

The Three Point Line: Adapt to the new style of play or fall behind

We see the success of the three-point line in the recent years with the uprising of NBA teams like the Golden State Warriors, Houston Rockets, even LeBron James had the Cleveland Cavaliers roster completely revamped halfway during the season to include multiple deadly three point shooters. Not only has the three-point line assisted these teams, but we see crazy records being broken, like Stephen Curry's 402 threes in the 2015-2016 season, the same season he held the title of unanimous MVP for the first time in NBA history. Stephen Curry isn't the only player to be recognized for his amazing shooting, other players like James Harden, Klay Thompson, Kevin Durant, and many others are all in talks about their shooting revolutionizing the game of basketball as we know it. Even players that are known for their athleticism, seem to be shying away from taking the ball all the way to the rack, and instead looking to find ways to extend their range, and shooting the three ball. It seems like nowadays the game of basketball is centered around the three-point line. What I want to tackle in this project, is how exactly has the three-point line changed the game of basketball. Is the team that makes the most threes the one that eventually ends up winning? Are teams being forced to adapt to this playstyle? Does shooting threes allow for an increase in other stats, like rebounds and assists? Does the ability to make threes make you a more valuable player to your team? All these questions I hope to answer with the figures and datasets that I choose to present.

```
In [2]: import pandas as pd  
import matplotlib.pyplot as plt  
import numpy as np
```

```
In [3]: nba = pd.read_csv('Seasons_Stats.csv')
```

```
In [4]: nba_sorted = nba[["Year", "Player", "Age", "G", "PTS", "FG", "FGA", "3P", "3PA", "2P", "2PA", "FT", "FTA", "FT%", "I  
"TS%", "3PAr", "FTr", "ORB", "DRB", "TRB", "AST", "WS", "STL", "BLK", "TOV"]]
```

```
In [5]: nba_sorted = nba_sorted.set_index(["Player"])
```

At first, I wanted to do analyze these stats with only player's efficiencies, but I realized that stats mean absolutely nothing to organizations and players(unless you're Russell Westbrook), and what these teams and players want the most are wins. In the initial csv, there lacked the data that I wanted so I decided to turn to data that provided me with the stats that the teams come up with alongside the number of wins they get per season. This would be the best way to be able to compare the utilization of the 3 point line and how successful it makes a team.

```
In [6]: teams = ["ATL", "NJN", "BOS", "CHA", "CHI", "CLE", "DAL", "DEN", "DET", "GSW",
 "HOU", "IND", "LAC", "LAL", "MEM", "MIA", "MIL", "MIN", "NOH", "NYK", "OKC", "ORL", "PHI", "PHO", "POR", "SAC", "SAS",
 OR", "UTA", "WAS"]

urls = []

for team in teams:
    urls.append("http://www.basketball-reference.com/teams/" + team + "/stats_basic_totals.html")
```

```
In [10]: from bs4 import BeautifulSoup
from requests import get
dfs = []
for url in urls:
    team_data = get(url)
    soup = BeautifulSoup(team_data.content, 'html.parser')
    table = soup.findAll('table')[0]

    columns = table.findAll('thead')[0].findAll('th')
    headers = []
    for column in columns:
        header = column.getText().strip()
        if (len(header) > 0):
            headers.append(header)
    rows = table.findAll('tbody')[0].findAll('tr')
    team = []
    for row in rows[0:6]:
        season = row.findAll('th')[0].getText()
        cells = row.findAll('td')
        data = [season]
        for cell in cells:
            c = cell.getText().strip()
            if (len(c) > 0):
                data.append(c)

        team.append(data)

    df = pd.DataFrame(columns=headers, data=team)
    dfs.append(df)
```

```
In [61]: teamstats = []

for df in dfs:
    df = df[['Season', 'Tm', 'W', 'L', '3PA', '3P%', "FGA"]]
    df['Season'] = df['Season'].str[:4]
    df['Win/Loss'] = (df['W'].astype(float) / (df['W'].astype(float) + df['L'].astype(float))) * 100
    df['3P%'] = df['3P%'].astype(float) * 100
    df['3PA%'] = (df['3PA'].astype(float) / df["FGA"].astype(float)) * 100
    print(df)
    teamstats.append(df)
```

/Users/ryanlai/anaconda3/lib/python3.6/site-packages/ipykernel_launcher.py:5: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

/Users/ryanlai/anaconda3/lib/python3.6/site-packages/ipykernel_launcher.py:6: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

/Users/ryanlai/anaconda3/lib/python3.6/site-packages/ipykernel_launcher.py:7: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

/Users/ryanlai/anaconda3/lib/python3.6/site-packages/ipykernel_launcher.py:8: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	ATL	24	58	2544	36.0	7014	29.268293	36.270317
1	2016	ATL	43	39	2137	34.1	6918	52.439024	30.890431
2	2015	ATL	48	34	2326	35.0	6923	58.536585	33.598151
3	2014	ATL	60	22	2152	38.0	6699	73.170732	32.124198
4	2013	ATL	38	44	2116	36.3	6688	46.341463	31.638756
5	2012	ATL	44	38	1901	37.1	6644	53.658537	28.612282
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	BRK	28	54	2924	35.6	7114	34.146341	41.102052
1	2016	BRK	20	62	2591	33.8	6987	24.390244	37.083154
2	2015	BRK	21	61	1508	35.2	6920	25.609756	21.791908
3	2014	BRK	38	44	1633	33.1	6804	46.341463	24.000588
4	2013	BRK	44	38	1922	36.9	6391	53.658537	30.073541
5	2012	BRK	49	33	1760	35.7	6544	59.756098	26.894866
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	BOS	55	27	2492	37.7	6975	67.073171	35.727599
1	2016	BOS	53	29	2742	35.9	6978	64.634146	39.294927
2	2015	BOS	48	34	2142	33.5	7318	58.536585	29.270292
3	2014	BOS	40	42	2021	32.7	7211	48.780488	28.026626
4	2013	BOS	25	57	1729	33.3	6883	30.487805	25.119861
5	2012	BOS	41	40	1390	35.8	6459	50.617284	21.520359
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	CHO	36	46	2233	36.9	7106	43.902439	31.424149
1	2016	CHO	36	46	2347	35.1	7000	43.902439	33.528571
2	2015	CHO	48	34	2410	36.2	6922	58.536585	34.816527
3	2014	CHO	33	49	1566	31.8	6932	40.243902	22.590883
4	2013	CHA	43	39	1471	35.1	6730	52.439024	21.857355
5	2012	CHA	21	61	1399	33.5	6649	25.609756	21.040758
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	CHI	27	55	2550	35.5	7286	32.926829	34.998628
1	2016	CHI	41	41	1831	34.0	7141	50.000000	25.640667
2	2015	CHI	42	40	1753	37.1	7170	51.219512	24.449093
3	2014	CHI	50	32	1825	35.3	6797	60.975610	26.850081
4	2013	CHI	48	34	1459	34.8	6577	58.536585	22.183366
5	2012	CHI	45	37	1265	35.3	6698	54.878049	18.886235
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	CLE	50	32	2636	37.2	6950	60.975610	37.928058
1	2016	CLE	51	31	2779	38.4	6963	62.195122	39.910958
2	2015	CLE	57	25	2428	36.2	6888	69.512195	35.249710
3	2014	CLE	53	29	2253	36.7	6739	64.634146	33.432260
4	2013	CLE	33	49	1640	35.6	6955	40.243902	23.580158
5	2012	CLE	24	58	1581	34.6	6901	29.268293	22.909723

	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	DAL	24	58	2688	36.0	7041	29.268293	38.176395
1	2016	DAL	33	49	2473	35.5	6750	40.243902	36.637037
2	2015	DAL	42	40	2342	34.4	6900	51.219512	33.942029
3	2014	DAL	50	32	2082	35.2	7036	60.975610	29.590677
4	2013	DAL	49	33	1877	38.4	6858	59.756098	27.369495
5	2012	DAL	41	41	1628	37.2	6892	50.000000	23.621590
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	DEN	46	36	2536	37.1	7102	56.097561	35.708251
1	2016	DEN	40	42	2365	36.8	7194	48.780488	32.874618
2	2015	DEN	33	49	1943	33.8	7003	40.243902	27.745252
3	2014	DEN	30	52	2032	32.5	7158	36.585366	28.387818
4	2013	DEN	36	46	1959	35.8	7042	43.902439	27.818801
5	2012	DEN	57	25	1518	34.3	6983	69.512195	21.738508
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	DET	39	43	2373	37.3	7129	47.560976	33.286576
1	2016	DET	37	45	1915	33.0	7282	45.121951	26.297720
2	2015	DET	44	38	2148	34.5	7087	53.658537	30.309017
3	2014	DET	32	50	2043	34.4	7038	39.024390	29.028133
4	2013	DET	29	53	1580	32.1	7124	35.365854	22.178551
5	2012	DET	29	53	1440	35.6	6638	35.365854	21.693281
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	GSW	58	24	2369	39.1	6980	70.731707	33.939828
1	2016	GSW	67	15	2562	38.3	7140	81.707317	35.882353
2	2015	GSW	73	9	2592	41.6	7159	89.024390	36.206174
3	2014	GSW	67	15	2217	39.8	7137	81.707317	31.063472
4	2013	GSW	51	31	2037	38.0	7005	62.195122	29.079229
5	2012	GSW	47	35	1632	40.3	6840	57.317073	23.859649
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	HOU	65	17	3470	36.2	6906	79.268293	50.246163
1	2016	HOU	55	27	3306	35.7	7152	67.073171	46.224832
2	2015	HOU	41	41	2533	34.7	6847	50.000000	36.994304
3	2014	HOU	56	26	2680	34.8	6832	68.292683	39.227166
4	2013	HOU	54	28	2179	35.8	6603	65.853659	33.000151
5	2012	HOU	45	37	2369	36.6	6782	54.878049	34.930699
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	IND	48	34	2010	36.9	7083	58.536585	28.377806
1	2016	IND	42	40	1885	37.6	6931	51.219512	27.196653
2	2015	IND	45	37	1889	35.1	6985	54.878049	27.043665
3	2014	IND	38	44	1740	35.2	6824	46.341463	25.498242
4	2013	IND	56	26	1542	35.7	6573	68.292683	23.459607
5	2012	IND	49	32	1599	34.7	6525	60.493827	24.505747

	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	LAC	42	40	2196	35.4	7004	51.219512	31.353512
1	2016	LAC	51	31	2245	37.5	6820	62.195122	32.917889
2	2015	LAC	53	29	2190	36.4	6759	64.634146	32.401243
3	2014	LAC	56	26	2202	37.6	6830	68.292683	32.240117
4	2013	LAC	57	25	1966	35.2	6761	69.512195	29.078539
5	2012	LAC	56	26	1752	35.8	6608	68.292683	26.513317
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	LAL	35	47	2384	34.5	7248	42.682927	32.891832
1	2016	LAL	26	56	2110	34.6	7164	31.707317	29.452820
2	2015	LAL	17	65	2016	31.7	6956	20.731707	28.982174
3	2014	LAL	21	61	1546	34.4	7020	25.609756	22.022792
4	2013	LAL	27	55	2032	38.1	6980	32.926829	29.111748
5	2012	LAL	45	37	2015	35.5	6640	54.878049	30.346386
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	MEM	22	60	2152	35.2	6788	26.829268	31.703005
1	2016	MEM	43	39	2169	35.4	6854	52.439024	31.645754
2	2015	MEM	42	40	1521	33.1	6859	51.219512	22.175244
3	2014	MEM	55	27	1246	33.9	6763	67.073171	18.423776
4	2013	MEM	50	32	1147	35.3	6723	60.975610	17.060836
5	2012	MEM	56	26	1107	34.5	6679	68.292683	16.574337
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	MIA	44	38	2506	36.0	6997	53.658537	35.815349
1	2016	MIA	41	41	2213	36.5	7037	50.000000	31.448060
2	2015	MIA	48	34	1480	33.6	6697	58.536585	22.099448
3	2014	MIA	37	45	1659	33.5	6330	45.121951	26.208531
4	2013	MIA	54	28	1829	36.4	6272	65.853659	29.161352
5	2012	MIA	66	16	1809	39.6	6348	80.487805	28.497164
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	MIL	44	38	2024	35.5	6807	53.658537	29.734097
1	2016	MIL	42	40	1946	37.0	6715	51.219512	28.979896
2	2015	MIL	33	49	1277	34.5	6740	40.243902	18.946588
3	2014	MIL	41	41	1500	36.3	6722	50.000000	22.314787
4	2013	MIL	15	67	1553	35.3	6737	18.292683	23.051803
5	2012	MIL	38	44	1670	36.0	7197	46.341463	23.204113
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	MIN	47	35	1845	35.7	7063	57.317073	26.122044
1	2016	MIN	31	51	1723	34.9	6922	37.804878	24.891650
2	2015	MIN	29	53	1347	33.8	6668	35.365854	20.200960
3	2014	MIN	16	66	1223	33.2	6820	19.512195	17.932551
4	2013	MIN	40	42	1757	34.1	7175	48.780488	24.487805
5	2012	MIN	31	51	1475	30.5	6702	37.804878	22.008356

	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	NOP	48	34	2312	36.2	7241	58.536585	31.929292
1	2016	NOP	34	48	2196	35.0	7130	41.463415	30.799439
2	2015	NOP	30	52	1951	36.0	7040	36.585366	27.713068
3	2014	NOP	45	37	1583	37.0	6795	54.878049	23.296542
4	2013	NOP	34	48	1303	37.3	6761	41.463415	19.272297
5	2012	NOH	27	55	1474	36.3	6589	32.926829	22.370618
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	NYK	29	53	1914	35.2	7194	35.365854	26.605505
1	2016	NYK	31	51	2022	34.8	7256	37.804878	27.866593
2	2015	NYK	32	50	1762	34.6	6886	39.024390	25.588150
3	2014	NYK	17	65	1614	34.7	6726	20.731707	23.996432
4	2013	NYK	37	45	2038	37.2	6739	45.121951	30.241876
5	2012	NYK	54	28	2371	37.6	6689	65.853659	35.446255
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	OKC	48	34	2490	35.4	7220	58.536585	34.487535
1	2016	OKC	47	35	2116	32.7	7169	57.317073	29.515972
2	2015	OKC	55	27	1945	34.9	7082	67.073171	27.463993
3	2014	OKC	45	37	1864	33.9	7119	54.878049	26.183453
4	2013	OKC	59	23	1839	36.1	6782	71.951220	27.115895
5	2012	OKC	60	22	1588	37.7	6504	73.170732	24.415744
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	ORL	25	57	2405	35.1	7042	30.487805	34.152229
1	2016	ORL	29	53	2139	32.8	7133	35.365854	29.987383
2	2015	ORL	35	47	1818	35.0	7120	42.682927	25.533708
3	2014	ORL	25	57	1598	34.7	6792	30.487805	23.527680
4	2013	ORL	23	59	1596	35.3	6784	28.048780	23.525943
5	2012	ORL	20	62	1537	32.9	6904	24.390244	22.262457
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	PHI	52	30	2445	36.9	7098	63.414634	34.446323
1	2016	PHI	28	54	2443	34.0	6992	34.146341	34.939931
2	2015	PHI	10	72	2255	33.9	6887	12.195122	32.742849
3	2014	PHI	18	64	2160	32.0	6777	21.951220	31.872510
4	2013	PHI	19	63	1847	31.2	7150	23.170732	25.832168
5	2012	PHI	34	48	1438	36.0	6895	41.463415	20.855693
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	PHO	21	61	2286	33.4	7141	25.609756	32.012323
1	2016	PHO	24	58	1854	33.2	7260	29.268293	25.537190
2	2015	PHO	23	59	2118	34.8	7018	28.048780	30.179538
3	2014	PHO	39	43	2048	34.1	7038	47.560976	29.099176
4	2013	PHO	48	34	2055	37.2	6845	58.536585	30.021914
5	2012	PHO	25	57	1455	33.0	6917	30.487805	21.035131

	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	POR	49	33	2308	36.6	7132	59.756098	32.361189
1	2016	POR	41	41	2272	37.5	7059	50.000000	32.185862
2	2015	POR	44	38	2336	37.0	7040	53.658537	33.181818
3	2014	POR	51	31	2231	36.2	7049	62.195122	31.649879
4	2013	POR	54	28	2071	37.2	7134	65.853659	29.029997
5	2012	POR	33	49	1904	35.3	6715	40.243902	28.354430
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	SAC	27	55	1967	37.5	7063	32.926829	27.849356
1	2016	SAC	32	50	1960	37.6	6734	39.024390	29.106029
2	2015	SAC	33	49	1839	35.9	7083	40.243902	25.963575
3	2014	SAC	29	53	1350	34.1	6617	35.365854	20.401995
4	2013	SAC	28	54	1475	33.3	6766	34.146341	21.800177
5	2012	SAC	28	54	1681	36.3	6904	34.146341	24.348204
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	SAS	47	35	1977	35.2	6999	57.317073	28.246892
1	2016	SAS	61	21	1927	39.1	6864	74.390244	28.074009
2	2015	SAS	67	15	1518	37.5	6797	81.707317	22.333382
3	2014	SAS	55	27	1847	36.7	6854	67.073171	26.947768
4	2013	SAS	62	20	1757	39.7	6844	75.609756	25.672122
5	2012	SAS	58	24	1764	37.6	6675	70.731707	26.426966
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	TOR	59	23	2703	35.8	7169	71.951220	37.704003
1	2016	TOR	51	31	1996	36.3	6918	62.195122	28.852269
2	2015	TOR	56	26	1915	37.0	6669	68.292683	28.714950
3	2014	TOR	49	33	2060	35.2	6829	59.756098	30.165471
4	2013	TOR	48	34	1917	37.2	6718	58.536585	28.535278
5	2012	TOR	34	48	1665	34.3	6685	41.463415	24.906507
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	UTA	48	34	2425	36.6	6797	58.536585	35.677505
1	2016	UTA	51	31	2128	37.2	6515	62.195122	32.663085
2	2015	UTA	40	42	1956	35.5	6593	48.780488	29.667830
3	2014	UTA	38	44	1781	34.3	6492	46.341463	27.433765
4	2013	UTA	25	57	1577	34.4	6652	30.487805	23.707156
5	2012	UTA	43	39	1385	36.6	6710	52.439024	20.640835
	Season	Tm	W	L	3PA	3P%	FGA	Win/Loss	3PA%
0	2017	WAS	43	39	2173	37.5	7018	52.439024	30.963237
1	2016	WAS	49	33	2030	37.2	7137	59.756098	28.443324
2	2015	WAS	41	41	1983	35.8	7033	50.000000	28.195649
3	2014	WAS	46	36	1381	36.0	6790	56.097561	20.338733
4	2013	WAS	44	38	1704	38.0	6920	53.658537	24.624277
5	2012	WAS	29	53	1495	36.5	6693	35.365854	22.336770

```
In [35]: teamstats
```

Out[35]:

	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	ATL	24	58	2544	36.0	29.268293
1	2016	ATL	43	39	2137	34.1	52.439024
2	2015	ATL	48	34	2326	35.0	58.536585
3	2014	ATL	60	22	2152	38.0	73.170732
4	2013	ATL	38	44	2116	36.3	46.341463
5	2012	ATL	44	38	1901	37.1	53.658537,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	BRK	28	54	2924	35.6	34.146341
1	2016	BRK	20	62	2591	33.8	24.390244
2	2015	BRK	21	61	1508	35.2	25.609756
3	2014	BRK	38	44	1633	33.1	46.341463
4	2013	BRK	44	38	1922	36.9	53.658537
5	2012	BRK	49	33	1760	35.7	59.756098,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	BOS	55	27	2492	37.7	67.073171
1	2016	BOS	53	29	2742	35.9	64.634146
2	2015	BOS	48	34	2142	33.5	58.536585
3	2014	BOS	40	42	2021	32.7	48.780488
4	2013	BOS	25	57	1729	33.3	30.487805
5	2012	BOS	41	40	1390	35.8	50.617284,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	CHO	36	46	2233	36.9	43.902439
1	2016	CHO	36	46	2347	35.1	43.902439
2	2015	CHO	48	34	2410	36.2	58.536585
3	2014	CHO	33	49	1566	31.8	40.243902
4	2013	CHA	43	39	1471	35.1	52.439024
5	2012	CHA	21	61	1399	33.5	25.609756,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	CHI	27	55	2550	35.5	32.926829
1	2016	CHI	41	41	1831	34.0	50.000000
2	2015	CHI	42	40	1753	37.1	51.219512
3	2014	CHI	50	32	1825	35.3	60.975610
4	2013	CHI	48	34	1459	34.8	58.536585
5	2012	CHI	45	37	1265	35.3	54.878049,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	CLE	50	32	2636	37.2	60.975610
1	2016	CLE	51	31	2779	38.4	62.195122
2	2015	CLE	57	25	2428	36.2	69.512195
3	2014	CLE	53	29	2253	36.7	64.634146
4	2013	CLE	33	49	1640	35.6	40.243902
5	2012	CLE	24	58	1581	34.6	29.268293,

	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	DAL	24	58	2688	36.0	29.268293
1	2016	DAL	33	49	2473	35.5	40.243902
2	2015	DAL	42	40	2342	34.4	51.219512
3	2014	DAL	50	32	2082	35.2	60.975610
4	2013	DAL	49	33	1877	38.4	59.756098
5	2012	DAL	41	41	1628	37.2	50.000000,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	DEN	46	36	2536	37.1	56.097561
1	2016	DEN	40	42	2365	36.8	48.780488
2	2015	DEN	33	49	1943	33.8	40.243902
3	2014	DEN	30	52	2032	32.5	36.585366
4	2013	DEN	36	46	1959	35.8	43.902439
5	2012	DEN	57	25	1518	34.3	69.512195,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	DET	39	43	2373	37.3	47.560976
1	2016	DET	37	45	1915	33.0	45.121951
2	2015	DET	44	38	2148	34.5	53.658537
3	2014	DET	32	50	2043	34.4	39.024390
4	2013	DET	29	53	1580	32.1	35.365854
5	2012	DET	29	53	1440	35.6	35.365854,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	GSW	58	24	2369	39.1	70.731707
1	2016	GSW	67	15	2562	38.3	81.707317
2	2015	GSW	73	9	2592	41.6	89.024390
3	2014	GSW	67	15	2217	39.8	81.707317
4	2013	GSW	51	31	2037	38.0	62.195122
5	2012	GSW	47	35	1632	40.3	57.317073,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	HOU	65	17	3470	36.2	79.268293
1	2016	HOU	55	27	3306	35.7	67.073171
2	2015	HOU	41	41	2533	34.7	50.000000
3	2014	HOU	56	26	2680	34.8	68.292683
4	2013	HOU	54	28	2179	35.8	65.853659
5	2012	HOU	45	37	2369	36.6	54.878049,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	IND	48	34	2010	36.9	58.536585
1	2016	IND	42	40	1885	37.6	51.219512
2	2015	IND	45	37	1889	35.1	54.878049
3	2014	IND	38	44	1740	35.2	46.341463
4	2013	IND	56	26	1542	35.7	68.292683
5	2012	IND	49	32	1599	34.7	60.493827,

	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	LAC	42	40	2196	35.4	51.219512
1	2016	LAC	51	31	2245	37.5	62.195122
2	2015	LAC	53	29	2190	36.4	64.634146
3	2014	LAC	56	26	2202	37.6	68.292683
4	2013	LAC	57	25	1966	35.2	69.512195
5	2012	LAC	56	26	1752	35.8	68.292683,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	LAL	35	47	2384	34.5	42.682927
1	2016	LAL	26	56	2110	34.6	31.707317
2	2015	LAL	17	65	2016	31.7	20.731707
3	2014	LAL	21	61	1546	34.4	25.609756
4	2013	LAL	27	55	2032	38.1	32.926829
5	2012	LAL	45	37	2015	35.5	54.878049,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	MEM	22	60	2152	35.2	26.829268
1	2016	MEM	43	39	2169	35.4	52.439024
2	2015	MEM	42	40	1521	33.1	51.219512
3	2014	MEM	55	27	1246	33.9	67.073171
4	2013	MEM	50	32	1147	35.3	60.975610
5	2012	MEM	56	26	1107	34.5	68.292683,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	MIA	44	38	2506	36.0	53.658537
1	2016	MIA	41	41	2213	36.5	50.000000
2	2015	MIA	48	34	1480	33.6	58.536585
3	2014	MIA	37	45	1659	33.5	45.121951
4	2013	MIA	54	28	1829	36.4	65.853659
5	2012	MIA	66	16	1809	39.6	80.487805,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	MIL	44	38	2024	35.5	53.658537
1	2016	MIL	42	40	1946	37.0	51.219512
2	2015	MIL	33	49	1277	34.5	40.243902
3	2014	MIL	41	41	1500	36.3	50.000000
4	2013	MIL	15	67	1553	35.3	18.292683
5	2012	MIL	38	44	1670	36.0	46.341463,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	MIN	47	35	1845	35.7	57.317073
1	2016	MIN	31	51	1723	34.9	37.804878
2	2015	MIN	29	53	1347	33.8	35.365854
3	2014	MIN	16	66	1223	33.2	19.512195
4	2013	MIN	40	42	1757	34.1	48.780488
5	2012	MIN	31	51	1475	30.5	37.804878,

	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	NOP	48	34	2312	36.2	58.536585
1	2016	NOP	34	48	2196	35.0	41.463415
2	2015	NOP	30	52	1951	36.0	36.585366
3	2014	NOP	45	37	1583	37.0	54.878049
4	2013	NOP	34	48	1303	37.3	41.463415
5	2012	NOH	27	55	1474	36.3	32.926829,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	NYK	29	53	1914	35.2	35.365854
1	2016	NYK	31	51	2022	34.8	37.804878
2	2015	NYK	32	50	1762	34.6	39.024390
3	2014	NYK	17	65	1614	34.7	20.731707
4	2013	NYK	37	45	2038	37.2	45.121951
5	2012	NYK	54	28	2371	37.6	65.853659,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	OKC	48	34	2490	35.4	58.536585
1	2016	OKC	47	35	2116	32.7	57.317073
2	2015	OKC	55	27	1945	34.9	67.073171
3	2014	OKC	45	37	1864	33.9	54.878049
4	2013	OKC	59	23	1839	36.1	71.951220
5	2012	OKC	60	22	1588	37.7	73.170732,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	ORL	25	57	2405	35.1	30.487805
1	2016	ORL	29	53	2139	32.8	35.365854
2	2015	ORL	35	47	1818	35.0	42.682927
3	2014	ORL	25	57	1598	34.7	30.487805
4	2013	ORL	23	59	1596	35.3	28.048780
5	2012	ORL	20	62	1537	32.9	24.390244,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	PHI	52	30	2445	36.9	63.414634
1	2016	PHI	28	54	2443	34.0	34.146341
2	2015	PHI	10	72	2255	33.9	12.195122
3	2014	PHI	18	64	2160	32.0	21.951220
4	2013	PHI	19	63	1847	31.2	23.170732
5	2012	PHI	34	48	1438	36.0	41.463415,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	PHO	21	61	2286	33.4	25.609756
1	2016	PHO	24	58	1854	33.2	29.268293
2	2015	PHO	23	59	2118	34.8	28.048780
3	2014	PHO	39	43	2048	34.1	47.560976
4	2013	PHO	48	34	2055	37.2	58.536585
5	2012	PHO	25	57	1455	33.0	30.487805,

	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	POR	49	33	2308	36.6	59.756098
1	2016	POR	41	41	2272	37.5	50.000000
2	2015	POR	44	38	2336	37.0	53.658537
3	2014	POR	51	31	2231	36.2	62.195122
4	2013	POR	54	28	2071	37.2	65.853659
5	2012	POR	33	49	1904	35.3	40.243902,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	SAC	27	55	1967	37.5	32.926829
1	2016	SAC	32	50	1960	37.6	39.024390
2	2015	SAC	33	49	1839	35.9	40.243902
3	2014	SAC	29	53	1350	34.1	35.365854
4	2013	SAC	28	54	1475	33.3	34.146341
5	2012	SAC	28	54	1681	36.3	34.146341,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	SAS	47	35	1977	35.2	57.317073
1	2016	SAS	61	21	1927	39.1	74.390244
2	2015	SAS	67	15	1518	37.5	81.707317
3	2014	SAS	55	27	1847	36.7	67.073171
4	2013	SAS	62	20	1757	39.7	75.609756
5	2012	SAS	58	24	1764	37.6	70.731707,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	TOR	59	23	2703	35.8	71.951220
1	2016	TOR	51	31	1996	36.3	62.195122
2	2015	TOR	56	26	1915	37.0	68.292683
3	2014	TOR	49	33	2060	35.2	59.756098
4	2013	TOR	48	34	1917	37.2	58.536585
5	2012	TOR	34	48	1665	34.3	41.463415,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	UTA	48	34	2425	36.6	58.536585
1	2016	UTA	51	31	2128	37.2	62.195122
2	2015	UTA	40	42	1956	35.5	48.780488
3	2014	UTA	38	44	1781	34.3	46.341463
4	2013	UTA	25	57	1577	34.4	30.487805
5	2012	UTA	43	39	1385	36.6	52.439024,
	Season	Tm	W	L	3PA	3P%	Win/Loss
0	2017	WAS	43	39	2173	37.5	52.439024
1	2016	WAS	49	33	2030	37.2	59.756098
2	2015	WAS	41	41	1983	35.8	50.000000
3	2014	WAS	46	36	1381	36.0	56.097561
4	2013	WAS	44	38	1704	38.0	53.658537
5	2012	WAS	29	53	1495	36.5	35.365854]

This dataset provides us with all the stats that we need to compare how much a team is using the three point line and how many wins they are getting a season. I only chose to use the last 5 seasons in the NBA, because this is when we are seeing the uprising of the three point line. In the 2012-2013 season, we saw Stephen Curry break the record for most threes in a single NBA season, and we only saw this number increasing every season. After Stephen Curry led the Golden State Warriors to their first championship in 2014-2015 season, teams were questioning whether or not the success at the three was the secret. In the 2015-2016 season, the Golden State Warriors broke the record for the most wins in a season, and teams were convinced that the three point line was the secret.

```
In [13]: import sys
import pandas as pd
import matplotlib.pyplot as plt
import datetime as dt
import numpy as np
import seaborn.apionly as sns
from pandas_datareader import wb, data as web

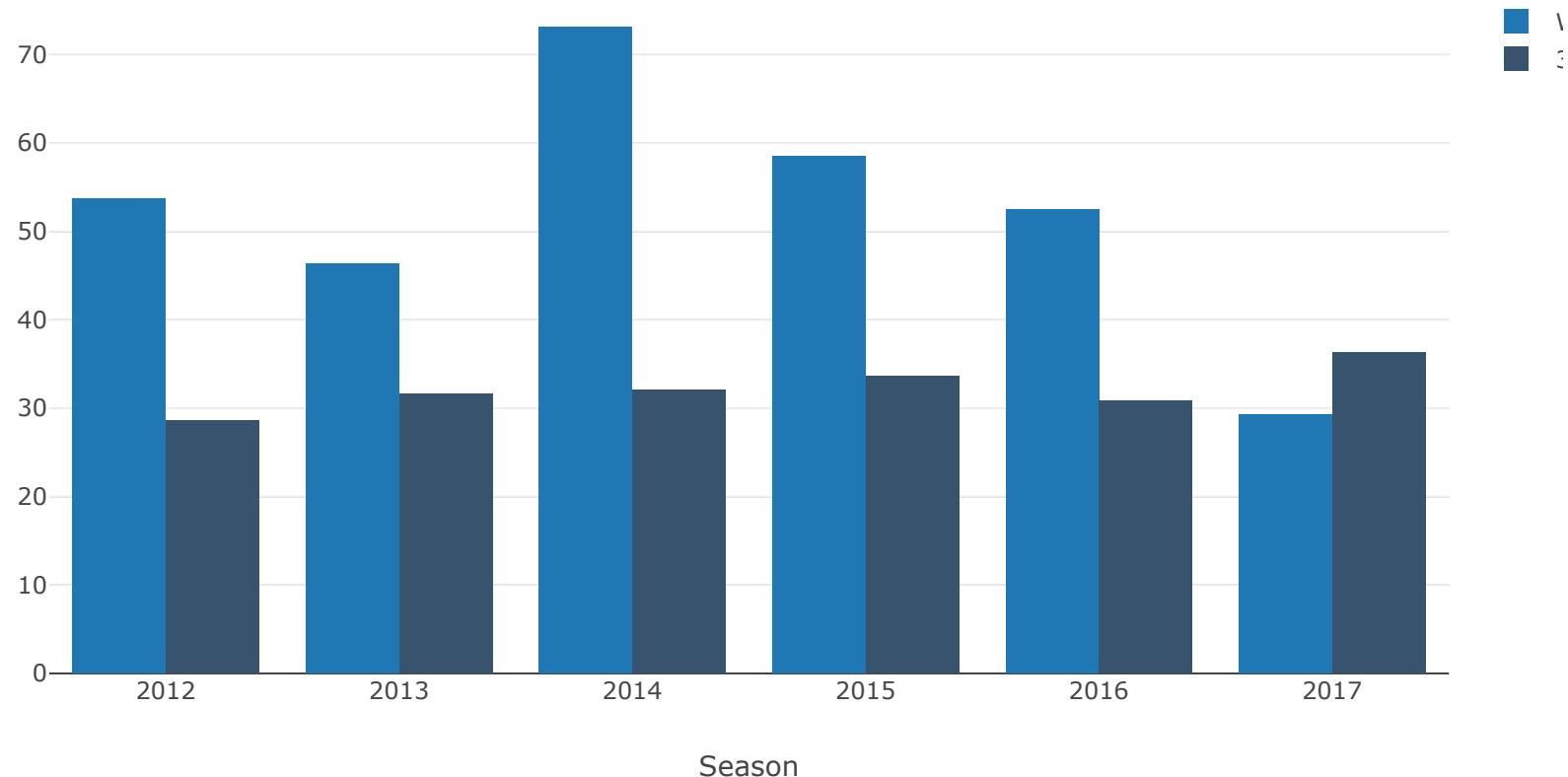
from plotly.offline import iplot, iplot_mpl
import plotly.graph_objs as go
import plotly
import cufflinks as cf
cf.set_config_file(offline=True, offline_show_link=False)

%matplotlib inline
plotly.offline.init_notebook_mode(connected=True)
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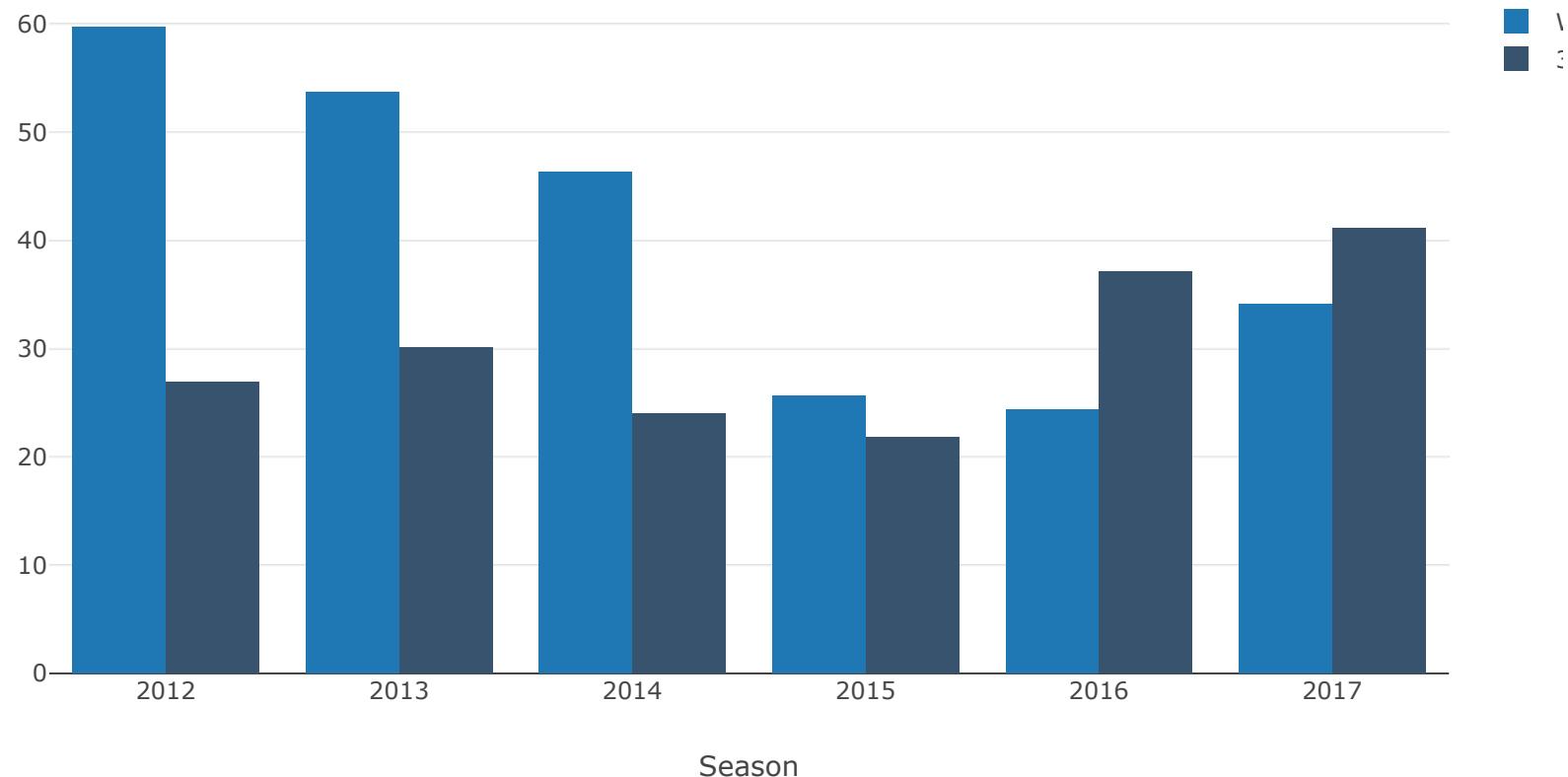
```
IOPub data rate exceeded.
The notebook server will temporarily stop sending output
to the client in order to avoid crashing it.
To change this limit, set the config variable
`--NotebookApp.iopub_data_rate_limit`.
```

