

# Evaluating the NFL Draft, 2000-2010, Using Two Different Draft Pick Trade Value Charts

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## Abstract

The authors use data on Day 1 National Football League (NFL) draft trades between 2000 and 2010 to assess how well (or poorly) two different NFL draft pick trade value charts explain weighted career approximate values of these drafted players, all of whom have completed their NFL careers. One chart, devised in the early 1990s by then-Dallas Cowboys head coach Jimmy Johnson, enjoys widespread use and appears at Pro-Football-Reference.com. The alternate chart assigns more value to players picked after the first round of the seven-round draft. Simple regression analysis shows that the latter chart does a vastly superior job of predicting the eventual success of players exchanged on Day 1 of the annual NFL draft.

## Keywords

National Football League (NFL), NFL Draft, Draft Pick Values

## 1. Introduction

The National Football League (NFL) draft has been held since 1936. In the inaugural draft, only 24 players out of a selected 81 chose to continue their football careers. The majority, including the number one overall pick and 1935 Heisman Trophy winner, John Jacob “Jay” Berwanger, decided that there was no money in pro football. He chose instead to become a foam-rubber salesman (Riddell, 2025).

Today, the draft consists of seven rounds (the length of the draft since 1994). Under the NFL’s reverse-order-of-finish draft, the weakest teams draft first and the winner of the Super Bowl drafts last. A team may trade a draft pick in a given round for one or more additional lower picks in the same or later rounds or for one or more picks in future drafts (or a combination of the two).

In the early 1990s, Mike McCoy, a Dallas Cowboys vice president, and then

Cowboys head coach Jimmy Johnson developed a chart to help evaluate the value of draft picks (<https://www.drafttek.com/NFL-Trade-Value-Chart.asp>). In their research on market efficiency in the NFL, Massey and Thaler (2005) conclude that the top NFL draft picks are overvalued by Jimmy Johnson. They use data on draft-day trades for the years 1988 through 2004 to develop a model for predicting the market value of draft picks relative to the overall number one pick. Their analysis of player performance measures (such as the number of games started, the number of games played, and the probability of making the Pro Bowl) leads them to conclude that teams put “too high a value of choosing early in the draft”.

The paper of Sommers (2016) on winners and losers in the NFL draft endeavors to value each draft pick based on how all players drafted between 2002 and 2014 ultimately performed in their careers based on their approximate value (hereafter AV), a comprehensive metric reported for each NFL player at Pro-Football-Reference.com. That is, Sommers relates each draft pick number (1 through 224) to the average career AVs of all players drafted by the NFL between 2002 and 2014. Sommers then uses career AVs to come up with a different value chart that reflects the Massey and Thaler contention that players near the top of the draft (in early rounds) are overvalued relative to the Johnson value chart. Jung and Sommers (2017) use Round 1 NFL trades on Day 1 (hereafter, “Day 1 trades”) between 1985 and 2005 for 359 players (97 percent of whom had completed their careers by 2015) to assess which value chart—Johnson or Sommers—did a better job of predicting which team’s picks in a Day 1 trade would end their careers with the higher AV.

This paper updates the Jung and Sommers comparison to include all Day 1 NFL draft trades between 2000 and 2010. All players involved in these trades are no longer playing in the NFL. Hence, their “career” AVs are not subject to change. Does the Sommers point value chart outperform the Johnson point value chart in predicting winners versus losers in Day 1 NFL draft trades?

## 2. The Data

The Jimmy Johnson trade-value draft chart is reproduced in **Table 1**. For each of the 224 picks (seven rounds, with each of 32 teams picking once per round), the Johnson chart assigns a point value to each draft pick. The first overall pick is worth 3000 points, the second is worth 2600 points, and so forth until the last or 224<sup>th</sup> pick—worth only 2 points.

The point allocations are front-heavy, with the entirety of the 7<sup>th</sup> round being assigned a cumulative point value less than that of the third pick in the 3<sup>rd</sup> round and less than 9 percent of the 1<sup>st</sup> overall pick. The Johnson chart nonetheless enjoys widespread use to help NFL teams approximate the market value of draft selection swaps.

The Sommers trade value chart is reproduced in **Table 2**.

