation.

$$DRAFT = \beta_1 AA + \beta_2 BIGPROGRAM + \beta_3 HEIGHT + \beta_4 WEIGHT + \beta_5 FORTY + \beta_6 VERT + \beta_7 BENCH + \beta_8 BTACKLES + \beta_9 BSACKS + \beta_{10} ATACKLES + \beta_{11} ASACKS \quad (5.3)$$

When examining this equation the results indicated that there were only three variables that had significance. The equation used to forecast the draft position I used only these significant variables which were, if the player was an all American or not, the player's forty yard dash time, and the weight of the player. The following equation is used to forecast the draft position and the estimation procedure is a negative binomial count estimator.

$$DRAFT = \alpha_1 AA + \alpha_2 WEIGHT + \alpha_3 FORTY \quad (5.4)$$

The regression results of equation 5.4 are shown in table 5.1.

TABLE 5.1

REGRESSION RESULTS OF DRAFT POSITION FOR DEFENSIVE ENDS

Variable	**Dependent Variable – Draft Position**
AA All American	-0.640479 (-2.252723)*
FORTY Forty Yard Dash Time	1.547799 (4.373174)*
WEIGHT Weight	-0.009551 (1.515126)

These results indicate that the defensive end's college statistics don't have significant bearing on where that player gets drafted into the NFL. If a player is an all American they get drafted high then if they were not, the faster a player is and the heavier

defensive end is are the significant variables in this equation. Logically these variables make sense that they are significant, if a player was an all American they played well in college and are probably a very talented athlete. When a defensive end is bigger that typically means they are stronger so they can get to the quarterback and tackle other offensive players easier. The faster a defensive end is the quicker he can get to the quarterback and the better he can run down a running back. However, there are some surprising results if you take into account that a player's college statistic don't matter and more relevantly to this study if a defensive end has been in trouble with the law that has no significant effect on where that player gets drafted.

The results from this equation are used to forecast draft position based on the significant variables. The forecasted draft position is the independent variable and the logarithm of the money guaranteed in the rookie contract is the dependent variable. The equation used is the same as equation 5.2, where the forecasted draft position is from the previous equation 5.4. The following table 5.2 shows the results of this regression using an OLS estimator.

TABLE 5.2

REGRESSION RESULTS OF GUARANTEED MONEY FOR DEFENSIVE ENDS

Variable	**Dependent Variable – Log(Guaranteed Money)**
C Constant	2.401029 (2.704234)
DRAFTF Forecasted Draft	-0.025700 (-3.530893)

R-Squared	0.184789
Adjusted R-Squared	0.169967

The results from this regression show that there is a very strong correlation between the forecasted draft position based on the significant variables and the logarithm of the amount of guaranteed money in a defensive end's rookie contract.

Corner Backs

In the previous chapter I explained that corner backs are responsible for covering receivers as well as making tackles in the secondary. Starting with the general equation where variables can be identified to be significant using a negative binomial count estimator. The format of the general equation in order to find out which variables are significant looked like the following equation.

$$\begin{aligned} DRAFT = {} & \beta_1 AA + \beta_2 BIGPROGRAM + \beta_3 HEIGHT + \\ & \beta_4 WEIGHT + \beta_5 FORTY + \beta_6 VERT + \beta_7 BENCH + \\ & \beta_8 BTACKLES + \beta_9 BINTS + \beta_{10} ATACKLES + \beta_{11} AINTS \end{aligned} \tag{5.5}$$

When examining this equation the results indicated that there were four variables that had significance. The equation used to forecast the draft position I used only these significant variables, which were, the corner back's height and weight, their forty yard dash time, and the number of tackles that they recorded in their best season. The following equation is used to forecast the draft position and the estimation procedure is a negative binomial count estimator.

$$DRAFT = \alpha_1 BTACKLES + \alpha_2 FORTY + \alpha_3 WEIGHT + \alpha_4 HEIGHT \tag{5.6}$$

The regression results of equation 5.6 are shown in table 5.3.

TABLE 5.3

REGRESSION RESULTS OF DRAFT POSITION FOR CORNER BACKS

Variable	Dependent Variable – Draft Position
BTACKLES Tackles in Best Season	-0.012473 (-2.244262)*
FORTY Forty Yard Dash Time	0.676479 (2.233457)*
WEIGHT Weight	-0.027450 (-2.423563)*
HEIGHT Height	0.107507 (3.385874)*

These results indicate that these for variables are the four that are significant in where a corner back gets drafted. These variables all make sense because the NFL looks at a corner backs college statistics and tackles are significant, this is important because NFL teams want to know if a corner back was able to make open field tackles in college (most tackles made by corner backs are in the open field). Corner backs need to be one of the quickest players on the field so it is logical that a player's forty times are significant. Weight says that the bigger a corner back is the higher they get drafted, however funnily enough shorter corner backs get drafted higher. This is most likely because shorter corner backs are often more agile and can change directions quickly which is necessary for this position. Once again we see that there is evidence that if a corner back breaks the law it has no impact on where they get drafted.

