A "Win Shares" System for Football

by Greg Thomas

I don't know about you, but I found the new Bill James and Jim Henzler book "Win Shares" to be terrific and very thought provoking. In fact, it inspired me to concoct a similar system for pro football.

My system rates players according to their offensive production but adjusts for their efficiency as well.

Thus a player who played during the 1950s when there was a 12-game schedule or during the 1940s when defense dominated is not penalized by my system.

By the same token, a player who plays on a great offensive machine like the current St. Louis Rams is not penalized because he contributes a lesser percentage to his team's offense than if he played for the current Dallas Cowboys.

As with "Win Shares," each player receives a "Adjusted Production Score" that is an integer for each year in which he plays. They can be summed to give a player a career value score.

A player's adjusted production score is "the percentage of an average team's offense produced by an individual player after adjusting for the player's level of efficiency." A team's offense in this system is the number of touchdowns produced by rushing and passing multiplied by 6 plus the yardage gained by rushing and passing divided by 10. Yards lost by sacks are not counted in this system.

The methodology is the same for all players whether they are quarterbacks, running backs, or receivers. Here's how APS works, using Dan Marino's 1984 season as an example.

STEP 1: Total all of the touchdowns produced by Dan Marino by passing ,rushing and receiving. The total is 48. All of these 48 were by passing.

STEP 2: Multiply this total by 6.   48 times 6 equals 288 production points derived from touchdowns.

STEP 3: Calculate all of the passing, rushing and receiving yards produced by Dan Marino. Marino's totals are 5084 passing yards, -28 rushing yards, and 0 receiving yards.

STEP 4: Adjust passing and rushing yardage for efficiency. Receiving yards are not adjusted for efficiency because yards per catch is not a valid indicator of receiving efficiency. By the way, Marino did not have any receiving yards in 1984.

Here's how to adjust passing yards for efficiency. After subtracting 45 yards for each interception, divide by the number of passing attempts. Marino attempted 564 passes, thus 4319 divided by 564 equals 7.66.

Marino's passing efficiency of 7.66 yards per throw is 2.36 yards
higher than the league average of 5.30.

Thus, Marino earns 2.36 bonus yards for each pass he threw. Because he threw 564 passes, he earns 1331 bonus yards for his passing.

Marino's rushing statistics were terrible. On 28 carries, he gained negative 7 yards. That is an average rush of -0.3.   The league average in 1984 was 4.0.

Marino's rushing efficiency was 4.3 yards below the league average.

Thus, we subtract 4.3 yards for each of the 28 times Marino carried the ball.

120 yards are subtracted for his rushing.

STEP 5: Sum all of Marino's gross and bonus yardage.

Passing-- 5084 gross yards plus 1331 bonus yards equals <u>6415</u> yards.

Rushing-- negative 7 gross yards plus negative 120 bonus yards equal <u>-127</u> yards.

Receiving-- zero yards plus zero bonus yards (bonus yards are not part of the receiving formulas).

Total Yards--6415 minus 127 equals <u>6288</u> yards.

STEP 6: Convert the yardage figure into production points by dividing by 10 and rounding to the nearest whole number.

6288 divided by 10 equals 628.8 which when rounded <u>equals 629 production</u> <u>points derived from yardage</u>.

STEP 7: Sum the production points derived from touchdowns in Step 2 with the production points derived from yardage in Step 7.

288 plus 629 equals <u>917 total production points</u> for Dan Marino in 1984.

STEP 8: Divide 917 by 16 which is the number of games played by Marino's team in 1984. The total is <u>57.31</u> production points per team game.

STEP 9: Divide Marino's production points with the average number of production points of all the teams that played in 1984 to determine his "Adjusted Production Scores."

57.31 divided by 48.99 equals an adjusted production score of <u>116.98</u>.

This number is rounded to its nearest integer for aesthetic purposes much as Bill James rounded win shares. Thus, Dan Marino in 1984 had an adjusted production score of <u>117</u>. That means that his numbers alone outproduced the average team by 17%.

What an incredible year!