While the last (or 224<sup>th</sup>) pick on Johnson’s value chart receives only 2 points, Sommers’ chart awards the last pick 298 points—on the same scale where the first

**Table 1.** Jimmy Johnson NFL draft trade value chart.

Pick number	Round						
	1	2	3	4	5	6	7
1	3000	580	265	112	43	27	14.2
2	2600	560	260	108	42	26.6	13.8
3	2200	550	255	104	41	26.2	13.4
4	1800	540	250	100	40	25.8	13
5	1700	530	245	96	39.5	25.4	12.6
6	1600	520	240	92	39	25	12.2
7	1500	510	235	88	38.5	24.6	11.8
8	1400	500	230	86	38	24.2	11.4
9	1350	490	225	84	37.5	23.8	11
10	1300	480	220	82	37	23.4	10.6
11	1250	470	215	80	36.5	23	10.2
12	1200	460	210	78	36	22.6	9.8
13	1150	450	205	76	35.5	22.2	9.4
14	1100	440	200	74	35	21.8	9
15	1050	430	195	72	34.5	21.4	8.6
16	1000	420	190	70	34	21	8.2
17	950	410	185	68	33.5	20.6	7.8
18	900	400	180	66	33	20.2	7.4
19	875	390	175	64	32.6	19.8	7
20	850	380	170	62	32.2	19.4	6.6
21	800	370	165	60	31.8	19	6.2
22	780	360	160	58	31.4	18.6	5.8
23	760	350	155	56	31	18.2	5.4
24	740	340	150	54	30.6	17.8	5
25	720	330	145	52	30.2	17.4	4.6
26	700	320	140	50	29.8	17	4.2
27	680	310	136	49	29.4	16.6	3.8
28	660	300	132	48	29	16.2	3.4
29	640	292	128	47	28.6	15.8	3
30	620	284	124	46	28.2	15.4	2.6
31	600	276	120	45	27.8	15	2.3
32	590	270	116	44	27.4	14.6	2

Source: [http://www.pro-football-reference.com/draft/draft\\_trade\\_value.htm](http://www.pro-football-reference.com/draft/draft_trade_value.htm).

**Table 2.** Sommers NFL draft trade value chart.

Pick number	Round						
	1	2	3	4	5	6	7
1	3000	1254	916	716	574	463	373
2	2654	1240	908	711	570	460	370
3	2452	1225	901	706	566	457	368
4	2308	1211	894	701	562	454	365
5	2197	1197	886	696	559	451	363
6	2106	1184	879	691	555	448	360
7	2029	1171	872	686	551	445	357
8	1962	1158	865	681	548	442	355
9	1903	1146	858	677	544	439	352
10	1851	1134	851	672	540	436	350
11	1803	1122	845	667	537	433	348
12	1759	1111	838	663	533	430	345
13	1720	1100	831	658	529	427	343
14	1683	1089	825	653	526	425	340
15	1648	1078	819	649	522	422	338
16	1616	1067	812	644	519	419	335
17	1586	1057	806	640	516	416	333
18	1557	1047	800	636	512	413	331
19	1530	1037	794	631	509	410	328
20	1504	1027	788	627	505	408	326
21	1480	1018	782	623	502	405	324
22	1457	1009	776	618	499	402	321
23	1435	999	771	614	495	399	319
24	1413	990	765	610	492	397	317
25	1393	982	759	606	489	394	314
26	1373	973	754	602	485	391	312
27	1355	964	748	598	482	389	310
28	1337	956	743	594	479	386	307
29	1319	948	737	590	476	383	305
30	1302	940	732	586	473	381	303
31	1286	932	727	582	470	378	301
32	1270	924	721	578	466	375	298

Source: Sommers (2016).

(or number 1) pick receives 3000 points. The drop in value using the Johnson chart from the first pick to the last pick in Round 1 alone is over 80 percent (viz., 3000 to 590). By comparison, the drop in value using the Sommers chart from the first pick to the last pick in Round 1 is less than 58 percent (viz., 3000 to 1270). The Sommers chart places less emphasis on the early round picks and more accurately values late-round sleeper picks. Perhaps the most famous “sleeper pick” is quarterback Tom Brady. Taken in the 6<sup>th</sup> round, Brady went on to win seven Super Bowls, voted MVP in five of them, appeared in 15 Pro Bowls, and was declared league MVP three times. Brady’s 199<sup>th</sup> pick is allotted just 11.8 points in Johnson’s chart versus 357 points in Sommers’ chart.

