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Can Recruiting Rankings Predict the Success of NCAA Division I Football Teams? An Examination of the Relationships among Rivals and Scouts Recruiting Rankings and Jeff Sagarin End-of-Season Ratings in Collegiate Football

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Abstract

The purpose of the present study was to examine the relationships among National Collegiate Athletic Association (NCAA) Division I football teams' 2002 recruiting rankings from the Rivals (RIV) and Scouts (SCO) recruiting services and the Jeff Sagarin end-of-season performance ratings from 2002–2006. The RIV and SCO recruiting services included rankings for 100 common NCAA Division I football teams for the 2002 recruiting season. Each recruiting service included a total point system rating (TOTPTS) and average star rating (AVESTAR). The Jeff Sagarin NCAA football ratings system was chosen as an indicator of the teams' performance. Pearson product moment correlation coefficients (R) and the corresponding predictive indices (R^2) were used to examine whether the 2002 RIV & SCO TOTPTS and RIV & SCO AVESTAR ratings could predict the Jeff Sagarin end-of-season ratings and total number of wins for each football team for the 2002 through 2006 seasons. In addition, R and R^2 values were computed to examine whether the 2002 Jeff Sagarin end-of-season ratings and total number of wins could predict the following season's recruiting rankings (2003 RIV & SCO TOTPTS and RIV & SCO AVESTAR). The results indicated that RIV & SCO TOTPTS and AVESTAR predicted up to 45% of the variances in the end-of-season ratings and total wins. Thus, other factors (besides recruiting rankings) must be contributing to the end-of-season ratings for the 100 NCAA football teams included in this study. In addition, up to 51% of the variance in RIV & SCO AVESTAR and TOTPTS was predicted by the previous year's end-of-season ratings or total wins, which suggests that more successful seasons tend to yield better subsequent recruiting classes.

KEYWORDS: American football

Introduction

The National Letter of Intent signing day on the first Wednesday every February has become a highly anticipated event (National Collegiate Athletic Association, 2009). On signing day, high school senior football (American football) players can sign a letter stating which National Collegiate Athletic Association (NCAA) university they formally accept a scholarship to participate in football. The collection of high school football players that are signed to a school is referred to as that school's recruiting class. The NCAA limits the number of football scholarships for each Division I Football Bowl Subdivision (FBS) school to 85 (2008-09 NCAA Division I Manual) and, thus, a recruiting class is limited by the number of scholarships the school has available. It is widely believed that the future success of a school's football team is strongly related to the previous recruiting classes. In theory, the better the recruiting class, the better the subsequent years' performance outcome will be. Specifically, in the NCAA Division I FBS, recruits with higher rankings are courted by schools in an attempt to win more games and play in higher-tier bowl games at the end of subsequent seasons. Therefore, over the past several years, much attention has been focused on the National Letter of Intent signing day. However, little information is available to quantify how much of a team's success can be attributed to recruiting.

Recruiting services that rank and track the signing of high school football players to NCAA Division I FBS schools have become widely popular in recent years. For example, Rivals and Scouts are popular web-based subscription recruiting services that are hosted by Yahoo Sports and Fox Sports, respectively. These recruiting services have primarily three objectives: (1) rank each high school football player that they consider to be a prospect to play for an NCAA Division I school, (2) track the signing of those ranked players to schools, and (3) rank the schools according to the quality and/or quantity of players the school has signed. Ultimately, it is believed that higher quality players will result in more successful seasons measured by wins and rankings at the end of the season. To our knowledge, however, we are aware of only one previous study that has examined the relationship between Division I FBS college football recruiting and team performance (Langelett, 2003). Langelett (2003) examined the effects of top 10 recruiting classes (Allen Wallace and Tom Lemming) on end-of-season rankings according to *USA Today* Coaches and Associated Press final top 25 polls. Langelett (2003) concluded that there is evidence suggesting that recruiting does indeed affect team performance over the next five years. Furthermore, a team's performance affects the following years' recruiting class as well. However, Langelett (2003) examined these relationships in only 10 schools that were consistently ranked in the top 10 in recruiting rankings according to Allen Wallace and Tom Lemming. We would argue that a more comprehensive

approach including the majority of Division I teams are necessary to fully understand the impact of recruiting rankings on teams' performances. Therefore, the purpose of the present study was to examine the relationships among 100 NCAA Division I football teams' 2002 recruiting rankings from the Rivals (RIV) and Scouts (SCO) recruiting services and the Jeff Sagarin end-of-season performance ratings from 2002 – 2006.

