

A New Stat: Quarterback Consistency

Abstract

Consistent play is a key to consistent victory. In spite of this, no popular consistency statistic exists in football today. Using a newly created formula, one can easily measure the consistency of a quarterback. While the heart of the formula will remain the same, users can also alter multiple smaller variables to help the rating best fit their needs. Ultimately, this new statistic focusing on measuring the consistency of NFL quarterbacks would be of great aid to any team looking to build a better, stronger, and more consistent roster.

Introduction

Consistency is important when finding a franchise quarterback. Perhaps more important, however, is having a quarterback who occasionally exceeds expectations rather than occasionally falling short of them. Despite this, no statistic to measure the consistency of quarterbacks has been made mainstream. Using the already existing quarterback rating (QBR), such a stat can be achieved.

Formula and Logic

$$\text{Consistency} = \frac{\sum qbr}{12} - QBR$$

OR

$$\text{Consistency} = \frac{\sum \left(\frac{\left(\frac{cmp}{att} - 0.3 \right) * 5 + \left(\frac{yds}{att} - 3 \right) * 0.25 + \left(\frac{td}{att} \right) * 20 + 2.375 - \left(\frac{int}{att} * 25 \right)}{6} \right)}{12} - \left(\frac{\left(\frac{CMP}{ATT} - 0.3 \right) * 5 + \left(\frac{YDS}{ATT} - 3 \right) * 0.25 + \left(\frac{TD}{ATT} \right) * 20 + 2.375 - \left(\frac{INT}{ATT} * 25 \right)}{6} \right) * 100$$

The consistency rating is derived by taking a quarterback's average QBR by game and subtracting that from their yearly QBR. In doing so, we can determine whether the quarterback is consistent (rating near 0), prone to occasional better-than-expected games (positive rating), or prone to occasional worse-than-expected games (negative rating). Only games in which the quarterback attempted 10 or more passes are included in the

average QBR rating. For both ratings, only regular season stats are considered. A quarterback must have 170 attempts on the season (10 attempts a game) to be included. In the above formulas, UPPER CASE stats denote yearly stats, while lower case stats denote weekly stats. Most consistency ratings fall into a scale from -4 to 4, with some outliers.

To prove the accuracy of the consistency rating, take into consideration the 2022 seasons of Brock Purdy and Tua Tagovailoa, who fall on opposite ends of the consistency spectrum. Purdy played in 6 games this season in which he attempted 10 or more passes. In 4 of those games, he completed under 70% of his passes, had 8 touchdowns, and 3 interceptions. In the remaining 2 games, he totaled 4 touchdowns and 0 interceptions, while completing at least 75% of his passes. Playing well all year, Purdy played even better in those 2 games. Overall, Purdy's 2022 QBR sits at 107.3. However, because of those 2 outlier games in which he over played expectations, Purdy's average QBR is 116.9, giving him a consistency rating of 9.6.

On the other side of the scale, Tua Tagovailoa played in 13 eligible games in 2022. In 6 of these games Tagovailoa played to expectations amassing a QBR within 20 points of his average of 105.5. In 3 of his remaining games, Tagovailoa exceeded expectations by 20 or more QBR points. In 4 games, Tagovailoa played far worse than expectations, scoring at least 20 QBR points below expected. While having only one more bad game than good game may not seem like the end of the world, Tagovailoa's consistency rating is so low because his poor games average 35.9 points below his expected while his good games only average 31.5 points above his expected. This means that Tagovailoa not only had more bad games than good games in 2022, however his poorer games were also worse than his better games were good. There is a fair argument to be made that Tagovailoa's lack of consistency in 2022 was due to injury, however that isn't what this stat was made to measure. Ultimately, Tagovailoa's consistency rating totals to -3.4.

Goal

As aforementioned, the goal of the consistency rating is to not only find consistent players, but also those who play consistently above and below their average on a regular basis. It is important to stress that a consistent player has a rating of 0, while a player who consistently outperforms their standard has a positive rating, and a player who consistently underperforms has a negative rating.

Stats

Rank	Player	Average QBR	Year QBR	Consistency
1	Brock Purdy	116.913	107.328	9.585
2	Mike White	83.97	75.702	8.268
3	Matthew Stafford	91.103	87.438	3.665
4	Daniel Jones	95.892	92.523	3.369
5	Deshhaun Watson	82.252	79.093	3.159
6	Jacoby Brissett	92.053	88.895	3.158
7	Marcus Mariota	91.316	88.181	3.135
8	Mitchell Trubisky	84.091	81.065	3.026
9	Dak Prescott	93.951	91.127	2.824
10	Aaron Rodgers	93.676	91.067	2.609
11	Baker Mayfield	80.711	78.986	1.725
12	Justin Herbert	94.795	93.16	1.635
13	Russell Wilson	85.98	84.416	1.564
14	Mac Jones	86.207	84.823	1.384
15	Kyler Murray	88.572	87.212	1.36
16	Jimmy Garoppolo	104.3	102.963	1.337
17	Patrick Mahomes	106.474	105.157	1.317
18	Joe Burrow	102.086	100.784	1.302
19	Tom Brady	92.002	90.726	1.276
20	Joe Flacco	76.393	75.185	1.208
21	Geno Smith	101.996	100.874	1.122
22	Kirk Cousins	93.332	92.46	0.872
23	Trevor Lawrence	95.711	95.213	0.498
24	Jalen Hurts	101.994	101.549	0.445
25	Taylor Heinicke	89.94	89.583	0.357
26	Andy Dalton	95.214	95.238	-0.024
27	Carson Wentz	80.144	80.208	-0.064
28	Lamar Jackson	90.918	91.066	-0.148
29	Davis Mills	78.571	78.788	-0.217
30	Zach Wilson	72.564	72.813	-0.249
31	Josh Allen	96.254	96.609	-0.355
32	Jared Goff	98.644	99.315	-0.671
33	Matt Ryan	82.901	83.943	-1.042
34	Ryan Tannehill	94.076	95.622	-1.546
35	Derek Carr	84.213	86.263	-2.05
36	Kenny Pickett	74.55	76.676	-2.126
37	Justin Fields	82.703	85.181	-2.478
38	Tua Tagovailoa	102.068	105.5	-3.432