All of the trades on Day 1 of the NFL draft between 2000 and 2010 are from the Pro Sports Transactions Archive

(<https://www.prosportstransactions.com/football/DraftTrades/Years/>). Over this 11-year period we recorded 58 draft-day trades involving draft picks from only the current year (47) and future years (11). The team with the first round pick who is designated in [prosportstransactions.com](https://www.prosportstransactions.com) as the “Player Drafted” is Team A; the team that acquires the “Player Drafted” and possibly other draft picks from Team A is Team B. We exclude trades that involve players already in the NFL. All 58 draft-day Round 1 trades involve only players with a round and pick number. That is, there are no players outside the 224-pick chart in our final sample. For each team involved in a trade, we recorded the acquired player’s name, his overall pick number, and his chart value according to Johnson and Sommers. For each drafted player (and other draft picks involved in a trade), we also collected data from Pro-Football-Reference.com on the drafted player’s weighted career AV (hereafter wAV), a weighted sum of a player’s annual AV scores, where the weights start at 100% for their best season, 95% for their second-best season, 90% for their third-best season, and so forth. (The wAV should not be confused with “career AV” which is just the unweighted sum of a player’s AV scores.) The chart values for future picks in an ex ante expected slot were discounted at a 5 percent rate, about equal to the 3-month Treasury Bill rate in January 2007 (4.98 percent) before it plummeted to 0.05 percent in December 2009. For example, the Johnson chart value of the overall 8<sup>th</sup> pick next year would be  $1400/1.05$  or 1333.33 points. Players may be counted in more than one trade. For example, Dez Bryant was drafted 24<sup>th</sup> overall in the 2010 draft, but his pick was involved in three trades, passing the pick from the Philadelphia Eagles to the Denver Broncos, New England Patriots, and finally to the Dallas Cowboys. His pick is eligible to be counted in each trade because each team acquired the same 24<sup>th</sup> pick. We added up each team’s point valuations. Finally, for each team’s acquired picks, we added up the players’ NFL career wAVs. The data on all 58 trades appear in **Table 3**. On closer examination of **Table 3**, the Johnson chart predicts correctly which team will have the higher wAV in 31 of the 58 (53.4 percent) of the trades. The Sommers chart predicts correctly in 42 of the 58 (72.4 percent) of the trades.

**Table 3.** NFL draft trades and trade values, Day 1, 2000-2010.

Year	Team A	Team B	Johnson Trade Value		Sommers Trade Value		Weighted Career AV	
			Team A	Team B	Team A	Team B	Team A	Team B
2000	49ers	Redskins	2025.6	2200	4271	2452	110	63
2000	Broncos	Ravens	1500	1300	2748	1851	79	30
2000	49ers	Jets	1420	1200	2683	1759	95	70
2001	Seahawks	49ers	1532.6	1515	3006	2407	60	59
2001	Bills	Buccaneers	1190	1100	2517	1683	61	29
2001	Steelers	Jets	966	1000	2584	1616	80	72
2001	Colts	Giants	770.2	780	2423	1457	128	41
2002	Cowboys	Chiefs	1631.19	1600	3179.38	2106	65	22
2002	Titans	Giants	1124	1100	2301	1683	55	48
2002	Falcons	Raiders	928.2	950	2030	1586	23	34
2002	Redskins	Raiders	945	900	2239	1557	67	22
2002	Seahawks	Packers	960	879	2293	1983	22	95
2003	Bears	Jets	1992	1800	3804	2308	90	34
2003	Cardinals	Saints	2210	2222	4152	3994	173	85
2003	Patriots	Bears	1150	1114.2	1720	2056	45	8
2003	Chargers	Eagles	904	1050	2242	1648	29	3
2003	Chiefs	Steelers	823.4	1000	2453	1616	59	96
2003	Patriots	Ravens	1251.9	875	2555.52	1530	90	16
2004	Lions	Browns	2030	1600	3226	2106	51	37
2004	49ers	Eagles	980	1000	2310	1616	70	35
2004	Vikings	Dolphins	906	875	2118	1530	49	44
2004	Cowboys	Bills	1313.52	780	3073.38	1457	75	19
2004	Bengals	Rams	749	740	1971	1413	32	75
2004	Titans	Texans	860	707.8	3256	1825	104	46
2004	49ers	Panthers	645	660	1868	1337	1	44
2004	Colts	Falcons	812	780	2660	2073	34	107
2004	Chiefs	Lions	655.05	620	2372.76	1302	19	27
2005	Texans	Saints	1247.62	1150	2480.76	1720	70	49
2005	Seahawks	Raiders	784	760	2050	1435	48	20
2005	Broncos	Redskins	1006.19	720	2810.38	1393	136	48
2006	Rams	Broncos	1300	1250	2542	1803	11	86
2006	Browns	Ravens	1169	1200	2125	1759	44	100
2006	Falcons	Broncos	817.52	1050	2633.14	1648	87	9