Methods

Recruiting rankings for the present study were obtained from the Rivals (Rivals recruiting service, 2009) and (Scout recruiting service, 2009) recruiting services, and the team performance rankings were obtained from the Jeff Sagarin NCAA football end-of-season ratings poll hosted by USA TODAY (Jeff Sagarin Ratings, 2009). The Rivals recruiting service included team rankings on 116 NCAA Division I Football Bowl Subdivision (FBS) schools for the 2002 recruiting season (spring of 2002). Rivals used two different indices to rate the recruiting classes: (a) total point system rating (RIV TOTPTS) and (b) average star rating (RIV AVESTAR). First, Rivals rankings included the RIV TOTPTS that awarded points through an equation that was not disclosed, however, it was described as a formula that rewarded schools for both the quantity and quality of their recruits (Rivals recruiting service, 2009). According to Rivals, the RIV TOTPTS system states that schools will receive more points when committed recruits have higher star ratings (explained below), are ranked higher within their position, and are ranked in the top 100 of all recruited players (Rivals recruiting service, 2009). The second method (RIV AVESTAR) exclusively accounts for the star ratings for each player committed. The star rating is an individual player rating on a scale from one to five stars, with five stars being the best rating. This was a subjective rating given by the Rivals recruiting service. Overall, the RIV AVESTAR index used the average number of stars given to the committed recruits for any given school. Thus, the quantity of players committed was not a factor in the RIV AVESTAR index compared to the RIV TOTPTS index.

The Scouts recruiting service included rankings for only 100 NCAA Division I FBS schools for the 2002 recruiting season. Similar to Rivals, the Scouts recruiting service used two different indices to rate the recruiting classes: (a) total point system rating (SCO TOTPTS) and (b) average star rating (SCO AVESTAR). SCO TOTPTS awarded points through an equation that was not disclosed, however, it was described as a formula with three main components: (a) quality of players, (b) fulfilling team needs at each position, and (c) player representation at each position based on body type (Scout recruiting service, 2009). The second method (SCO AVESTAR) was identical to the RIV AVESTAR method and exclusively accounted for each player's star ratings

(Scout recruiting service, 2009). Just like for the RIV AVESTAR, the Scouts star rating awarded individual players one to five stars, with five stars being the best rating. This was a subjective index given by the Scouts recruiting service.

The Jeff Sagarin NCAA football ratings system was used as an indicator of a team's performance by their end-of-season ranking. There are three primary reasons why the Jeff Sagarin rating system was used as opposed to the top 25 polls (Associated Press poll, Coaches poll, etc.). First, the Jeff Sagarin rating system encompasses all schools that participate at the NCAA Division I FBS. The top 25 polls (Associated Press poll, Coaches poll, etc.) only rank approximately the top 20% of the schools at the end of each season. Second, the Jeff Sagarin rating system may not be as influenced by other coaches or media personalities as the top 25 polls. Rather, in the Jeff Sagarin system, the rating for a school is the average of two main components: ELO-BCS and PREDICTOR (Jeff Sagarin Ratings, 2009). The ELO-BCS component only accounts for the number of wins and losses with no account for the score margin, whereas the PREDICTOR component considers only the score margin (Jeff Sagarin Ratings, 2009). Finally, the Jeff Sagarin NCAA football rating system has been used since 1985 and the ELO-BCS component is currently used in the BCS formula to decide which schools play in the BCS national championship game (Jeff Sagarin Ratings, 2009). Consequently, the Jeff Sagarin end-of-season ratings were recorded for seasons 2002 through 2006. In addition, the total number of wins for each school during the 2002 through 2006 seasons were recorded.