College Consistency

Despite college football having a different QBR formula than pro football, the same logic can be used to measure the quarterback consistency of college quarterbacks. Here are the consistency ratings for the consensus top 6 quarterback prospects in the 2023 NFL Draft:

Rank	Player	Average QBR	Year QBR	Consistency
1	Bryce Young	173.642	163.2	10.442
2	Anthony Richardson (1)	138.517	131	8.268
3	Hendon Hooker	182.491	175.5	3.665
4	CJ Stroud	180.915	177.7	3.215
5	Tanner McKee	129.19	126.4	2.79
6	Will Levis	152.6	151.9	0.7
7	Anthony Richardson (2)	121.327	124.7	-3.373

Anthony Richardson is listed twice. This is because he had one game where he threw only 10 passes, meaning this game just barely qualified to be included in the average QBR total. Normally this wouldn't be an issue, however this game was a significant outlier as Richardson finished with a 327.6 QBR. As this game was so close to being disqualified due to a lack of play, was a significant outlier in terms of rating, and as it is likely that this QBR would not have held if Richardson had thrown the ball more than ten times, Richardson's consistency with this game included as Anthony Richardson (1) and without this game included as Anthony Richardson (2). More on this in the 'Potential Issues' section.

For comparisons sake, the table below shows the consistency ratings for 5 randomly selected NFL starting quarterbacks during their final year of college:

Rank	Year	Player	Average QBR	Year QBR	Consistency	NFL Consistency
1	2011	Kirk Cousins	151.46	145.1	6.36	0.872
2	2017	Lamar Jackson	151.508	146.6	4.908	-0.148
3	2013	Derek Carr	159.708	156.3	3.408	-2.05
4	2017	Josh Allen	130.336	127.8	2.536	-0.355
5	2016	Patrick Mahomes	158.942	157.0	1.942	1.317

The starkest difference between NFL consistency and college consistency is definitely the standard range.

While most NFL players fell between -4 and 4, most college players seem to fall between 0 and 8. I suspect

this difference is likely due to the pay-to-play games that big schools will often pad their early schedules with, as well as the generally larger talent gap amongst college players. Perhaps if non-NFL prospects were included in these tables consistency ratings the range would expand further in the negative direction.

Through the small sample size, here are some of the patterns that arose when comparing these five's 2022 seasons with their final year in college:

- Obviously, team fit matters a lot. Derek Carr's 2022 consistency was not helped by his benching and the Raiders' full swing into rebuild mode. In fact, Carr's 2021 consistency sits at 0.3. Conversely, in college, Michigan State's heavy run offense lead by college star Le'Veon Bell helped Kirk Cousins overachieve.
- In more quarterback focused college offenses, athleticism helped boost the quarterback's consistency rating. Both Jackson and Allen were acclaimed athletes coming out of college and they both had a higher consistency rating than Mahomes, who was considered a good-not-great athlete. Despite this, Mahomes' consistency has carried over much better, making him the most consistent pro of the 3 in 2022. If you consider Derek Carr's 2021 season instead of his up-against-the-wall 2022 season, he also fits this trend, sitting behind Jackson in college consistency and beating out both Jackson and Allen in the NFL.
- More reasonable consistency ratings carry over to the NFL better. This may seem obvious, but it is certainly worth noting that the three biggest differences in consistency ratings are held by the three quarterbacks with the highest consistency. This trend holds true regardless of whether you use Carr's 2021 or 2022 season.

Potential Issues

No one stat is perfect. The consistency rating is no different. Its most notable flaw is that quarterbacks who take less snaps land more volatile ratings. In fact, in playing with the passing attempt thresholds Mike White can be either the league's most breakout player, or like its most dud-ridden player. Examples like this, along with the Anthony Richardson example given earlier, explain why it is vital for NFL teams to adjust the

more minor variables to their liking. If a team plans on passing the ball 30 times a game, their passes-per-game threshold should probably be closer to 20 than 10.

Secondly, the consistency rating relies heavily on QBR. QBR has been criticized in the past, primarily for not incorporating a player's running statistics. Perhaps another rating system would make a good substitute, however, for the purpose of this paper, QBR is readily available, free, and public.

Finally, it is technically possible for a player to have a consistency of 0, while having a large range of QBRs. While this is extremely unlikely, it may be best to combine the consistency rating with some kind of range stat, adjusted for outliers.

Conclusion

Despite the importance of consistency in quarterback play, no mainstream consistency stat exists. Using the formulas presented in this paper, NFL teams can measure their quarterback's consistency, while also being on the lookout for players who tend to out-perform expectations. It is these players that are vital on any Super Bowl winning team.