**Continued**

2006	Broncos	49ers	780	780	2091	1457	7	47
2006	Giants	Steelers	745	720	2565	1393	56	47
2006	Bears	Bills	705	700	1992	1373	41	4
2007	Panthers	Jets	1055.8	1115	2811	2061	133	93
2007	Jaguars	Broncos	972.2	950	2616	1586	155	3
2007	Cowboys	Browns	1282.86	780	2598.62	1457	39	2
2007	Eagles	Cowboys	722.8	700	2452	1373	31	34
2007	Patriots	49ers	1502.57	660	2585.38	1337	26	81
2008	Patriots	Saints	1500	1525.8	2676	2483	51	79
2008	Ravens	Jaguars	1127	1400	3594	1962	121	14
2008	Lions	Chiefs	1248	1260	3042	2486	92	43
2008	Texans	Ravens	867.2	900	2559	1557	117	96
2008	Eagles	Panthers	1174.57	875	3053.33	1530	86	14
2008	Redskins	Falcons	1068	999.8	2993	2753	50	87
2008	Packers	Jets	608	620	1851	1302	108	22
2009	Browns	Buccaneers	890	950	1908	1586	51	37
2009	Browns	Eagles	813.4	875	1848	1530	87	50
2009	Patriots	Ravens	726.6	760	1833	1435	91	42
2009	Patriots	Packers	890	726.6	2798	1833	58	91
2010	Broncos	49ers	1218	1250	2360	1803	80	31
2010	Broncos	Eagles	1135	1150	3063	1720	122	59
2010	Patriots	Broncos	808	780	2053	1457	82	69
2010	Ravens	Broncos	776	720	2637	1393	32	12
2010	Cowboys	Patriots	796	820	2027	2109	62	72
2010	Vikings	Lions	665.8	664	2262	1880	77	22

### 3. Methodology

For each trade and each trade value chart—Johnson or Sommers—we derived a disparity measure,  $D$ . If the Johnson chart, for example, predicts that Team A has more point value than Team B, then the disparity value is equal to the cumulative career wAV of all picks acquired by Team A *minus* the cumulative career wAV of all picks acquired by Team B. That is, if the Johnson chart correctly predicts the  $i^{\text{th}}$  trade, then the disparity measure,  $D_i$ , will be positive. If, however, the Johnson chart predicts one team has a point advantage, but in fact the other team ends up acquiring players with a higher cumulative total of wAVs, then the disparity measure will be negative. We investigate whether the average value of  $D_{\text{Johnson}}$  (or  $D_{\text{Sommers}}$ ) is equal to zero against the one-tailed alternative hypothesis that

the average value is greater than zero. If we cannot reject the null hypothesis that the average value of  $D_{\text{Johnson}}$  (or  $D_{\text{Sommers}}$ ) is equal to zero, then the chart's ability to distinguish good trades from bad ones is no better than a coin flip.

For each chart, we regress the difference between the total career wAVs of Team A's draft picks *minus* the total career wAVs of Team B's draft picks (*career\_wAV\_difference*) against the corresponding difference in the total point values of draft picks (*Johnson\_point\_difference* or *Sommers\_point\_difference*) as follows:

$$\text{career\_wAV\_difference} = \beta_0 + \beta_1 \text{point\_difference} + \varepsilon_i \quad (1)$$

where  $\varepsilon_i$  are independent errors. If the estimated slope coefficient,  $b_1$ , is not discernible from zero, then variation in the difference between Team A's point values less Team B's point values tells us nothing about the variation in the team differences in career wAVs. If, however, the estimated slope coefficient is significantly greater than zero and if the difference between the point values of Team A's picks less than the point values of Team B's picks is positive (negative), then the difference between career wAVs of drafted players acquired by Team A less career wAVs of those players acquired by Team B will also be positive (negative).

Which chart—Johnson or Sommers—better predicts career wAVs, in other words, good trades from bad trades?