Statistical Analyses

Statistical analyses were performed on the 100 Division I schools that were common between the Rivals and Scouts recruiting services from seasons 2002 – 2006. Pearson product moment correlation coefficients (R) and corresponding predictive indices (R^2) were used to quantify the relationships among the 2002 RIV & SCO TOTPTS and RIV & SCO AVESTAR ratings on the Jeff Sagarin end-of-season ratings for the 2002, 2003, 2004, 2005, and 2006 seasons. Furthermore, R and R^2 values were calculated for the relationships among the 2002 RIV and SCO TOTPTS and RIV and SCO AVESTAR ratings on the total number of wins for each school during the 2002, 2003, 2004, 2005, and 2006 seasons.

In addition, to examine the impact of the 2002 teams' performances on the subsequent year's recruiting rankings, R and R^2 values were computed for the relationships among the 2002 Jeff Sagarin end-of-season ratings and total number of wins for that season versus the 2003 RIV & SCO TOTPTS and RIV & SCO AVESTAR. A type I error rate of 5% was used to determine statistical

significance, and the R and R^2 values were computed using SPSS v. 12.0 (SPSS Inc., Chicago, IL).

Results

The R and R^2 values for the 2002 RIV and SCO TOTPTS and RIV and SCO AVESTAR ratings versus the Jeff Sagarin end-of-season ratings for the 2002, 2003, 2004, 2005, and 2006 seasons are presented in Table 1. The R and R^2 values for the 2002 RIV and SCO TOTPTS and RIV and SCO AVESTAR ratings versus the total number of wins for each school during the 2002, 2003, 2004, 2005, and 2006 seasons are listed in Table 2. Table 3 contains the R and R^2 values for the 2002 Jeff Sagarin end-of-season ratings and total number of wins for that season versus the 2003 RIV and SCO TOTPTS and RIV and SCO AVESTAR.

Table 1. The Pearson's product moment correlation coefficients (R) and coefficients of determination (R^2) for the 2002 RIV AVESTAR, RIV TOTPTS, SCO AVESTAR, and SCO TOTPTS versus the Jeff Sagarin end-of-season ratings for years 2002 through 2006.

		2002	2003	2004	2005	2006
RIV AVESTAR	R	0.635	0.566	0.539	0.630	0.529
	R^2	0.403	0.320	0.291	0.397	0.280
RIV TOTPTS	R	0.667	0.583	0.612	0.640	0.550
	R^2	0.445	0.340	0.375	0.410	0.303
SCO AVESTAR	R	0.369	0.346	0.404	0.422	0.336
	R^2	0.136	0.120	0.163	0.178	0.113
SCO TOTPTS	R	0.624	0.534	0.568	0.619	0.514
	R^2	0.389	0.285	0.323	0.383	0.264

All relationships were significant at an alpha of 0.05

Table 2. The Pearson's product moment correlation coefficients (R) and coefficients of determination (R^2) for the 2002 RIV AVESTAR, RIV TOTPTS, SCO AVESTAR, and SCO TOTPTS versus the total wins for years 2002 through 2006.

		2002	2003	2004	2005	2006
RIV AVESTAR	R	0.439	0.320	0.312	0.402	0.308
	R^2	0.193	0.102	0.097	0.162	0.095
RIV TOTPTS	R	0.482	0.350	0.407	0.419	0.313
	R^2	0.232	0.123	0.166	0.176*	0.098*
SCO AVESTAR	R	0.251	0.224	0.209	0.286*	0.173*
	R^2	0.063	0.050	0.044	0.082	0.030
SCO TOTPTS	R	0.464	0.308	0.381	0.397	0.293
	R^2	0.215	0.095	0.145	0.158	0.086

* non significant relationships at an alpha of 0.05

Table 3. The Pearson's product moment correlation coefficients (R) and coefficients of determination (R^2) for the 2002 Jeff Sagarin end-of-season rating and total wins versus the 2003 RIV AVESTAR, RIV TOTPTS, SCO AVESTAR, and SCO TOTPTS.