The results from this equation are used to forecast draft position based on the significant variables. The forecasted draft position is the independent variable and the logarithm of the money guaranteed in the rookie contract is the dependent variable. The

equation used is the same as equation 5.2, where the forecasted draft position is from the previous equation 5.6. The following table 5.4 shows the results of this regression using an OLS estimator.

TABLE 5.4

REGRESSION RESULTS OF GUARANTEED MONEY FOR CORNER BACKS

Variable	**Dependent Variable – Log(Guaranteed Money)**
C Constant	0.953892 (1.376649)
DRAFTF Forecasted Draft	-0.014850 (-2.912510)*
R-Squared	0.118668
Adjusted R-Squared	0.104679

The results of this regression say that although the r-squared is low the significance of forecasted draft is very high based on the significant variables used in equation 5.6.

Defensive Tackles

Defensive tackles are responsible for rushing the quarterback and stopping the run. Starting with the general equation where variables can be identified to be significant using a negative binomial count estimator. The format of the general equation in order to find out which variables are significant looked like the following equation.

$$DRAFT = \beta_1 AA + \beta_2 BIGPROGRAM + \beta_3 HEIGHT + \beta_4 WEIGHT + \beta_5 FORTY + \beta_6 VERT + \beta_7 BENCH + \beta_8 BTACKLES + \beta_9 BSACKS + \beta_{10} ATACKLES + \beta_{11} ASACKS \quad (5.7)$$

When examining this equation the results indicated that there were four variables that had significance. The equation used to forecast the draft position I used only these significant variables, which were, the defensive tackle's height and weight, their vertical jump, and if the player was an all American in college. The following equation is used to forecast the draft position and the estimation procedure is a negative binomial count estimator.

$$DRAFT = \alpha_1 AA + \alpha_2 VERT + \alpha_3 WEIGHT + \alpha_4 HEIGHT \quad (5.8)$$

The regression results of equation 5.8 are shown in table 5.5

TABLE 5.5

REGRESSION RESULTS OF DRAFT POSITION FOR DEFENSIVE TACKLES

Variable	**Dependent Variable – Draft Position**
AA All-American	-1.808608 (-5.582655)*
VERT Vertical Jump in Inches	-0.095012 (-2.642556)*
WEIGHT Weight	-0.012967 (-2.060916)*
HEIGHT Height	0.156481 (4.653757)*

These results suggest that these are the only four variables that significantly effect a defensive tackles draft position. The weight shows that bigger defensive tackles are drafted higher, which makes sense because they need to be big and strong and are typically the biggest players on the field. Something interesting is that height is positively correlated to draft position which means that the taller a defensive tackle is the worse he

gets drafted. If the player was an all American it indicates that they had success in college which team hope will translate to success in the NFL, so that causes defensive tackles to be drafted in a better position. The better a defensive tackle's vertical jump was also significantly correlated to make that player be draft sooner. Once again no college statistics were significant and if the defensive tackle had broken the law or violated NCAA rules it also had no significant effect.

This equation and its results are used to forecast draft position based on the significant variables. The forecasted draft position is the independent variable and the logarithm of the money guaranteed in the rookie contract is the dependent variable. The equation used is the same as equation 5.2, where the forecasted draft position is from the previous equation 5.8. The following table 5.6 shows the results of this regression using an OLS estimator.

TABLE 5.6

REGRESSION RESULTS OF GUARANTEED MONEY FOR DEFENSIVE TACKLES

Variable	**Dependent Variable – Log(Guaranteed Money)**
C Constant	2.168255 (4.447597)*
DRAFTF Forecasted Draft	-0.023360 (-5.962686)*
R-Squared	0.490032
Adjusted R-Squared	0.476249

The results in the table above show that the forecasted draft position variable is significant when based on the significant variables used in equation 5.8. The r-squared value is not bad considering that there is only one independent variable.