#### 4. The Results

For the 58 draft trades, the average Johnson chart disparity,  $\bar{D}_{\text{Johnson}}$ , is 38.36 with a one-tailed  $p$ -value of 0.070. In other words, the average disparity using the Johnson chart is not discernible from zero (using a 0.05 level of significance). The average Sommers chart disparity,  $\bar{D}_{\text{Sommers}}$ , is 777.72 with a one-tailed  $p$ -value less than 0.001. In other words, over the 11-year period, the Sommers chart was more often than not correct in predicting the two teams' difference in weighted career AVs. That is, if the Sommers chart indicates that Team A acquired more points than Team B, then at the end of their careers players acquired by Team A will have significantly higher career wAVs than did the players acquired by Team B.

When the difference in Team A's less Team B's weighted career AVs was regressed against the difference in Team A's less Team B's Johnson point totals, the results were (standard errors in parentheses):

$$\text{career\_wAV\_difference} = 23.192 - 0.015 \text{Johnson\_point\_difference} \quad (2)$$

(6.682) (0.034)

$$R^2 = 0.003$$

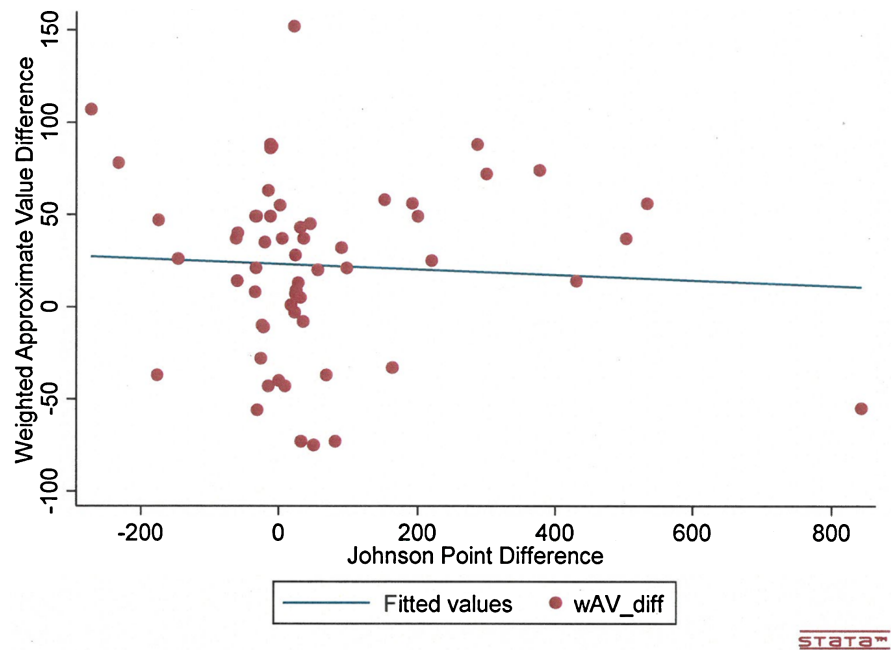
The corresponding regression results using the Sommers point totals were:

$$\text{career\_wAV\_difference} = -7.969 + 0.038 \text{Sommers\_point\_difference} \quad (3)$$

(12.504) (0.014)

$$R^2 = 0.119$$

Using the Johnson chart, Equation (2) indicates that knowledge of the difference in point totals ascribed to the draft picks of Teams A and B sheds no light on the ultimate weighted career AVs of players drafted by the two teams.



**Figure 1.** A scatter plot relating the weighted career AV difference to the Johnson point difference for each of 58 Day 1 NFL draft trades, 2000-2010.