		RIV AVESTAR	RIV TOTPTS	SCO AVESTAR	SCO TOTPTS
Jeff Sagarin end of season ratings	R	0.716	0.578	0.703	0.669
	R^2	0.513	0.334	0.494	0.448
Total Wins	R	0.513	0.392	0.509	0.486
	R^2	0.263	0.154	0.259	0.236

All relationships were significant at an alpha of 0.05

For 2002 RIV AVESTAR and TOTPTS versus Jeff Sagarin end-of-season ratings for years 2002 through 2006, the R^2 ranged from 0.280 – 0.403 and 0.303 – 0.445, respectively. The R^2 values for the 2002 RIV AVESTAR and TOTPTS versus total wins for years 2002 through 2006 ranged from 0.095 – 0.193 and 0.098 – 0.232, respectively. For 2002 SCO AVESTAR and TOTPTS versus Jeff Sagarin end-of-season ratings for years 2002 through 2006, the R^2 ranged from 0.113 – 0.178 and 0.264 – 0.389, respectively, while the 2002 SCO AVESTAR and TOTPTS versus total wins for years 2002 through 2006 the R^2 ranged from 0.030 – 0.082 and 0.086 – 0.215, respectively. All relationships were statistically significant ($P \leq 0.05$) except for the 2002 SCO AVESTAR versus total wins for 2005 and 2006 ($P > 0.05$) (Table 2).

Discussion

The primary findings of this correlational study were five-fold: (a) the RIV and SCO AVESTAR and TOTPTS systems explained 11 – 45% of the variance in the Jeff Sagarin end-of-season rankings, (b) the RIV and SCO AVESTAR and

TOTPTS systems explained 3 – 23% of the variance in the total wins achieved for each team, (c) the RIV and SCO AVESTAR and TOTPTS systems tended to be better predictors of the Jeff Sagarin end-of-season ratings than the total number of wins achieved, (d) the RIV AVESTAR and TOTPTS indices tended to be better predictors than the SCO AVESTAR and TOTPTS ratings, and (e) the 2002 Jeff Sagarin end-of-season ratings and total wins tended to be better predictors of the 2003 RIV and SCO AVESTAR than 2003 RIV and SCO TOTPTS. We are aware of no other studies that have reported R or R^2 values for relationships between recruiting rankings and end-of-season ratings for nearly all NCAA Division I football programs. Thus, it is difficult to speculate regarding the magnitudes of these correlation coefficients as being “strong” or “weak.” At least one previous study examined relationships between recruiting rankings and end-of-season team performances and reported significant relationships between recruiting and performance over a five year period (Langelett 2003 *Journal of Sports Economics*). However, Langelett (2003) only examined the relationships between consistent top 10 recruiting classes (Allen Wallace and Tom Lemming recruiting analyses) versus an average of the USA Today coaches and Associated Press final top 25 polls. In contrast, the present study examined the relationships for 100 common NCAA Division I football programs using a non-biased rating system (Jeff Sagarin or total wins) to evaluate the end-of-season team performances. Furthermore, Langelett (2003) transformed the recruiting data in manner that did not allow for direct comparisons to the present study. Nevertheless, the results from the present study indicated that there were significant relationships between Rivals and Scouts recruiting services and end-of-season ratings and the total number of wins. However, a team’s annual success could not be fully accounted for by their recruiting rankings.