Linebackers

Linebackers have many different responsibilities on the field; they need to be able to stop the run, rush the quarterback, and drop into coverage against the pass. Starting with the general equation where variables can be identified to be significant using a negative binomial count estimator. The format of the general equation in order to find out which variables are significant looked like the following equation.

$$\begin{aligned} DRAFT = {} & \beta_1 AA + \beta_2 BIGPROGRAM + \beta_3 HEIGHT + \\ & \beta_4 WEIGHT + \beta_5 FORTY + \beta_6 VERT + \beta_7 BENCH + \\ & \beta_8 BTACKLES + \beta_9 BSACKS + \beta_{10} ATACKLES + \beta_{11} ASACKS \end{aligned} \tag{5.9}$$

The results of the equation indicated that there were three variables that had significance in predicting draft position. In the equation used to forecast the draft position I used only these significant variables, which were, the linebacker's weight, their forty yard dash time, and if the player was an all American in college. The following equation is used to forecast the draft position and the estimation procedure is a negative binomial count estimator.

$$DRAFT = \alpha_1 AA + \alpha_2 VERT + \alpha_3 WEIGHT \tag{5.10}$$

The regression results of equation 5.10 are shown in table 5.7

TABLE 5.7

REGRESSION RESULTS OF DRAFT POSITION FOR LINEBACKERS

Variable	Dependent Variable – Draft Position
AA All American	-1.101557 (-5.614025)*
FORTY Forty Yard Dash Time	2.302984 (4.430893)*
WEIGHT Weight	-2.364485 (-2.364485)*

The results shown above illustrate that only three variables were significant in predicting draft position. If a linebacker was all American NFL teams see this as a sign of great success in college and potential to be a star in the NFL like there were in college, so if the player was an all American they get drafted higher. The faster a player is the better they get drafted because a linebacker in the NFL needs to be able to run quickly and cover a ton of ground on defensive. And finally if the linebacker weighs more they get drafted higher, this usually means that the player is stronger, so they will be able to fight off offensive players in order to make the tackles that are necessary. Once again college statistics don't factor in significantly to where a player is drafted. Linebacker's draft status also isn't affected significantly by violation of NCAA rules or breaking the law.

The equation (5.10) above and its results are used to forecast draft position based on the significant variables. The forecasted draft position is the independent variable and the logarithm of the money guaranteed in the rookie contract is the dependent variable. The equation used is the same as equation 5.2, where the forecasted draft position is from the previous equation 5.10. The following table 5.8 shows the results of this regression using an OLS estimator.

TABLE 5.8

REGRESSION RESULTS OF GUARANTEED MONEY FOR LINEBACKERS

Variable	Dependent Variable – Log(Guaranteed Money)
C Constant	1.478450 (3.099186)*
DRAFTF Forecasted Draft	-0.017764 (-5.327850)*
R-Squared	0.371612
Adjusted R-Squared	0.358521

The results seen in table 5.8 show that the forecasted draft position variable based on the significant variables is significant in predicting the amount of guaranteed money in a linebacker's rookie contract.

Offensive Lineman

Offensive lineman have to block the defensive ends and defensive tackles from getting to the quarterback on passing plays and from tackling the running back on running plays. Starting with the general equation where variables can be identified to be significant using a negative binomial count estimator. The format of the general equation in order to find out which variables are significant looked like the following equation.

$$DRAFT = \beta_1 AA + \beta_2 BIGPROGRAM + \beta_3 HEIGHT + \beta_4 WEIGHT + \beta_5 FORTY + \beta_6 VERT + \beta_7 BENCH \quad (5.11)$$

The results of the equation indicated that there was only one variable that had significance in predicting draft position. In the equation used to forecast the draft position I used only the significant variable of if the player was an all American in college. The

following equation is used to forecast the draft position and the estimation procedure is a negative binomial count estimator.

$$DRAFT = C + \alpha_1 AA \tag{5.12}$$

The regression results of equation 5.12 are shown in table 5.9

TABLE 5.9

REGRESSION RESULTS OF DRAFT POSITION FOR OFFENSIVE LINEMEN

Variable	**Dependent Variable – Draft Position**
C Constant	4.994404 (50.78674)*
AA All-American	-0.776028 (-4.503706)*

Predicting the offensive lineman's draft position using quantifiable variables is especially difficult because there are no relevant statistics that are readily accessible for offensive lineman. However, the one variable that is significant is all American, so if the offensive lineman was named an all American they get drafted higher. Surprisingly, height and weight were not significant, this is surprising because offensive linemen need to be strong and a big deal is made about how strong they are. So similarly I was expecting the offensive linemen's bench press would be significant, however it was not. Again breaking the law or NCAA rules had no significant effect on where offensive linemen got drafted.