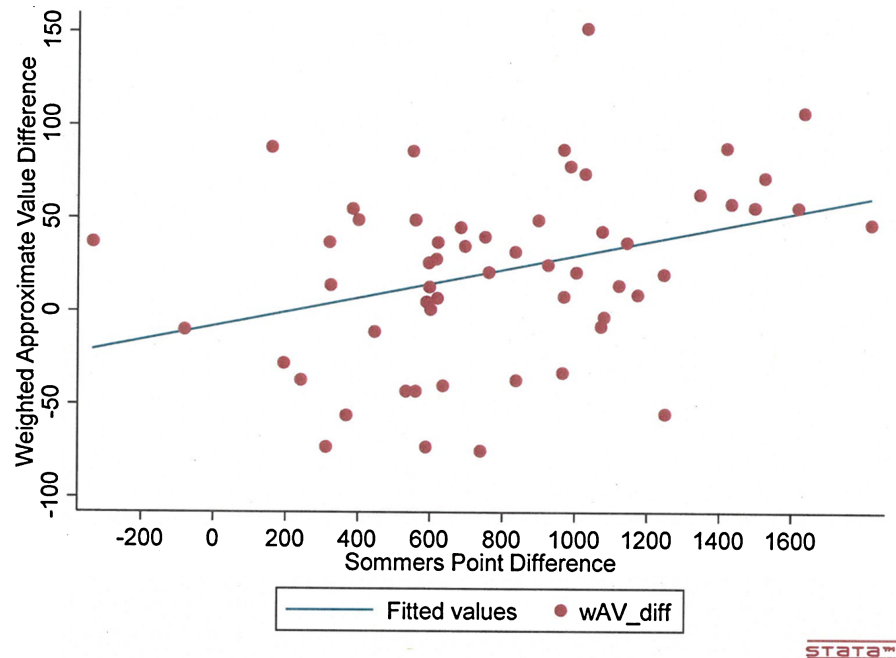
**Figure 1** underscores the anemic predictive value of the Johnson chart. The best-fitting line through the scatter of points is *negatively* sloped, although this slope is statistically no different from zero. Over 70 percent of the Johnson point differences are within 100 points of zero. And, the cluster of points around a point difference of zero (measured along the horizontal axis) explains why the Johnson chart cannot explain any variation in weighted career AVs. Because NFL teams followed the Johnson NFL draft chart so closely (between the years 2000 and 2010), there is not enough variation in Johnson point differences to explain any variation in players' future weighted career AVs.

Equation (3) indicates that if the point totals of players drafted by Team A exceeds that of players drafted by Team B, then the ultimate total weighted career AVs of the players acquired by Team A will *exceed* the corresponding total weighted career AVs of the players acquired by Team B. In other words, the slope coefficient in Equation (2) is not discernably different from zero ( $p = 0.667$ ); the slope coefficient in Equation (3) is positive and significantly different from zero ( $p = 0.008$ ).

**Figure 2** shows that the best-fitting line through the scatter of points is positively sloped. Larger differences in Sommers point totals leads to larger differences in future weighted career AVs.

Eleven of the 58 Day 1 trades involved chained trades where the same Round 1 pick appeared more than once: Shaun Ellis (Pick 12, hereafter P12, in 2000), T.J. Duckett (P18 in 2002), Ty Warren (P13 in 2003), Chris Gamble (P28 in 2004), Tye Hill (P15 in 2006), Duane Brown (P26 in 2008), Jeremy Maclin (P19 in 2009), Clay Matthews (P26 in 2009), Brandon Graham (P13 in 2010), and Dez Bryant (P24

twice in 2010). When multiple observations on these Round 1 picks were collapsed to one observation per pick chain (that is, the first time the Round 1 pick is involved in a Day 1 trade), Equations (2) and (3) were re-estimated. The slope coefficient in Johnson Equation (2) is  $-0.006$  (standard error = 0.038),  $R^2 = 0.0005$  and the slope coefficient in Sommers Equation (3) is  $0.046$  (standard error = 0.017),  $R^2 = 0.145$ . That is, the main results hold.



**Figure 2.** A scatter plot relating the weighted career AV difference to the Sommers point difference for each of 58 Day 1 NFL draft trades, 2000-2010.

## 5. Concluding Remarks

An NFL draft valuation chart that can consistently predict draft pick trade outcomes in terms of actual (weighted) career AV would be highly valuable to general managers and coaching staffs of NFL teams.

The Johnson chart has enjoyed widespread use. But, if players in the early rounds of the NFL draft are overvalued relative to players in late rounds, then an alternate chart that assigns more value to players drafted in, say, rounds 4 through 7 may align better with the weighted career AVs of these late-round drafted players.

The results presented here show that the Sommers chart values are not only better at predicting the “winner” of a draft trade, but that over an 11-year period (2000 to 2010) there is a strong relationship between the Sommers point difference (Team A’s total minus Team B’s total) and the actual career weighted AV difference of these acquired draft picks (again, Team A’s total minus Team B’s total). The better predictive ability of the Sommers point difference is largely because when the Johnson trade-value chart is used (which appears to be quite often), the total point values of the draft picks of the two teams are roughly the same. Many

NFL teams that use the Johnson chart believe they have consummated a fair trade of draft picks. The Sommers chart that relates draft pick numbers to career AVs suggests otherwise.

The foregoing analysis covers only Round 1 Day 1 trades. Moreover, the Round 1 Day 1 trades discussed in this paper exclude trades involving veteran NFL players or trades involving compensatory picks outside the 224-pick chart.

### **Conflicts of Interest**

The authors declare no conflicts of interest regarding the publication of this paper.

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