Since the overall predictive indices ranged from 3 – 45%, clearly other factors must be present to help explain the 55 – 97% of the variance unaccounted for by recruiting rankings. In other words, recruiting rankings failed to explain over half of the variances in team performances between 2002 and 2006. The two best relationships were 2002 RIV TOTPTS, which predicted 45% and 41% of the variance in end-of-season rankings for years 2002 and 2005, respectively. However, the two worst relationships were that SCO AVESTAR only predicted 4% and 3% of the variance in total wins for years 2004 and 2006, respectively. Thus, there were qualitative differences (not statistically tested) among the correlations and predictive capabilities of the Rivals and Scouts recruiting services. American college football is a complex game that includes offensive, defensive, and special teams schemes that are influenced by coaches, player injuries, weather conditions, and numerous other variables. Furthermore, the abilities of NCAA college football programs to develop a broad range of young players physically, emotionally, and academically are generally unaccounted for

by recruiting services. Thus, overall, there may be many factors besides recruiting rankings that distinguish among the successes of NCAA Division I football teams judged by end-of-season rankings and the total number of team wins. In addition, in the present study recruiting rankings were recorded for one year and, thus, does not account for the recruiting classes in the previous or following years that would contribute to a team's performance.

Figure 1 contains the R^2 values with 95% confidence intervals for 2002 RIV AVESTAR, RIV TOTPTS, SCO AVESTAR, and SCO TOTPTS versus the Jeff Sagarin end-of-season ratings and the total wins for 2002 through 2006 seasons. It should be noted that the 95% confidence intervals overlap for most of the R^2 values. Although, overlapping confidence intervals cannot rule out statistical differences among these R^2 values (Austin & Hux, 2002; Payton, Greenstone, & Schenker, 2003), it is difficult to conclude that one R^2 value is better than another R^2 value relying solely on 95% confidence intervals. However, there were consistent patterns in the R^2 values that may aid the interpretations of the relationships among the recruiting services (RIV and SCO) and ranking systems (AVESTAR and TOTPTS) that will be discussed in the subsequent sections.

Jeff Sagarin End-of-Season Performance versus Total Wins

In the present study, for every relationship examined on a year-by-year basis there were higher correlations involving RIV and SCO TOTPTS and AVESTAR ($R^2 = 0.415, 0.361, 0.370,$ and 0.150) than total wins ($R^2 = 0.176, 0.155, 0.140,$ and 0.060) (Figure 1). The total number of a wins a school accumulates through out a season is dependent on their strength of schedule. An easier schedule may allow for more total wins, therefore, a team may not have a high end-of-season ranking that reflects their total number of wins. Subsequently, there is a disassociation between a high end-of-season ranking and the total number of wins. The Jeff Sagarin end-of-season rating system accounts for the quality of wins based on head-to-head match ups and adjusts its ratings accordingly. Therefore, it is not surprising that there are higher correlations between TOTPTS and AVESTAR with the Jeff Sagarin end-of-season ratings than the total number of wins a school accumulates during a season.

TOTPTS versus AVESTAR Indices

Rivals and Scouts recruiting services ranked recruiting classes with two different indices: TOTPTS and AVESTAR. RIV and SCO TOTPTS rankings awarded points to NCAA football teams for both the quantity and quality of their recruits. RIV and SCO AVESTAR takes the average of the star ratings (one to five stars

with five being the best rating), but does not take into account the quantity of players. The results of the present study indicated that the RIV and SCO TOTPTS had higher correlations with total wins (mean R^{2a} collapsed across all years = 0.176 and 0.155) and end-of-season ratings ($R^2 = 0.415$ and 0.361) than RIV and SCO AVESTAR had with total wins ($R^2 = 0.140$ and 0.060) and end-of-season ratings (0.370 and 0.150). This was true for every relationship (on a year-by-year basis) examined between TOTPTS and AVESTAR on total wins and end-of-season ratings (Figure 1). These findings suggested that the quantity of players recruited, which TOTPTS accounts for, may be an important factor when considering future seasons' total wins and end-of-season ratings. Conversely, this would tentatively suggest that scholarship reductions may negatively affect future total wins and end-of-season ratings.