```
In [285]: for df in teamstats:
    data = []
    data.append(go.Bar(
        x = df['Season'],
        y = df['Win/Loss'],
        name= 'Win Loss Percentage',
        marker = dict(
            color = "rgb(green)"))
    )
    data.append(go.Bar(
        x = df['Season'],
        y = df['3PA%'],
        name= '3 Point Attempt %',
        marker = dict(
            color = "rgb(55,83,109)"))
    )
    layout = dict(title= 'Win/Loss VS 3 Point Attempt % For '+ df['Tm'][0],xaxis = dict(title = 'Season'))
    fig = dict(data=data, layout=layout)
    iplot(fig, filename='basic-line')
```

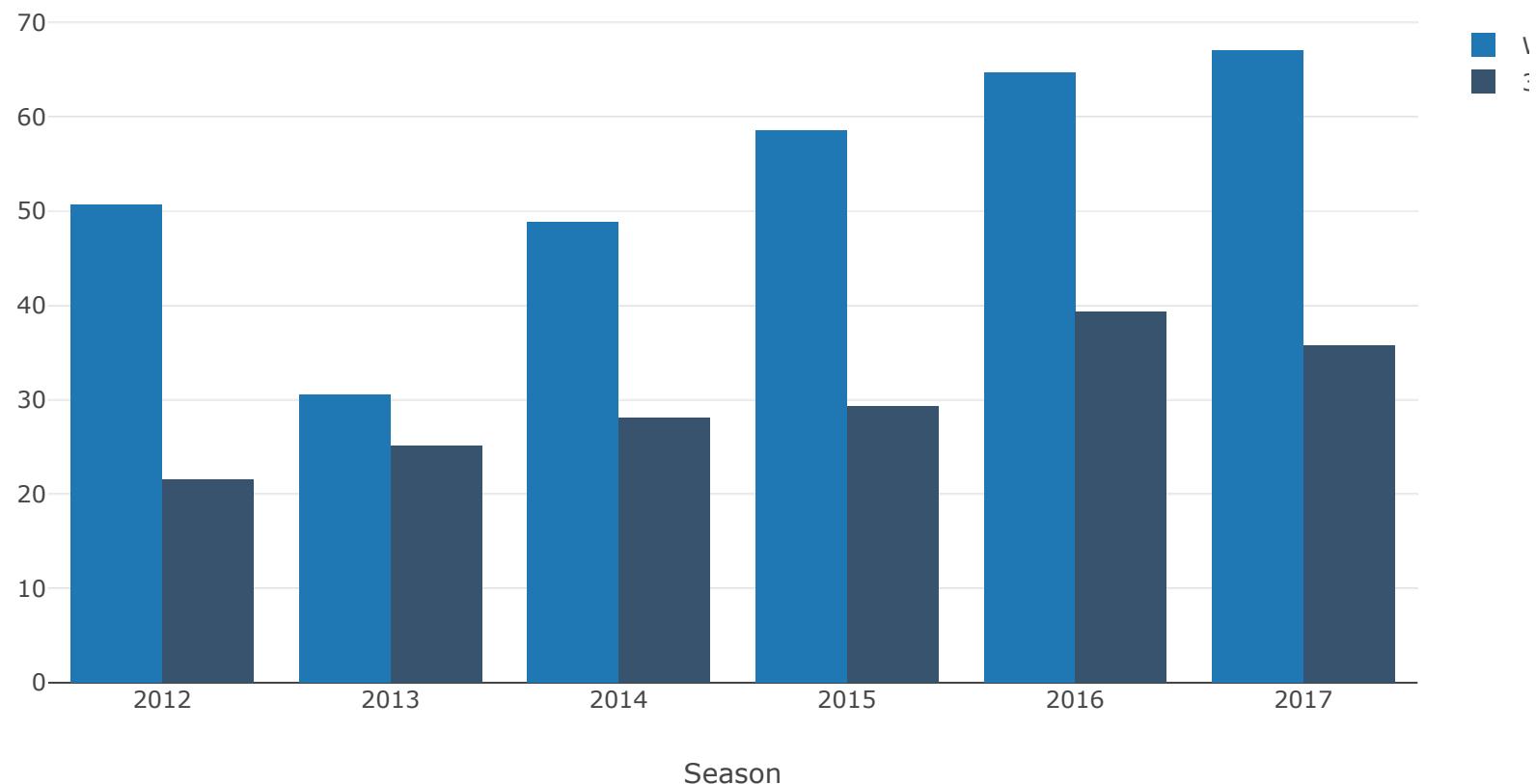
Win/Loss VS 3 Point Attempt % For ATL



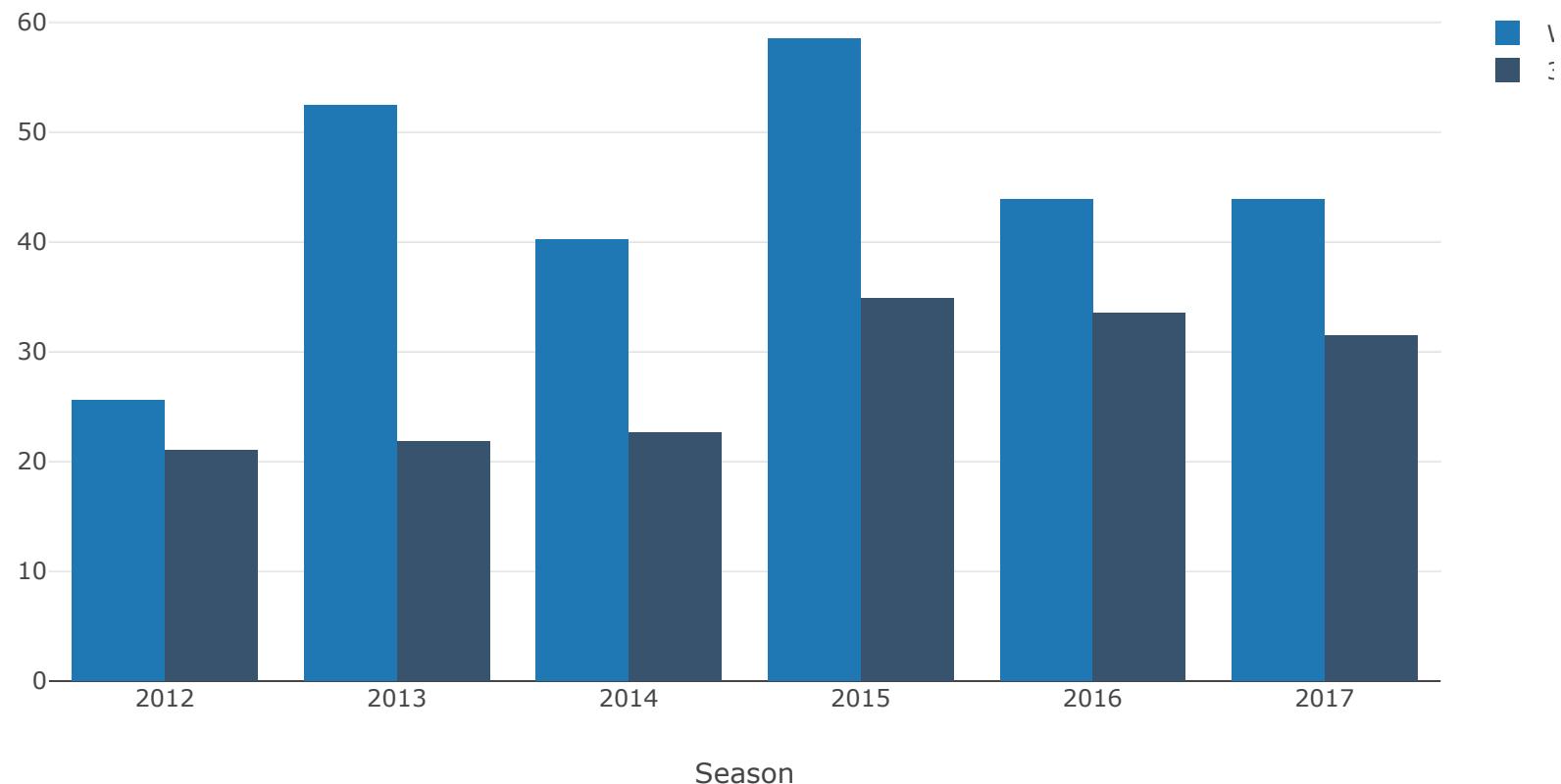
Win/Loss VS 3 Point Attempt % For BRK



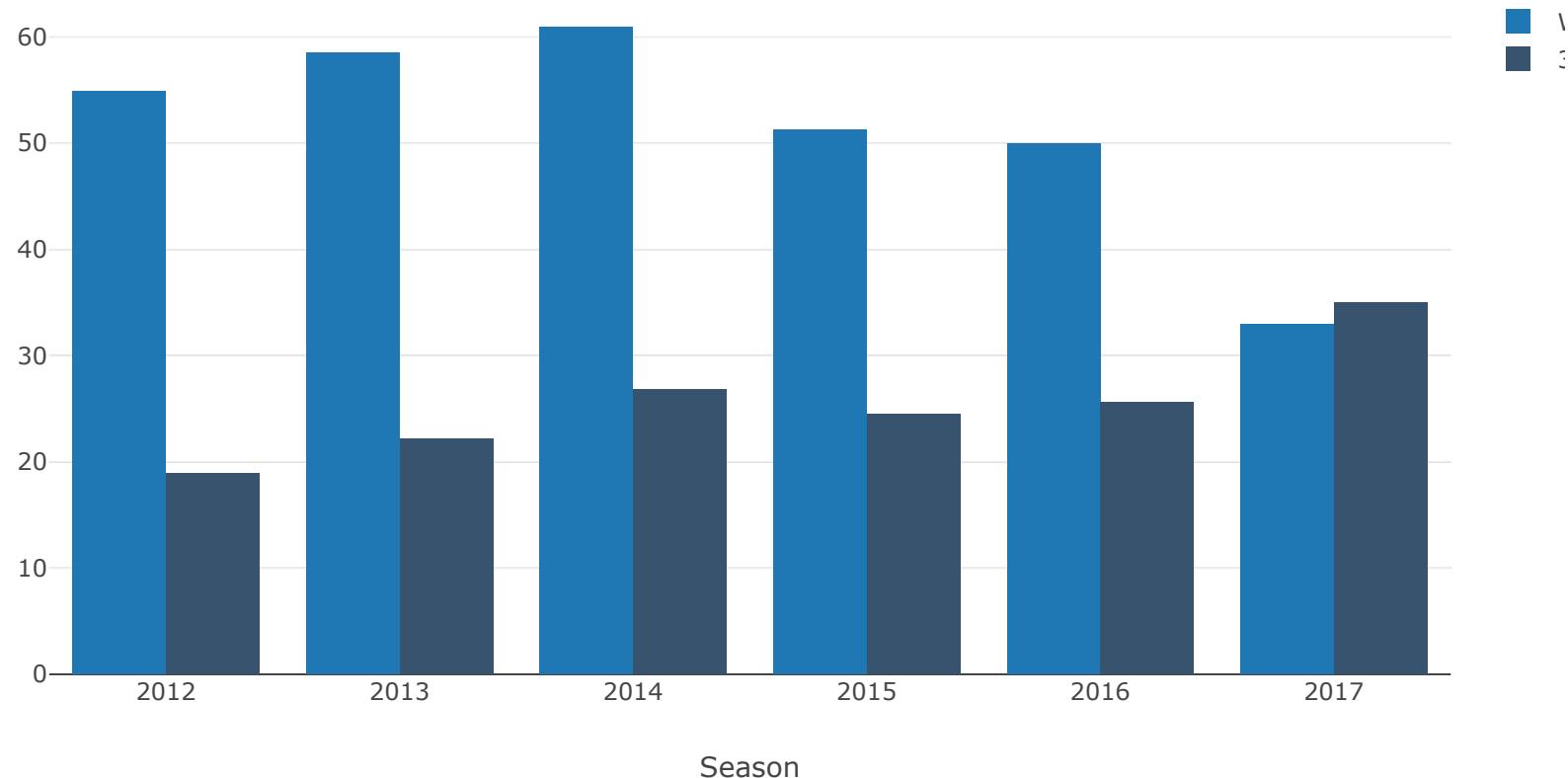
Win/Loss VS 3 Point Attempt % For BOS



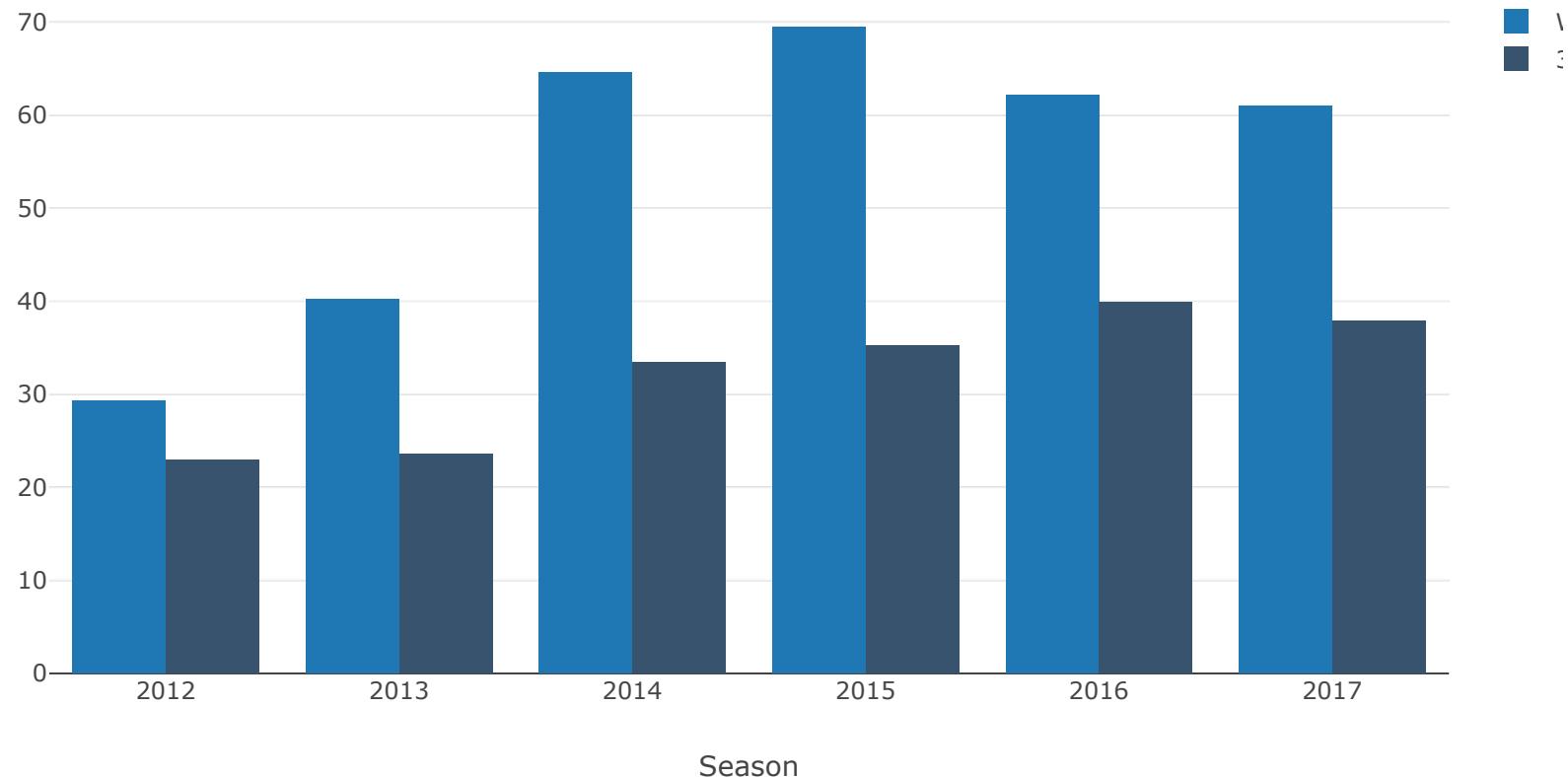
Win/Loss VS 3 Point Attempt % For CHO



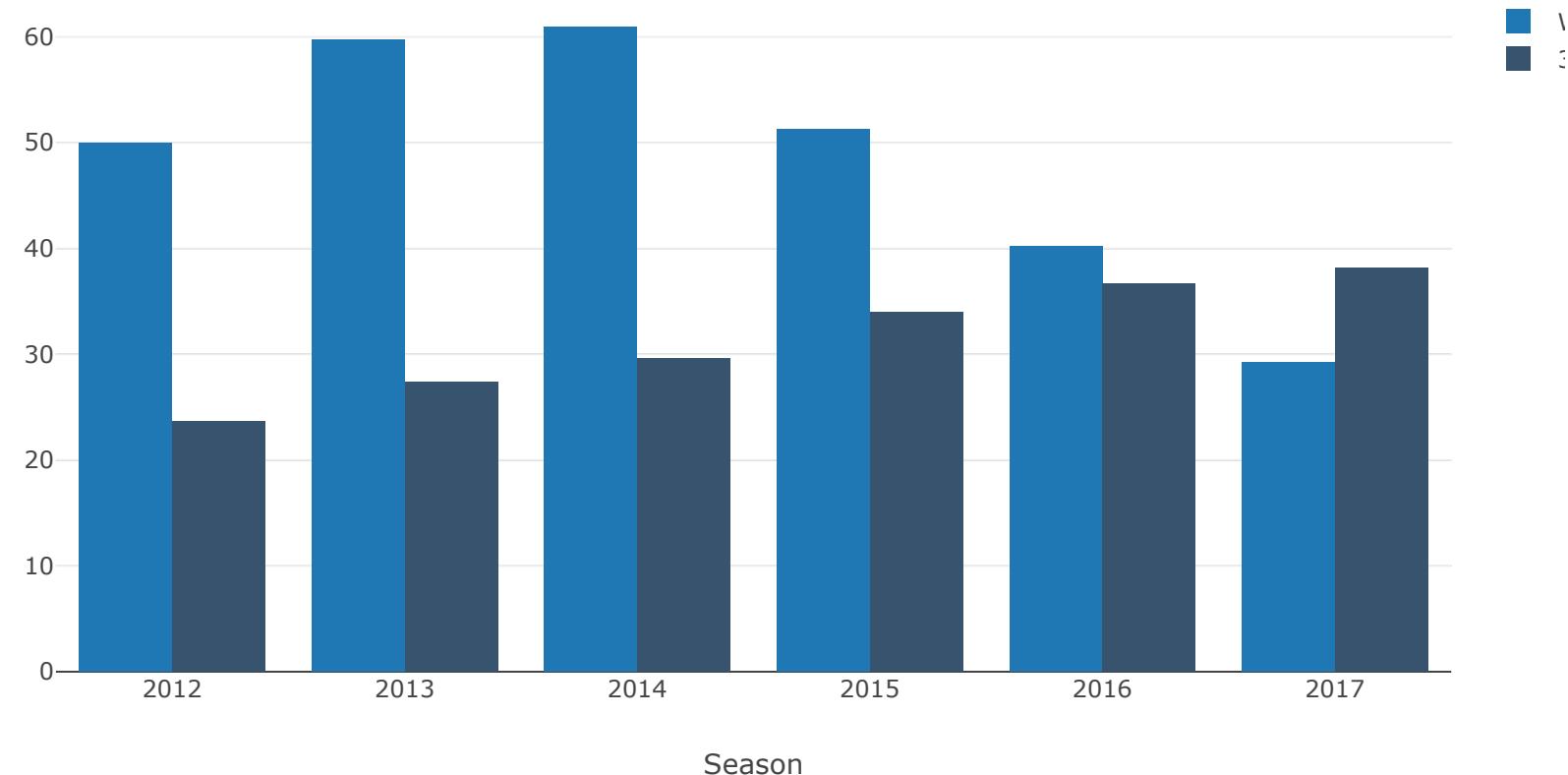
Win/Loss VS 3 Point Attempt % For CHI



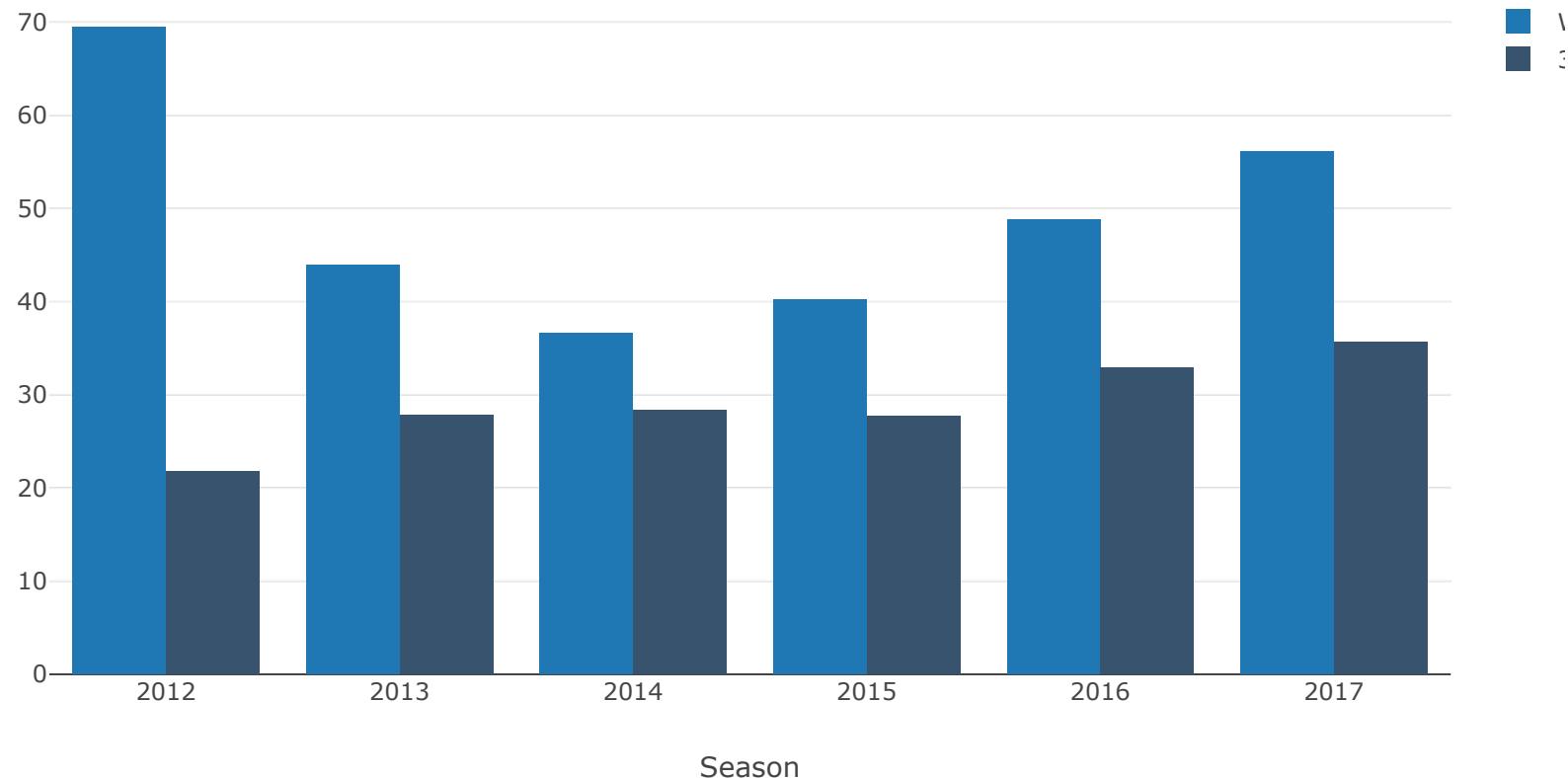
Win/Loss VS 3 Point Attempt % For CLE



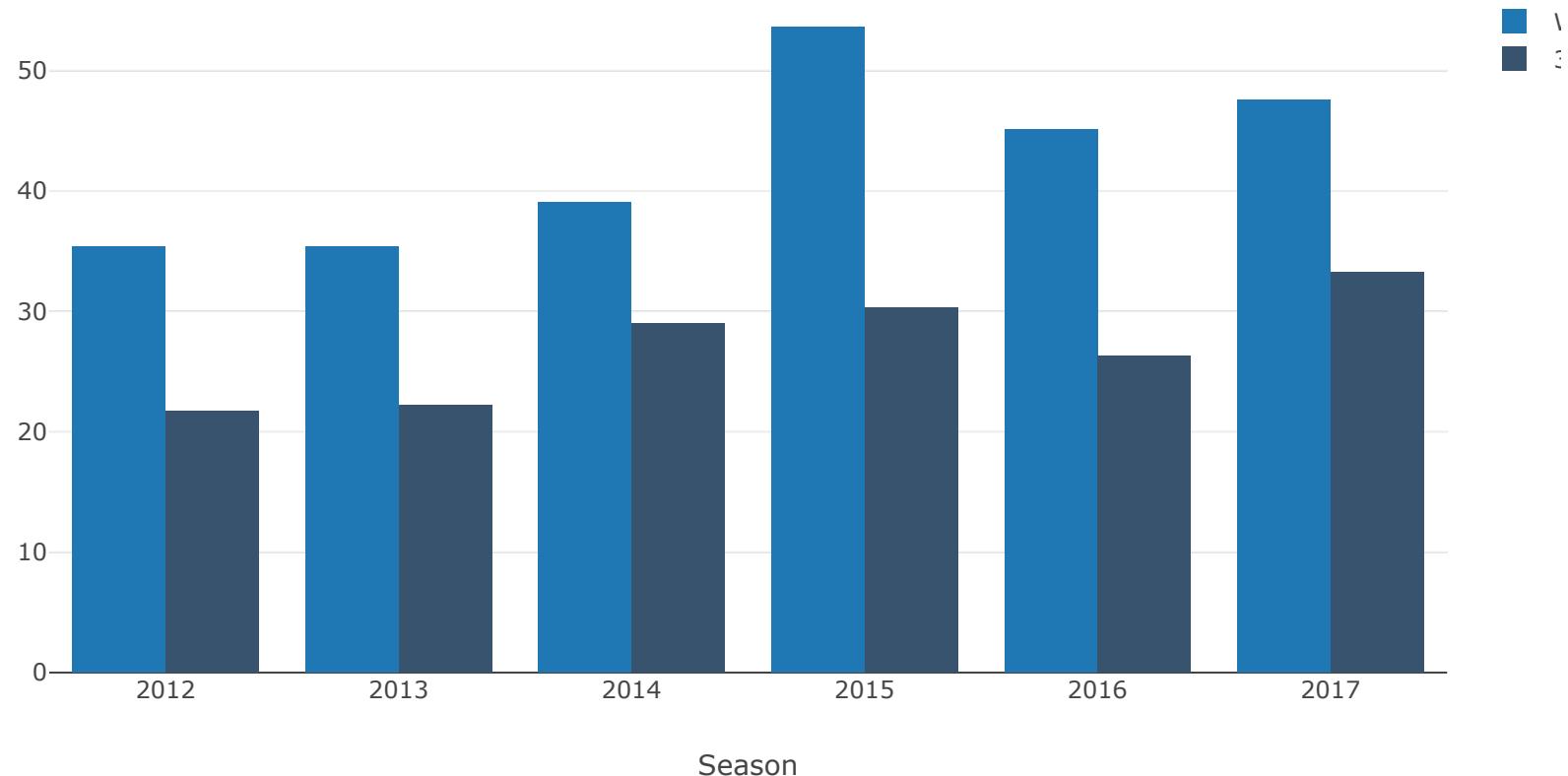
Win/Loss VS 3 Point Attempt % For DAL



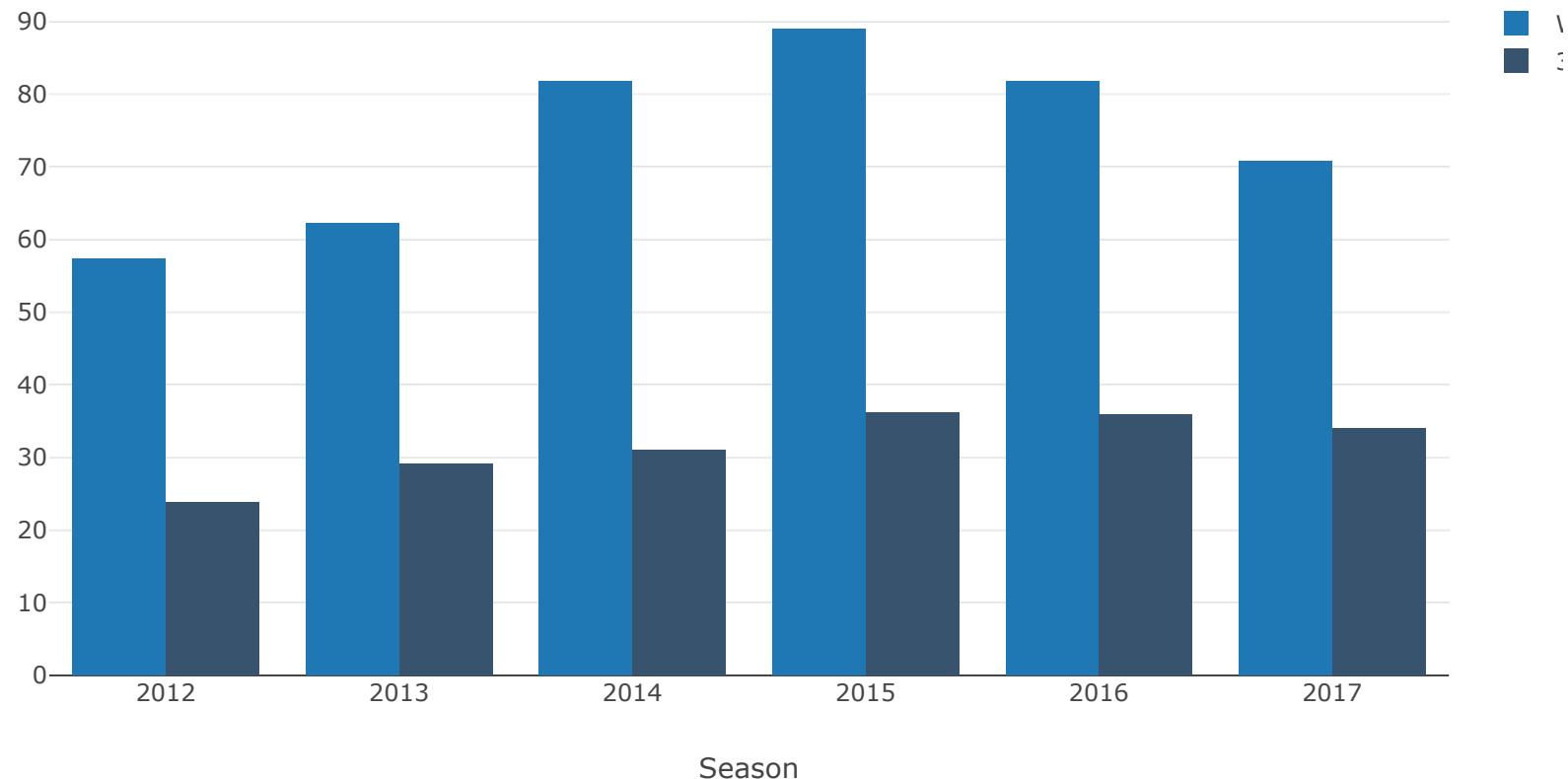
Win/Loss VS 3 Point Attempt % For DEN



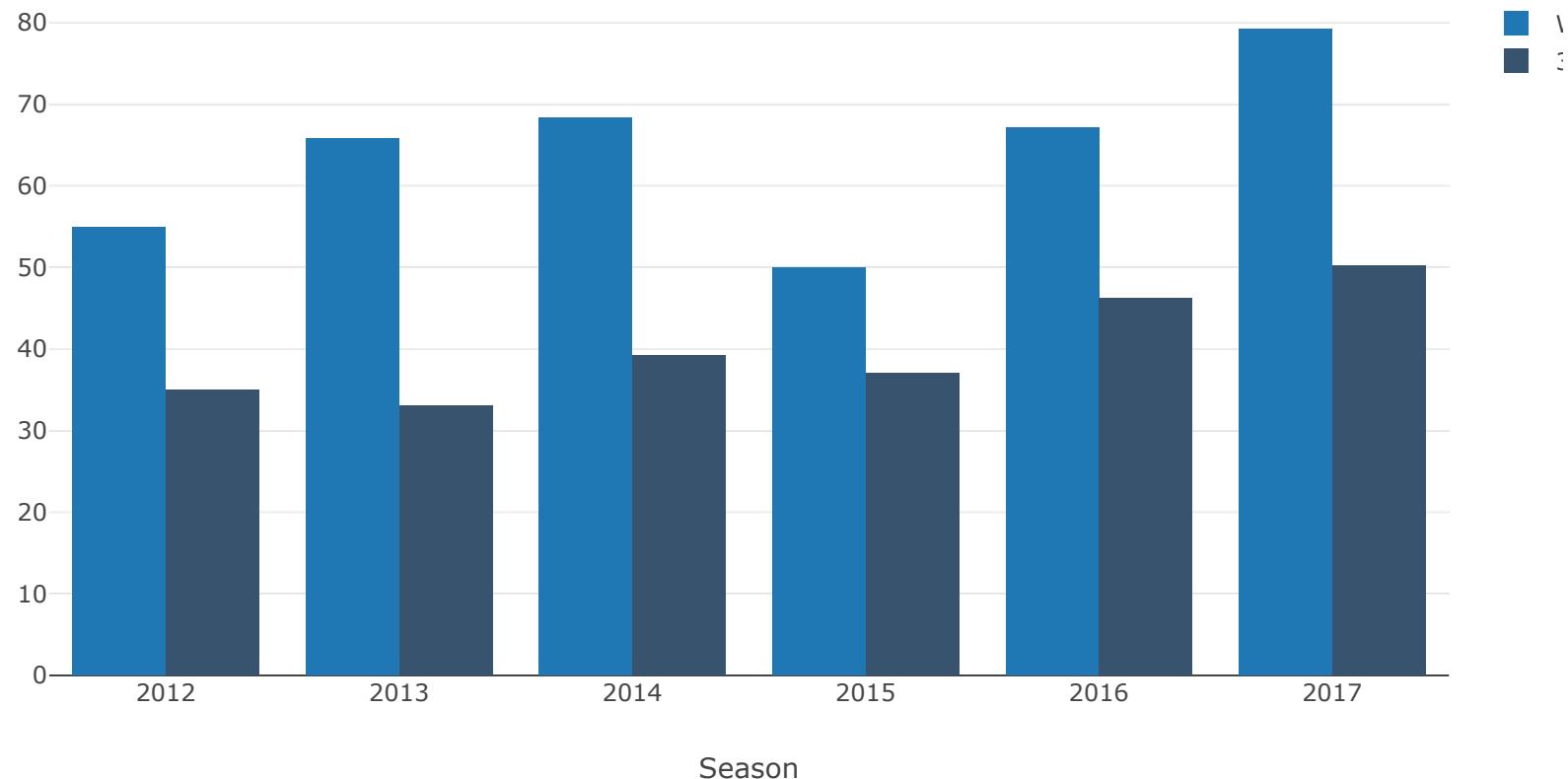
Win/Loss VS 3 Point Attempt % For DET



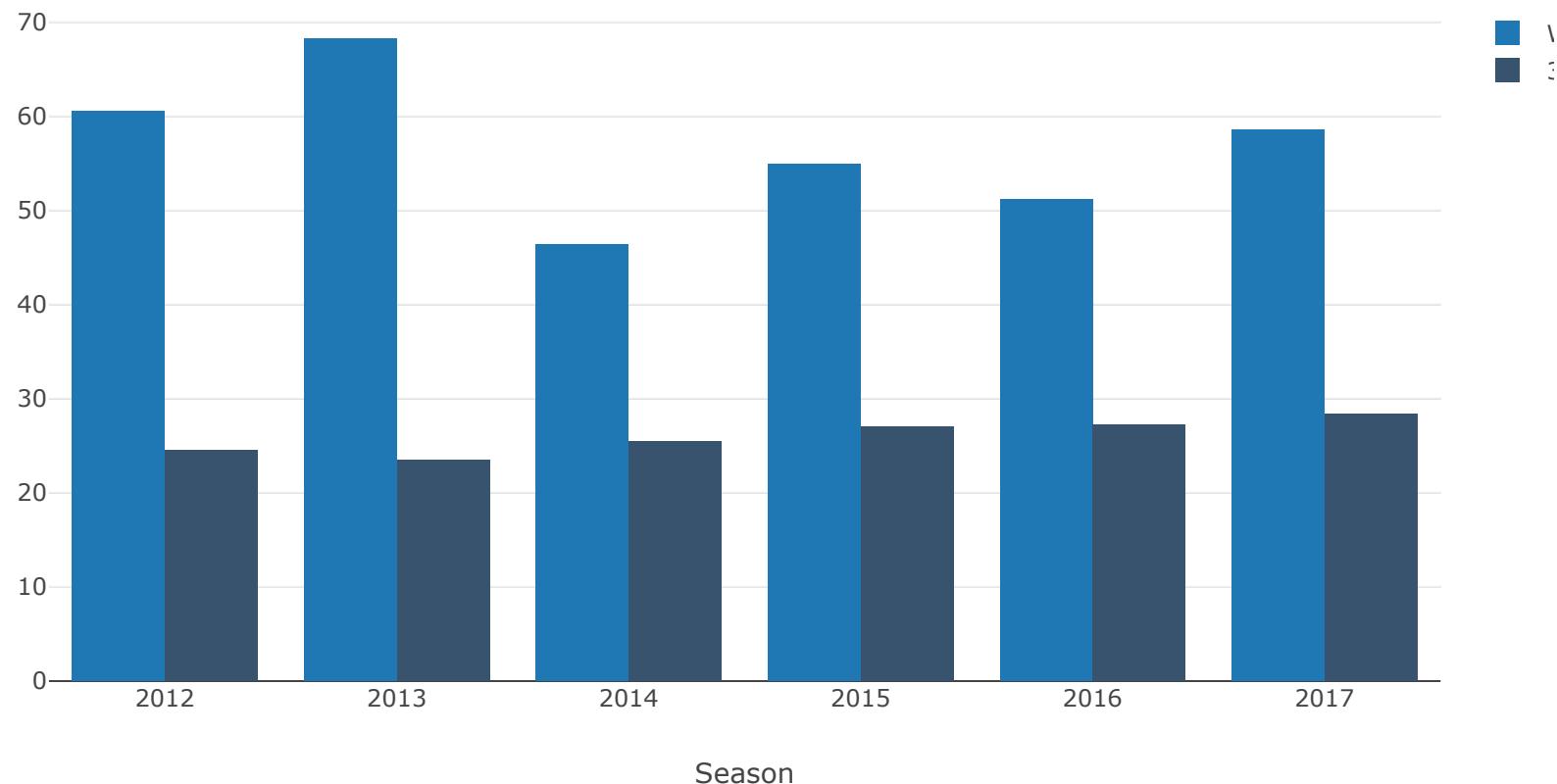
Win/Loss VS 3 Point Attempt % For GSW



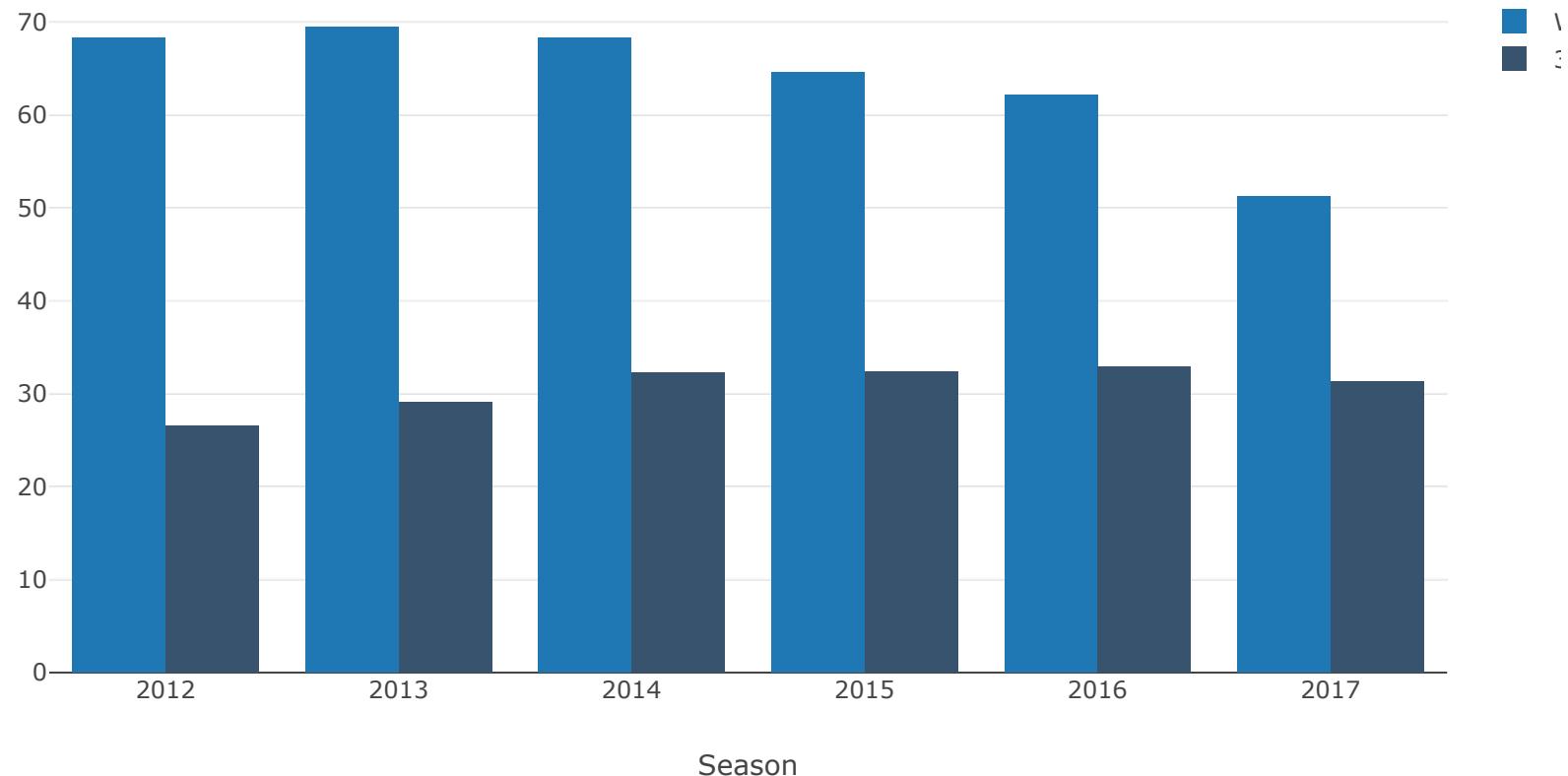
Win/Loss VS 3 Point Attempt % For HOU



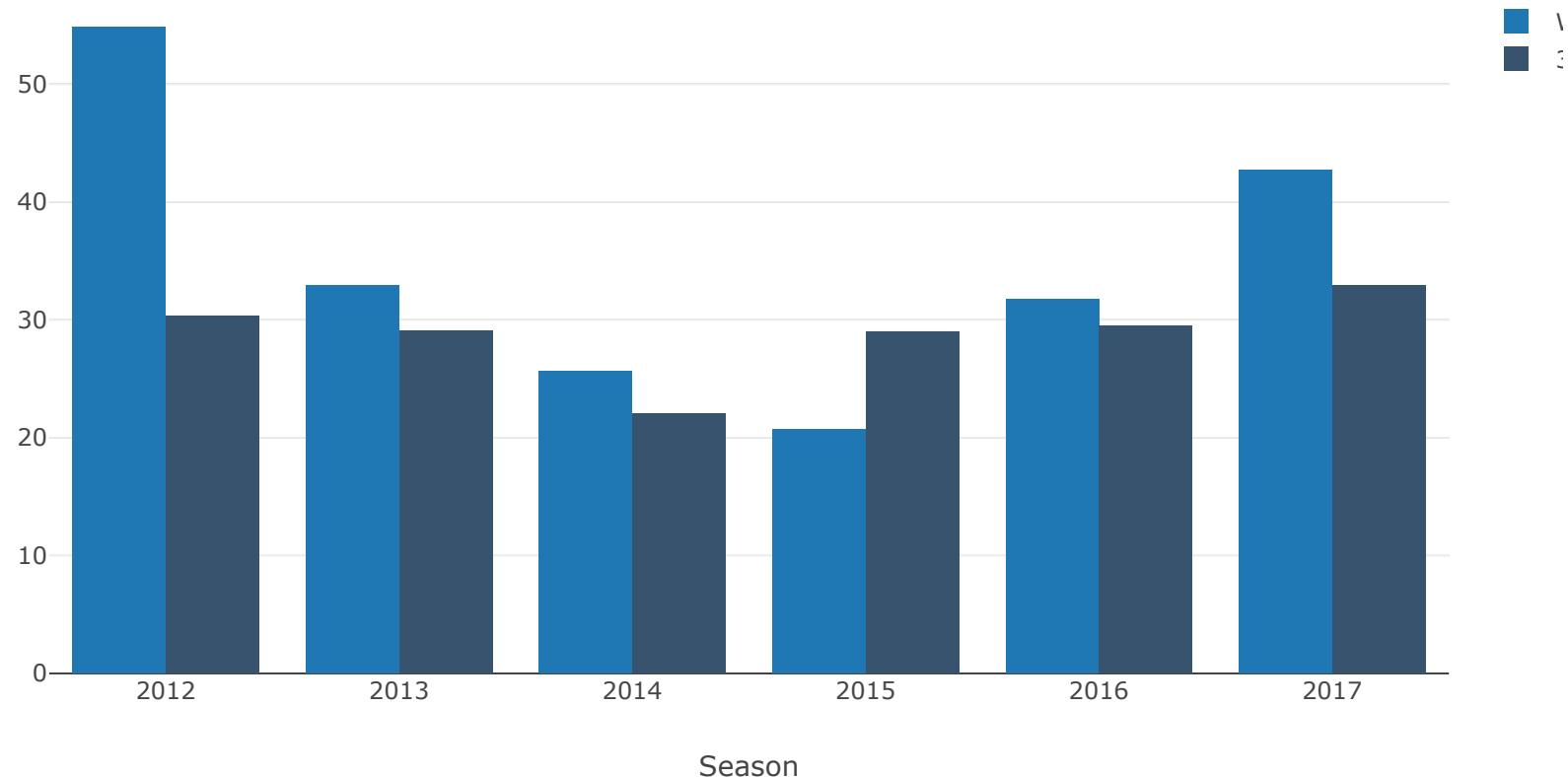
Win/Loss VS 3 Point Attempt % For IND



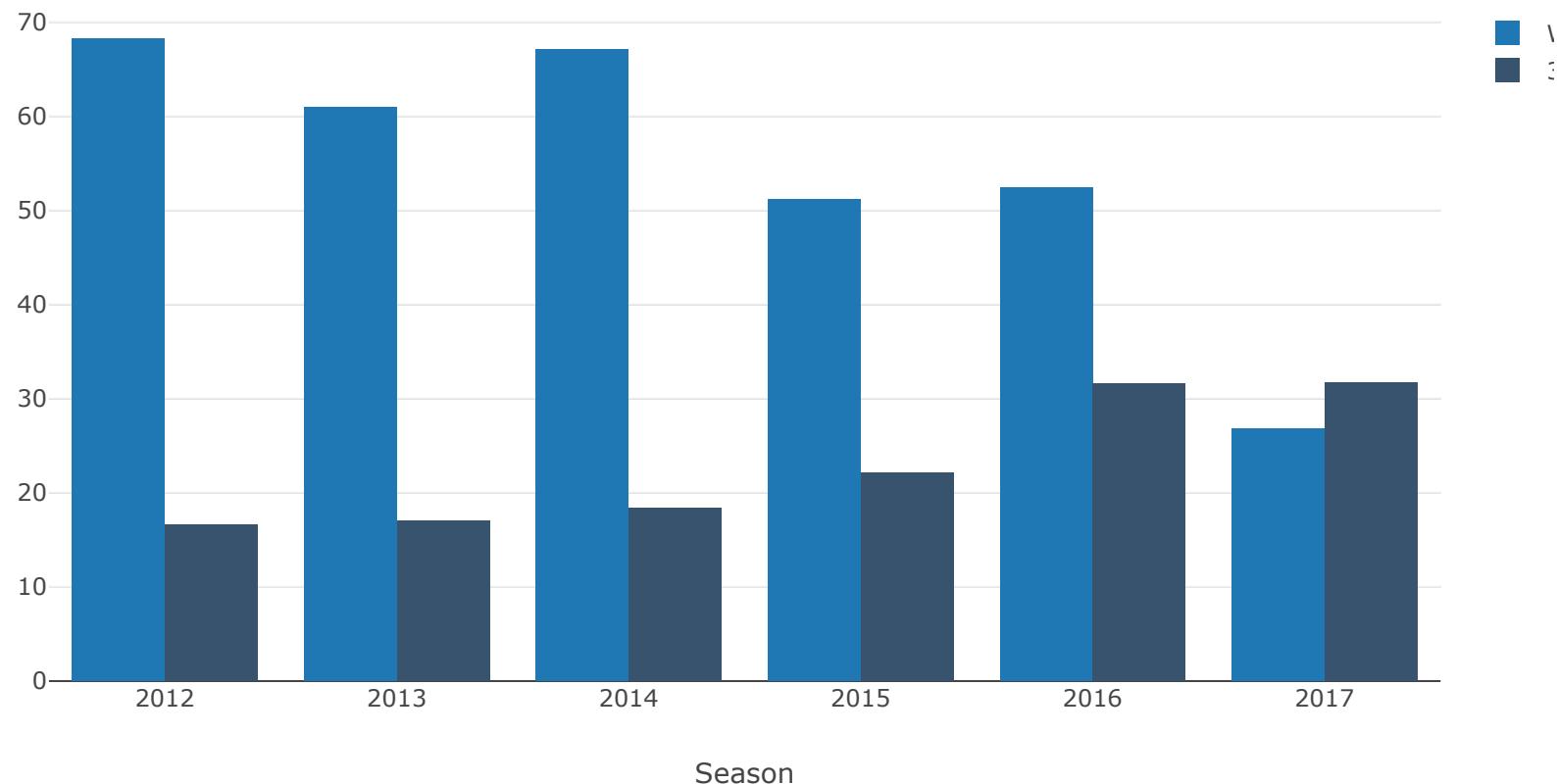
Win/Loss VS 3 Point Attempt % For LAC



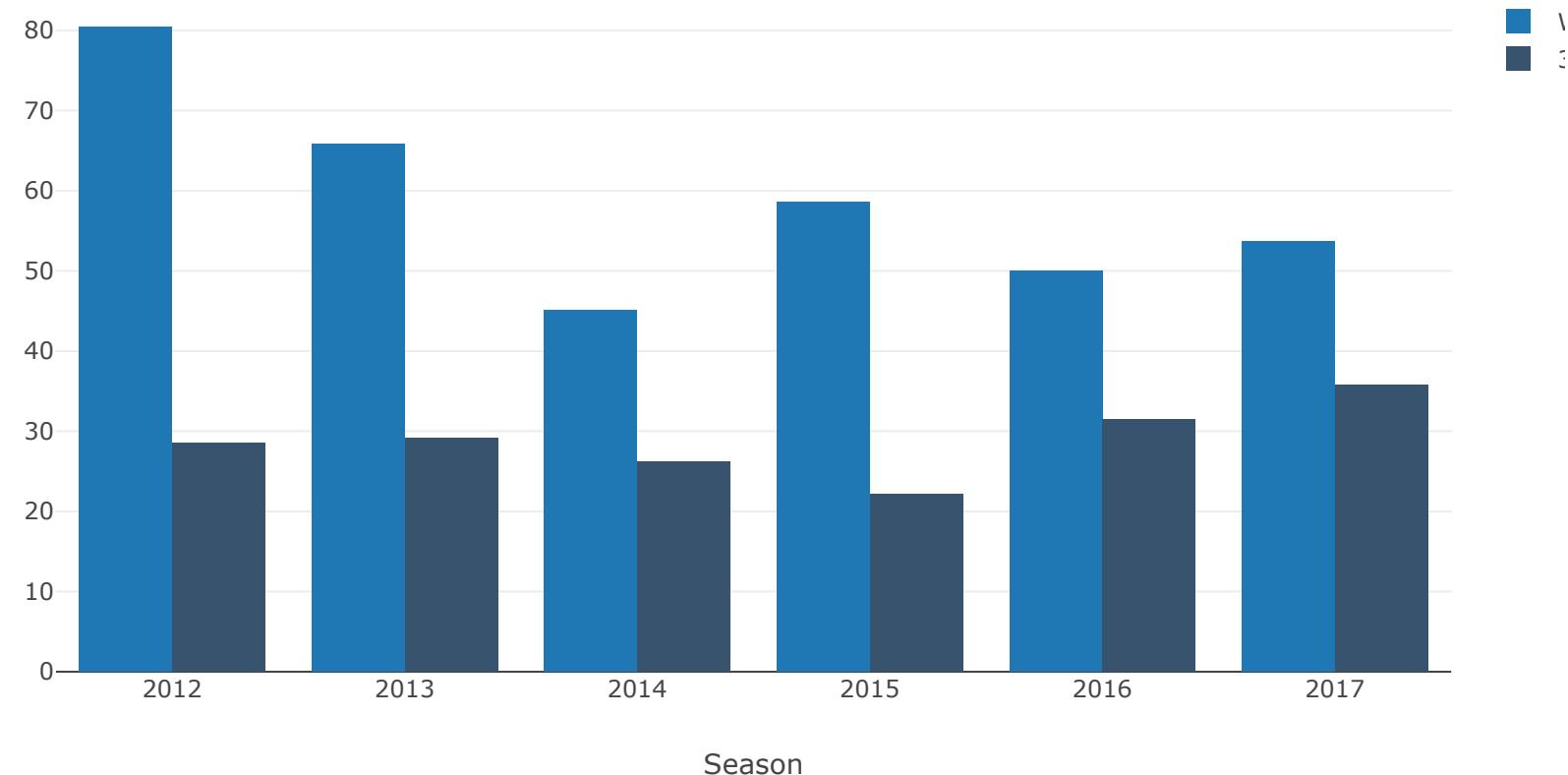
Win/Loss VS 3 Point Attempt % For LAL



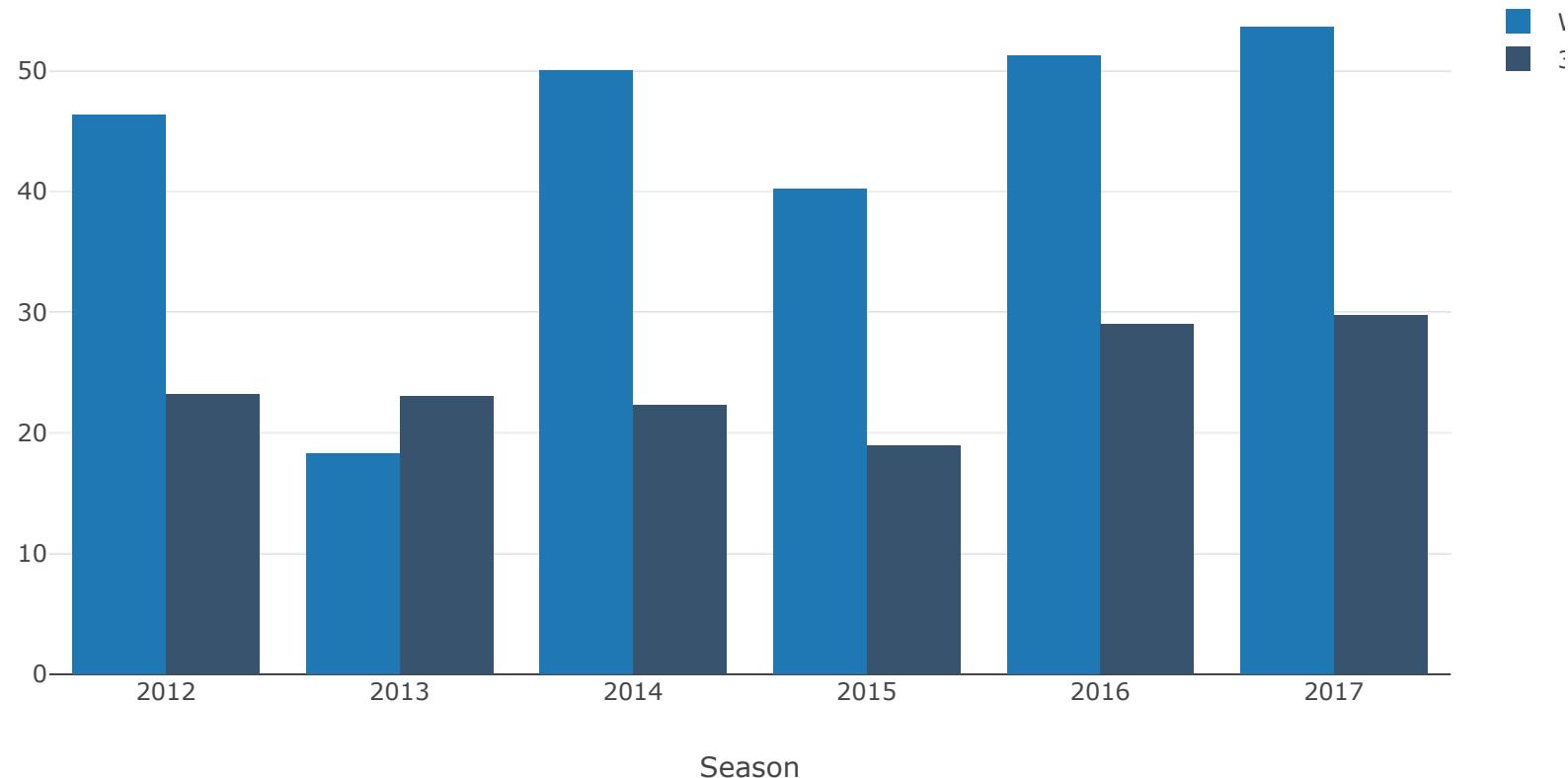
Win/Loss VS 3 Point Attempt % For MEM



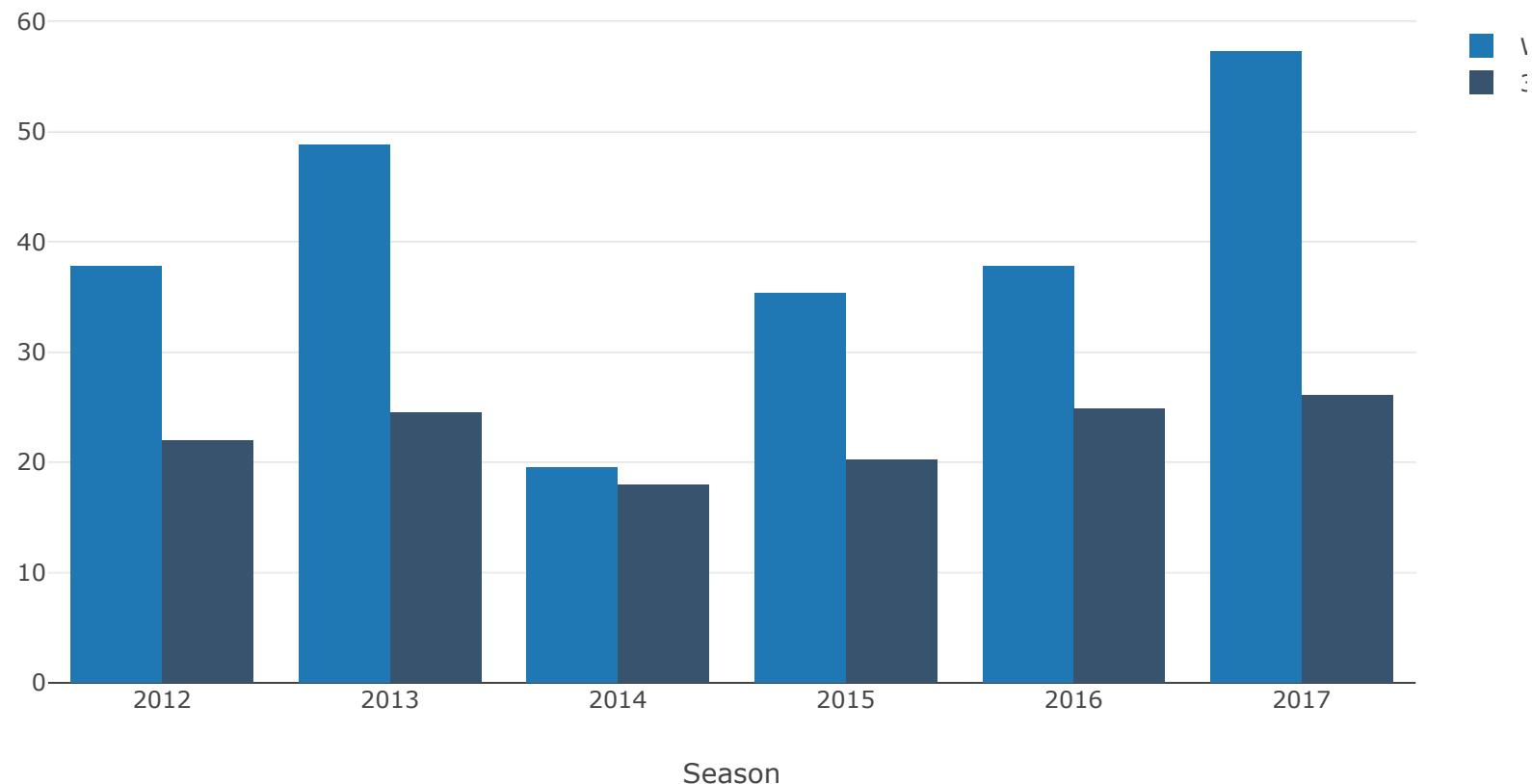
Win/Loss VS 3 Point Attempt % For MIA



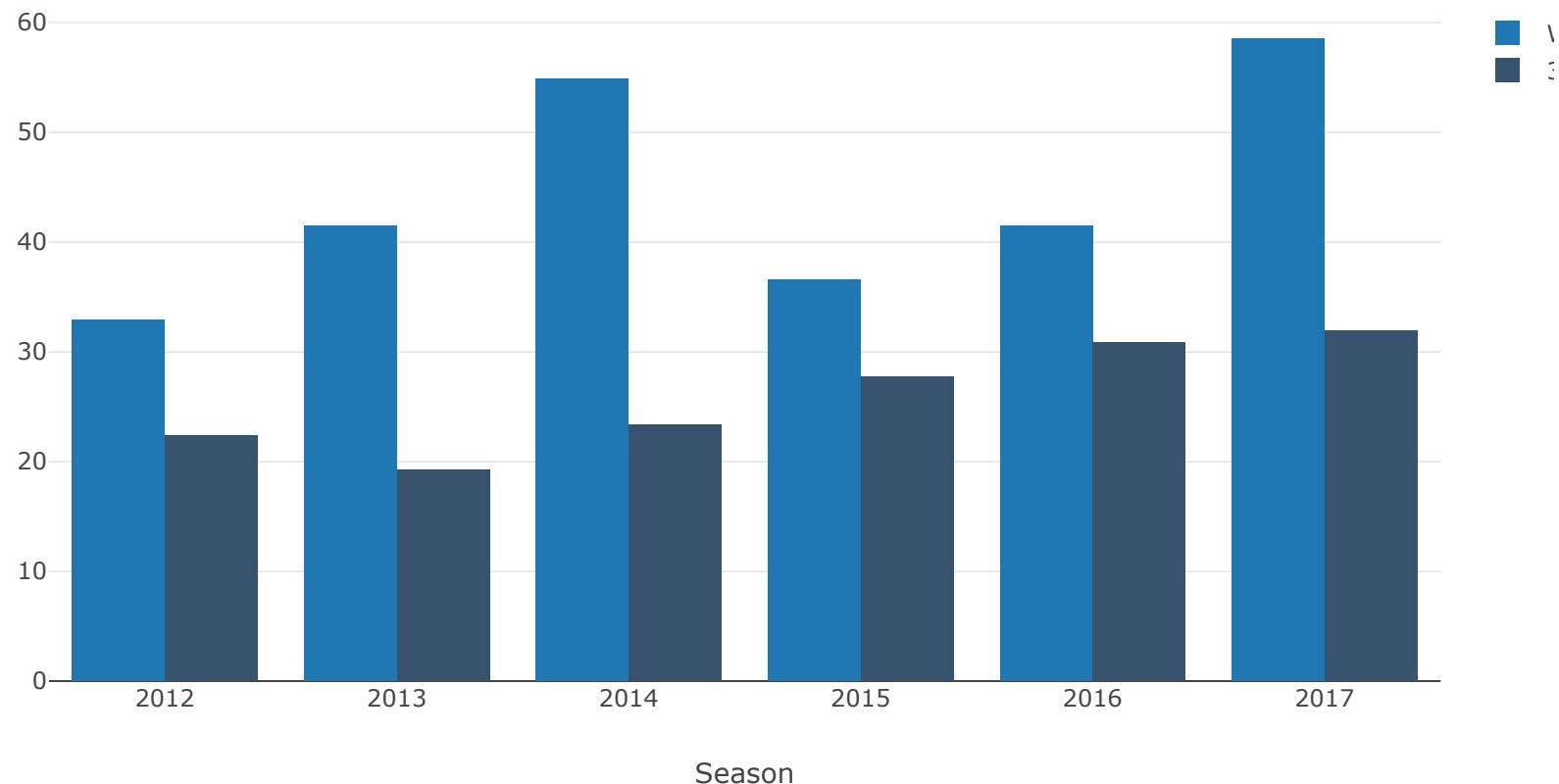
Win/Loss VS 3 Point Attempt % For MIL