Keep in mind that all players whether they are quarterbacks, runners, or receivers are evaluated by the same system

Obviously, quarterbacks score highest because they are most directly involved in a teams' offense.

Here are the Adjusted Production Scores (APS) of some of the greatest players ever starting with quarterbacks. Keep in mind that norms differ for quarterbacks, running backs and receivers.

A truly superior season for a quarterback is an APS of 100; for running backs, it's 50, and for receivers, it's 35.

What stands out for Dan Marino is his career APS total of 1246 , the highest of any player in NFL history.

Dan Marino

Season	Year	APS	Cumulative
1	1983	49	49
2	1984	117	166
3	1985	77	243
4	1986	103	346
5	1987	71	417
6	1988	83	500
7	1989	70	570
8	1990	69	639
9	1991	85	724
10	1992	90	814
11	1993	29	843

12	1994	92	935
13	1995	72	1007
14	1996	55	1062
15	1997	75	1137
16	1998	70	1207
17	1999	39	1246

Average season for Dan Marino = 73

During Dan Marino's era, Joe Montana was often considered the superior quarterback because of all the Super Bowl's won by the 49ers, yet his numbers pale next to those of Marino.

Joe Montana

Season	Year	APS	Cumulative
1	1979	2	2
2	1980	36	38
3	1981	68	106
4	1982	99	205
5	1983	83	293
6	1984	82	375
7	1985	78	453
8	1986	39	492
9	1987	76	568
10	1988	64	632
11	1989	83	715
12	1990	85	800
	1991	Did not play	
13	1992	5	805
14	1993	46	851
15	1994	76	927

Average Season for Joe Montana = 62

Joe Montana's successor, Steve Young is the only quarterback in NFL history to put together three successive 100 share seasons. In addition, his 1998 season was the equal of Marino's 1984 campaign.

Why? Because Young was not just an extremely efficient passer, he was a great running quarterback as well.

Steve Young

Season	Year	APS	Cumulative
1	1985	17	17
2	1986	45	62
3	1987	24	86
4	1988	16	102
5	1989	25	127
6	1990	12	139
7	1991	72	211
8	1992	103	314
9	1993	105	419
10	1994	110	529
11	1995	68	597
12	1996	58	655
13	1997	80	735
14	1998	117	852
15	1999	7	859

Average Season for Steve Young = 57

It's hard to overstate what a great career Brett Favre is having. After 11 seasons, his career APS score is ahead of Dan Marino's pace by 17. He has been amazingly consistent during his career, more so than any other quarterback.

Brett Favre

Season	Year	APS	Cumulative
1	1991	-2	-2
2	1992	70	68
3	1993	84	152
4	1994	89	241
5	1995	103	344
6	1996	91	435
7	1997	98	533
8	1998	93	626
9	1999	75	701
10	2000	70	771
11	2001	89	860

Average Season for Brett Favre = 78

Kurt Warner has been unreal! In two of the last three seasons, he has contributed 111 shares to the Rams. No other quarterback has ever done that!

Kurt Warner

Season	Year	APS	Cumulative
1	1998	0	0
2	1999	111	111
3	2000	74	185
4	2001	111	286

Average Score for Kurt Warner = 72

Now let's look at the best running backs ever. As I mentioned before, a APS of 50 for a season is the gold standard.

Walter Payton has the highest career of APS of any running back, although he had only truly superior season.

Walter Payton

Season	Year	APS	Cumulative
1	1975	18	18
2	1976	38	56
3	1977	58	114
4	1978	37	151
5	1979	40	191
6	1980	33	224
7	1981	25	249
8	1982	24	273
9	1983	33	306
10	1984	37	343
11	1985	37	380
12	1986	32	412
13	1987	14	426

Average Season for Walter Payton = 33

Emmitt Smith's career looks amazingly like that of Payton. His average season only slightly better than Payton's and he has had two truly superior seasons rather than Payton's one. He should catch Payton is career APS this season.