In the next table we see the results from the forecasted draft position as the independent variable and the logarithm of the money guaranteed in the rookie contract as the dependent variable. The equation used is the same as equation 5.2, where the

forecasted draft position is from the previous equation 5.12. The following table 5.10 shows the results of this regression using an OLS estimator.

TABLE 5.10

REGRESSION RESULTS OF GUARANTEED MONEY FOR OFFENSIVE LINEMEN

Variable	**Dependent Variable – Log(Guaranteed Money)**
C Constant	2.444776 (3.924304)*
DRAFTF Forecasted Draft	-0.025853 (-5.270591)*
R-Squared	0.265121
Adjusted R-Squared	0.255577

The results for the offensive linemen show that the forecasted draft position is significant in predicting the amount of guaranteed money. The r-squared is surprisingly high considering that there was one variable that was used to forecast draft position and that is the only variable in the regression results above.

Quarterbacks

Quarterbacks are one of the marquee positions in football; they are responsible for be the leader of the offensive, the biggest part of most quarterbacks' games is passing the ball to the receivers. Starting with the general equation where variables can be identified to be significant using a negative binomial count estimator. The format of the general

equation in order to find out which variables are significant looked like the following equation.

$$DRAFT = \beta_1 AA + \beta_2 BIGPROGRAM + \beta_3 HEIGHT + \beta_4 WEIGHT + \beta_5 FORTY + \beta_6 VERT + \beta_7 BENCH + \beta_8 BRATING + \beta_9 BYARDS + \beta_{10} BTDS + \beta_{11} AYARDS + \beta_{12} ATDS \quad (5.13)$$

The results of the equation indicated that there were two variables that had significance in predicting draft position of quarterbacks. In the equation used to forecast the draft position I used only these significant variables, which were, the quarterback's height and if the player was an all American in college. The following equation is used to forecast the draft position and the estimation procedure is a negative binomial count estimator.

$$DRAFT = \alpha_1 AA + \alpha_2 HEIGHT \quad (5.14)$$

The regression results of equation 5.14 are shown in table 5.11

TABLE 5.11

REGRESSION RESULTS OF DRAFT POSITION FOR QUARTERBACKS

Variable	**Dependent Variable – Draft Position**
AA All-American	-1.517639 (-3.636928)*
HEIGHT Height	-0.067402 (27.91459)*

Quarterback is probably the position in football that faces the most scrutiny and this is no different coming into the NFL draft. The results of the equations (5.13, 5.14) show that the only variables that were significant in predicting the draft position of quarterbacks were all American and the quarterback's height. These two variables are not surprising that they are significant since being an all American quarterback is a good indication that

the quarterback in question is very talented and quarterbacks are usually tall in order to see over the linemen. However, considering that quarterback is one of the main positions on the field and such a big deal is made about drafting quarterbacks it is surprising that their statistics or combine results are not significant in predicting when they get drafted. Once again legal or NCAA infractions have no significance in where quarterbacks get drafted.

In the next table we see the results from the forecasted draft position as the independent variable and the logarithm of the money guaranteed in the rookie contract as the dependent variable. The equation used is the same as equation 5.2, where the forecasted draft position is from the previous equation 5.14. The following table 5.12 shows the results of this regression using an OLS estimator.

TABLE 5.12

REGRESSION RESULTS OF GUARANTEED MONEY FOR QUARTERBACKS

Variable	**Dependent Variable – Log(Guaranteed Money)**
C Constant	2.622392 (2.679687)*
DRAFTF Forecasted Draft	-0.025487 (-3.715762)*
R-Squared	0.365195
Adjusted R-Squared	0.338745

The regression results show that given the significant variables the forecasted draft variable is significant in predicting the amount of money a drafted quarterback will be guaranteed.

Running Backs

As mentioned in the previous chapter running backs are one of the most versatile and athletic positions on the field. The running backs can have many different types of impact on the game, whether it be running the football, receiving the football, or blocking. Starting with the general equation where variables can be identified to be significant using a negative binomial count estimator. The format of the general equation in order to find out which variables are significant looked like the following equation.

$$\begin{aligned} DRAFT = {} & \beta_1 AA + \beta_2 BIGPROGRAM + \beta_3 HEIGHT + \\ & \beta_4 WEIGHT + \beta_5 FORTY + \beta_6 VERT + \beta_7 BENCH + \\ & \beta_8 AATTEMPTS + \beta_9 AYARDS + \beta_{10} ATD + \\ & \beta_{11} BATTEPMTS + \beta_{12} BYARDS + \beta_{13} BTD + \beta_{14} FB \end{aligned} \tag{5.15}$$