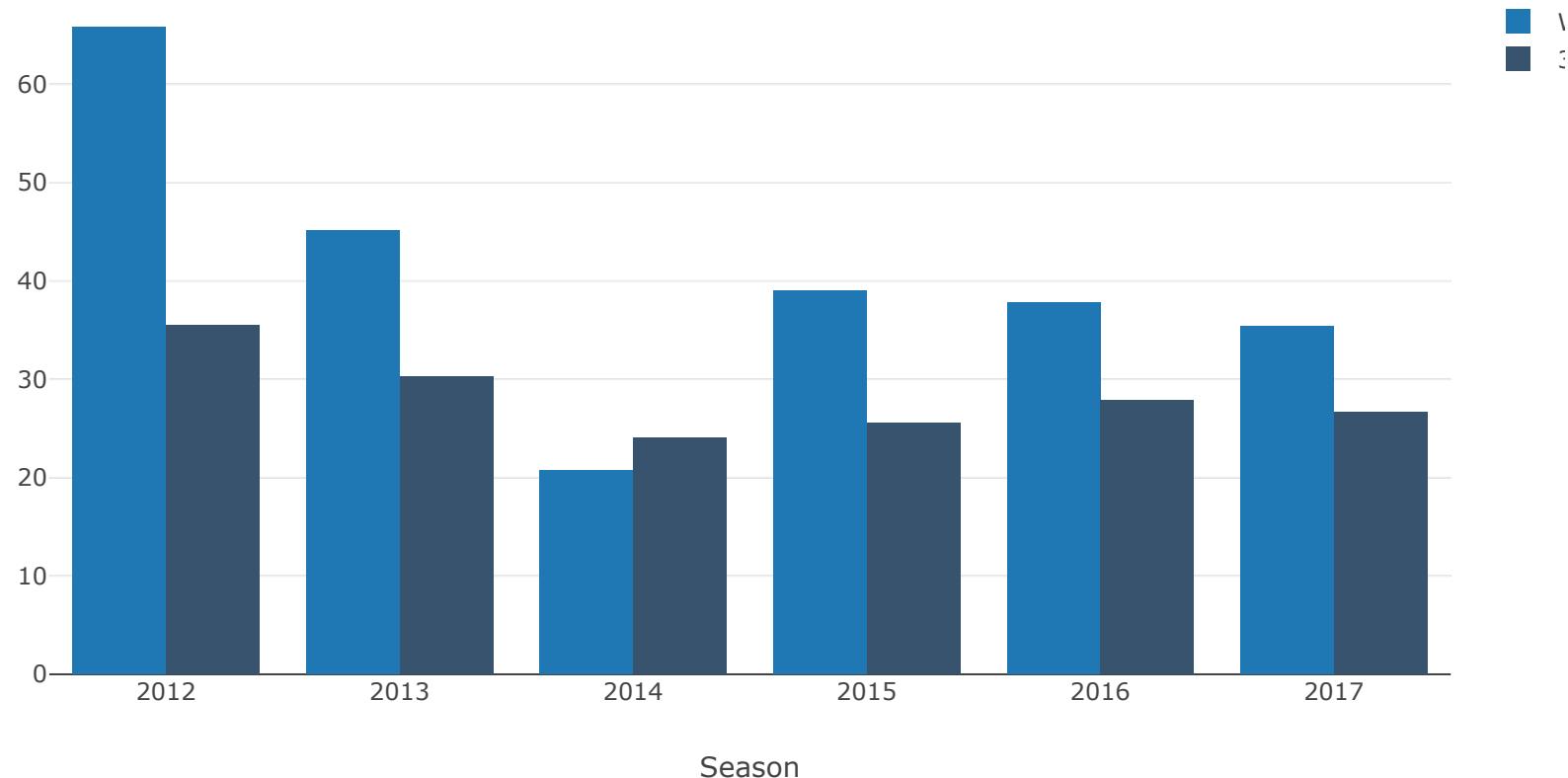
Win/Loss VS 3 Point Attempt % For MIN



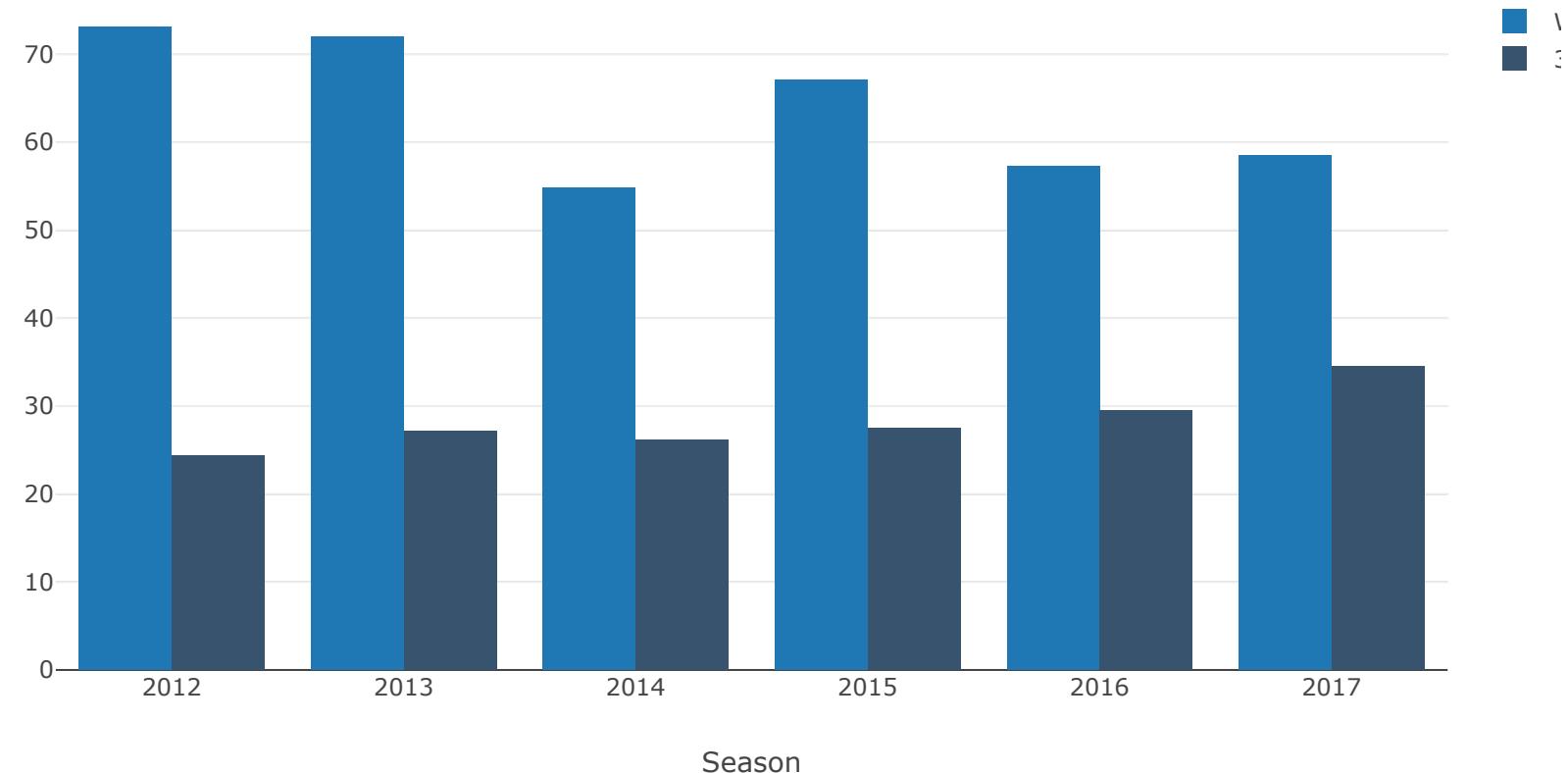
Win/Loss VS 3 Point Attempt % For NOP



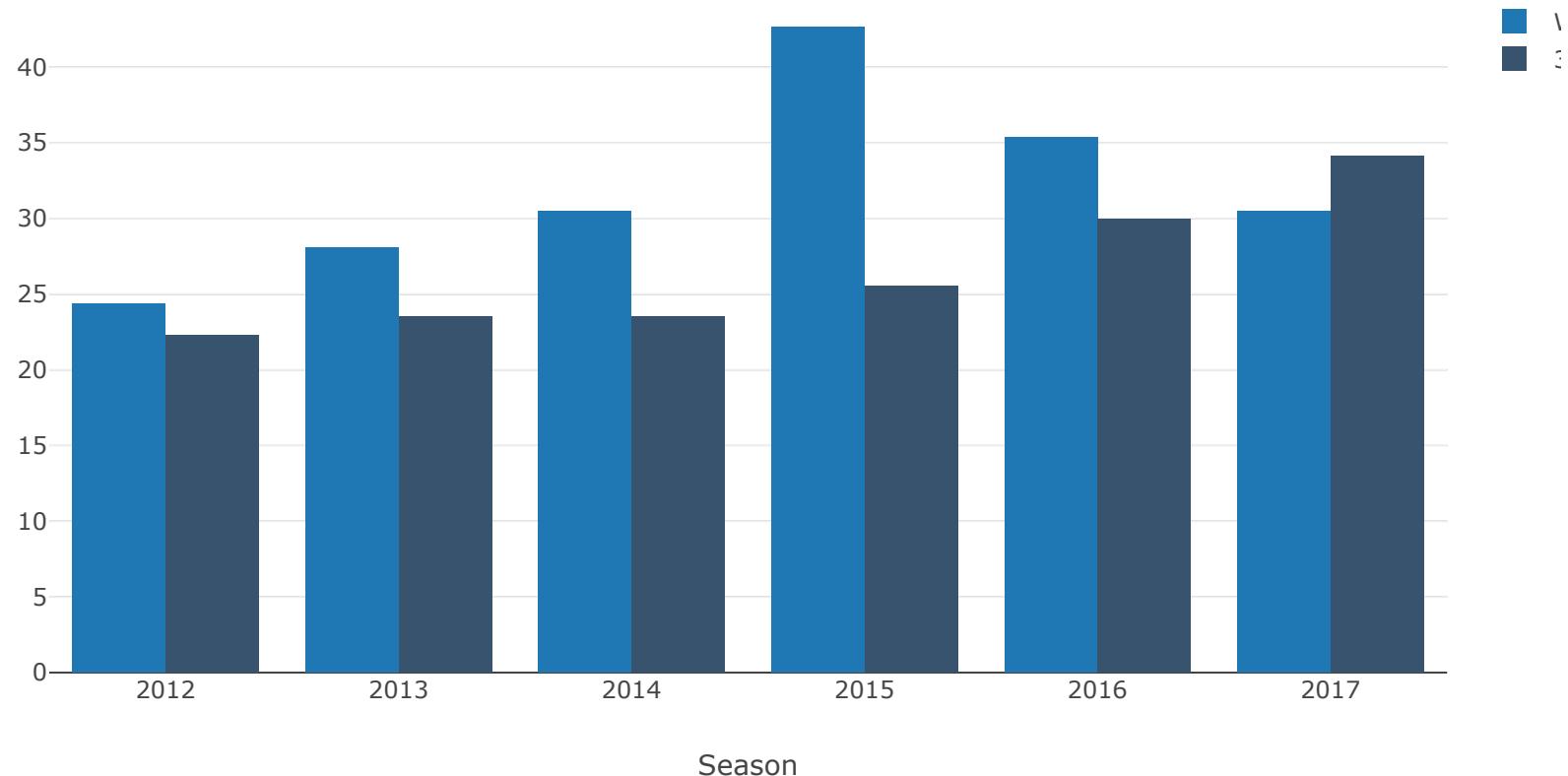
Win/Loss VS 3 Point Attempt % For NYK



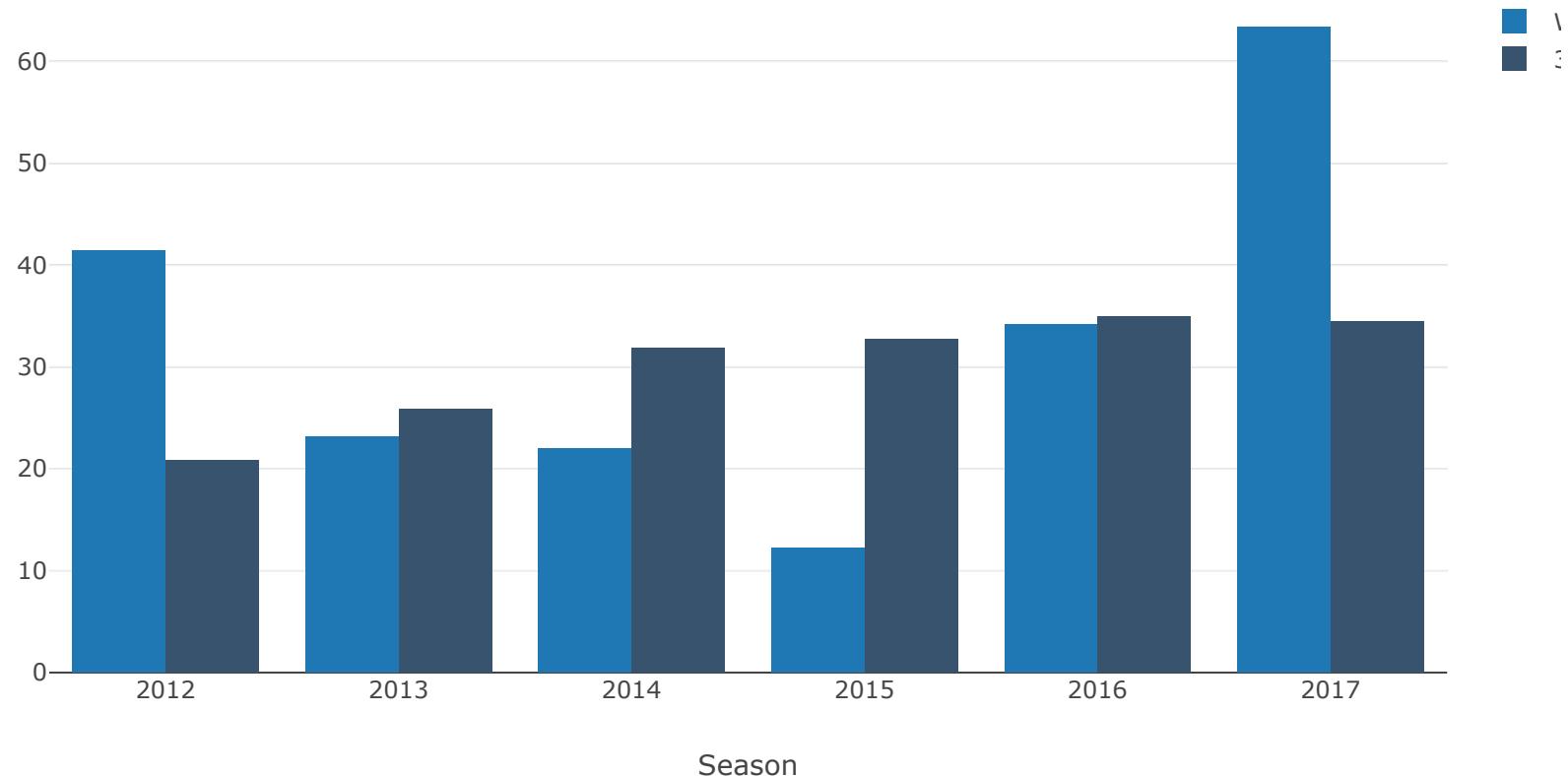
Win/Loss VS 3 Point Attempt % For OKC



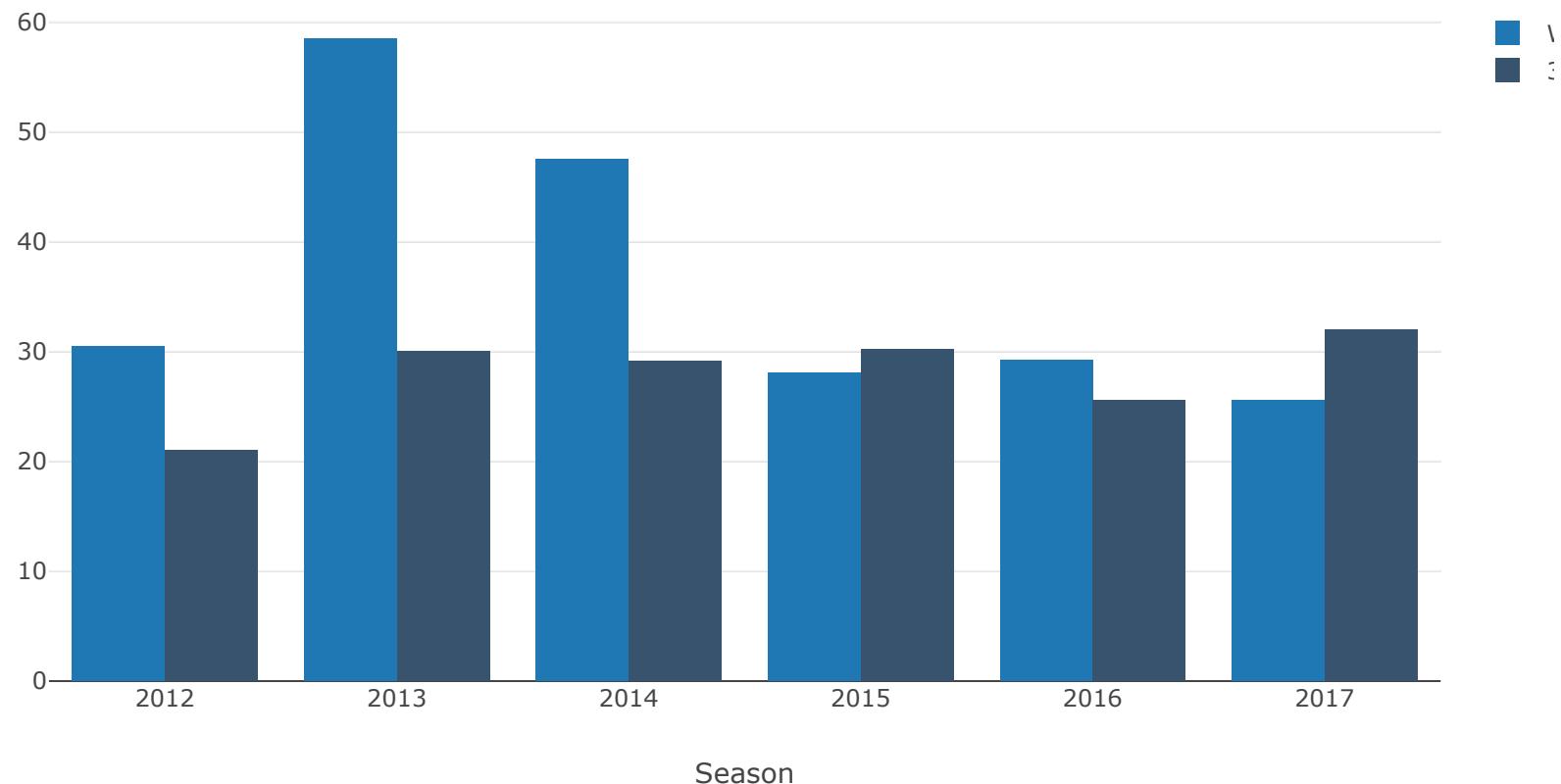
Win/Loss VS 3 Point Attempt % For ORL



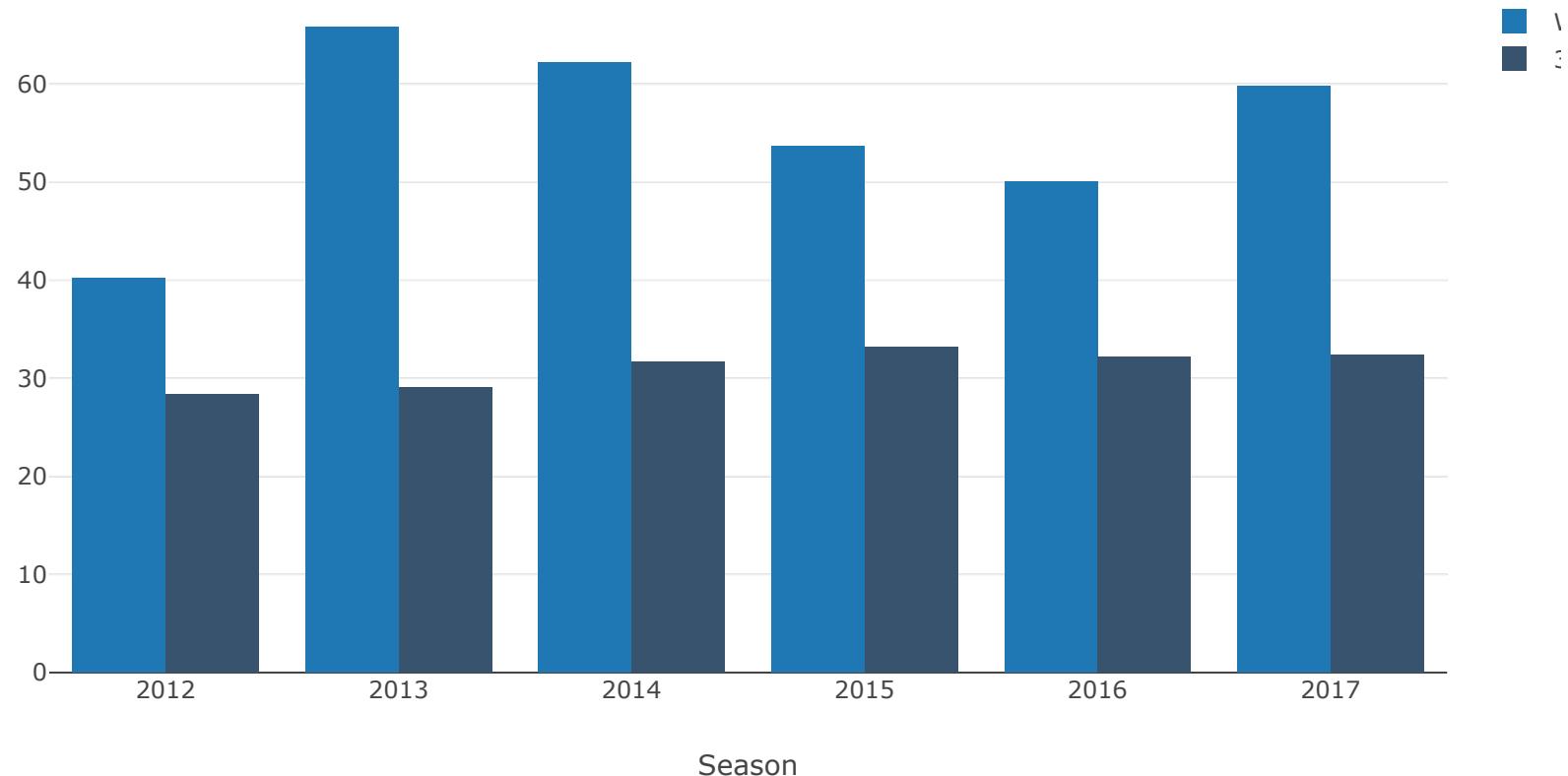
Win/Loss VS 3 Point Attempt % For PHI



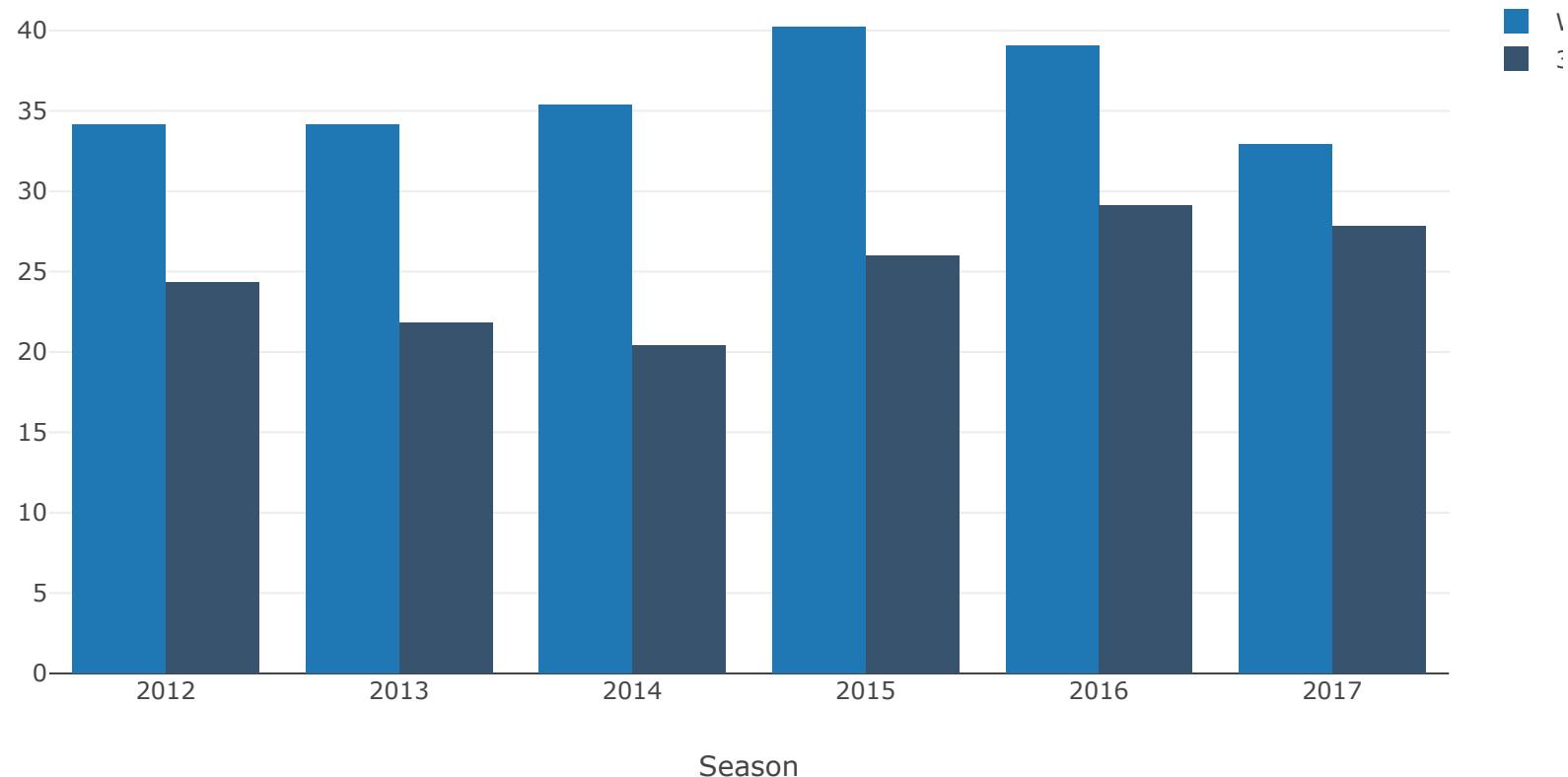
Win/Loss VS 3 Point Attempt % For PHO



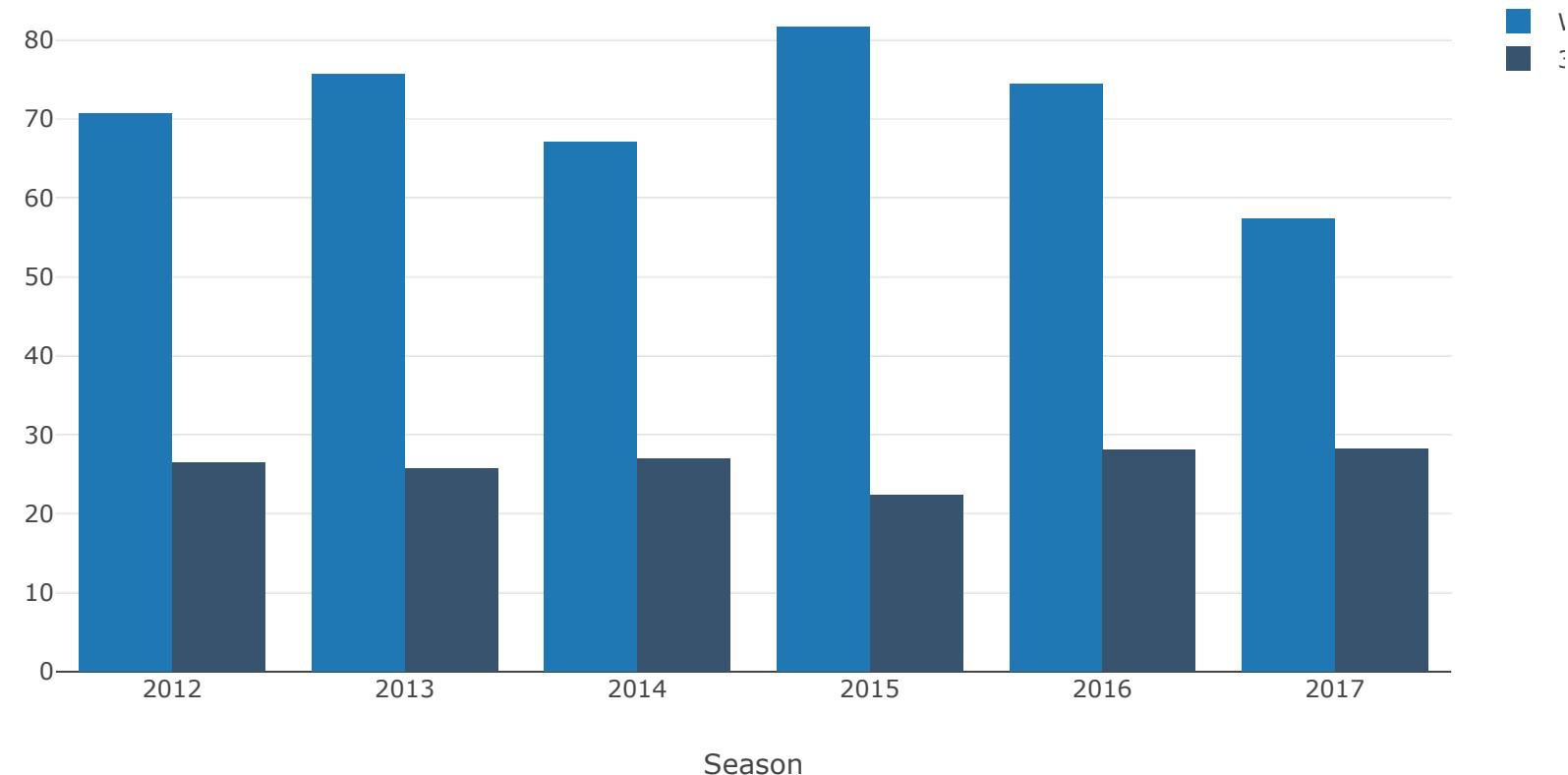
Win/Loss VS 3 Point Attempt % For POR



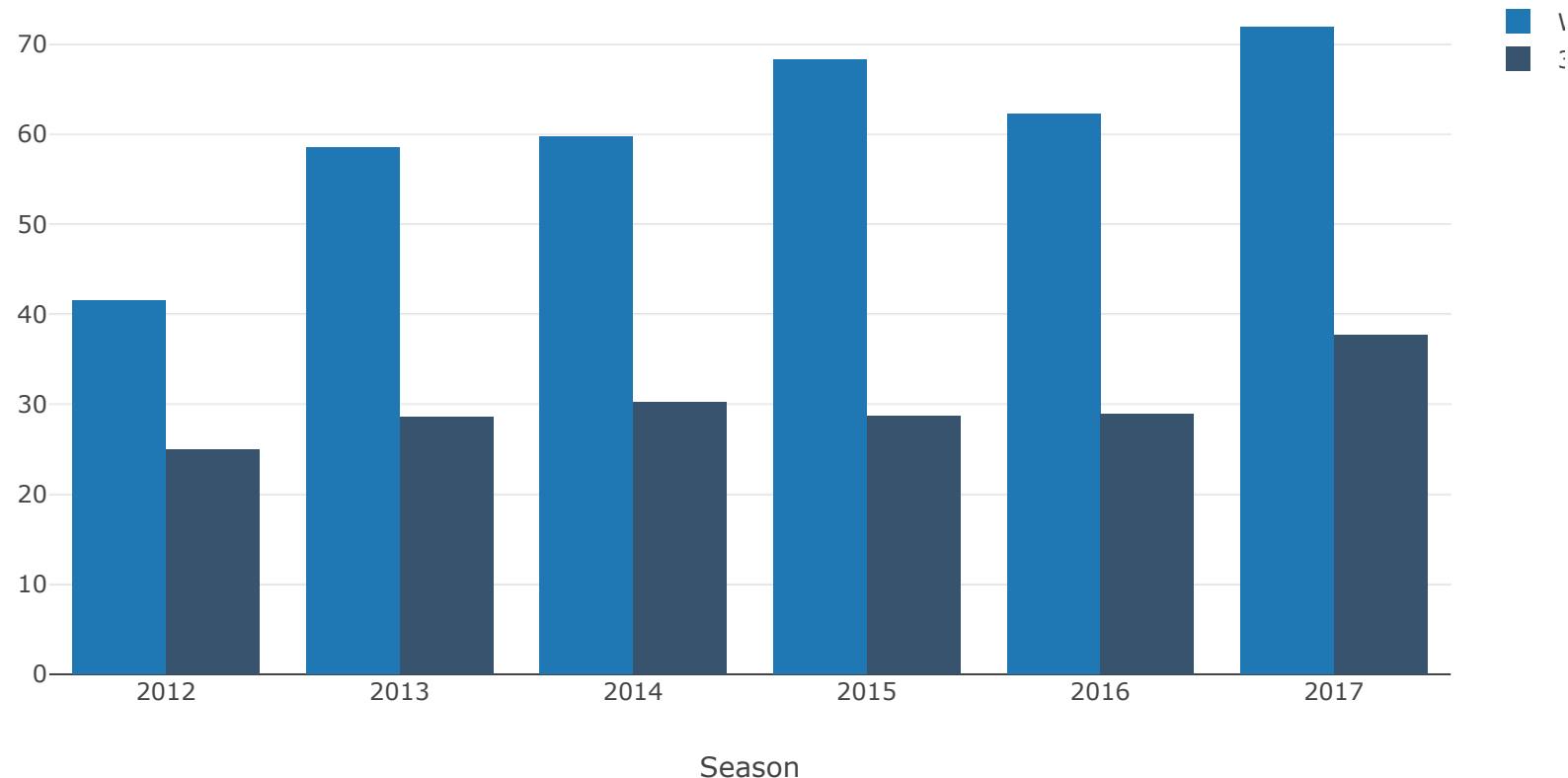
Win/Loss VS 3 Point Attempt % For SAC



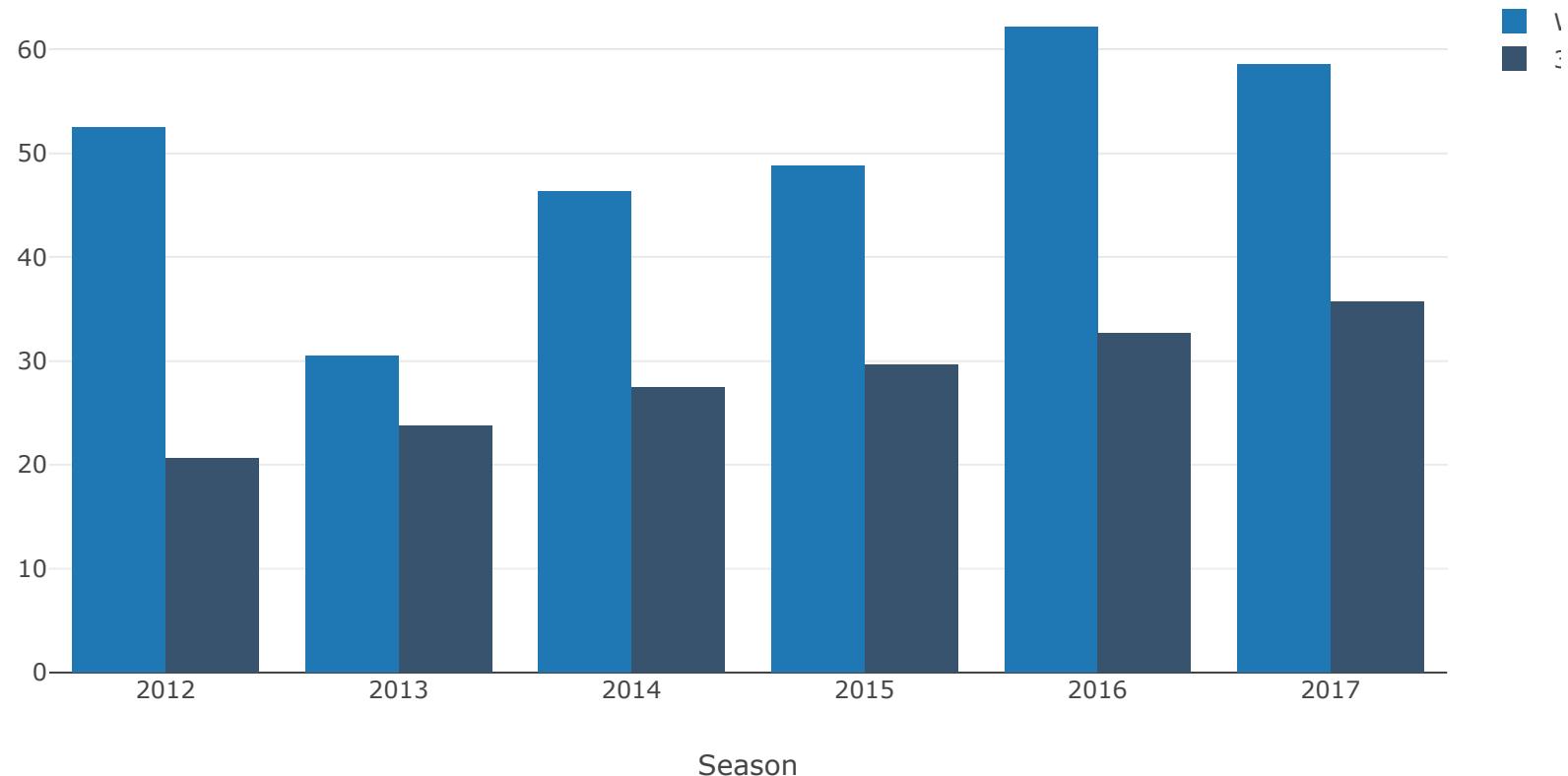
Win/Loss VS 3 Point Attempt % For SAS



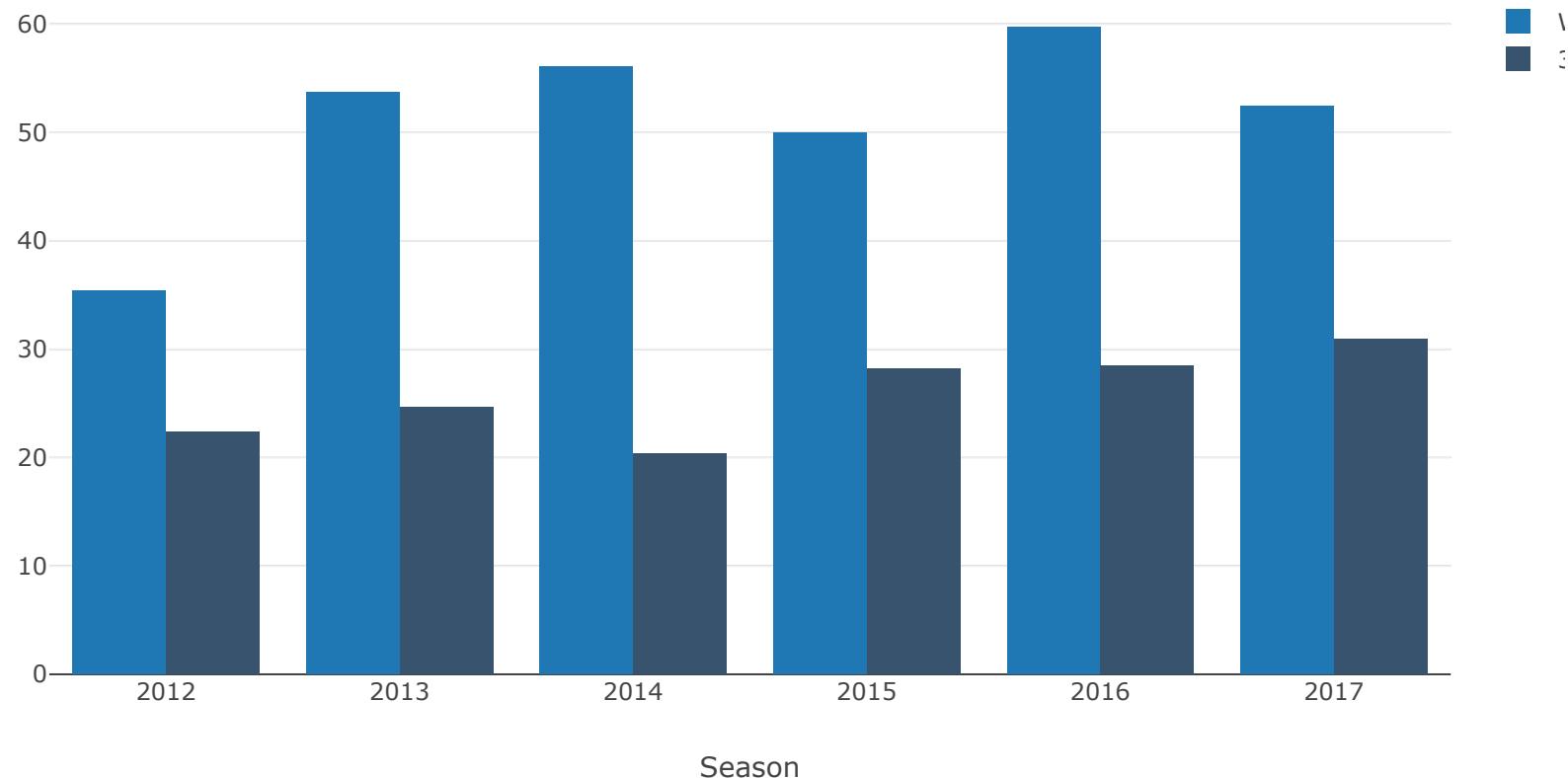
Win/Loss VS 3 Point Attempt % For TOR



Win/Loss VS 3 Point Attempt % For UTA



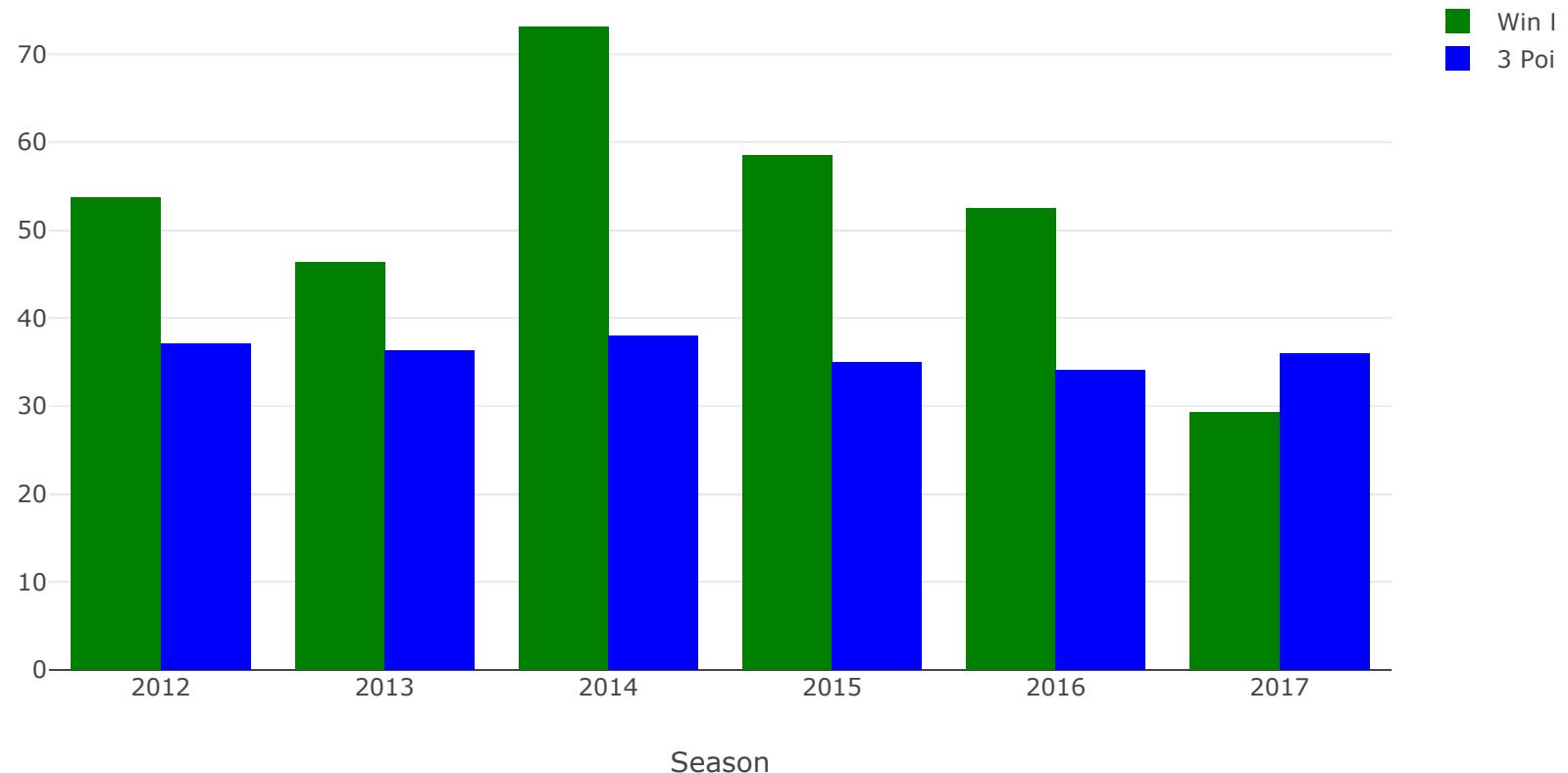
Win/Loss VS 3 Point Attempt % For WAS



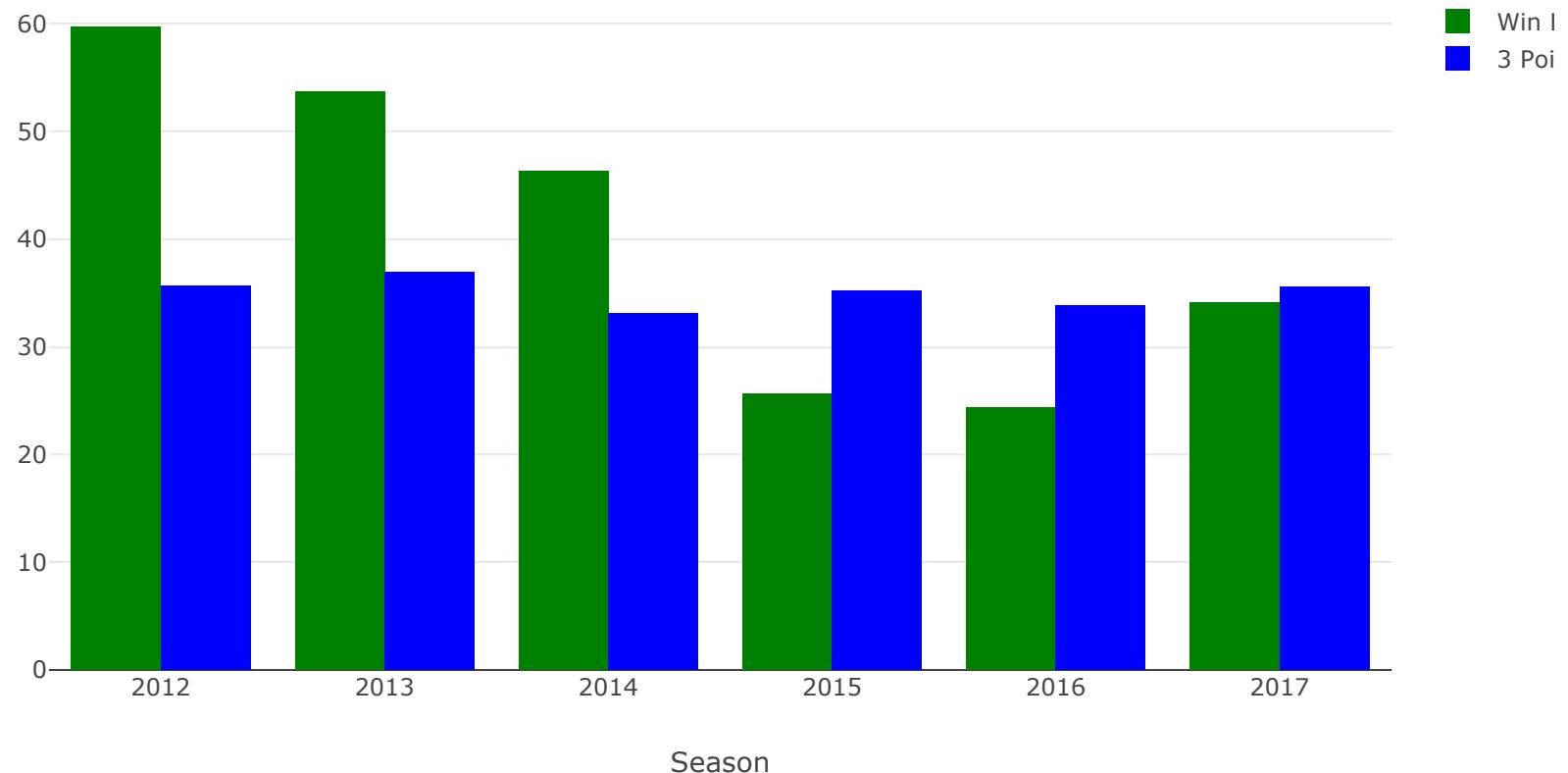
Looking at these graphs, we definitely see a general increase in the 3 point attempt % amongst teams, and despite this we still don't see an increase of wins in teams that have dramatically changed their playstyle. Although for some teams the season with the highest wins is also the season where they have the most 3 point attempts, this isn't a trend amongst most organizations. For teams like the Philadelphia 76ers, we see the exact same percentage of 3 point attempts from the 2017 and the 2016 season but the win rate for the 76ers nearly doubled in the 2017 season. The team with the best NBA record in 2017 the Houston Rockets shot an astounding 50% of their shots from behind the three point line, the team with the second highest percentage of 3 point shots attempted was the Brooklyn Nets, but they only had a 34% win rate. With these stats, its probably safe to say that the # of attempted threes doesn't affect the outcome of the game.