Emmitt Smith

Season	Year	APS	Cumulative
1	1990	25	25
2	1991	38	63
3	1992	50	113
4	1993	42	155
5	1994	45	200
6	1995	52	252
7	1996	30	282
8	1997	22	304
9	1998	34	338
10	1999	33	371
11	2000	25	396
12	2001	16	412

Average Season for Emmitt Smith = 34

Barry Sanders almost certainly would have caught Payton in career APS before Emmitt Smith had he not retired prior to the 1999 season. His average season was significantly better than either Payton's or Smith's.

Barry Sanders

Season	Year	APS	Cumulative
1	1989	37	37
2	1990	41	78
3	1991	44	122
4	1992	33	155
5	1993	24	179
6	1994	46	225
7	1995	38	263
8	1996	36	299
9	1997	55	354
10	1998	29	383

Average Season for Barry Sanders = 38

Jim Brown easily emerges as the greatest runner of all time with the APS system. Brown's average APS was 44. No other running back even comes close. His worst seasons were merely average years for Payton and Smith.

Jim Brown

Season	Year	APS	Cumulative
1	1957	33	33
2	1958	53	86
3	1959	43	129
4	1960	44	173
5	1961	38	211
6	1962	38	249
7	1963	54	303
8	1964	41	344
9	1965	53	397

Average Season for Jim Brown = 44

Edgerrin James' first two seasons were the best start any runner has ever had. Unfortunately, he got hurt in 2001 and may never reach his previous production level.

Edgerrin James

Season	Year	APS	Cumulative
1	1999	45	45
2	2000	47	92

3	2001	15	107

Average Season for Edgerrin James = 36

Some see Marshall Faulk as the second coming of Jim Brown. Actually, he is more a product of great Ram teams than he is the next Brown. Only since joining the Rams in 1999 from the Colts has Faulk been super.

But boy, has he ever been super! In fact, not even Jim Brown put together three consecutive seasons like Faulk's last three years. If only he could stay healthy for 16 games instead of 14.

Marshall Faulk

Season	Year	APS	Cumulative
1	1994	37	37
2	1995	31	68
3	1996	17	85
4	1997	29	114
5	1998	39	153
6	1999	48	201
7	2000	55	256
8	2001	52	308

Average Score for Marshall Faulk = 39

Finally, no discussion of runners is complete with an analysis of "The Juice." In 1975, Simpson put together the greatest season ever for a running back, netting a APS of 63.   It was even better than his 1973 season, when he became the first running back to ever rush for 2000 yards in a season.

O.J. Simpson

Season	Year	APS	Cumulative
1	1969	21	21
2	1970	16	37
3	1971	22	59
4	1972	31	90
5	1973	58	148
6	1974	25	173
7	1975	63	236
8	1976	41	277
9	1977	12	289
10	1978	13	302
11	1979	7	319

Average Score for O.J. Simpson = 28

Finally, let's look at three great receivers: Jerry Rice, Don Hutson, and Randy Moss.

Although Rice has the greatest career APS total, an argument could be made that Hutson was the ever better. Not only is his average year better than Rice but his 1942 season is in a league of its own.

Interestingly enough, after 4 seasons, Moss is on a pace to better the marks of both Rice and Hutson. But to do so, he would need either the durability of Rice or the late career spurt of Hutson.   A smart bet is that he won't have either.

Jerry Rice

Season	Year	APS	Cumulative
1	1985	15	15
2	1986	35	50
3	1987	35	85
4	1988	27	112
5	1989	32	144
6	1990	31	175
7	1991	29	204

8	1992	28	232
9	1993	37	269
10	1994	36	295
11	1995	38	343
12	1996	25	368
13	1997	2	370
14	1998	24	394
15	1999	16	410
16	2000	15	425
17	2001	23	448

Average Score for Jerry Rice = 26

Don Hutson

Season	Year	APS	Cumulative
1	1935	24	24
2	1936	27	51
3	1937	29	80
4	1938	29	109
5	1939	30	139
6	1940	27	166
7	1941	37	203
8	1942	55	258
9	1943	35	293
10	1944	39	332
11	1945	36	368

Average Season for Don Hutson = 33

Randy Moss

Season	Year	APS	Cumulative
1	1998	37	37
2	1999	29	66
3	2000	32	98
4	2001	26	124

Average Season for Randy Moss = 31