The results of the equation indicated that there were nine different variables that had significance in predicting draft position of running backs. In the equation used to forecast the draft position I used only these significant variables, which were, the running back's height and weight, the running back's average attempts, average touchdowns, number of touchdowns and yards in the running back's best seasons, their forty yard dash time, whether or not they went to a school with a big program and if they are a half back or full back. The following equation is used to forecast the draft position and the estimation procedure is a negative binomial count estimator.

$$DRAFT = \alpha_1 AATTEMPTS + \alpha_2 ATD + \alpha_3 BIGPROGRAM + \alpha_4 BTD + \alpha_5 BYARDS + \alpha_6 FB + \alpha_7 FORTY + \alpha_8 HEIGHT + \alpha_9 WEIGHT \quad (5.16)$$

The regression results of equation 5.16 are shown in table 5.14

TABLE 5.13

REGRESSION RESULTS OF DRAFT POSITION FOR RUNNING BACKS

Variable	Dependent Variable – Draft Position
AATTEMPTS Average Attempts	-0.009042 (-2.975290)*
ATD Average Touchdowns	-0.145568 (-2.556197)*
BIGPROGRAM Big Program	-0.450303 (-2.191031)*
BTD Best Touchdowns	0.065845 (1.916027)
BYARDS Best Yards	-0.002129 (-5.064501)*
FB Fullback	-2.203263 (-4.285503)*
FORTY Forty Yard Dash Time	2.87818 (3.337484)*
HEIGHT Height	-0.152705 (-2.630122)*
WEIGHT Weight	0.021214 (2.949562)*

Since running backs are incredible versatile it makes sense that there are so many significant variables in predicting where they will get drafted. Most of the variables make sense the more attempts the running backs get the higher they get drafted, this is because the running back is probably very talented and can withstand the constant pounding of an

NFL season. The more touchdowns in an average season and more yards in their best season the running back ran for the higher they got drafted which makes sense since these are their main functions. Given the same statistics if the running back is a fullback they will get drafted higher. The faster a running back the more desirable they are for NFL teams. The height and weight show that smaller running backs are preferred, the most likely reason for this is that smaller running backs tend to be more agile and elusive which are both necessary traits in running backs.

In the following table we see the results from the forecasted draft position as the independent variable and the logarithm of the money guaranteed in the rookie contract as the dependent variable. The equation used is the same as equation 5.2, where the forecasted draft position is from the previous equation 5.16. The following table 5.14 shows the results of this regression using an OLS estimator.

TABLE 5.14

REGRESSION RESULTS OF GUARANTEED MONEY FOR RUNNING BACKS

Variable	**Dependent Variable – Log(Guaranteed Money)**
C Constant	1.300985 (2.595096)*
DRAFTF Forecasted Draft	-0.015607 (-4.619481)*
R-Squared	0.392708
Adjusted R-Squared	0.374205

The results of the table above show that how much running backs get guaranteed in their rookie contracts is significantly related to the forecasted draft position which in turn is based on equation 5.16 and the significant variables in that equation.

Safeties

Safeties can have an enormous impact on the defensive side of the ball. They need to be able to cover receivers and are a main tool against the pass, however, they also need to be able to run down and tackle offensive players during rushing plays. Starting with the general equation where variables can be identified to be significant using a negative binomial count estimator. The format of the general equation in order to find out which variables are significant looked like the following equation.

$$\begin{aligned} DRAFT = {} & \beta_1 AA + \beta_2 BIGPROGRAM + \beta_3 HEIGHT + \\ & \beta_4 WEIGHT + \beta_5 FORTY + \beta_6 VERT + \beta_7 BENCH + \\ & \beta_8 AINTS + \beta_9 ATACKLES + \beta_{10} BINTS + \beta_{11} BTACKLES \end{aligned} \tag{5.17}$$

The results of the equation indicated that there were four different variables that had significance in predicting draft position of safeties. In the equation used to forecast the draft position I used only these significant variables, which were, if a safety was an all American, their forty-yard dash time, their criminal record, and their race. The following equation is used to forecast the draft position and the estimation procedure is a negative binomial count estimator.

$$DRAFT = \alpha_1 AA + \alpha_2 FORTY + \alpha_3 LAW + \alpha_4 WHITE \tag{5.18}$$

The regression results of equation 5.18 are shown in table 5.15.