```
In [284]: for df in teamstats:
    data = []
    data.append(go.Bar(
        x = df['Season'],
        y = df['Win/Loss'],
        name= 'Win Loss Percentage',
        marker = dict(
            color = "green")
    ))
    data.append(go.Bar(
        x = df['Season'],
        y = df['3P%'],
        name= '3 Point Percentage Made',
        marker = dict(
            color = "blue")
    ))
    layout = dict(title= 'Win/Loss VS 3 Point Percentage Made for ' + df['Tm'][0],xaxis = dict(title =
'Season'), colorway = 'red')
    fig = dict(data=data, layout=layout,)
    iplot(fig, filename='basic-line')
```

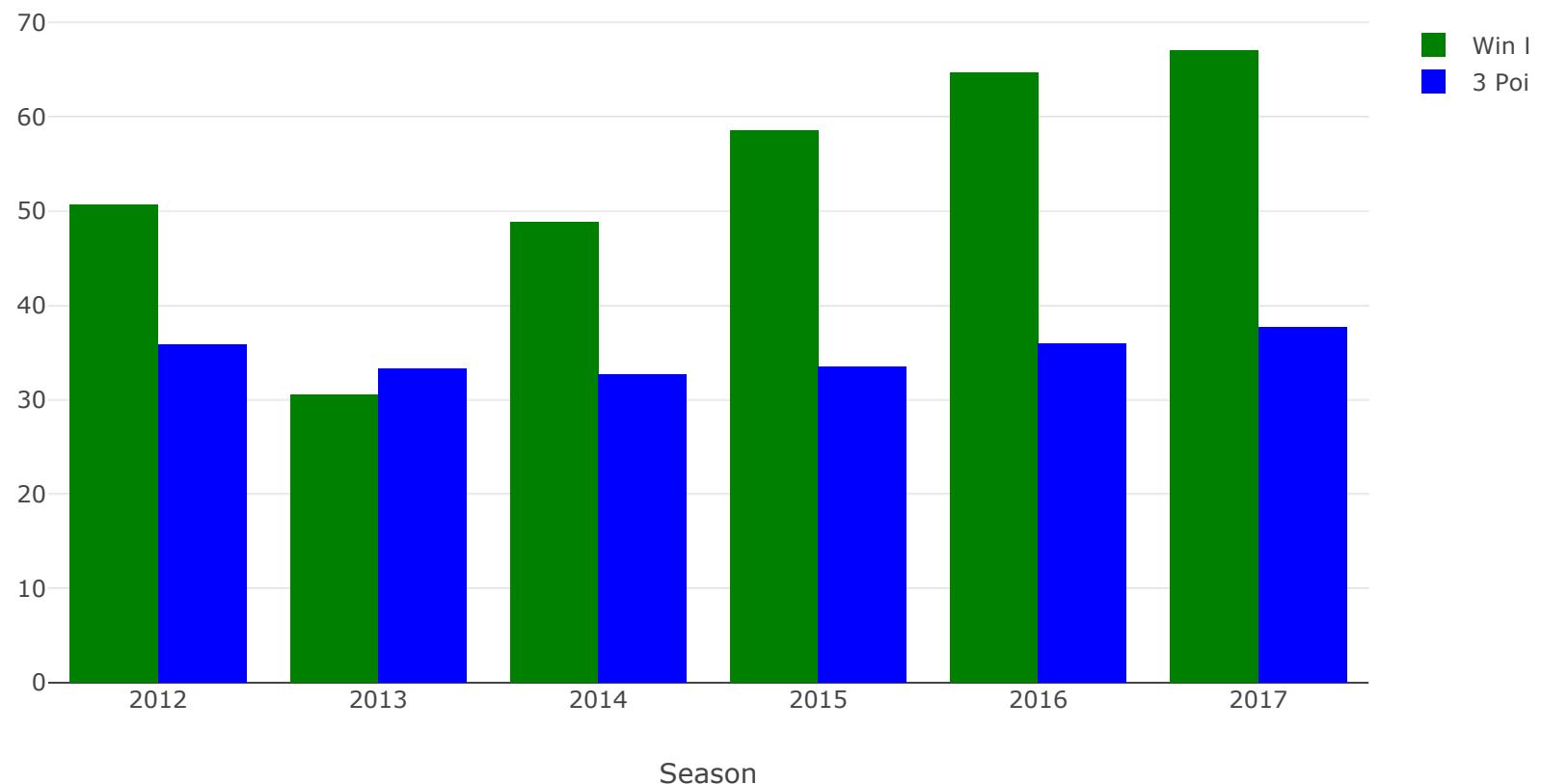
Win/Loss VS 3 Point Percentage Made for ATL



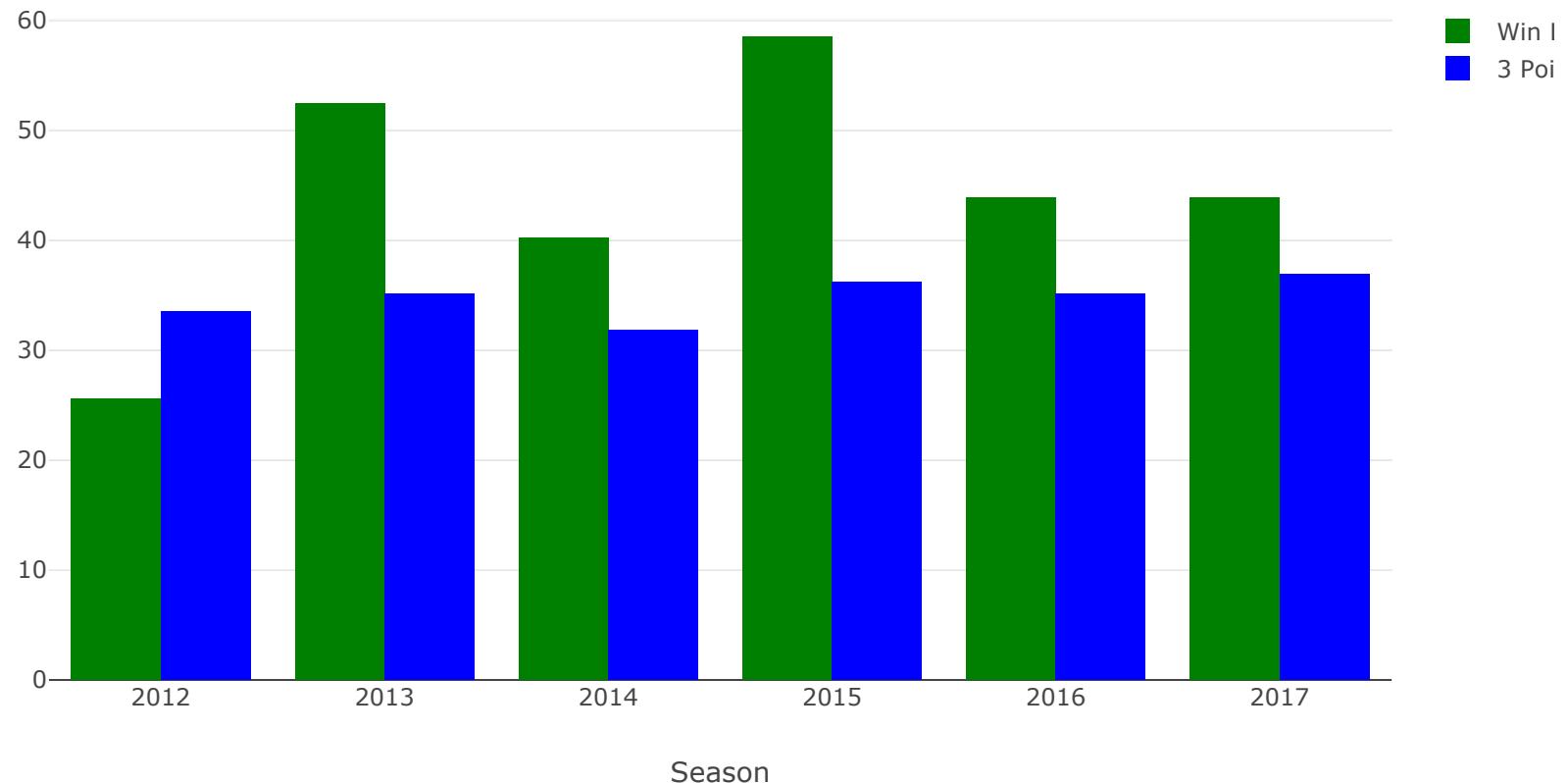
Win/Loss VS 3 Point Percentage Made for BRK



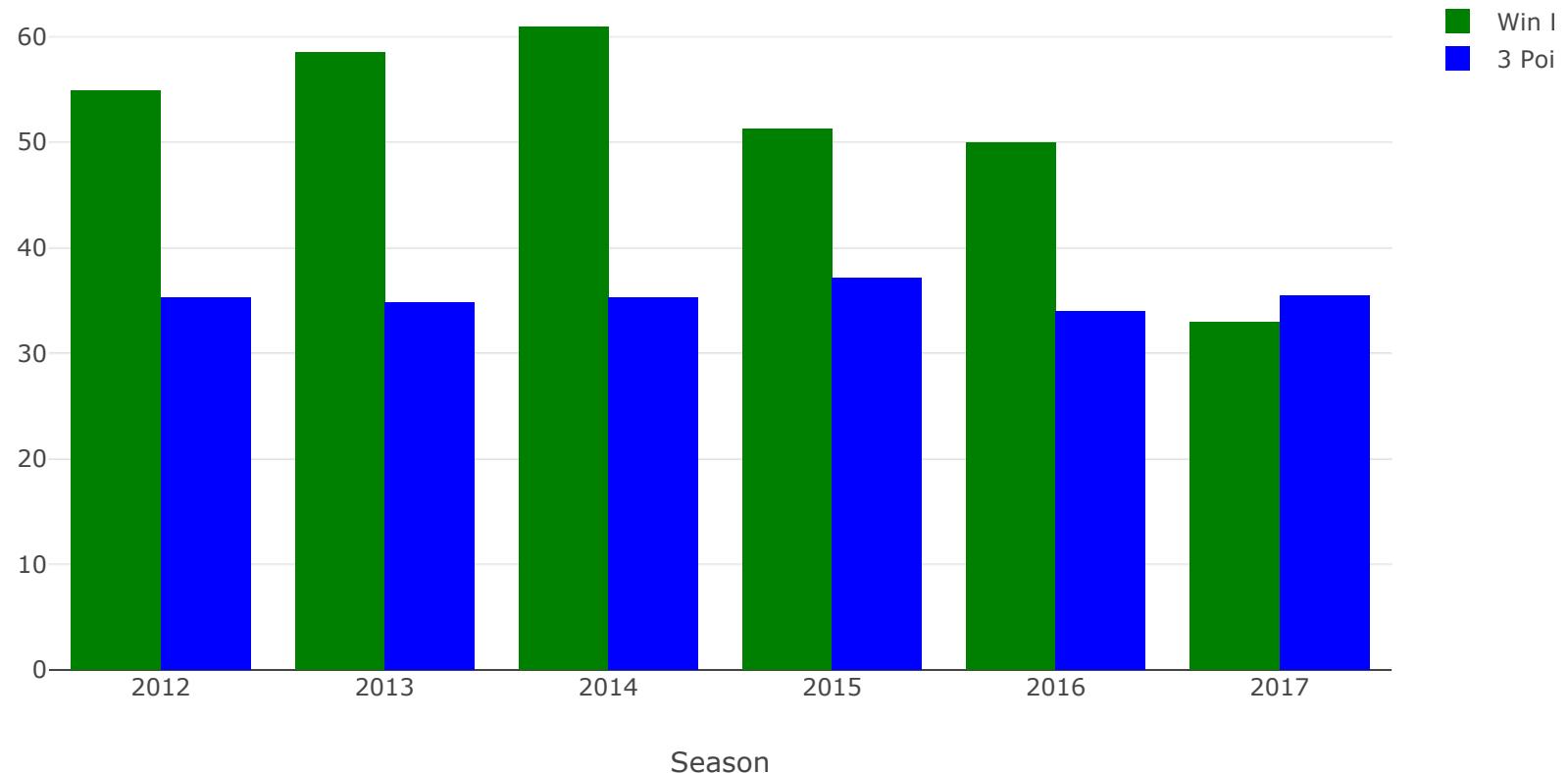
Win/Loss VS 3 Point Percentage Made for BOS



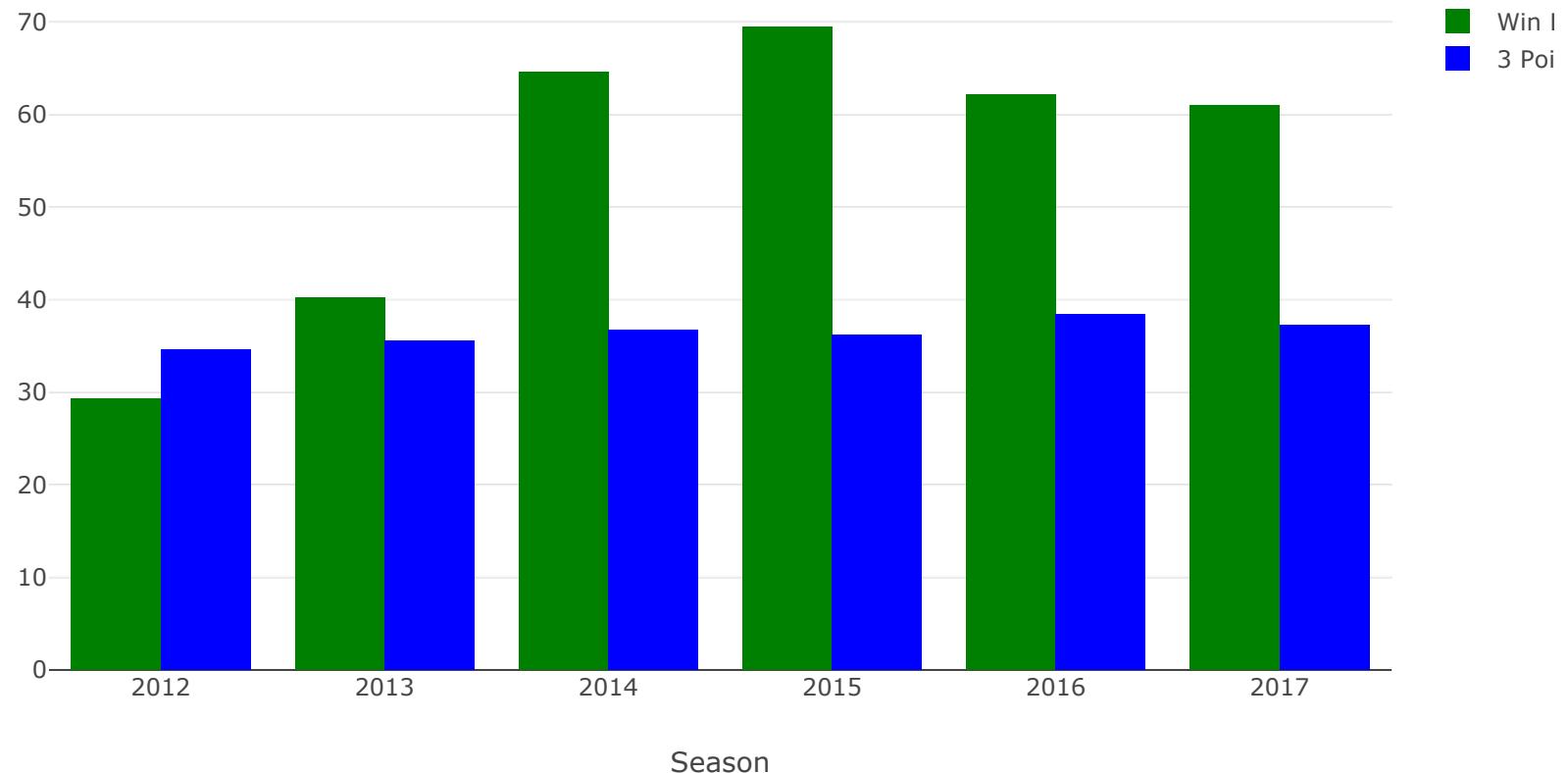
Win/Loss VS 3 Point Percentage Made for CHO



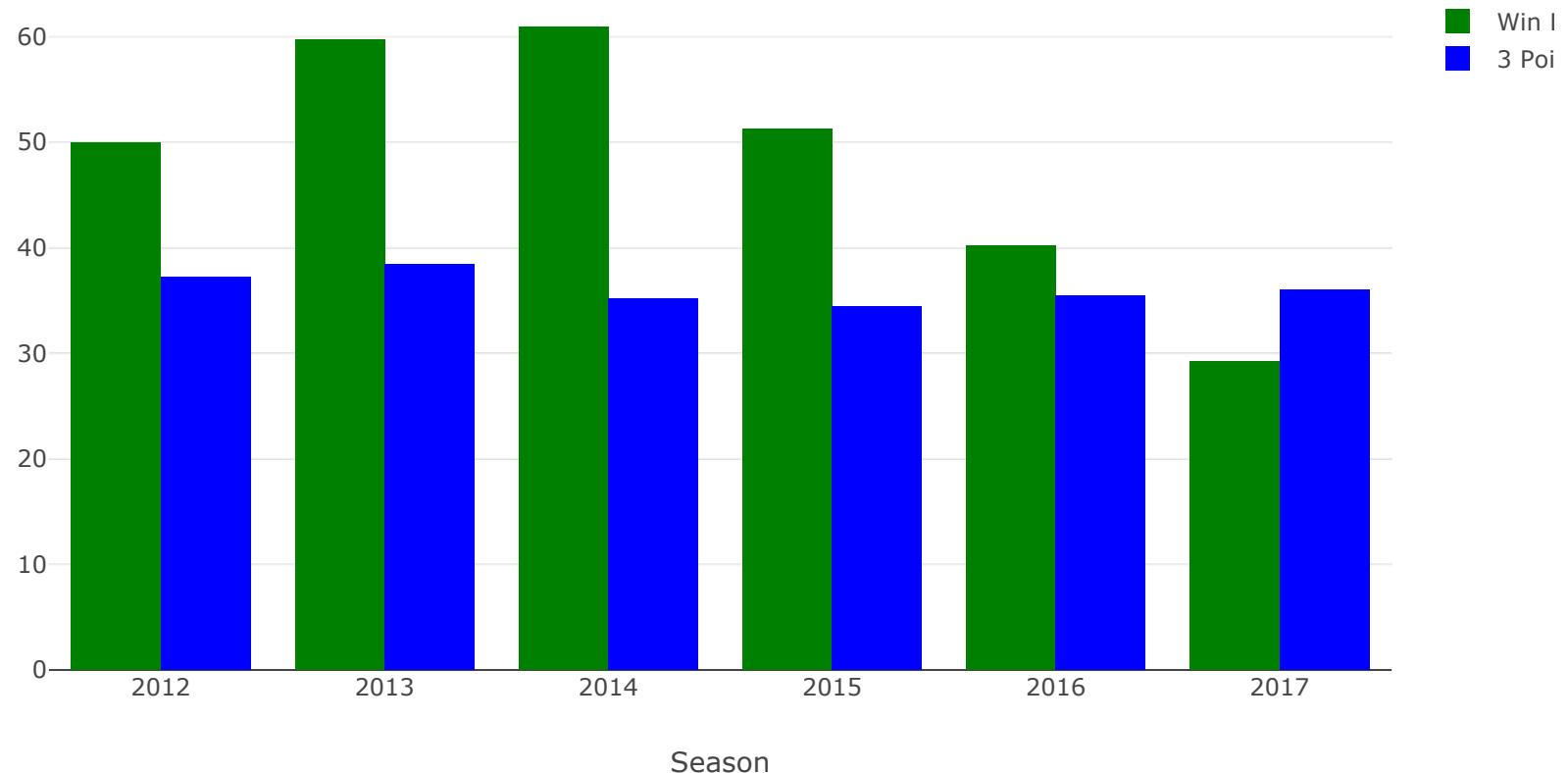
Win/Loss VS 3 Point Percentage Made for CHI



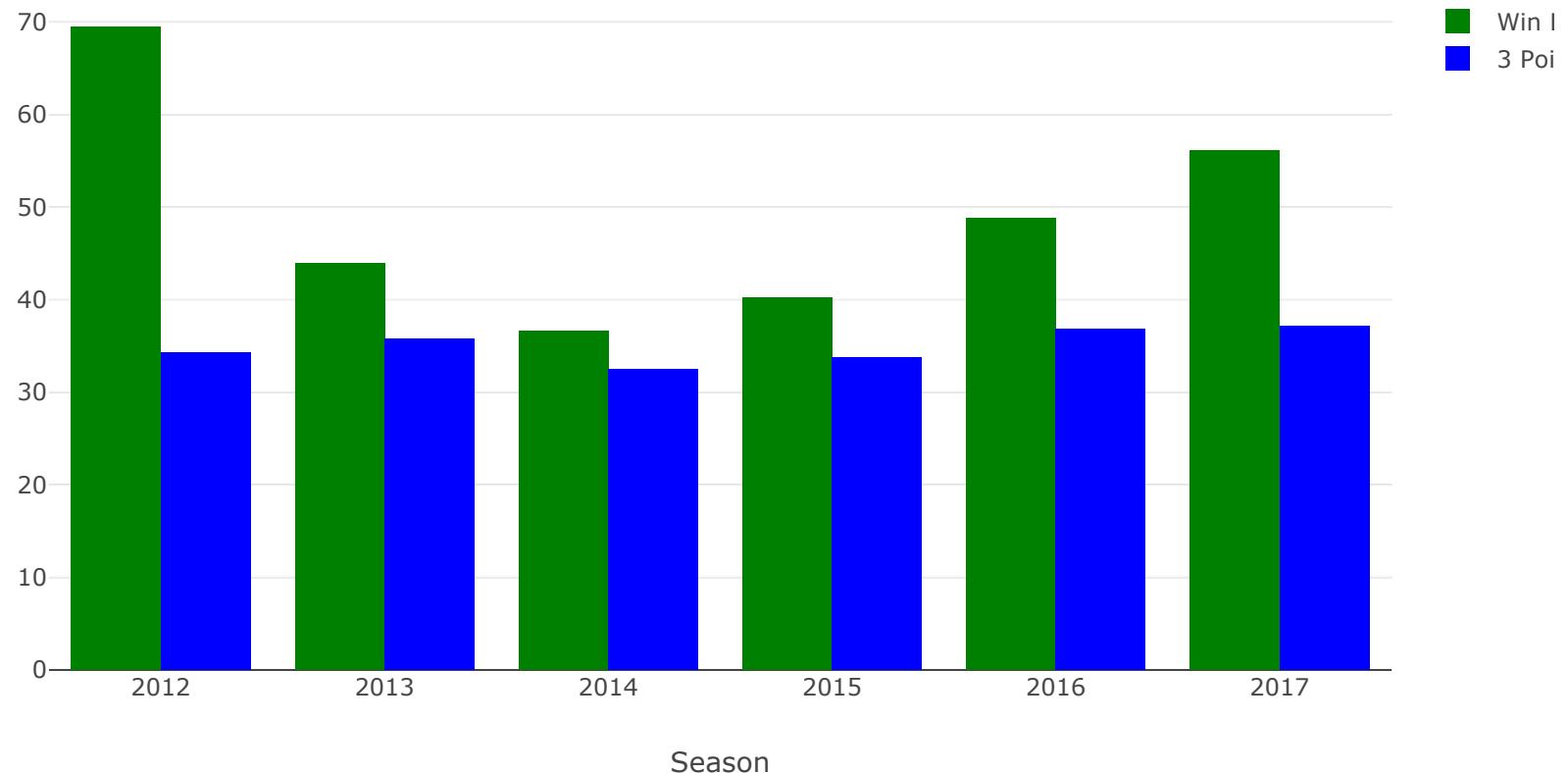
Win/Loss VS 3 Point Percentage Made for CLE



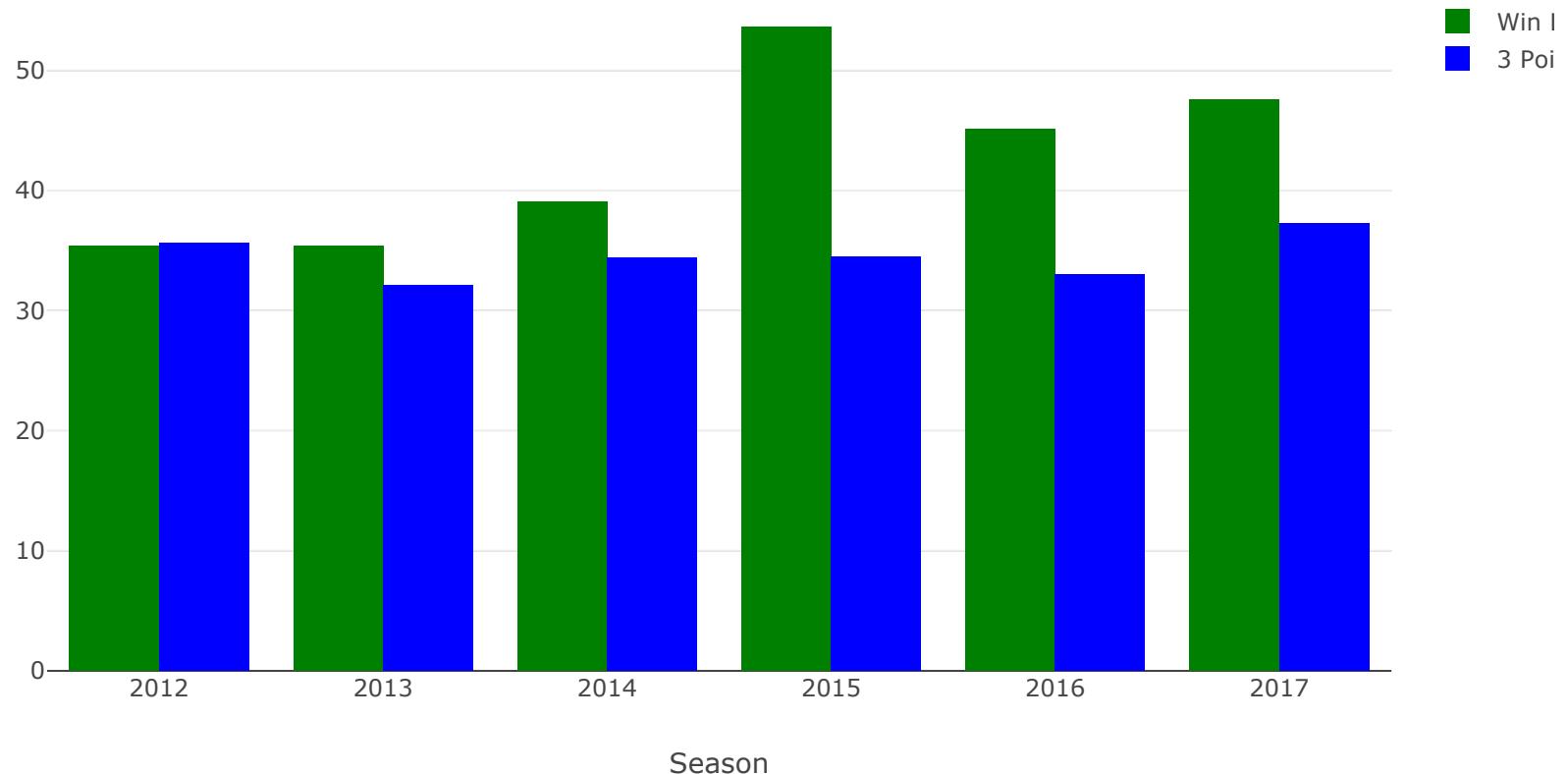
Win/Loss VS 3 Point Percentage Made for DAL



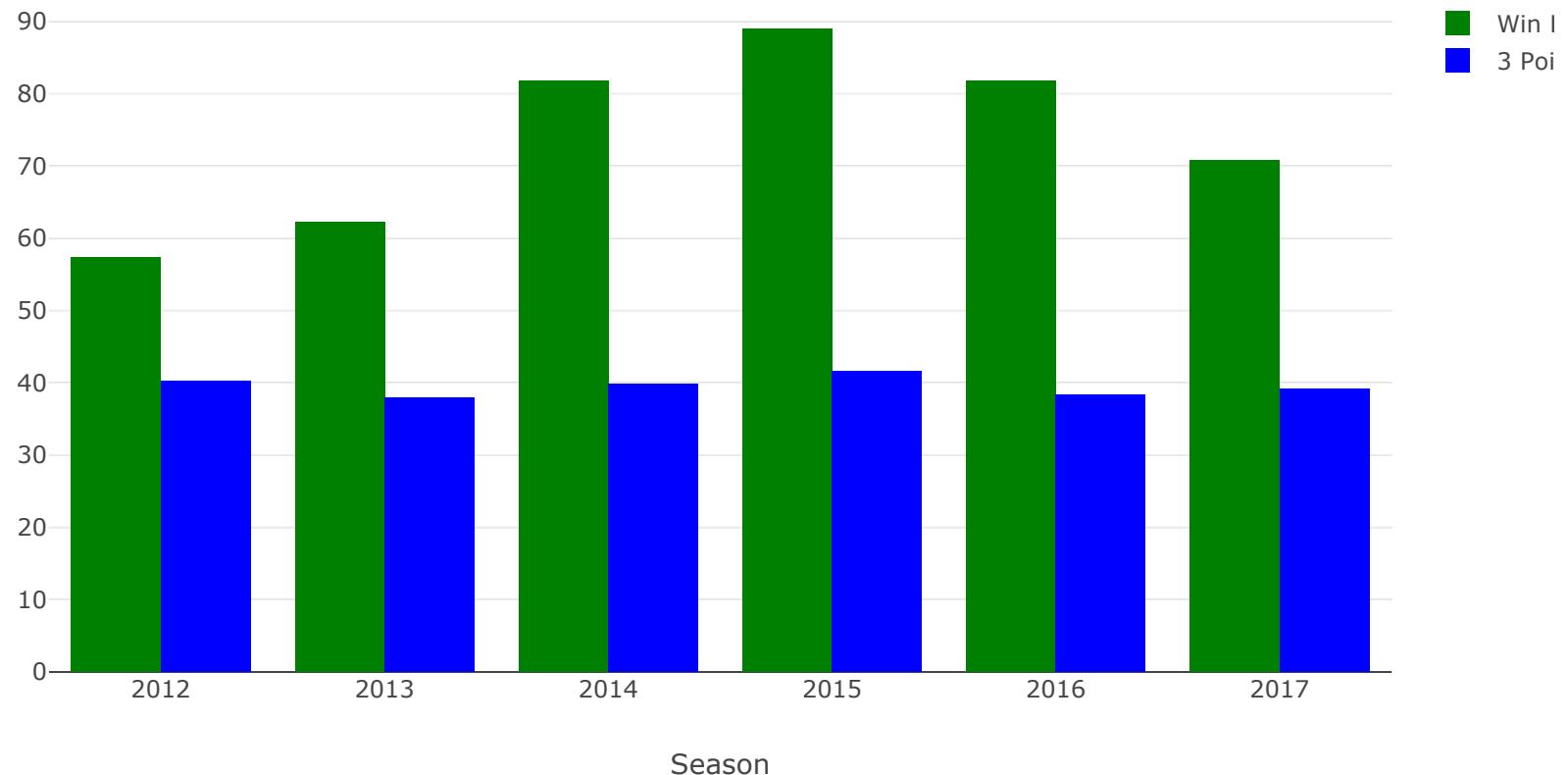
Win/Loss VS 3 Point Percentage Made for DEN



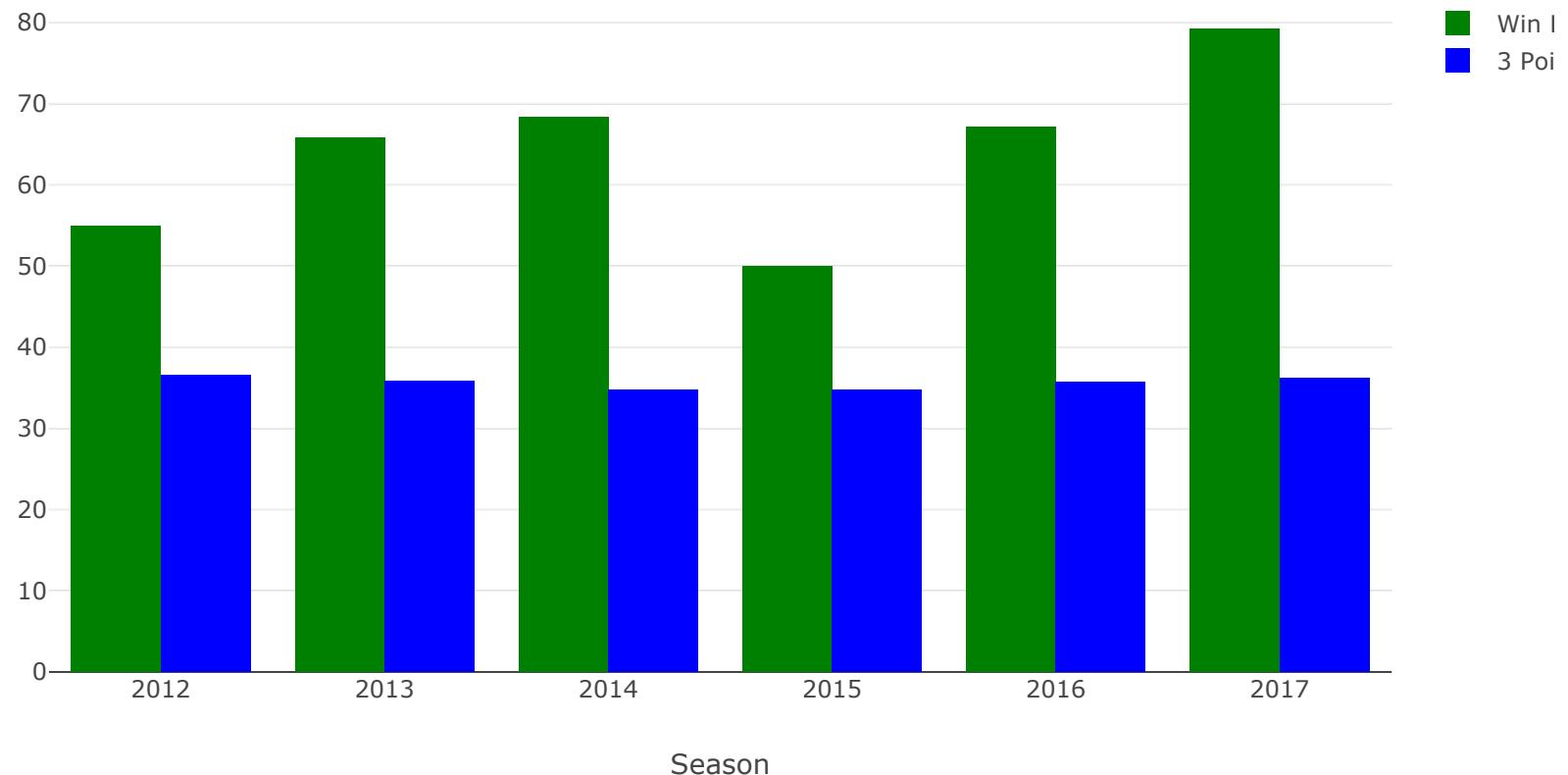
Win/Loss VS 3 Point Percentage Made for DET



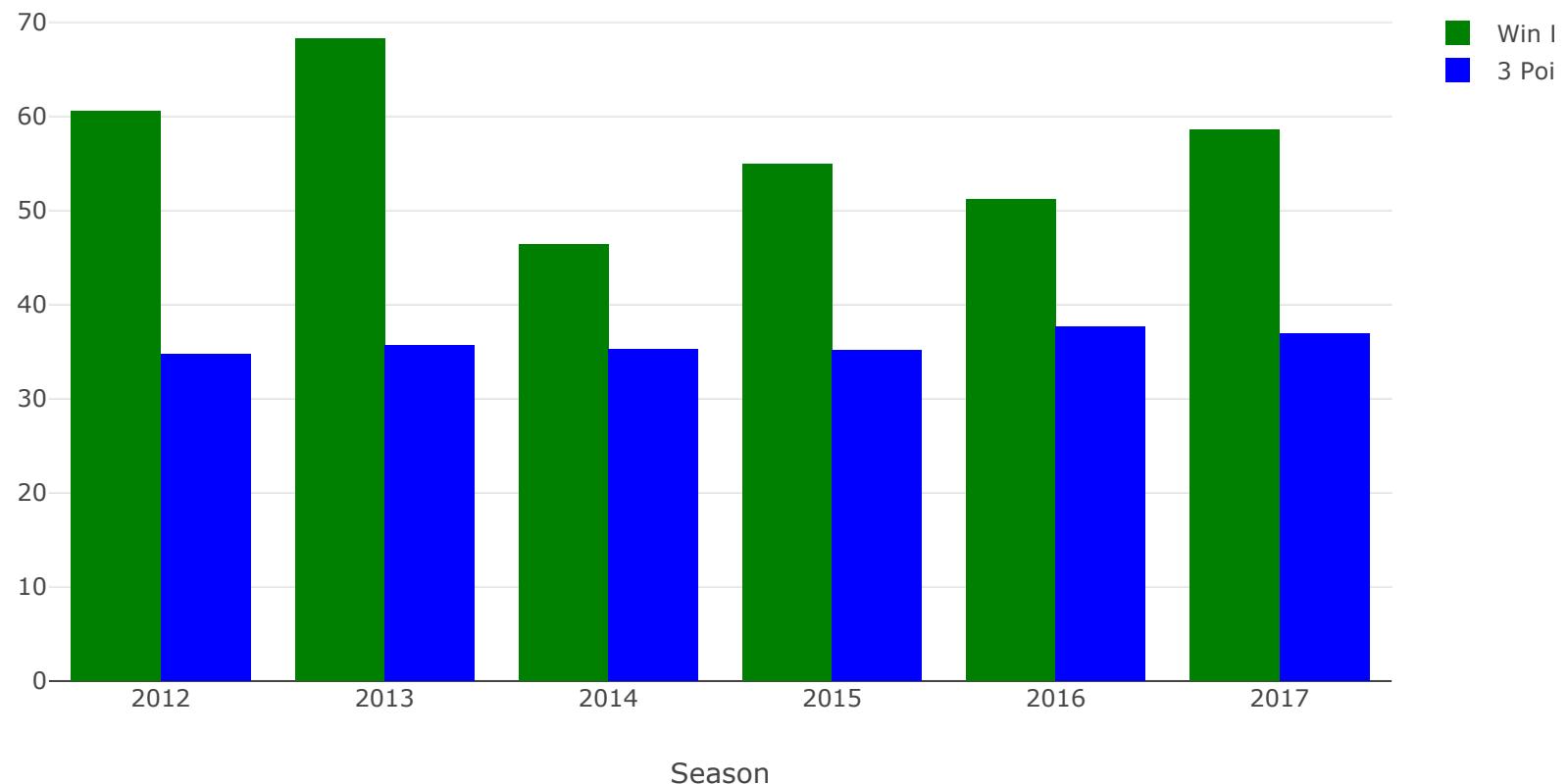
Win/Loss VS 3 Point Percentage Made for GSW



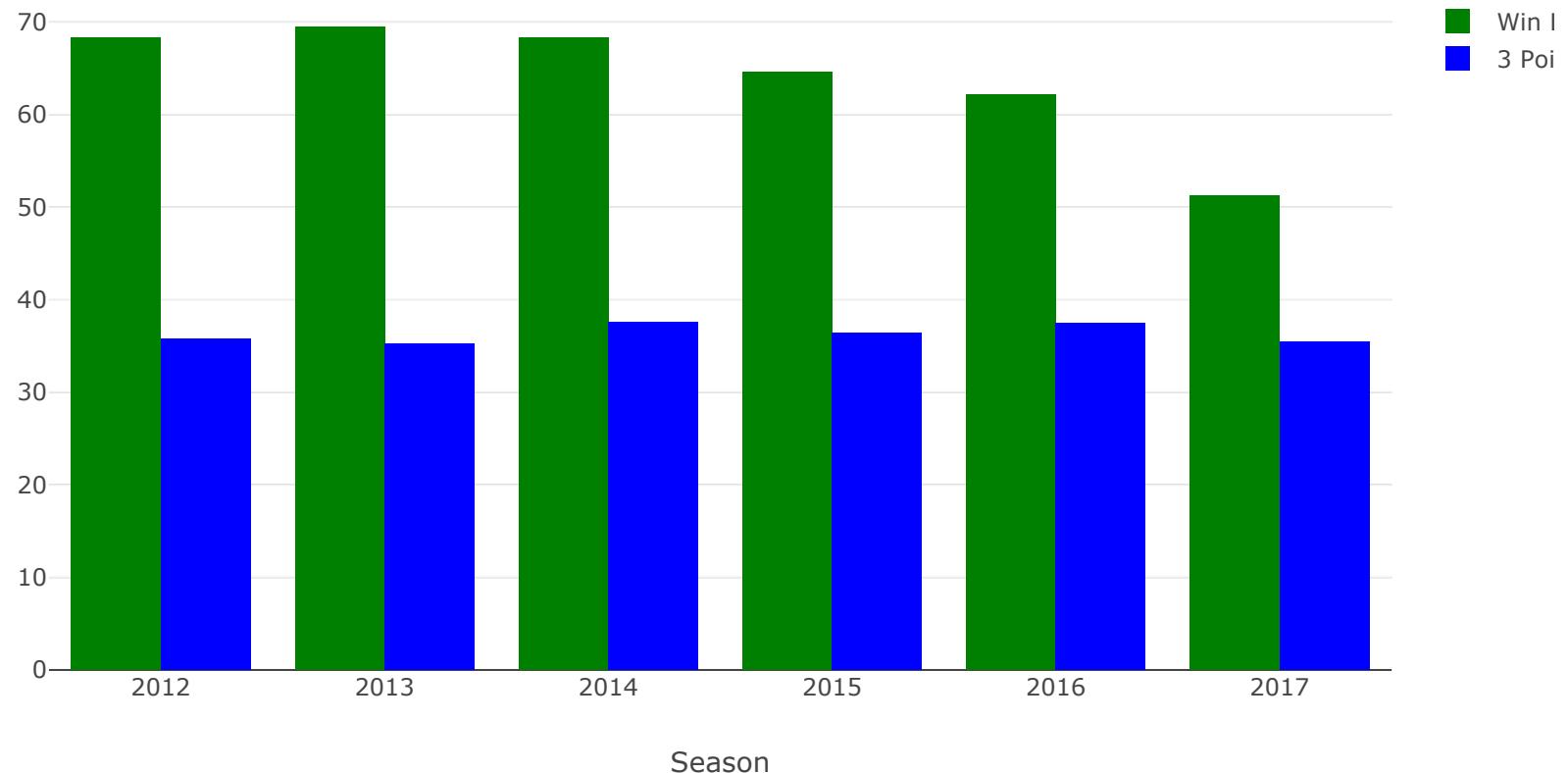
Win/Loss VS 3 Point Percentage Made for HOU



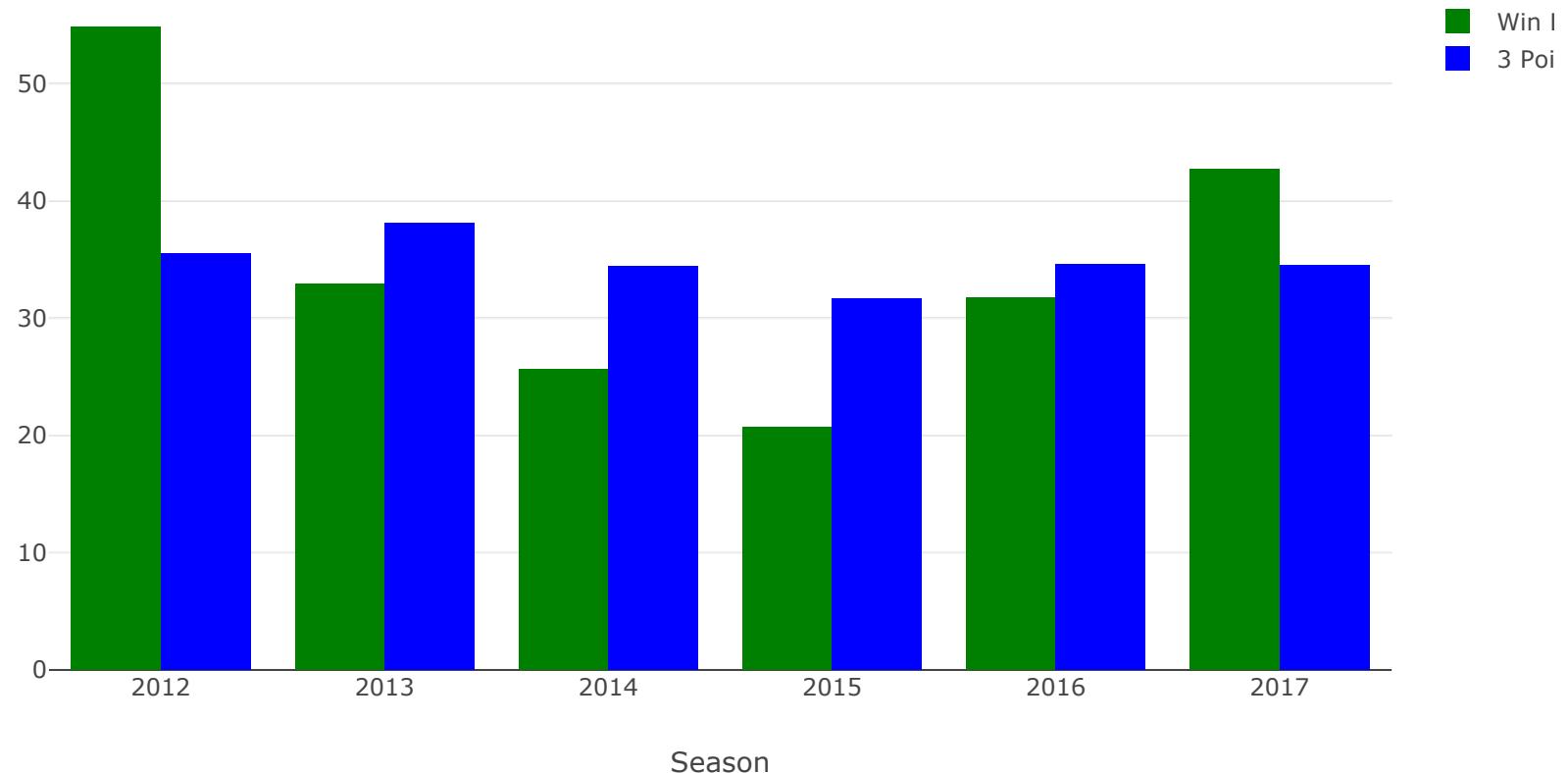
Win/Loss VS 3 Point Percentage Made for IND



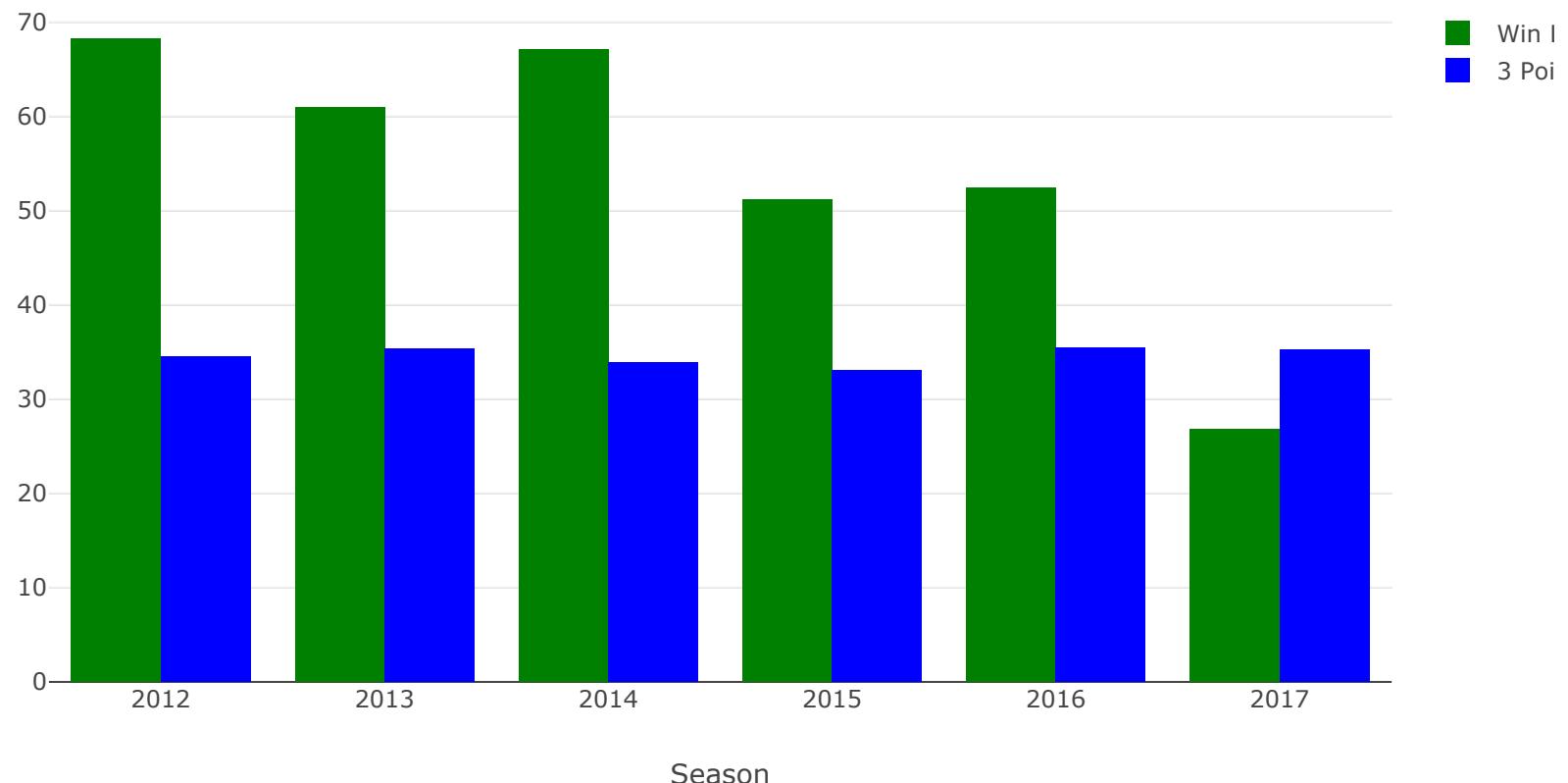
Win/Loss VS 3 Point Percentage Made for LAC



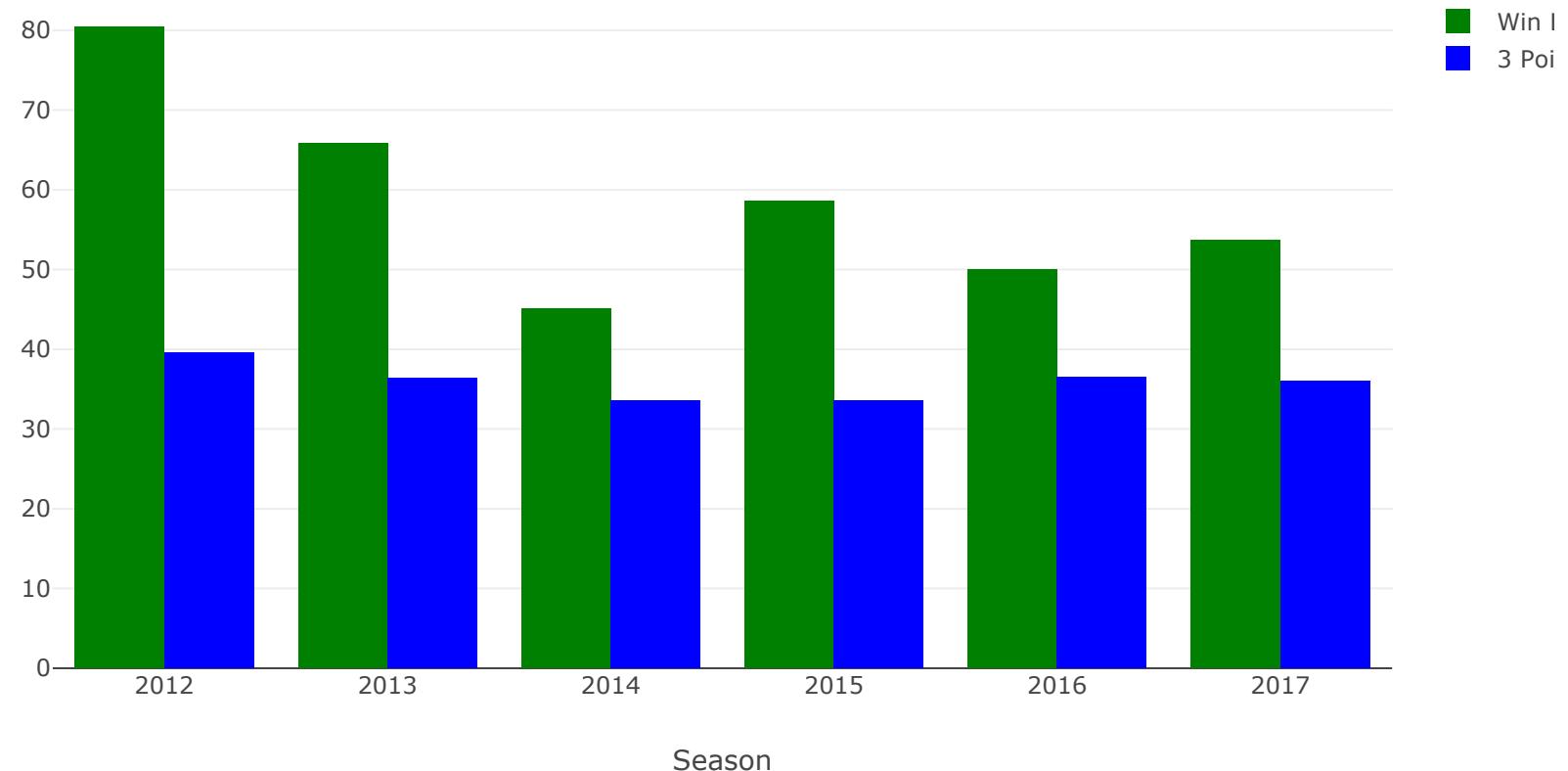
Win/Loss VS 3 Point Percentage Made for LAL



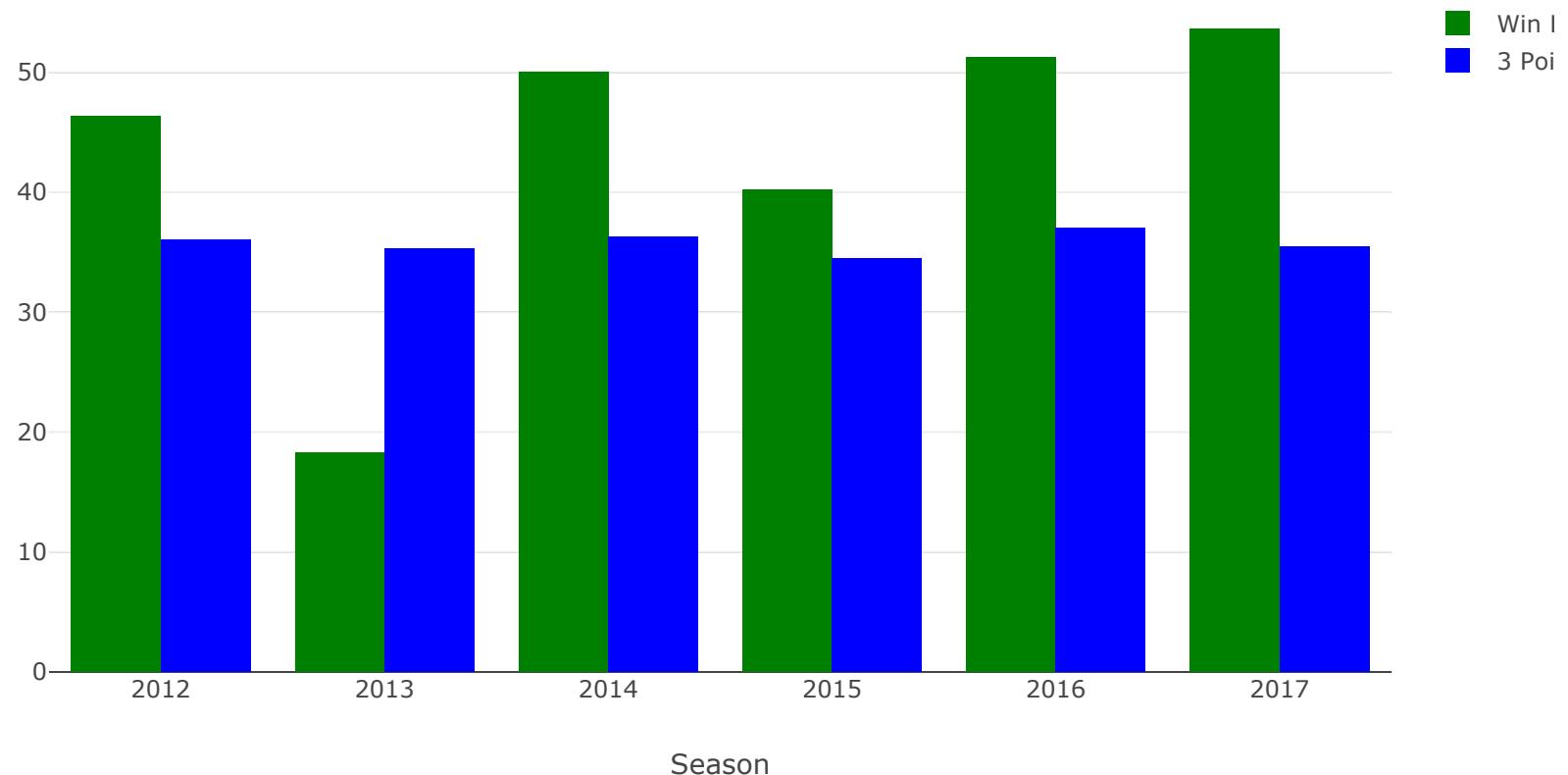
Win/Loss VS 3 Point Percentage Made for MEM



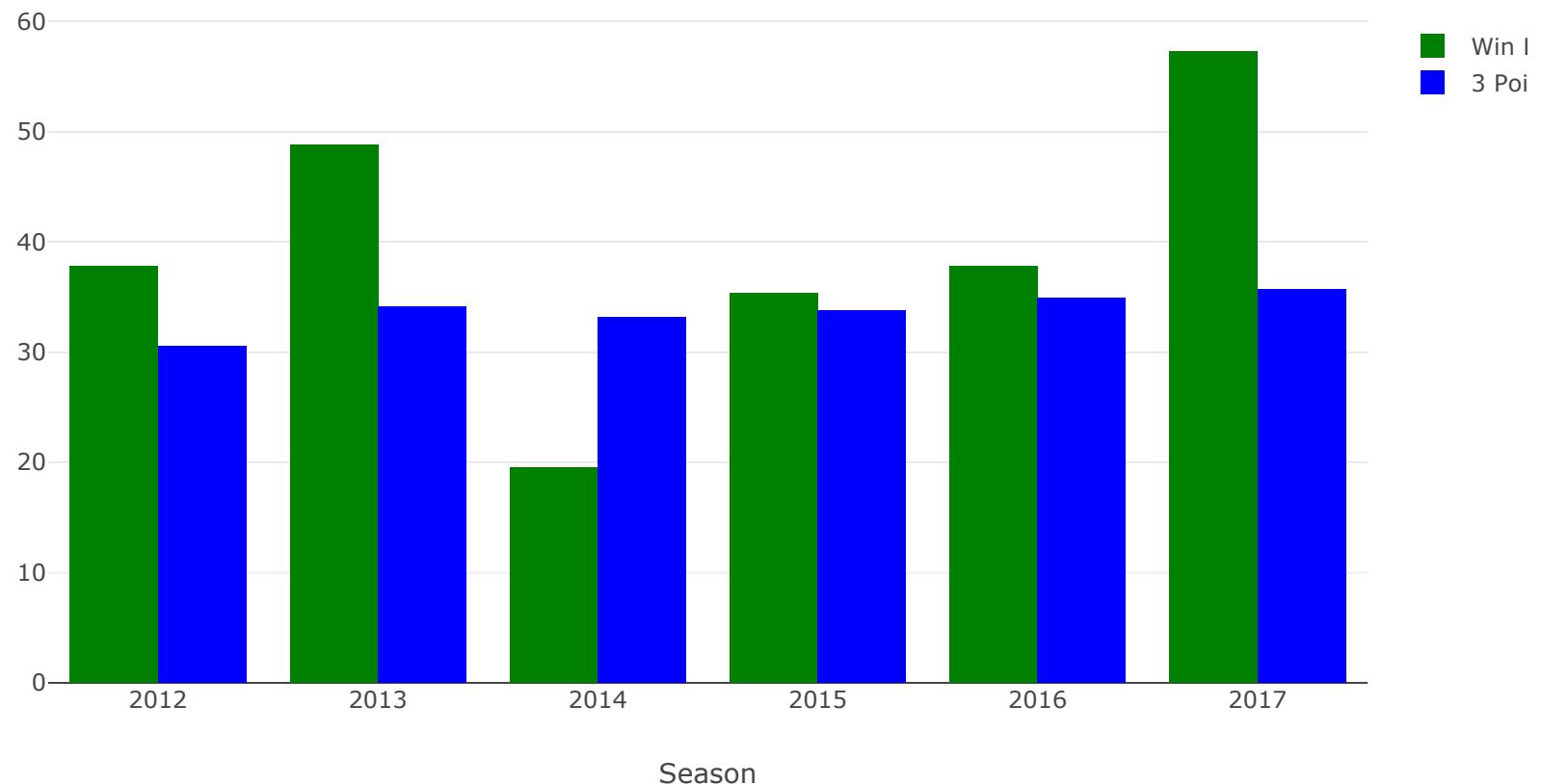