Rivals versus Scouts Recruiting Services

The AVESTAR rankings for RIV and SCO recruiting services are similar procedures (one to five stars) with the only difference being their star rating the recruiting services give each player. However, there are methodological differences in the TOTPTS systems between RIV and SCO. RIV awards more points when committed recruits have high star ratings, are ranked higher within their positions, and are ranked in the top 100 of all recruited players (Rivals recruiting service, 2009). In contrast, SCO awards points based on the quality of players, fulfilling team needs at each position, and player representation at each position based on body type (Scout recruiting service, 2009). Therefore, differences in the relationships between RIV and SCO on the AVESTAR index is influenced by the individual player rating (one to five stars), whereas for TOTPTS the differences between RIV and SCO are their individual ratings as well as the methodology of evaluating a recruiting class as a whole. The results of the present study indicated that on average RIV TOTPTS had higher correlations with the Jeff Sagarin end-of-season ratings (mean R^{2a} collapsed across all years = 0.415) and total wins ($R^2 = 0.176$) than SCO TOTPTS ($R^2 = 0.361$ and 0.155). Furthermore, RIV AVESTAR had higher correlations with Jeff Sagarin end-of-season ratings (mean R^{2b} collapsed across all years = 0.370) and total wins ($R^2 = 0.140$) than SCO AVESTAR ($R^2 = 0.150$ and 0.060) for years 2002 through 2006 (Figure 1). These findings suggested that the 2002 RIV AVESTAR and TOTPTS indices consistently had higher correlations with the Jeff Sagarin end-of-season ratings and total wins for years 2002 through 2006 than did SCO AVESTAR and TOTPTS.

^a Fisher's z-score transformation was used to average the Pearson's R values: $Z = \ln\left[\frac{(R + 1)}{(R - 1)}\right] / 2$

Herda et al.: Recruiting Rankings versus End-of-Season Ratings

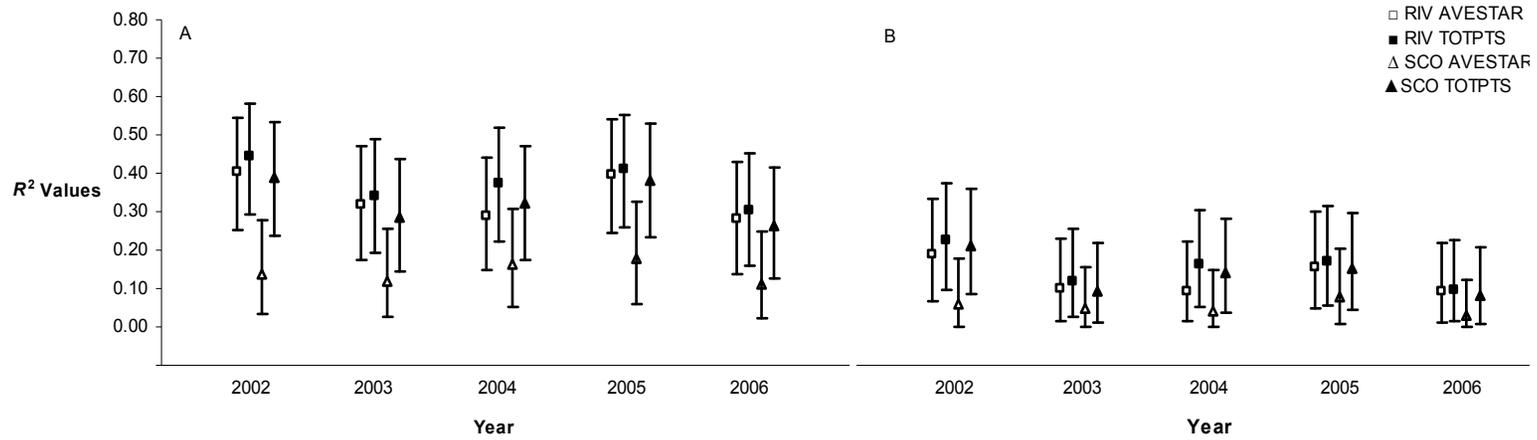


Figure 1. The coefficients of determination (R^2) and 95% confidence intervals for 2002 RIV AVESTAR, RIV TOTPTS, SCO AVESTAR, and SCO TOTPTS versus the (A) Jeff Sagarin end-of-season ratings and (B) the total wins for 2002 through 2006 seasons.