TABLE 5.15

REGRESSION RESULTS OF DRAFT POSITION FOR SAFETIES

Variable	Dependent Variable – Draft Position
AA All American	-1.094405 (-4.128414)*
FORTY Forty Yard Dash Time	1.083769 (45.38616)*
LAW Criminal Record	0.695373 (1.861046)
WHITE Race	1.660426 (2.733564)*

The results of this equation are really interesting. Once again we see that the NFL values all Americans as well as speed, shown by the forty yard dash. Both those variables are significant for safeties, which makes sense. For safeties there are two variables that have implications of NFL teams caring about character and appearance. The law variable is significant at 10% significance level. It is positively correlated so if the dummy variable is a one, meaning that they have a criminal record, they get drafted in a worse position. For safeties it harms them if they have committed any crimes. Another variable that has big implications is that if the player is white they get drafted worse then a similar safety that is not white.

In the following table we see the results from the forecasted draft position as the independent variable and the logarithm of the money guaranteed in the rookie contract as the dependent variable. The equation used is the same as equation 5.2, where the forecasted draft position is from the previous equation 5.18. The following table 5.16 shows the results of this regression using an OLS estimator.

TABLE 5.16

REGRESSION RESULTS OF GUARANTEED MONEY FOR SAFETIES

Variable	Dependent Variable – Log(Guaranteed Money)
C Constant	1.993739 (2.949541)*
DRAFTF Forecasted Draft	-0.022784 (-4.516205)*
R-Squared	0.381977
Adjusted R-Squared	0.363249

The results shown in the table above show that the forecasted draft, based on the significant variables in equation 5.15, is significant in predicting the amount of guaranteed money that rookies receive after being drafted.

Tight Ends

Tight ends have two main jobs on the field, they need to be able to run routes and catch balls like a receiver and they need to be able to block like an offensive lineman. Starting with the general equation where variables can be identified to be significant using a negative binomial count estimator. The format of the general equation in order to find out which variables are significant looked like the following equation.

$$\begin{aligned} DRAFT = {} & \beta_1 AA + \beta_2 BIGPROGRAM + \beta_3 HEIGHT + \\ & \beta_4 WEIGHT + \beta_5 FORTY + \beta_6 VERT + \beta_7 BENCH + \\ & \beta_8 AREC + \beta_9 AYARDS + \beta_{10} ATDS + \beta_{11} BREC + \\ & \beta_{12} BYARDS + \beta_{13} BTDS \end{aligned} \tag{5.19}$$

The results of the equation indicated that there were six different variables that had significance in predicting draft position of tight ends. In the equation used to forecast the draft position I used only these significant variables, which were, if a tight end was an all American, their average receiving yards as well as most receiving yards in a season, their forty-yard dash time, their vertical jump and their weight. The following equation is used to forecast the draft position and the estimation procedure is a negative binomial count estimator.

$$DRAFT = \alpha_1 AA + \alpha_2 AYARDS + \alpha_3 BYARDS + \alpha_4 FORTY + \alpha_5 VERT + \alpha_6 WEIGHT \quad (5.20)$$

The regression results of equation 5.20 are shown in table 5.17.

TABLE 5.17

REGRESSION RESULTS OF DRAFT POSITION FOR TIGHT ENDS

Variable	Dependent Variable – Draft Position
AA All American	-0.746709 (-3.660252)*
AYARDS Average Receiving Yards	-0.002443 (-2.825693)*
BYARDS Best Receiving Yards	0.001300 (1.986562)*
FORTY Forty Yard Dash Time	2.876640 (6.270188)*
VERT Vertical Jump in Inches	0.053341 (2.654432)
WEIGHT Weight	-0.040093 (-4.536925)

The tight end has many different variables that have significance on where they get drafted. If a tight end is all American they get drafted higher because of they are

recognized as one of the best at their position. Interestingly average yards is significant and negatively correlated so the more yards a tight end averages the better they get drafted, however looking at the best season a tight end has the yards are positively correlated so that is saying that the more yards they get in their best season the worse they get drafted. The faster a tight end is the higher they get drafted, they need to be able to run like a receiver, so this result is logical. The bigger a tight end is the higher they get drafted because they need to be big and strong like a linemen. Another interesting and somewhat strange result is that the higher a tight end can jump the lower they get drafted. For tight ends their criminal record and NCAA violations have no significant affect on where they get drafted.

In the following table we see the results from the forecasted draft position as the independent variable and the logarithm of the money guaranteed in the rookie contract as the dependent variable. The equation used is the same as equation 5.2, where the forecasted draft position is from the previous equation 5.20. The following table 5.18 shows the results of this regression using an OLS estimator.