Win/Loss VS 3 Point Percentage Made for MIA



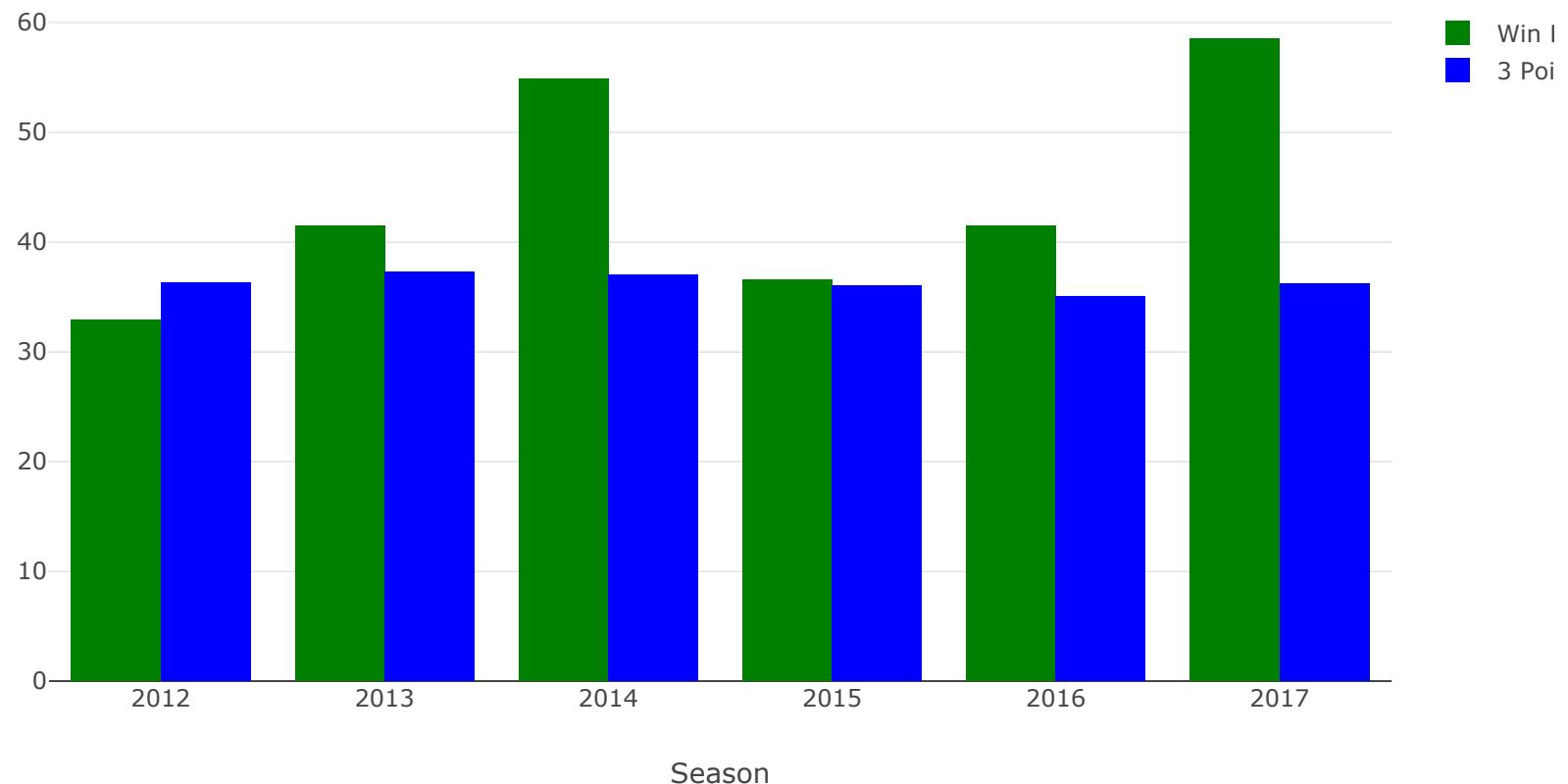
Win/Loss VS 3 Point Percentage Made for MIL



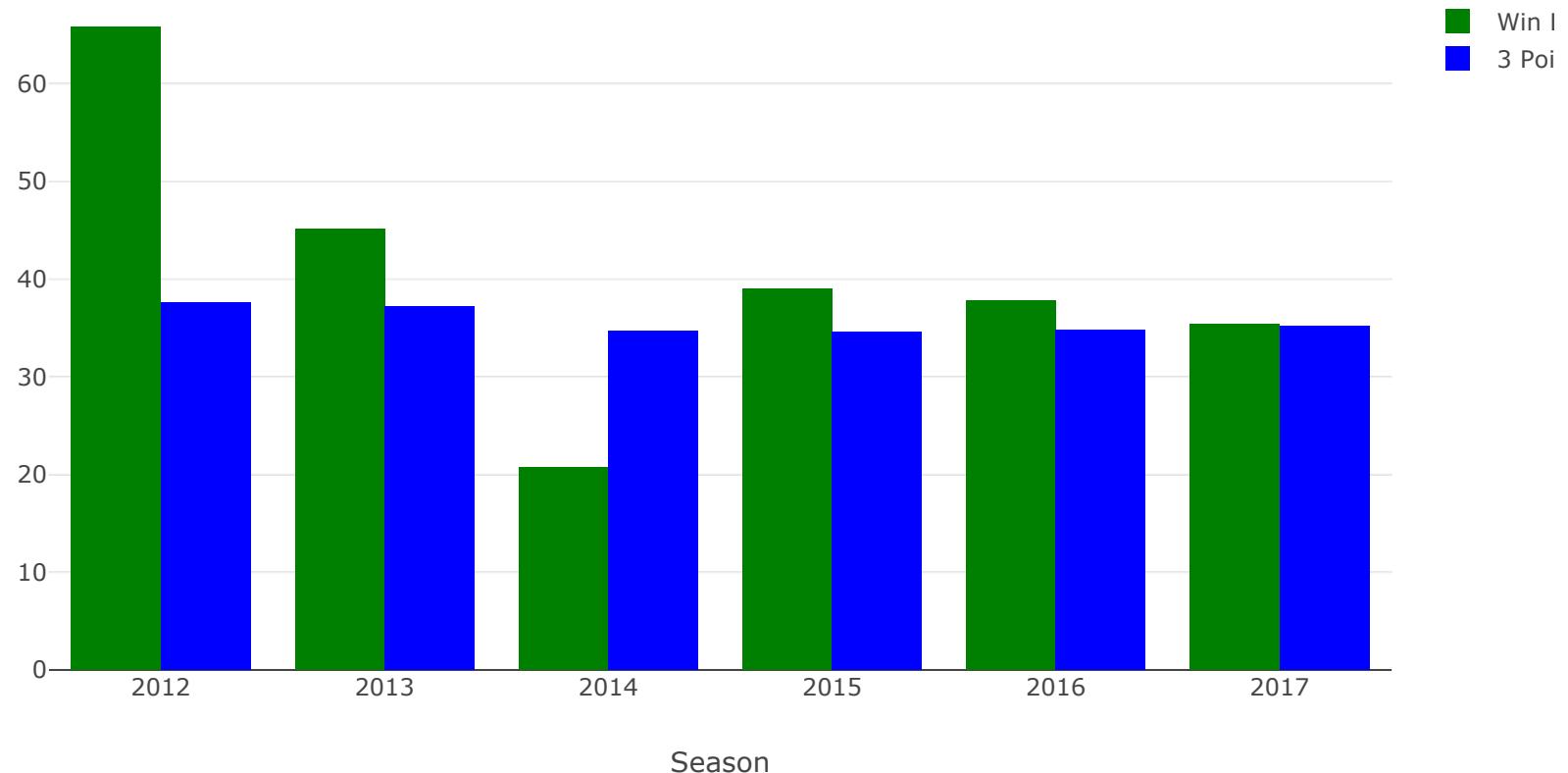
Win/Loss VS 3 Point Percentage Made for MIN



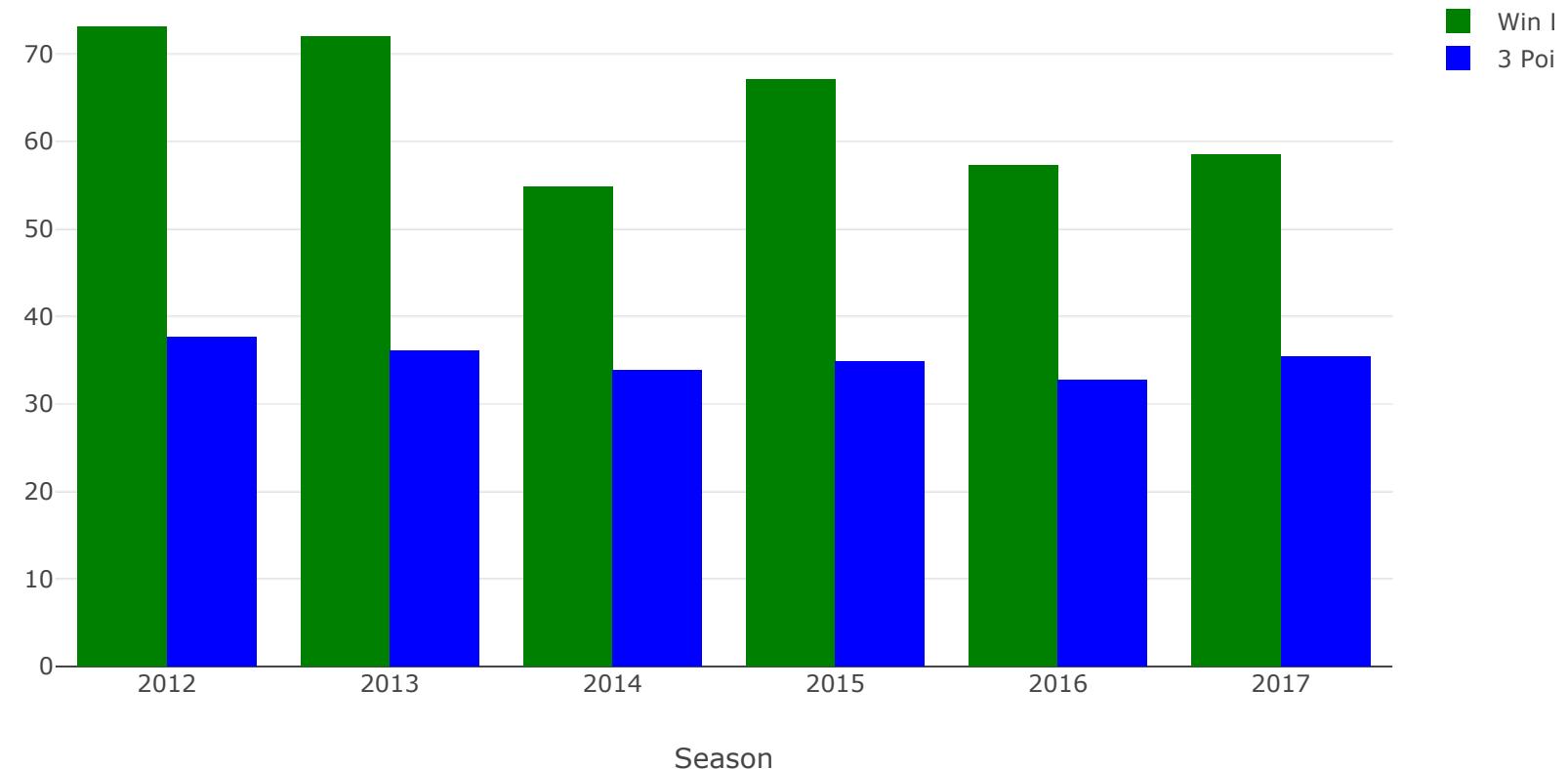
Win/Loss VS 3 Point Percentage Made for NOP



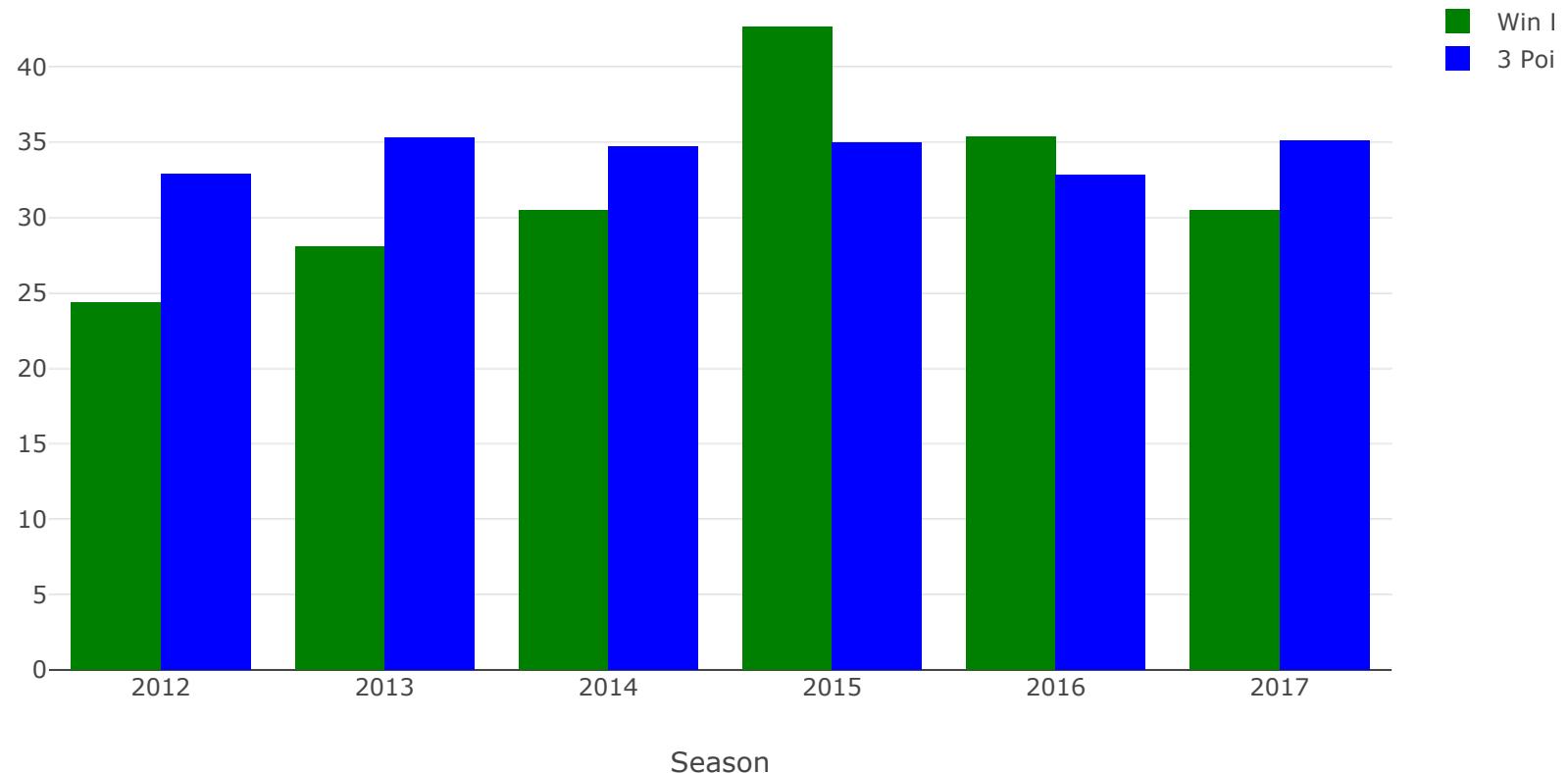
Win/Loss VS 3 Point Percentage Made for NYK



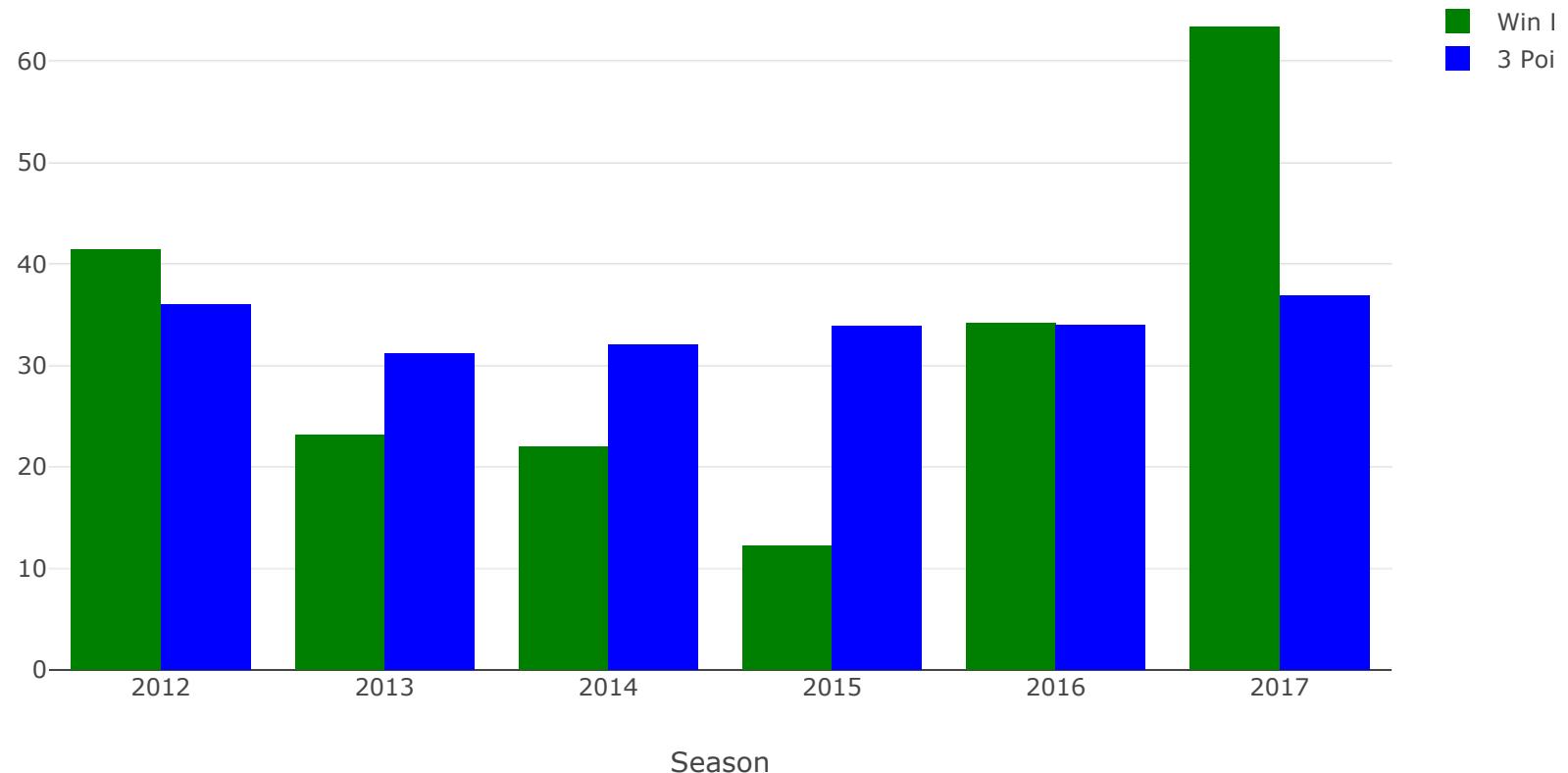
Win/Loss VS 3 Point Percentage Made for OKC



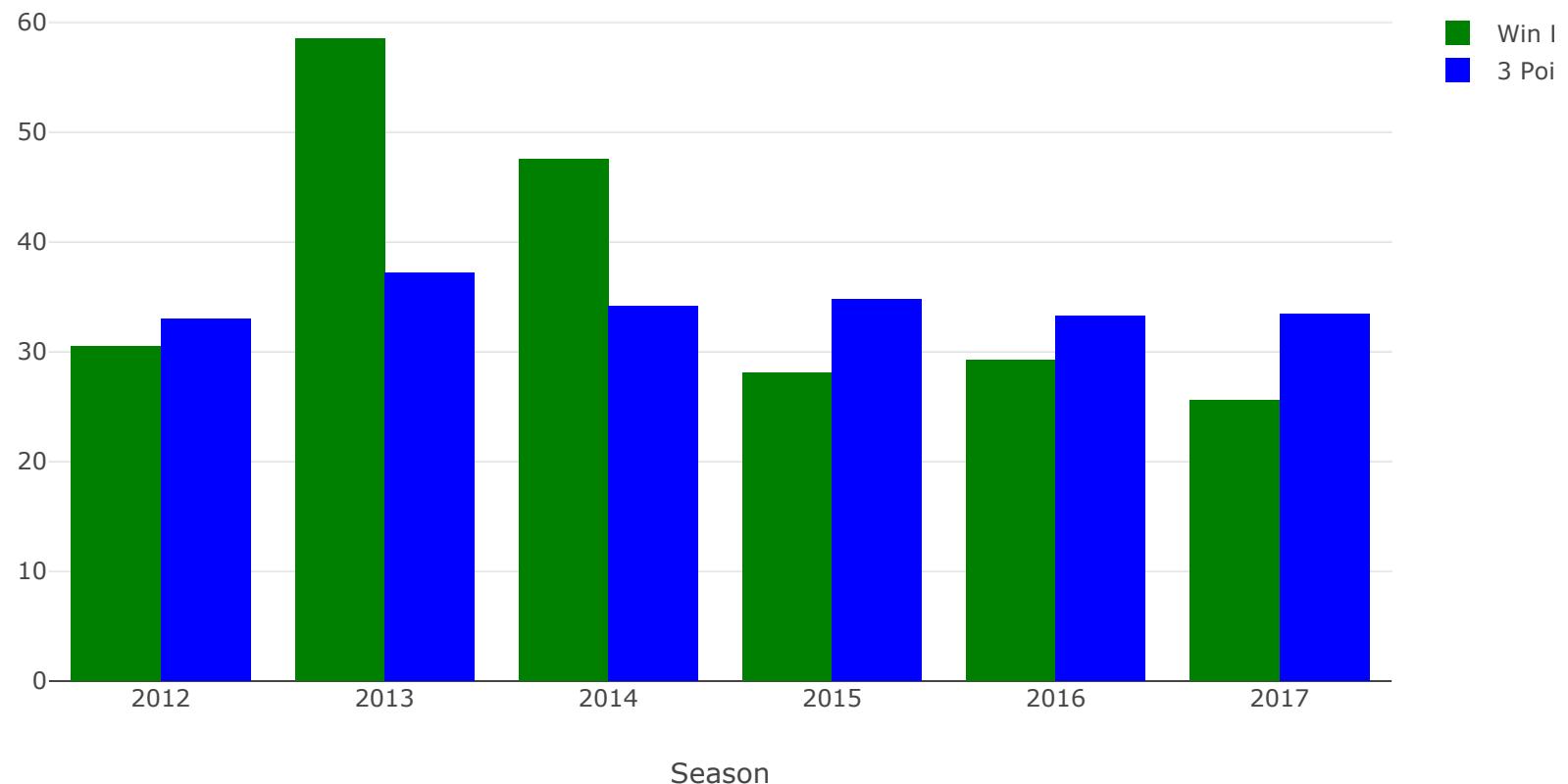
Win/Loss VS 3 Point Percentage Made for ORL



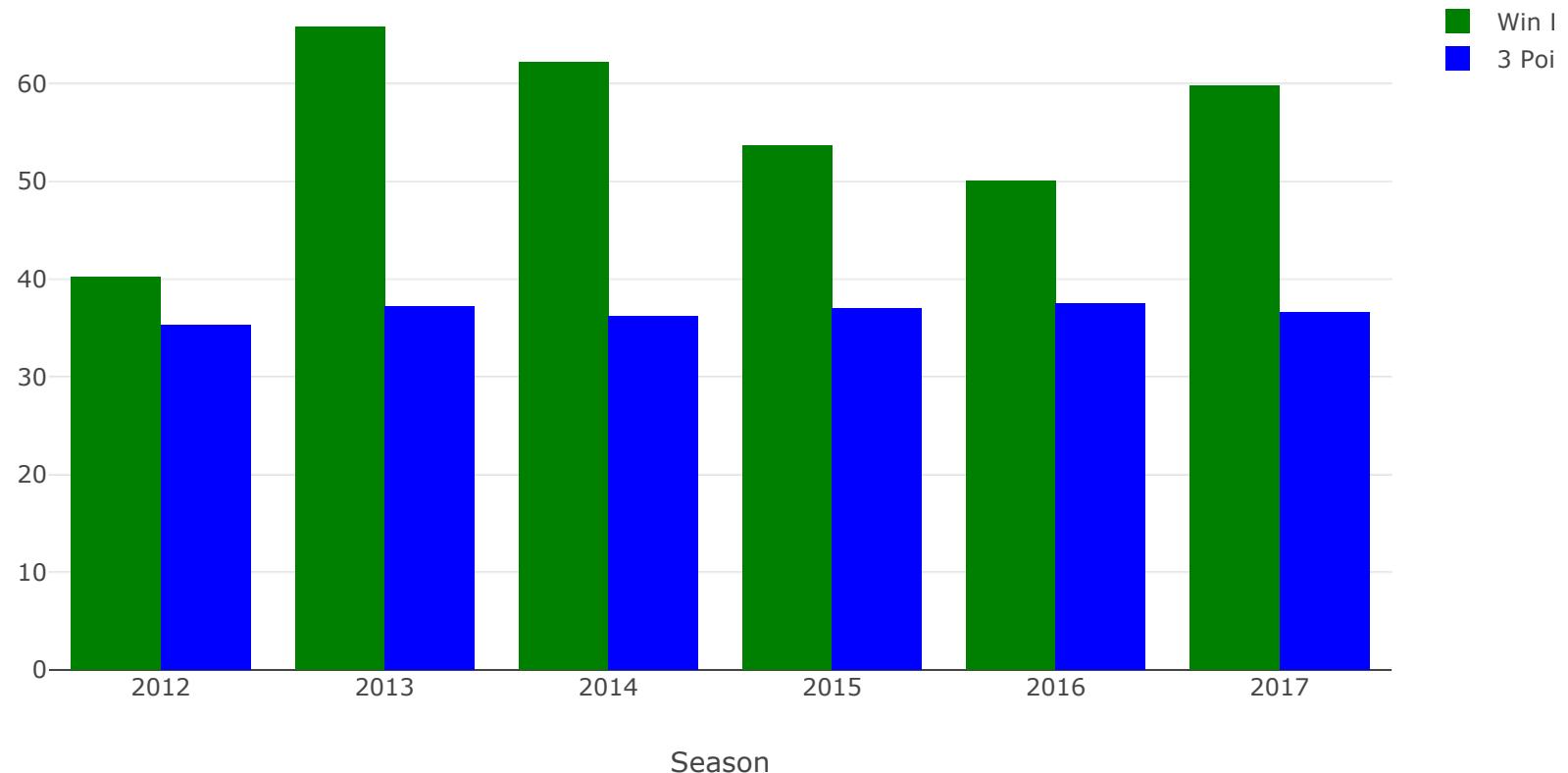
Win/Loss VS 3 Point Percentage Made for PHI



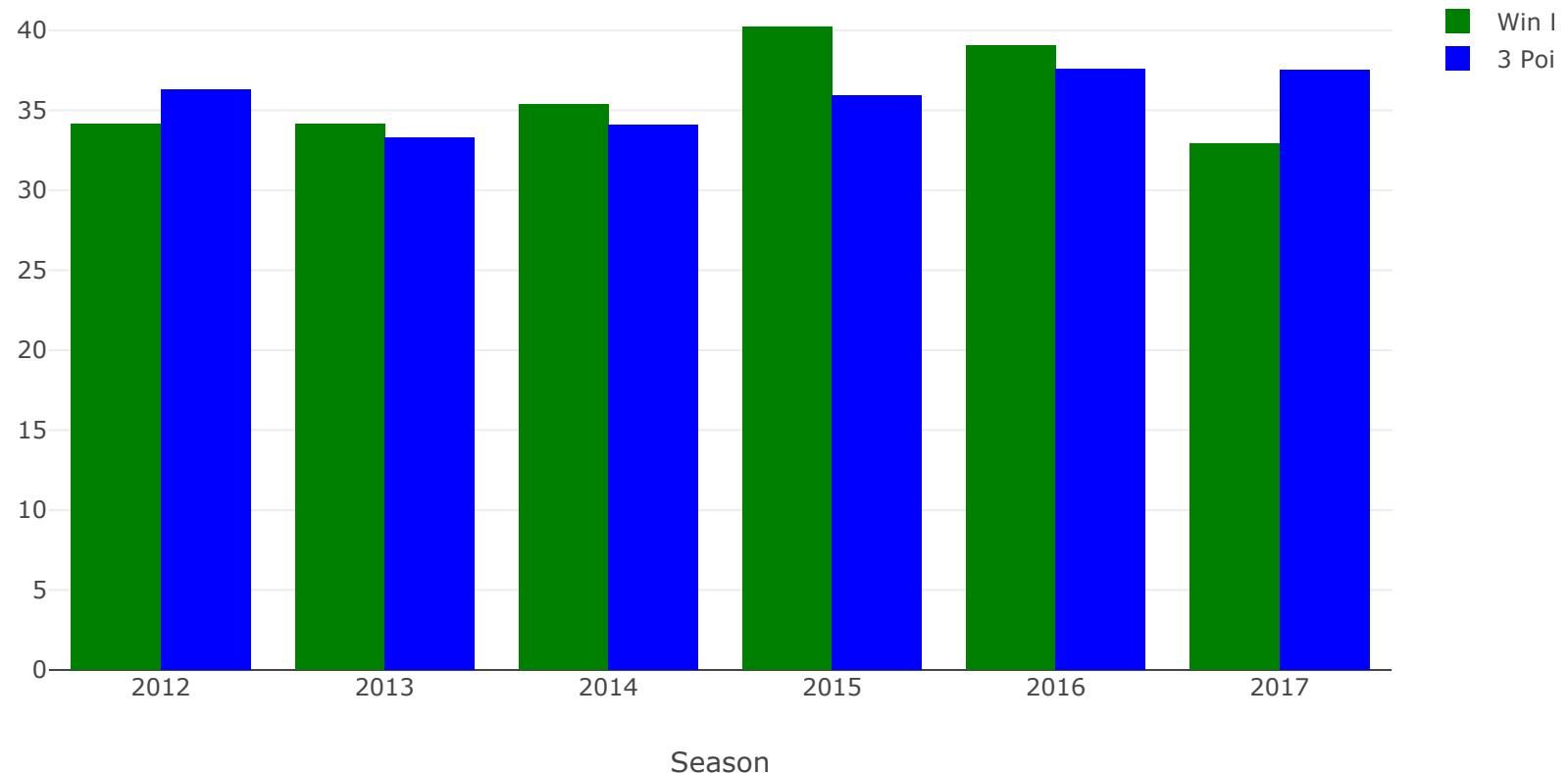
Win/Loss VS 3 Point Percentage Made for PHO



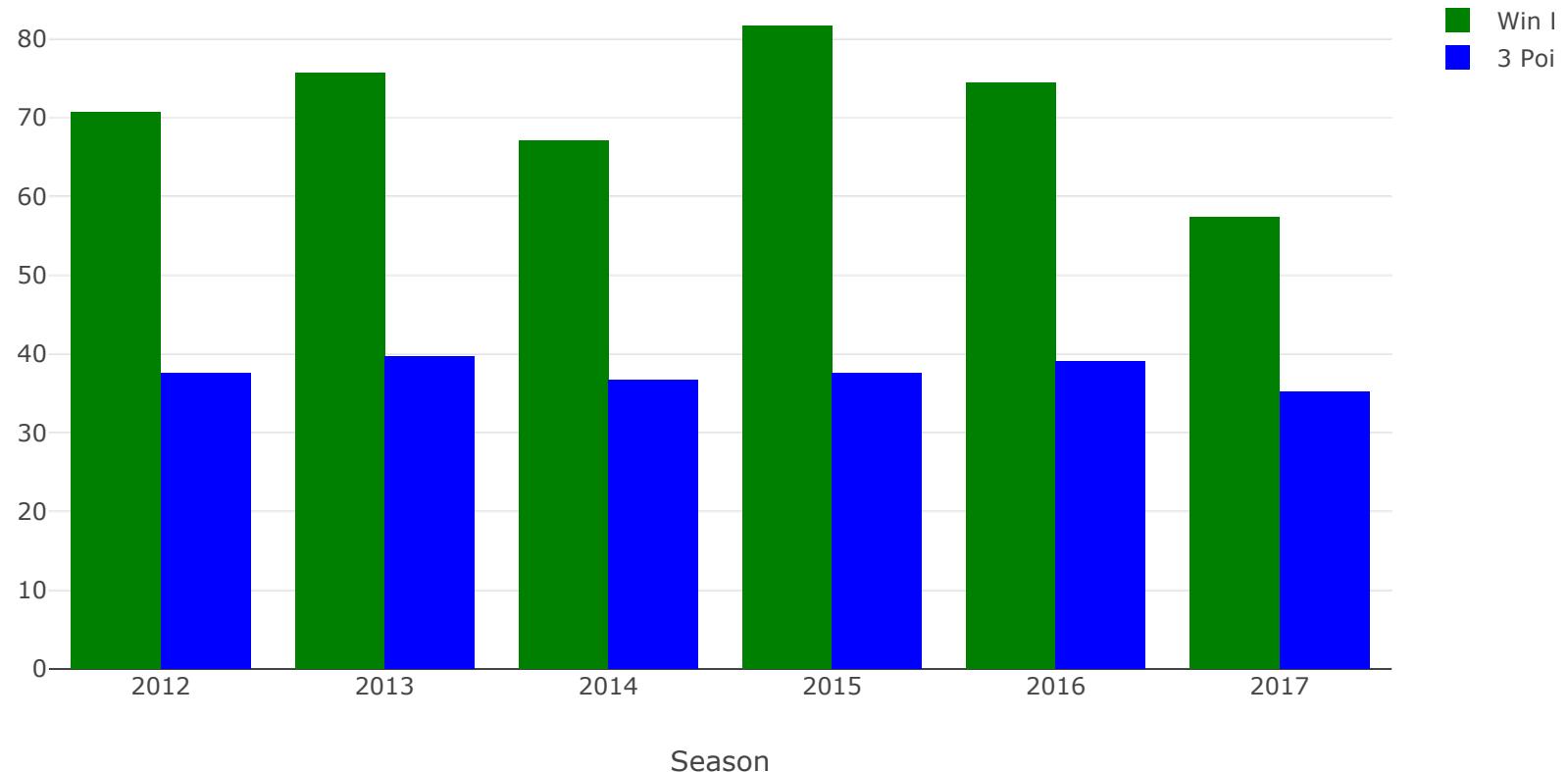
Win/Loss VS 3 Point Percentage Made for POR



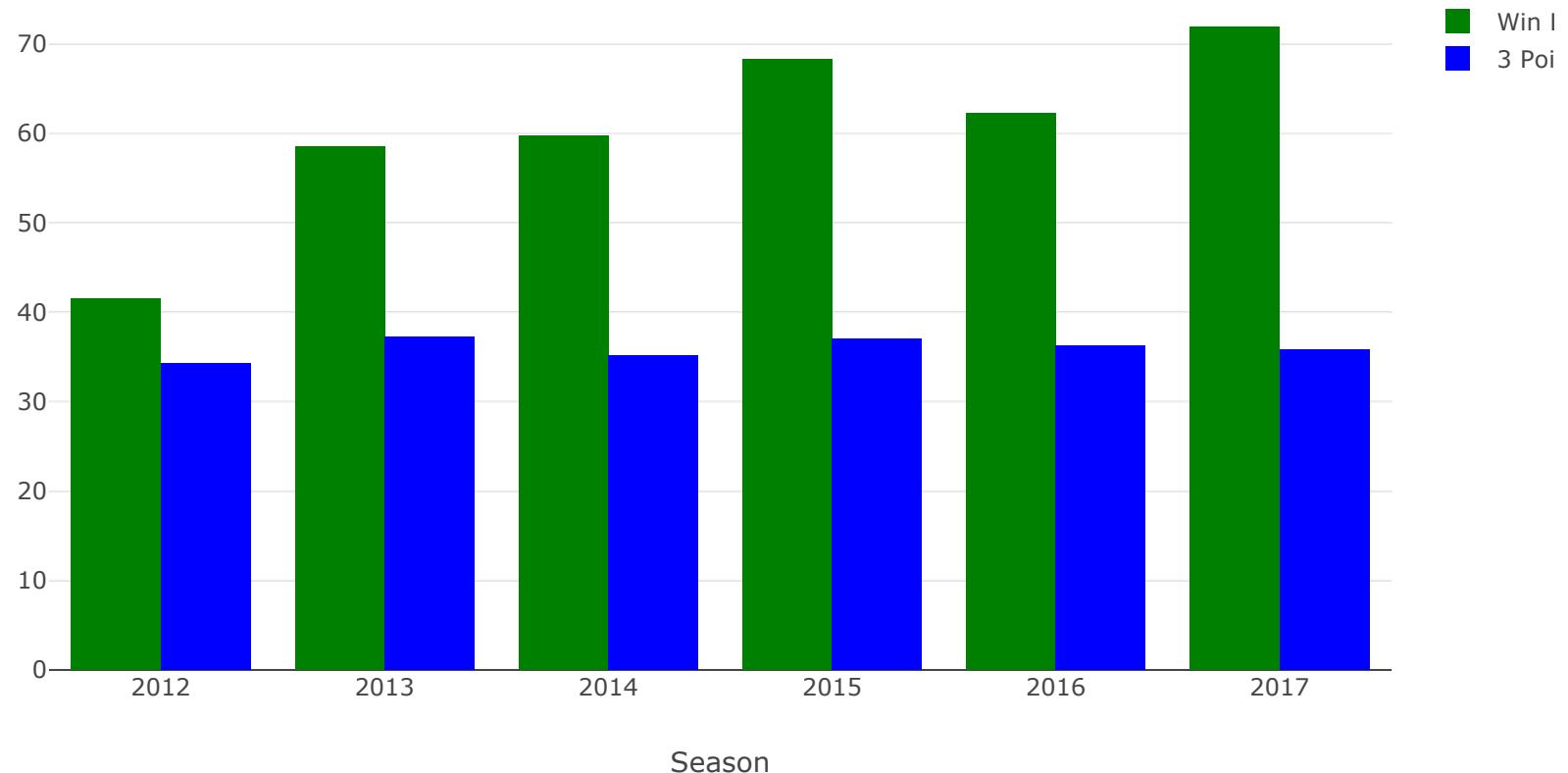
Win/Loss VS 3 Point Percentage Made for SAC



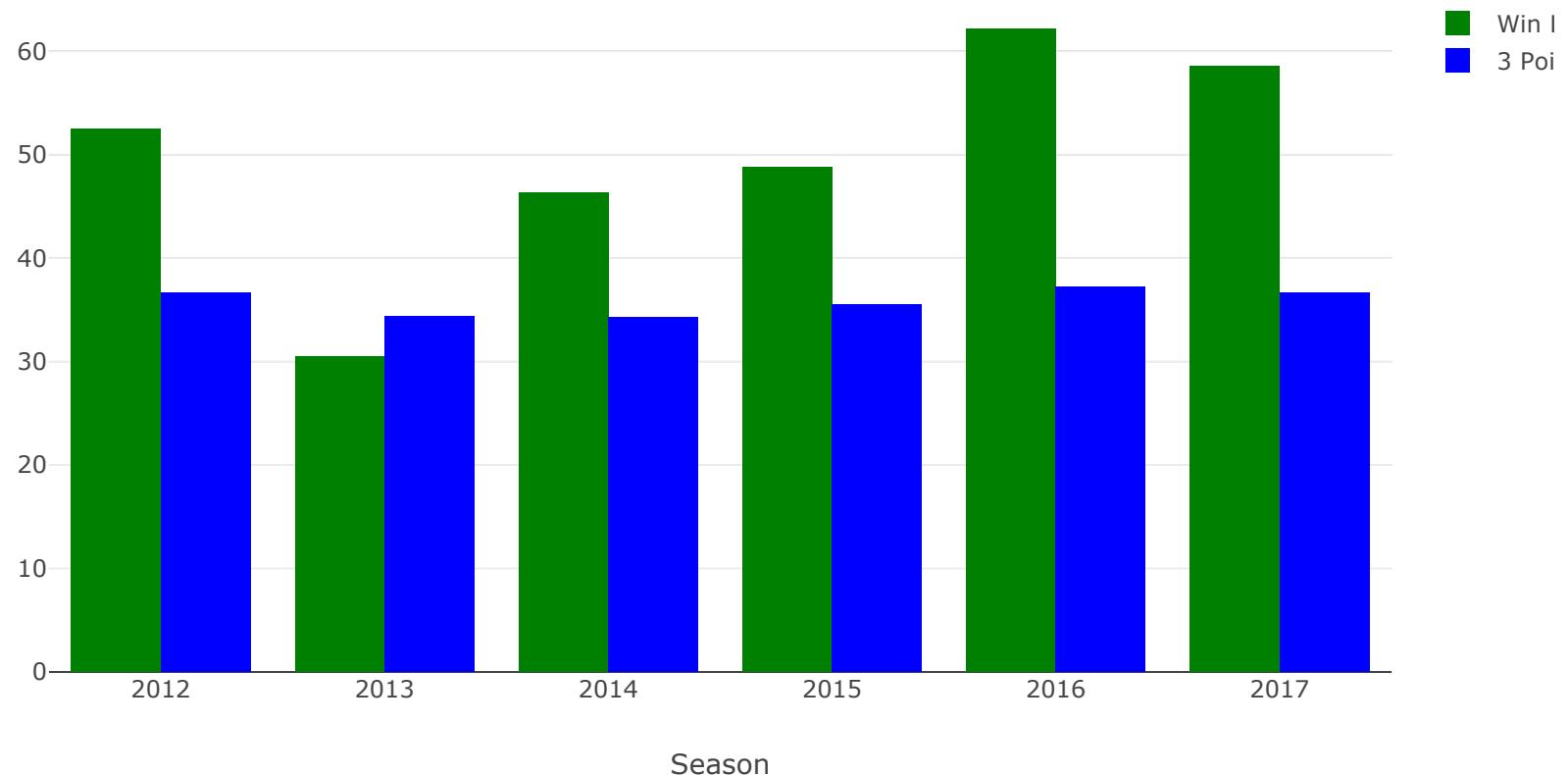
Win/Loss VS 3 Point Percentage Made for SAS



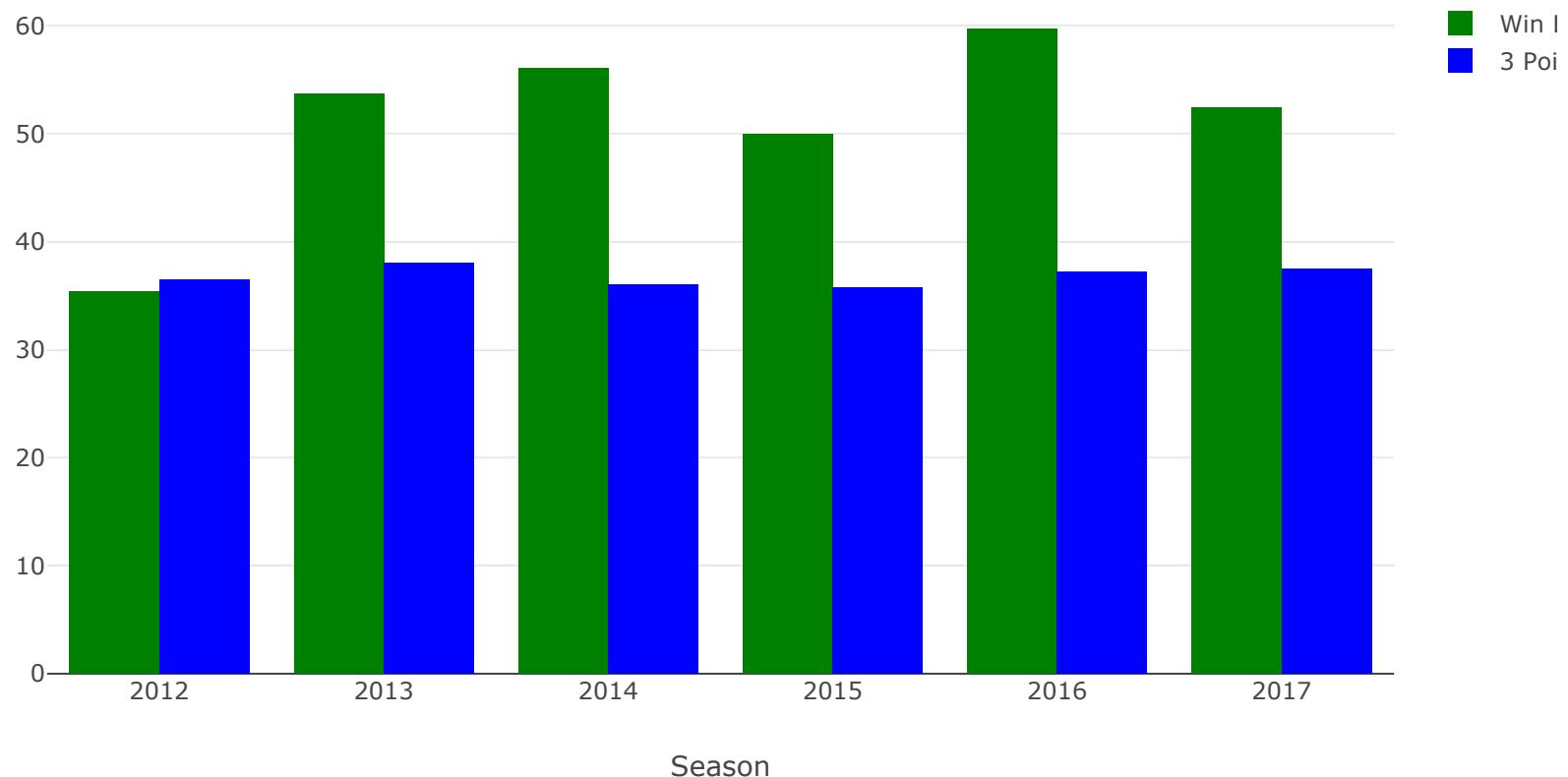
Win/Loss VS 3 Point Percentage Made for TOR



Win/Loss VS 3 Point Percentage Made for UTA



Win/Loss VS 3 Point Percentage Made for WAS



Looking back at the teams that were discussed in the previous graph, the Houston Rockets aren't shooting lights out from three. They are only making 36.2% of their threes, and the Brooklyn Nets that have a 34% win rate are only 0.6% behind the Rockets in terms of three pointers made, sitting at a solid 35.6% 3PM. It also seems there's a lack of correlation between 3 pointers made and the numbers of wins a team gets.

Ever since we've been more NBA athletes taking the three a lot of articles have shown up about the efficiency of this tactic. The formula for efficiency for a singular player is $(PTS + REB + AST + STL + BLK - Missed FG - Missed FT - TO) / GP$. To convert this to how efficient a team is simply use the same formula, and see how efficient they are playing in total.

