

A CLOSER LOOK: PRO MYTH?

By David Shapiro

Pro football tends to be awash with mythology, with the kind of chimerical stuff of which the Emperor's Clothes are usually fashioned, with offhand remarks made by participants in the game in response to a specific set of circumstances which are then passed on as Great Truths, etc. There are many. Some are so self-evident that they become platitudes after a short while -- Football is a game of inches (that's as controversial a proposition as the observation that the sun rises in the east and yet it's amazing how frequently one will hear this during pro football telecasts). Others are not that self-evident but tend to become "givens" because of repetition by the "pros" (those self- same TV sportscasters). But is this second category made up of great truths? Here we could include:

A team cannot hope to mount a successful passing attack unless it can first establish an effective ground game.

A team cannot effectively defend against a passing attack unless it is itself proficient in using the pass as an offensive weapon.

A team cannot win consistently unless it is heavily into the passing game (or some such wording).

To some extent, these (and others like them) can be somewhat tested statistically. I say somewhat because, and here we come to the most egregious use of statistical testing, nothing can ever be proved through the use of statistical testing alone! If there was anything I learned from my old professor, the eminent Fred Mills, it has to be that there are only two justifiable conclusions one can reach after conducting a statistical test -- the data are inconsistent with the hypothesis. One can never say that the data prove the hypothesis.

However, statistical testing can give one something to ponder.

The test I chose to look at here is the one related to the passing attack and the ground game (the first of the three listed above). Here's how it was done.

I made the assumption that pass completion percentage is a reasonable indicator of passing success and that average yards gained per rushing attempt from scrimmage is a good measure of a team's ability to establish a ground game.

There are others. These are highly relevant for the contention to be tested.

I then ranked all the teams in the NFL, the AAFC, and the AFL each year from 1936 to 1978 two ways -- in descending order of pass completion percentage and in descending order of average yards gained per rushing attempt from scrimmage.

The final step was to calculate and evaluate the Spearman Coefficient of Rank Correlation for each year. These coefficients can range from +1 to -1. A coefficient of +1 would mean perfect correlation between the two rankings. Say there were eight teams playing during a given year. We would get a +1 if the team with the highest passing completion percentage also had the highest average yards gained per rushing attempt from scrimmage, the team with the second highest passing completion percentage also had the second highest yards gained per rushing attempt, etc. Were this the case, one could hardly quarrel with the stated hypothesis.

A coefficient of -1 would mean a perfect inverse correlation. In the example given above, we would get -1 if the team with the highest passing completion percentage would also have the lowest average yards gained per rushing attempt from scrimmage, the second highest passing completion percentage also had the second lowest average yards gained per rushing attempt from scrimmage, etc. Our response to the given hypothesis then would have to be in the nature of a "Are you kidding? It looks like it's just the other way around."

A coefficient of zero or near zero means you're probably dealing with apples and oranges, or cars and windmills.

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Obviously then, a negative coefficient, a zero, or a near zero would justify one concluding that the stated proposition -- in this case, whether in fact a successful passing game is dependent upon an effective accompanying ground attack -- is probably not true.

Now, let's look at positive coefficients only. By using a table prepared for such a purpose, one could make a statement about a given coefficient and feel confident about the reasonableness of the statement to the degree that there was one chance in ten, or one chance in twenty, or one chance in a hundred that a dependence does indeed exist and that chance alone accounted for the "unhappy" result.

To handle the positive coefficients in this case, I used a confidence level of .05. At this level, if the rank correlation coefficient obtained for any one year was of a magnitude that might occur at least five times out of a hundred (one chance in twenty) due to chance alone without there being a "real" relationship between the two rankings, then the contention of dependence between the rankings was rejected (indicated in the table by an (R) after the coefficient). On the other hand, if the coefficient calculated for any one year was of a magnitude that might occur less frequently than five times out of a hundred, etc. etc. etc., then the statement was accepted as supportable (indicated by an (A) after the coefficient).

Don't be puzzled by the fact that a +0.5030 (NFL 1939) can result in a rejection while a lower number (+0.4859, NFL 1977) can result in an acceptance. The number of teams in the league each year has a determining influence on the outcome. Essentially, the fewer the teams, the higher the coefficient must be to lead to acceptance. You can play with the table any way you would like but it sums up this way:

All leagues, 47 rejections out of 57 years, 82.46%
 NFL only, 37 rejections out of 43 years, 86.05%
 AAFC only, 4 rejections out of 4 years, 100.00%
 AFL only, 6 rejections out of 10 years 60.00%

I leave the reader to decide for himself if it is true.

<u>Year</u>	<u>League</u>	<u>Coefficient</u>		<u>Year</u>	<u>League</u>	<u>Coefficient</u>	
1936	NFL	-0.0500	(R)	1960	NFL	-0.1923	(R)
1937	NFL	+0.5879	(A)	1960	AFL	+0.3095	(R)
1938	NFL	+0.0424	(R)	1961	NFL	+0.5648	(R)
1939	NFL	+0.5030	(R)	1961	AFL	0.0000	(R)
1940	NFL	+0.1152	(R)	1962	NFL	-0.1121	(R)
1941	NFL	-0.3091	(R)	1962	AFL	+0.6190	(A)
1942	NFL	-0.0061	(R)	1963	NFL	+0.4725	(A)
1943	NFL	+0.0952	(R)	1963	AFL	+0.3571	(R)
1944	NFL	-0.0303	(R)	1964	NFL	-0.0198	(R)
1945	NFL	+0.5515	(R)	1964	AFL	+0.1190	(R)
1946	NFL	+0.2485	(R)	1965	NFL	+0.2000	(R)
1946	AAFC	+0.0952	(R)	1965	AFL	+0.9048	(A)
1947	NFL	+0.1909	(R)	1966	NFL	+0.2107	(R)
1947	AAFC	+0.5238	(R)	1966	AFL	+0.8167	(A)
1948	NFL	+0.2606	(R)	1967	NFL	-0.2000	(R)
1948	AAFC	+0.1833	(R)	1967	AFL	+0.3667	(R)
1949	NFL	-0.2121	(R)	1968	NFL	-0.2500	(R)
1949	AAFC	-0.3214	(R)	1968	AFL	+0.7455	(A)
1950	NFL	+0.3571	(R)	1969	NFL	+0.2912	(R)
1951	NFL	+0.6224	(A)	1969	AFL	+0.0424	(R)
1952	NFL	+0.3864	(R)	1970	NFL	+0.2513	(R)
1953	NFL	+0.3427	(R)	1971	NFL	+0.2239	(R)
1954	NFL	+0.1958	(R)	1972	NFL	-0.0092	(R)
1955	NFL	-0.1189	(R)	1973	NFL	+0.1036	(R)
1956	NFL	+0.6154	(A)	1974	NFL	-0.1203	(R)
1957	NFL	+0.2098	(R)	1975	NFL	+0.0920	(R)
1958	NFL	+0.5385	(A)	1976	NFL	-0.0055	(R)
1959	NFL	-0.0280	(R)	1977	NFL	+0.4859	(A)

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1978 NFL -0.1448 (R)