TABLE 5.16

REGRESSION RESULTS OF GUARANTEED MONEY FOR TIGHT ENDS

Variable	**Dependent Variable – Log(Guaranteed Money)**
C Constant	0.906470 (1.946064)
DRAFTF Forecasted Draft	-0.015712 (-5.456725)*

R-Squared	0.474320
Adjusted R-Squared	0.458390

These results indicate that the forecasted draft position is significant in predicting how much money a rookie is slated to make, when taking into account the significant variables in equation 5.20.

Wide Receivers

Wide receivers have the main task of catching balls thrown by the quarterback, in order to gain yards and get touchdowns. Starting with the general equation where variables can be identified to be significant using a negative binomial count estimator. The format of the general equation in order to find out which variables are significant looked like the following equation.

$$\begin{aligned} DRAFT = {} & \beta_1 AA + \beta_2 BIGPROGRAM + \beta_3 HEIGHT + \\ & \beta_4 WEIGHT + \beta_5 FORTY + \beta_6 VERT + \beta_7 BENCH + \\ & \beta_8 AREC + \beta_9 AYARDS + \beta_{10} ATDS + \beta_{11} BREC + \\ & \beta_{12} BYARDS + \beta_{13} BTDS \end{aligned} \tag{5.21}$$

The results of the equation indicated that there were five different variables that had significance in predicting draft position of wide receiver. In the equation used to forecast the draft position I used only these significant variables, which were, if a wide receiver went to a college with a "big time" program, their average receiving yards, their forty-yard dash time, their bench, and their weight. The following equation is used to forecast the draft position and the estimation procedure is a negative binomial count estimator.

$$\begin{aligned} DRAFT = {} & \alpha_1 AYARDS + \alpha_2 ABENCH + \alpha_3 FORTY + \\ & \alpha_4 BIGPROGRAM + \alpha_5 WEIGHT \end{aligned} \tag{5.22}$$

The regression results of equation 5.22 are shown in table 5.18.

TABLE 5.18

REGRESSION RESULTS OF DRAFT POSITION FOR WIDE RECIEVERS

Variable	Dependent Variable – Draft Position
AYARDS Average Receiving Yards	-0.001459 (-4.122934)*
BENCH Bench Press Repetition	-0.037319 (-2.234758)*
FORTY Forty Yard Dash Time	2.225011 (7.750732)*
BIGPROGRAM Big Program	-0.0694024 (-3.614789)*
WEIGHT Weight	-0.014905 (-2.651963)*

These results indicate that there are many different variables that affect the draft position in the NFL draft. The first variable, which makes sense, is average receiving which is one of the main statistics that are relevant to receivers. Two variables of weight and bench press repetitions that both indicate that bigger, stronger receivers are valued more in the NFL draft. The forty-yard dash shows that faster receivers get drafted in a better position, which is logical because wide receivers need to be fast in order to break away from the coverage. The big program variable is also significant which illustrates that the NFL drafts receivers that have gone to a well-known powerhouse football program higher than they draft a similar player that went to a mid-sized or small school.

In the following table we see the results from the forecasted draft position as the independent variable and the logarithm of the money guaranteed in the rookie contract as the dependent variable. The equation used is the same as equation 5.2, where the

forecasted draft position is from the previous equation 5.22. The following table 5.20 shows the results of this regression using an OLS estimator.

TABLE 5.18

REGRESSION RESULTS OF GUARANTEED MONEY FOR WIDE RECIEVERS

Variable	**Dependent Variable – Log(Guaranteed Money)**
C Constant	0.953460 (1.887665)
DRAFTF Forecasted Draft	-0.014320 (-4.073776)*
R-Squared	0.260956
Adjusted R-Squared	0.245231

The results above indicate that once again the forecasted draft variable is significant given the variables used to forecast it. The r-squared is pretty good considering that there is only one variable in equation 5.2.

Conclusion

This study has examined the impacts of many different quantifiable variables on how highly NFL teams draft certain players and the amount of money these rookies stand to make. The main purpose was to determine whether or not NFL teams were deterred from drafting prospects because of their off the field decisions, which included both criminal record and NCAA violations.

The results of the regression analysis done in this chapter have many different implications. When examining the results we must first understand that since each position is looked at with different equations and some different variables. Each position has many of the same basic variables of height, weight, race, and combine results, however position specific variables made it necessary to split this study into 10 different positions.