```
In [74]: teamstats = []

for df in dfs:
    df = df[['Season', 'Tm', 'W', 'L', '3PA', '3P%', "FGA", "PTS", "TRB", "AST", "STL", "BLK", "FG", "FT", "FTA", "TOV"]]
    df['Season'] = df['Season'].str[:4]
    df['Win/Loss'] = (df['W'].astype(float) / (df['W'].astype(float) + df['L'].astype(float))) * 100
    df['3P%'] = df['3P%'].astype(float) * 100
    df['3PA%'] = (df['3PA'].astype(float) / df["FGA"].astype(float)) * 100
    df['Missed FG'] = df["FGA"].astype(float) - df['FG'].astype(float)
    df['Missed FT'] = df['FTA'].astype(float) - df['FT'].astype(float)
    df['Efficiency'] = (df['PTS'].astype(float) + df["TRB"].astype(float) + df["AST"].astype(float) +
    df["STL"].astype(float) + df['BLK'].astype(float) - df["Missed FG"].astype(float) - df["Missed
    FT"].astype(float) - df["TOV"].astype(float))/82
    print(df)
    teamstats.append(df)
```


/Users/ryanlai/anaconda3/lib/python3.6/site-packages/ipykernel_launcher.py:5: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

/Users/ryanlai/anaconda3/lib/python3.6/site-packages/ipykernel_launcher.py:6: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

/Users/ryanlai/anaconda3/lib/python3.6/site-packages/ipykernel_launcher.py:7: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

/Users/ryanlai/anaconda3/lib/python3.6/site-packages/ipykernel_launcher.py:8: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

/Users/ryanlai/anaconda3/lib/python3.6/site-packages/ipykernel_launcher.py:9: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

/Users/ryanlai/anaconda3/lib/python3.6/site-packages/ipykernel_launcher.py:10: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

/Users/ryanlai/anaconda3/lib/python3.6/site-packages/ipykernel_launcher.py:11: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	ATL	24	58	2544	36.0	7014	8475	3435	1946	...	348	
1	2016	ATL	43	39	2137	34.1	6918	8459	3635	1938	...	397	
2	2015	ATL	48	34	2326	35.0	6923	8433	3451	2100	...	486	
3	2014	ATL	60	22	2152	38.0	6699	8409	3326	2111	...	380	
4	2013	ATL	38	44	2116	36.3	6688	8282	3278	2041	...	326	
5	2012	ATL	44	38	1901	37.1	6644	8032	3351	2007	...	369	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3130	1298	1654	1276	29.268293	36.270317	3884.0	356.0	
1	3123	1484	2039	1294	52.439024	30.890431	3795.0	555.0	
2	3168	1282	1638	1226	58.536585	33.598151	3755.0	356.0	
3	3121	1349	1735	1167	73.170732	32.124198	3578.0	386.0	
4	3061	1392	1782	1251	46.341463	31.638756	3627.0	390.0	
5	3084	1158	1619	1219	53.658537	28.612282	3560.0	461.0	

Efficiency

0	113.731707
1	115.329268
2	120.487805
3	119.987805
4	113.890244
5	111.987805

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	BRK	28	54	2924	35.6	7114	8741	3643	1942	...	390	
1	2016	BRK	20	62	2591	33.8	6987	8673	3600	1756	...	387	
2	2015	BRK	21	61	1508	35.2	6920	8089	3477	1829	...	332	
3	2014	BRK	38	44	1633	33.1	6804	8038	3473	1716	...	340	
4	2013	BRK	44	38	1922	36.9	6391	8079	3128	1714	...	311	
5	2012	BRK	49	33	1760	35.7	6544	7944	3507	1668	...	391	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3136	1428	1850	1245	34.146341	41.102052	3978.0	422.0	
1	3102	1592	2020	1356	24.390244	37.083154	3885.0	428.0	
2	3136	1286	1699	1212	25.609756	21.791908	3784.0	413.0	
3	3069	1359	1817	1133	46.341463	24.000588	3735.0	458.0	
4	2931	1508	2002	1191	53.658537	30.073541	3460.0	494.0	
5	2942	1432	1958	1206	59.756098	26.894866	3602.0	526.0	

Efficiency