The correlations between 2002 RIV and SCO AVESTAR and TOTPTS versus the Jeff Sagarin end-of-season ratings and total wins for years 2002 through 2006 resulted in a pattern of R^2 values throughout the 5-year period. We choose to extrapolate the relationships of recruiting rankings through a 5-year period with the notion that many players would redshirt during their true freshman season and play at that school during the 5th year. Albeit, this is not always the case and players often leave early, get injured, do not redshirt, transfer, etc. Nevertheless, a pattern emerged for the R^2 values during this 5-year period. In most cases, 2002 RIV and SCO AVESTAR and TOTPTS had the highest correlations with the 2002 and 2005 Jeff Sagarin end-of-season ratings and total wins followed by 2004 relationships with 2003 and 2006 relationships having the lowest correlations. Therefore, the 1st and 4th year of the 2002 recruiting class had the highest correlations followed by the 3rd year, whereas the 2nd and 5th years had the lowest correlations with team success. It is possible that the stronger relationships between the 2002 recruiting indices and 2002 performance measures may have reflected the relationship (not measured) between each team's success in the year preceding rather than the impact of the recruiting class. For example, in the present study there were comparable relationships among the 2002 Jeff Sagarin end-of-season ratings and total wins versus 2003 RIV and SCO AVESTAR and TOTPTS rankings. Therefore, teams that perform well one year may have a higher likelihood for success during the next consecutive year which may also improve their recruiting class rankings in subsequent years. Nevertheless, the results from the present study indicated that a recruiting class should be expected to make the most contribution on a team's performance after the 3rd and 4th years.

2002 Jeff Sagarin End-of-Season Performance and Total Wins versus 2003 RIV and SCO AVESTAR and TOTPTS Rankings

The 2002 Jeff Sagarin end-of-season ratings predicted 33.4 – 51.3% of the variance in 2003 RIV and SCO AVESTAR and TOTPTS, whereas, the 2002 total wins predicted 25.4 – 26.3% of the variance in 2003 RIV and SCO AVESTAR and TOTPTS (Table 3). In addition, the end-of-season ratings and total wins had higher correlations with the 2003 RIV and SCO AVESTAR than the 2003 RIV and SCO TOTPTS. Therefore, these results suggested that a previous season's success was an important factor on the quality of the player (AVESTAR) signed the next season, but had less of a relationship with the overall team ranking (TOTPTS). These results are not surprising when considering that a school has a limited number of scholarships, thus, the previous season's performance may result in higher-quality recruits, but the quantity of recruits reflected in the TOTPTS index may not be affected. Overall, these results underscore the

contention that the previous season's performance is an important factor on the subsequent season's recruiting class.

Conclusion

In general, there were significant relationships between the 2002 RIV and SCO AVESTAR and TOTPTS and the Jeff Sagarin end-of-season ratings and total wins for years 2002 through 2006. In addition, there were significant relationships between the 2002 Jeff Sagarin end-of-season ratings and total wins on 2003 RIV and SCO AVESTAR and TOTPTS. These results indicated that recruiting is an important factor in a team's success that predicted up to 45% of the variance in end-of-season ratings and total wins. However, there was a large portion of the variance in the end-of-season ratings and total wins that was unaccounted for by recruiting services. Thus, there are many other factors besides recruiting classes that may contribute the success of an NCAA football team. In addition, up to 51% of the variance in RIV and SCO AVESTAR and TOTPTS was predicted by end-of-season ratings or total wins from the previous season, which may indicate that more successful seasons yield better subsequent recruiting classes. Future research should examine the additive effect of successive recruiting classes on end-of-season ratings. Furthermore, there may be differences in the strength of relationships among different conferences, such as conferences that are considered more prestigious (Big 10, SEC, etc.) may have better relationships between recruiting rankings and end-of-season ratings than the smaller, mid-major conferences (MAC, Sun Belt, etc.).

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