The first significant, or more accurately insignificant result of the study is in regards to the main interest, criminal records had no significance in 9 out of the 10 position equations. The one position that this variable was significant was for safeties, the relationship was positive, which means that if the safety had a criminal record they were drafted worse. NFL teams seem to pass up safeties that have a criminal record. The variable was significant at the 10% significance level. This begs an interesting question, which is does the NFL only care if safeties get in trouble with the law? This is most likely not the case, however in the two-year sample that is used in this study this is the only evidence of NFL teams drafting differently based on criminal records. It seems that overwhelmingly that the NFL doesn't care if a player has been in trouble with the law, this could be for many different reasons. Possibly the most logical explanation is that crime is so prevalent in footballs on elite college teams that the NFL is drafted the best players but they often have criminal records but have shown success at the college level. There was only one preseason top 25 team that didn't have any player with a criminal record this past year, the one team being TCU.[83] This is very possible that the overall prevalence of crime in college and NFL football players have created an atmosphere of NFL teams only caring about on the field performance. If this is the case the NFL needs

[83] "Criminal Records in College Football," Sports Illustrated, March 7, 2011.

to think about changing its policy on player misconduct. However, many would argue that since these NFL teams are choosing to risk their reputations, success, and money on line for these players who have criminal records, there should be no policy change. According to this study and the constant stream of news reports that show NFL players in trouble with the law it seems as though most of the NFL teams don't care too much about the types of players on their teams.

After taking into account that this study was to see if having a criminal record going into the NFL draft affect where a player would get drafted or how much a player would be paid, there are some other interesting results coming out of this study. The fact that there is no significance of criminal records on draft position is significant in itself. There were a few variables that appeared to be significant in many positions; these were if the player was all American, player's size, and player's speed. These were the most prevalent significant variables across the board, the NFL is a league that place high emphasize on size and speed so it is not surprising to see these variables repeatedly. Similarly with the all American variable this indicates that the player was one of the best at his position in college so this too is logical. However, something surprising that the study shows is that there were six of the positions that didn't have any statistic variables that were significant in determining draft position.

A difficulty of predicting draft position is that many variables that affect how a player is drafted are hard to quantify. Scouts place a lot of emphasis on how a player looks on game film, they may not have great statistics or combine results, but they could show potential in the NFL in their film. Another variable is how well a player's game will translate to the NFL, this criticism is heard most often around quarterbacks,

depending on what type of offensive system they played in, or their arm strength and throwing mechanics. Personality is something that is difficult to quantify, however this could be the difference between a team taking a player and passing on him. Other difficult variables to take into account are game knowledge and work ethic. Also looking at the variable of guaranteed money may not tell the whole story, different contract structures make it difficult to talk about a players contract.

The most significant finding in this paper is relating to the main interest. I found that in the majority of positions that a player's off the field conduct had no significant impact on when they got drafted or how much they got paid.

Further Studies

This study is certainly not a compressive study on all issues concerning off the field issues in college football, the NFL draft, or the NFL salary structure. There are still many important issues that are available to research further.

Off the field issues in college football is an interesting topic especially if you consider these players possibly having NFL careers. It would be interesting to know how many of the college players that have criminal records make it to the NFL and how they do in the NFL. Are these players more likely to commit crimes in the NFL? Another issue that can be studied further is why do so many players have off the field issues in the NFL and in NCAA football? Is it due to the entitlement that they feel? What about football (and athletes in general) player's backgrounds affect whether or not a player tends towards crime?

The NFL draft has been studied however there is still more work that can be done. There are differing views on how much importance is placed on the NFL combine. This study perhaps didn't have enough data to accurately model what exactly NFL teams value in a player coming out of college. There is defiantly a baseline for that study here, however there is still room to try and model in general what makes a college player desirable and try to model what makes certain positions valuable. Studies could focus on a single position and get a much more deep dataset and more variables that may or may not affect a player's NFL draft position. There could be a study that looked to see if teams tend to take more "risks" involving players with criminal records early or late in the draft or if certain teams tend to take players with criminal records and if there are any teams that don't take players with criminal records. These are all questions that are still unanswered and could have very significant and interesting results.

One of the big issues in the NFL now is rookie contracts, and this is one unresolved topic to date. Rookie contracts are becoming increasingly larger and larger. There is room to study the affect of these contracts on the teams with high draft pick, is the reverse draft order really benefiting the teams at the bottom of the league? It would be interesting to see if teams get more out of using their high draft pick or if teams that trade their high picks end up better in the short run or better in the long run or neither.

The NFL and NCAA football are such large leagues in terms of popularity that there is a ton that economist can still study. The topics left to study in the NFL specifically is very exciting and the same is true of other sports as well.

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