```
0 116.865854
1 113.902439
2 109.085366
3 107.524390
4 107.219512
5 107.012195
```

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	BOS	55	27	2492	37.7	6975	8529	3645	1842	...	374	
1	2016	BOS	53	29	2742	35.9	6978	8857	3442	2069	...	340	
2	2015	BOS	48	34	2142	33.5	7318	8669	3683	1981	...	348	
3	2014	BOS	40	42	2021	32.7	7211	8312	3595	2009	...	294	
4	2013	BOS	25	57	1729	33.3	6883	7892	3485	1726	...	343	
5	2012	BOS	41	40	1390	35.8	6459	7818	3187	1843	...	365	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3141	1308	1697	1149	67.073171	35.727599	3834.0	389.0	
1	3168	1536	1903	1088	64.634146	39.294927	3810.0	367.0	
2	3216	1520	1929	1127	58.536585	29.270292	4102.0	409.0	
3	3193	1266	1678	1133	48.780488	28.026626	4018.0	412.0	
4	2996	1325	1706	1261	30.487805	25.119861	3887.0	381.0	
5	3001	1318	1698	1181	50.617284	21.520359	3458.0	380.0	

Efficiency

```
0 117.341463
1 122.682927
2 119.451220
3 113.670732
4 103.670732
5 108.060976
```

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	CHO	36	46	2233	36.9	7106	8874	3727	1770	...	373	
1	2016	CHO	36	46	2347	35.1	7000	8601	3574	1891	...	390	
2	2015	CHO	48	34	2410	36.2	6922	8479	3603	1778	...	438	
3	2014	CHO	33	49	1566	31.8	6932	7721	3613	1654	...	448	
4	2013	CHA	43	39	1471	35.1	6730	7942	3500	1778	...	421	
5	2012	CHA	21	61	1399	33.5	6649	7661	3306	1587	...	479	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
--	----	----	-----	-----	----------	------	-----------	-----------	---

0	3197	1656	2216	1041	43.902439	31.424149	3909.0	560.0
1	3093	1591	1953	942	43.902439	33.528571	3907.0	362.0
2	3036	1534	1941	1030	58.536585	34.816527	3886.0	407.0
3	2913	1397	1867	976	40.243902	22.590883	4019.0	470.0
4	2976	1474	2000	1010	52.439024	21.857355	3754.0	526.0
5	2823	1546	2060	1153	25.609756	21.040758	3826.0	514.0

Efficiency

0	119.426829
1	119.707317
2	116.707317
3	103.292683
4	107.926829
5	99.158537

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	CHI	27	55	2550	35.5	7286	8440	3663	1923	...	289	
1	2016	CHI	41	41	1831	34.0	7141	8435	3796	1851	...	393	
2	2015	CHI	42	40	1753	37.1	7170	8335	3796	1870	...	470	
3	2014	CHI	50	32	1825	35.3	6797	8265	3751	1781	...	476	
4	2013	CHI	48	34	1459	34.8	6577	7680	3620	1860	...	424	
5	2012	CHI	45	37	1265	35.3	6698	7641	3540	1886	...	417	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3170	1194	1576	1147	32.926829	34.998628	4116.0	382.0	
1	3169	1474	1848	1112	50.000000	25.640667	3972.0	374.0	
2	3165	1354	1720	1141	51.219512	24.449093	4005.0	366.0	
3	3001	1618	2067	1145	60.975610	26.850081	3796.0	449.0	
4	2843	1486	1908	1223	58.536585	22.183366	3734.0	422.0	
5	2926	1343	1738	1171	54.878049	18.886235	3772.0	395.0	

Efficiency

0	113.365854
1	117.804878
2	115.292683
3	114.597561
4	107.304878
5	106.512195

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	CHI	27	55	2550	35.5	7286	8440	3663	1923	...	289	
1	2016	CHI	41	41	1831	34.0	7141	8435	3796	1851	...	393	
2	2015	CHI	42	40	1753	37.1	7170	8335	3796	1870	...	470	
3	2014	CHI	50	32	1825	35.3	6797	8265	3751	1781	...	476	
4	2013	CHI	48	34	1459	34.8	6577	7680	3620	1860	...	424	
5	2012	CHI	45	37	1265	35.3	6698	7641	3540	1886	...	417	

0	2017	CLE	50	32	2636	37.2	6950	9091	3455	1916	...	312
1	2016	CLE	51	31	2779	38.4	6963	9048	3587	1858	...	327
2	2015	CLE	57	25	2428	36.2	6888	8555	3650	1861	...	317
3	2014	CLE	53	29	2253	36.7	6739	8457	3523	1814	...	340
4	2013	CLE	33	49	1640	35.6	6955	8054	3618	1738	...	304
5	2012	CLE	24	58	1581	34.6	6901	7913	3363	1694	...	334

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3311	1488	1909	1126	60.975610	37.928058	3639.0	421.0	
1	3275	1431	1913	1121	62.195122	39.910958	3688.0	482.0	
2	3171	1333	1783	1114	69.512195	35.249710	3717.0	450.0	
3	3089	1453	1934	1171	64.634146	33.432260	3650.0	481.0	
4	3036	1398	1861	1163	40.243902	23.580158	3919.0	463.0	
5	2993	1380	1826	1149	29.268293	22.909723	3908.0	446.0	

	Efficiency
0	124.024390
1	122.780488
2	117.719512
3	115.060976
4	106.682927
5	103.024390

	[6 rows x 21 columns]
0	Season Tm W L 3PA 3P% FGA PTS TRB AST ... BLK \
0	2017 DAL 24 58 2688 36.0 7041 8390 3383 1858 ... 310
1	2016 DAL 33 49 2473 35.5 6750 8029 3163 1705 ... 307
2	2015 DAL 42 40 2342 34.4 6900 8388 3532 1813 ... 306
3	2014 DAL 50 32 2082 35.2 7036 8628 3466 1846 ... 371
4	2013 DAL 49 33 1877 38.4 6858 8597 3354 1935 ... 356
5	2012 DAL 41 41 1628 37.2 6892 8293 3437 1906 ... 454

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3128	1167	1530	1008	29.268293	38.176395	3913.0	363.0	
1	2968	1215	1516	972	40.243902	36.637037	3782.0	301.0	
2	3064	1454	1831	1047	51.219512	33.942029	3836.0	377.0	
3	3255	1386	1843	1062	60.975610	29.590677	3781.0	457.0	
4	3249	1378	1733	1110	59.756098	27.369495	3609.0	355.0	
5	3182	1323	1669	1144	50.000000	23.621590	3710.0	346.0	

	Efficiency
0	112.621951

```
1 106.865854
2 113.890244
3 117.975610
4 120.390244
5 116.317073
```

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	DEN	46	36	2536	37.1	7102	9020	3650	2058	...	404	
1	2016	DEN	40	42	2365	36.8	7194	9161	3803	2077	...	323	
2	2015	DEN	33	49	1943	33.8	7003	8355	3659	1858	...	395	
3	2014	DEN	30	52	2032	32.5	7158	8320	3665	1788	...	367	
4	2013	DEN	36	46	1959	35.8	7042	8559	3726	1838	...	459	
5	2012	DEN	57	25	1518	34.3	6983	8704	3693	2002	...	533	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3338	1404	1833	1227	56.097561	35.708251	3764.0	429.0	
1	3377	1537	1986	1226	48.780488	32.874618	3817.0	449.0	
2	3093	1513	1974	1202	40.243902	27.745252	3910.0	461.0	
3	3099	1462	1991	1166	36.585366	28.387818	4059.0	529.0	
4	3147	1563	2154	1305	43.902439	27.818801	3895.0	591.0	
5	3339	1505	2148	1253	69.512195	21.738508	3644.0	643.0	

Efficiency

```
0 126.085366
1 127.317073
2 113.451220
3 110.085366
4 114.707317
5 123.829268
```

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	DET	39	43	2373	37.3	7129	8509	3586	1868	...	317	
1	2016	DET	37	45	1915	33.0	7282	8309	3746	1732	...	310	
2	2015	DET	44	38	2148	34.5	7087	8361	3798	1594	...	304	
3	2014	DET	32	50	2043	34.4	7038	8077	3681	1771	...	383	
4	2013	DET	29	53	1580	32.1	7124	8286	3721	1714	...	395	
5	2012	DET	29	53	1440	35.6	6638	7778	3454	1742	...	400	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3208	1207	1621	1103	47.560976	33.286576	3921.0	414.0	

1	3269	1140	1586	973	45.121951	26.297720	4013.0	446.0
2	3111	1399	2095	1110	53.658537	30.309017	3976.0	696.0
3	3041	1292	1838	1099	39.024390	29.028133	3997.0	546.0
4	3182	1415	2111	1193	35.365854	22.178551	3942.0	696.0
5	2979	1307	1870	1241	35.365854	21.693281	3659.0	563.0

Efficiency

0	115.487805
1	112.670732
2	107.902439
3	108.451220
4	109.414634
5	103.475610

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	GSW	58	24	2369	39.1	6980	9304	3568	2402	...	612	
1	2016	GSW	67	15	2562	38.3	7140	9503	3643	2491	...	555	
2	2015	GSW	73	9	2592	41.6	7159	9421	3788	2373	...	498	
3	2014	GSW	67	15	2217	39.8	7137	9016	3667	2248	...	496	
4	2013	GSW	51	31	2037	38.0	7005	8549	3715	1912	...	407	
5	2012	GSW	47	35	1632	40.3	6840	8296	3686	1845	...	346	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3509	1360	1668	1267	70.731707	33.939828	3471.0	308.0	
1	3532	1457	1850	1211	81.707317	35.882353	3608.0	393.0	
2	3489	1366	1790	1245	89.024390	36.206174	3670.0	424.0	
3	3410	1313	1709	1185	81.707317	31.063472	3727.0	396.0	
4	3236	1303	1731	1247	62.195122	29.079229	3769.0	428.0	
5	3130	1378	1744	1236	57.317073	23.859649	3710.0	366.0	

Efficiency

0	140.195122
1	143.475610
2	139.390244
3	132.695122
4	119.280488
5	114.975610

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	HOU	65	17	3470	36.2	6906	9213	3564	1767	...	392	

1	2016	HOU	55	27	3306	35.7	7152	9458	3638	2070	...	352
2	2015	HOU	41	41	2533	34.7	6847	8737	3531	1821	...	430
3	2014	HOU	56	26	2680	34.8	6832	8522	3582	1820	...	407
4	2013	HOU	54	28	2179	35.8	6603	8829	3717	1755	...	461
5	2012	HOU	45	37	2369	36.6	6782	8688	3561	1902	...	359

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3174	1609	2061	1135	79.268293	50.246163	3732.0	452.0	
1	3305	1667	2177	1240	67.073171	46.224832	3847.0	510.0	
2	3094	1671	2407	1307	50.000000	36.994304	3753.0	736.0	
3	3032	1525	2133	1366	68.292683	39.227166	3800.0	608.0	
4	3118	1814	2549	1323	65.853659	33.000151	3485.0	735.0	
5	3124	1573	2087	1348	54.878049	34.930699	3658.0	514.0	

	Efficiency
0	125.804878
1	129.158537
2	116.390244
3	113.829268
4	120.000000
5	117.914634

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	IND	48	34	2010	36.9	7083	8656	3472	1819	...	340	
1	2016	IND	42	40	1885	37.6	6931	8618	3444	1844	...	409	
2	2015	IND	45	37	1889	35.1	6985	8377	3626	1741	...	391	
3	2014	IND	38	44	1740	35.2	6824	7981	3678	1757	...	375	
4	2013	IND	56	26	1542	35.7	6573	7933	3665	1651	...	446	
5	2012	IND	49	32	1599	34.7	6525	7674	3714	1645	...	513	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3345	1225	1573	1089	58.536585	28.377806	3738.0	348.0	
1	3221	1467	1811	1130	51.219512	27.196653	3710.0	344.0	
2	3142	1430	1872	1219	54.878049	27.043665	3843.0	442.0	
3	2998	1373	1817	1147	46.341463	25.498242	3826.0	444.0	
4	2949	1485	1907	1237	68.292683	23.459607	3624.0	422.0	
5	2845	1429	1915	1227	60.493827	24.505747	3680.0	486.0	

	Efficiency
0	119.914634
1	119.512195

```
2 114.304878
3 108.280488
4 109.292683
5 106.500000
```

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	LAC	42	40	2196	35.4	7004	8937	3598	1832	...	373	
1	2016	LAC	51	31	2245	37.5	6820	8911	3528	1848	...	347	
2	2015	LAC	53	29	2190	36.4	6759	8569	3448	1873	...	460	
3	2014	LAC	56	26	2202	37.6	6830	8751	3495	2031	...	409	
4	2013	LAC	57	25	1966	35.2	6761	8850	3526	2016	...	397	
5	2012	LAC	56	26	1752	35.8	6608	8289	3413	1958	...	461	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3302	1556	2095	1204	51.219512	31.353512	3702.0	539.0	
1	3242	1586	2128	1062	62.195122	32.917889	3578.0	542.0	
2	3141	1490	2152	1063	64.634146	32.401243	3618.0	662.0	
3	3228	1468	2067	1012	68.292683	32.240117	3602.0	599.0	
4	3208	1741	2384	1136	69.512195	29.078539	3553.0	643.0	
5	3160	1342	1888	1197	68.292683	26.513317	3448.0	546.0	

Efficiency

```
0 121.000000
1 122.731707
2 118.487805
3 123.329268
4 123.902439
5 118.463415
```

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	LAL	35	47	2384	34.5	7248	8862	3802	1949	...	388	
1	2016	LAL	26	56	2110	34.6	7164	8575	3569	1716	...	320	
2	2015	LAL	17	65	2016	31.7	6956	7982	3523	1478	...	337	
3	2014	LAL	21	61	1546	34.4	7020	8073	3599	1715	...	366	
4	2013	LAL	27	55	2032	38.1	6980	8442	3365	2006	...	446	
5	2012	LAL	45	37	2015	35.5	6640	8381	3674	1818	...	429	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3338	1364	1910	1295	42.682927	32.891832	3910.0	546.0	
1	3224	1397	1853	1243	31.707317	29.452820	3940.0	456.0	

2	2880	1583	2028	1124	20.731707	28.982174	4076.0	445.0
3	3054	1433	1935	1086	25.609756	22.022792	3966.0	502.0
4	3139	1390	1835	1239	32.926829	29.111748	3841.0	445.0
5	3041	1584	2289	1232	54.878049	30.346386	3599.0	705.0

Efficiency

0	120.524390
1	112.378049
2	100.829268
3	107.036585
4	113.963415
5	113.926829

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	MEM	22	60	2152	35.2	6788	8145	3323	1767	...	396	
1	2016	MEM	43	39	2169	35.4	6854	8239	3507	1744	...	344	
2	2015	MEM	42	40	1521	33.1	6859	8126	3413	1697	...	350	
3	2014	MEM	55	27	1246	33.9	6763	8062	3490	1777	...	347	
4	2013	MEM	50	32	1147	35.3	6723	7884	3476	1792	...	375	
5	2012	MEM	56	26	1107	34.5	6679	7659	3504	1715	...	436	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3013	1361	1732	1227	26.829268	31.703005	3775.0	371.0	
1	2984	1504	1918	1059	52.439024	31.645754	3870.0	414.0	
2	3019	1584	2024	1090	51.219512	22.175244	3840.0	440.0	
3	3097	1445	1869	1094	67.073171	18.423776	3666.0	424.0	
4	3122	1235	1666	1124	60.975610	17.060836	3601.0	431.0	
5	2964	1349	1746	1144	68.292683	16.574337	3715.0	397.0	

Efficiency

0	108.182927
1	111.512195
2	109.024390
3	112.097561
4	109.780488
5	106.841463

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	MIA	44	38	2506	36.0	6997	8480	3564	1862	...	437	
1	2016	MIA	41	41	2213	36.5	7037	8460	3577	1742	...	469	

2	2015	MIA	48	34	1480	33.6	6697	8204	3618	1709	...	531
3	2014	MIA	37	45	1659	33.5	6330	7764	3208	1626	...	372
4	2013	MIA	54	28	1829	36.4	6272	8380	3024	1847	...	367
5	2012	MIA	66	16	1809	39.6	6348	8436	3166	1890	...	441

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3184	1209	1601	1179	53.658537	35.815349	3813.0	392.0	
1	3202	1248	1768	1102	50.000000	31.448060	3835.0	520.0	
2	3150	1406	1889	1155	58.536585	22.099448	3547.0	483.0	
3	2885	1438	1940	1214	45.121951	26.208531	3445.0	502.0	
4	3142	1431	1884	1212	65.853659	29.161352	3130.0	453.0	
5	3148	1423	1887	1143	80.487805	28.497164	3200.0	464.0	

	Efficiency
0	116.817073
1	114.378049
2	115.000000
3	103.060976
4	116.524390
5	119.951220

	[6 rows x 21 columns]
0	Season Tm W L 3PA 3P% FGA PTS TRB AST ... BLK \
1	2017 MIL 44 38 2024 35.5 6807 8731 3267 1905 ... 443
2	2016 MIL 42 40 1946 37.0 6715 8497 3312 1984 ... 436
3	2015 MIL 33 49 1277 34.5 6740 8122 3417 1895 ... 475
4	2014 MIL 41 41 1500 36.3 6722 8023 3450 1932 ... 403
5	2013 MIL 15 67 1553 35.3 6737 7829 3370 1760 ... 403
	2012 MIL 38 44 1670 36.0 7197 8108 3605 1876 ... 550

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3257	1499	1916	1134	53.658537	29.734097	3550.0	417.0	
1	3182	1413	1839	1145	51.219512	28.979896	3533.0	426.0	
2	3145	1392	1863	1247	40.243902	18.946588	3595.0	471.0	
3	3083	1312	1734	1373	50.000000	22.314787	3639.0	422.0	
4	2952	1377	1843	1238	18.292683	23.051803	3785.0	466.0	
5	3128	1251	1700	1156	46.341463	23.204113	4069.0	449.0	

	Efficiency
0	121.548780
1	119.402439
2	113.024390

```
3 111.743902
4 102.609756
5 111.585366
```

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	MIN	47	35	1845	35.7	7063	8980	3441	1861	...	344	
1	2016	MIN	31	51	1723	34.9	6922	8657	3478	1940	...	370	
2	2015	MIN	29	53	1347	33.8	6668	8398	3408	1916	...	375	
3	2014	MIN	16	66	1223	33.2	6820	8016	3355	1771	...	327	
4	2013	MIN	40	42	1757	34.1	7175	8768	3668	1963	...	297	
5	2012	MIN	31	51	1475	30.5	6702	7851	3446	1836	...	387	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3365	1592	1980	1021	57.317073	26.122044	3698.0	388.0	
1	3235	1586	1986	1150	37.804878	24.891650	3687.0	400.0	
2	3095	1753	2213	1231	35.365854	20.200960	3573.0	460.0	
3	2986	1638	2110	1231	19.512195	17.932551	3834.0	472.0	
4	3189	1790	2301	1142	48.780488	24.487805	3986.0	511.0	
5	2943	1515	2042	1214	37.804878	22.008356	3759.0	527.0	

	Efficiency
0	124.487805
1	120.268293
2	115.719512
3	104.878049
4	119.207317
5	106.341463

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	NOP	48	34	2312	36.2	7241	9161	3636	2195	...	485	
1	2016	NOP	34	48	2196	35.0	7130	8556	3582	1869	...	453	
2	2015	NOP	30	52	1951	36.0	7040	8423	3494	1818	...	342	
3	2014	NOP	45	37	1583	37.0	6795	8147	3563	1806	...	510	
4	2013	NOP	34	48	1303	37.3	6761	8177	3419	1745	...	523	
5	2012	NOH	27	55	1474	36.3	6589	7714	3414	1721	...	440	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3500	1324	1716	1223	58.536585	31.929292	3741.0	392.0	
1	3210	1368	1825	1054	41.463415	30.799439	3920.0	457.0	
2	3153	1415	1823	1102	36.585366	27.713068	3887.0	408.0	

3	3108	1345	1790	1087	54.878049	23.296542	3687.0	445.0
4	3101	1489	1936	1129	41.463415	19.272297	3660.0	447.0
5	2955	1269	1636	1193	32.926829	22.370618	3634.0	367.0

Efficiency

0	131.439024
1	117.890244
2	113.573171
3	114.146341
4	113.109756
5	105.060976

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	NYK	29	53	1914	35.2	7194	8566	3611	1912	...	421	
1	2016	NYK	31	51	2022	34.8	7256	8556	3706	1786	...	455	
2	2015	NYK	32	50	1762	34.6	6886	8065	3638	1682	...	466	
3	2014	NYK	17	65	1614	34.7	6726	7535	3310	1746	...	382	
4	2013	NYK	37	45	2038	37.2	6739	8084	3307	1641	...	367	
5	2012	NYK	54	28	2371	37.6	6689	8196	3326	1579	...	294	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3334	1225	1557	1207	35.365854	26.605505	3860.0	332.0	
1	3244	1364	1731	1139	37.804878	27.866593	4012.0	367.0	
2	3022	1411	1753	1099	39.024390	25.588150	3864.0	342.0	
3	2882	1211	1575	1206	20.731707	23.996432	3844.0	364.0	
4	3027	1271	1670	1063	45.121951	30.241876	3712.0	399.0	
5	2996	1313	1729	988	65.853659	35.446255	3693.0	416.0	

Efficiency

0	117.841463
1	116.658537
2	109.914634
3	99.195122
4	108.000000
5	109.390244

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	OKC	48	34	2490	35.4	7220	8844	3695	1750	...	412	
1	2016	OKC	47	35	2116	32.7	7169	8741	3823	1721	...	408	
2	2015	OKC	55	27	1945	34.9	7082	9038	3987	1883	...	487	

3	2014	OKC	45	37	1864	33.9	7119	8524	3896	1681	...	454
4	2013	OKC	59	23	1839	36.1	6782	8705	3668	1794	...	501
5	2012	OKC	60	22	1588	37.7	6504	8669	3579	1753	...	624

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed	FG	Missed	FT	\
0	3271	1421	1987	1147	58.536585	34.487535	3949.0	566.0			
1	3237	1575	2113	1230	57.317073	29.515972	3932.0	538.0			
2	3372	1616	2067	1305	67.073171	27.463993	3710.0	451.0			
3	3184	1524	2020	1205	54.878049	26.183453	3935.0	496.0			
4	3194	1653	2052	1256	71.951220	27.115895	3588.0	399.0			
5	3126	1819	2196	1253	73.170732	24.415744	3378.0	377.0			

	Efficiency
0	119.292683
1	117.573171
2	128.439024
3	116.060976
4	123.207317
5	125.560976

[6 rows x 21 columns]	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	ORL	25	57	2405	35.1	7042	8479	3414	1921	...	400	
1	2016	ORL	29	53	2139	32.8	7133	8288	3541	1820	...	396	
2	2015	ORL	35	47	1818	35.0	7120	8369	3552	1933	...	417	
3	2014	ORL	25	57	1598	34.7	6792	7847	3429	1692	...	314	
4	2013	ORL	23	59	1596	35.3	6784	7914	3448	1726	...	350	
5	2012	ORL	20	62	1537	32.9	6904	7718	3502	1871	...	358	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed	FG	Missed	FT	\
0	3182	1271	1678	1192	30.487805	34.152229	3860.0	407.0			
1	3139	1309	1753	1091	35.365854	29.987383	3994.0	444.0			
2	3242	1249	1649	1155	42.682927	25.533708	3878.0	400.0			
3	3076	1141	1565	1221	30.487805	23.527680	3716.0	424.0			
4	3022	1307	1714	1222	28.048780	23.525943	3762.0	407.0			
5	3093	1026	1359	1191	24.390244	22.262457	3811.0	333.0			

	Efficiency
0	114.353659
1	110.926829
2	115.987805
3	104.487805

```
4 105.817073
5 105.390244
```

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	PHI	52	30	2445	36.9	7098	9004	3889	2221	...	420	
1	2016	PHI	28	54	2443	34.0	6992	8400	3513	1949	...	420	
2	2015	PHI	10	72	2255	33.9	6887	7988	3382	1765	...	495	
3	2014	PHI	18	64	2160	32.0	6777	7542	3514	1683	...	487	
4	2013	PHI	19	63	1847	31.2	7150	8155	3505	1791	...	330	
5	2012	PHI	34	48	1438	36.0	6895	7640	3389	1867	...	384	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3349	1405	1868	1353	63.414634	34.446323	3749.0	463.0	
1	3088	1393	1806	1366	34.146341	34.939931	3904.0	413.0	
2	2970	1284	1850	1343	12.195122	32.742849	3917.0	566.0	
3	2765	1320	1953	1453	21.951220	31.872510	4012.0	633.0	
4	3108	1362	1918	1384	23.170732	25.832168	4042.0	556.0	
5	3059	1004	1377	1070	41.463415	20.855693	3836.0	373.0	

Efficiency

```
0 129.890244
1 113.304878
2 103.463415
3 96.548780
4 104.439024
5 105.000000
```

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	PHO	21	61	2286	33.4	7141	8522	3618	1743	...	370	
1	2016	PHO	24	58	1854	33.2	7260	8831	3688	1604	...	399	
2	2015	PHO	23	59	2118	34.8	7018	8271	3676	1701	...	313	
3	2014	PHO	39	43	2048	34.1	7038	8397	3539	1659	...	385	
4	2013	PHO	48	34	2055	37.2	6845	8629	3529	1563	...	374	
5	2012	PHO	25	57	1455	33.0	6917	7805	3413	1855	...	434	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3153	1453	1963	1289	25.609756	32.012323	3988.0	510.0	
1	3270	1676	2159	1265	29.268293	25.537190	3990.0	483.0	
2	3051	1431	1905	1410	28.048780	30.179538	3967.0	474.0	
3	3178	1343	1767	1238	47.560976	29.099176	3860.0	424.0	

4	3172	1520	2004	1258	58.536585	30.021914	3673.0	484.0
5	3061	1203	1618	1278	30.487805	21.035131	3856.0	415.0

Efficiency

0	110.182927
1	115.329268
2	106.609756
3	111.682927
4	114.243902
5	105.085366

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	POR	49	33	2308	36.6	7132	8661	3728	1599	...	423	
1	2016	POR	41	41	2272	37.5	7059	8851	3580	1733	...	408	
2	2015	POR	44	38	2336	37.0	7040	8622	3730	1748	...	380	
3	2014	POR	51	31	2231	36.2	7049	8429	3760	1799	...	372	
4	2013	POR	54	28	2071	37.2	7134	8753	3808	1904	...	387	
5	2012	POR	33	49	1904	35.3	6715	7995	3348	1784	...	353	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3222	1372	1715	1109	59.756098	32.361189	3910.0	343.0	
1	3243	1513	1940	1126	50.000000	32.185862	3816.0	427.0	
2	3167	1424	1889	1200	53.658537	33.181818	3873.0	465.0	
3	3175	1272	1589	1117	62.195122	31.649879	3874.0	317.0	
4	3207	1569	1926	1125	65.853659	29.029997	3927.0	357.0	
5	3009	1304	1680	1203	40.243902	28.354430	3706.0	376.0	

Efficiency

0	117.341463
1	119.231707
2	115.902439
3	116.792683
4	120.695122
5	106.500000

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	SAC	27	55	1967	37.5	7063	8104	3355	1769	...	340	
1	2016	SAC	32	50	1960	37.6	6734	8430	3367	1844	...	324	
2	2015	SAC	33	49	1839	35.9	7083	8740	3628	2009	...	368	
3	2014	SAC	29	53	1350	34.1	6617	8310	3623	1667	...	324	

4	2013	SAC	28	54	1475	33.3	6766	8241	3646	1547	...	318
5	2012	SAC	28	54	1681	36.3	6904	8219	3328	1708	...	342

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3179	1008	1371	1125	32.926829	27.849356	3884.0	363.0	
1	3105	1483	1913	1201	39.024390	29.106029	3629.0	430.0	
2	3283	1514	2089	1326	40.243902	25.963575	3800.0	575.0	
3	3010	1829	2400	1333	35.365854	20.401995	3607.0	571.0	
4	3026	1698	2237	1249	34.146341	21.800177	3740.0	539.0	
5	3086	1437	1869	1199	34.146341	24.348204	3818.0	432.0	

	Efficiency
0	107.792683
1	113.804878
2	119.231707
3	109.304878
4	107.451220
5	107.548780

[6 rows x 21 columns]	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	SAS	47	35	1977	35.2	6999	8424	3626	1868	...	460	
1	2016	SAS	61	21	1927	39.1	6864	8637	3598	1954	...	484	
2	2015	SAS	67	15	1518	37.5	6797	8490	3601	2010	...	485	
3	2014	SAS	55	27	1847	36.7	6854	8461	3578	2000	...	444	
4	2013	SAS	62	20	1757	39.7	6844	8639	3548	2064	...	420	
5	2012	SAS	58	24	1764	37.6	6675	8448	3387	2058	...	446	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3202	1324	1715	1078	57.317073	28.246892	3797.0	391.0	
1	3222	1440	1806	1101	74.390244	28.074009	3642.0	366.0	
2	3289	1342	1672	1071	81.707317	22.333382	3508.0	330.0	
3	3208	1368	1754	1146	67.073171	26.947768	3646.0	386.0	
4	3326	1289	1642	1180	75.609756	25.672122	3518.0	353.0	
5	3210	1365	1725	1206	70.731707	26.426966	3465.0	360.0	

	Efficiency
0	118.780488
1	124.621951
2	126.268293
3	121.487805
4	124.682927

5 121.987805

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	TOR	59	23	2703	35.8	7169	9156	3607	1995	...	500	
1	2016	TOR	51	31	1996	36.3	6918	8762	3547	1517	...	400	
2	2015	TOR	56	26	1915	37.0	6669	8422	3560	1536	...	449	
3	2014	TOR	49	33	2060	35.2	6829	8527	3407	1701	...	357	
4	2013	TOR	48	34	1917	37.2	6718	8305	3487	1737	...	343	
5	2012	TOR	34	48	1665	34.3	6685	7971	3297	1765	...	392	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3383	1422	1790	1095	71.951220	37.704003	3786.0	368.0	
1	3211	1615	2028	1041	62.195122	28.852269	3707.0	413.0	
2	3006	1702	2190	1073	68.292683	28.714950	3663.0	488.0	
3	3108	1585	2014	1057	59.756098	30.165471	3721.0	429.0	
4	2992	1608	2055	1159	58.536585	28.535278	3726.0	447.0	
5	2979	1442	1831	1124	41.463415	24.906507	3706.0	389.0	

	Efficiency
0	129.695122
1	118.804878
2	114.378049
3	114.634146
4	111.182927
5	107.329268

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	UTA	48	34	2425	36.6	6797	8540	3547	1839	...	420	
1	2016	UTA	51	31	2128	37.2	6515	8258	3545	1651	...	410	
2	2015	UTA	40	42	1956	35.5	6593	8010	3545	1555	...	425	
3	2014	UTA	38	44	1781	34.3	6492	7801	3605	1632	...	489	
4	2013	UTA	25	57	1577	34.4	6652	7791	3381	1664	...	366	
5	2012	UTA	43	39	1385	36.6	6710	8038	3446	1859	...	515	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3139	1375	1766	1205	58.536585	35.677505	3658.0	391.0	
1	3033	1401	1875	1118	62.195122	32.663085	3482.0	474.0	
2	2957	1402	1885	1224	48.780488	29.667830	3636.0	483.0	
3	2900	1391	1929	1256	46.341463	27.433765	3592.0	538.0	
4	2951	1346	1803	1200	30.487805	23.707156	3701.0	457.0	

5	3046	1439	1883	1210	52.439024	20.640835	3664.0	444.0
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Efficiency

0	119.512195
1	113.902439
2	107.597561
3	106.878049
4	102.609756
5	112.560976

[6 rows x 21 columns]

	Season	Tm	W	L	3PA	3P%	FGA	PTS	TRB	AST	...	BLK	\
0	2017	WAS	43	39	2173	37.5	7018	8742	3536	2065	...	353	
1	2016	WAS	49	33	2030	37.2	7137	8953	3514	1956	...	336	
2	2015	WAS	41	41	1983	35.8	7033	8534	3431	2005	...	323	
3	2014	WAS	46	36	1381	36.0	6790	8080	3663	1969	...	378	
4	2013	WAS	44	38	1704	38.0	6920	8254	3459	1909	...	377	
5	2012	WAS	29	53	1495	36.5	6693	7644	3539	1775	...	376	

	FG	FT	FTA	TOV	Win/Loss	3PA%	Missed FG	Missed FT	\
0	3275	1378	1785	1196	52.439024	30.963237	3743.0	407.0	
1	3388	1421	1812	1162	59.756098	28.443324	3749.0	391.0	
2	3238	1349	1849	1186	50.000000	28.195649	3795.0	500.0	
3	3139	1305	1758	1233	56.097561	20.338733	3651.0	453.0	
4	3177	1253	1715	1204	53.658537	24.624277	3743.0	462.0	
5	2910	1279	1746	1238	35.365854	22.336770	3783.0	467.0	

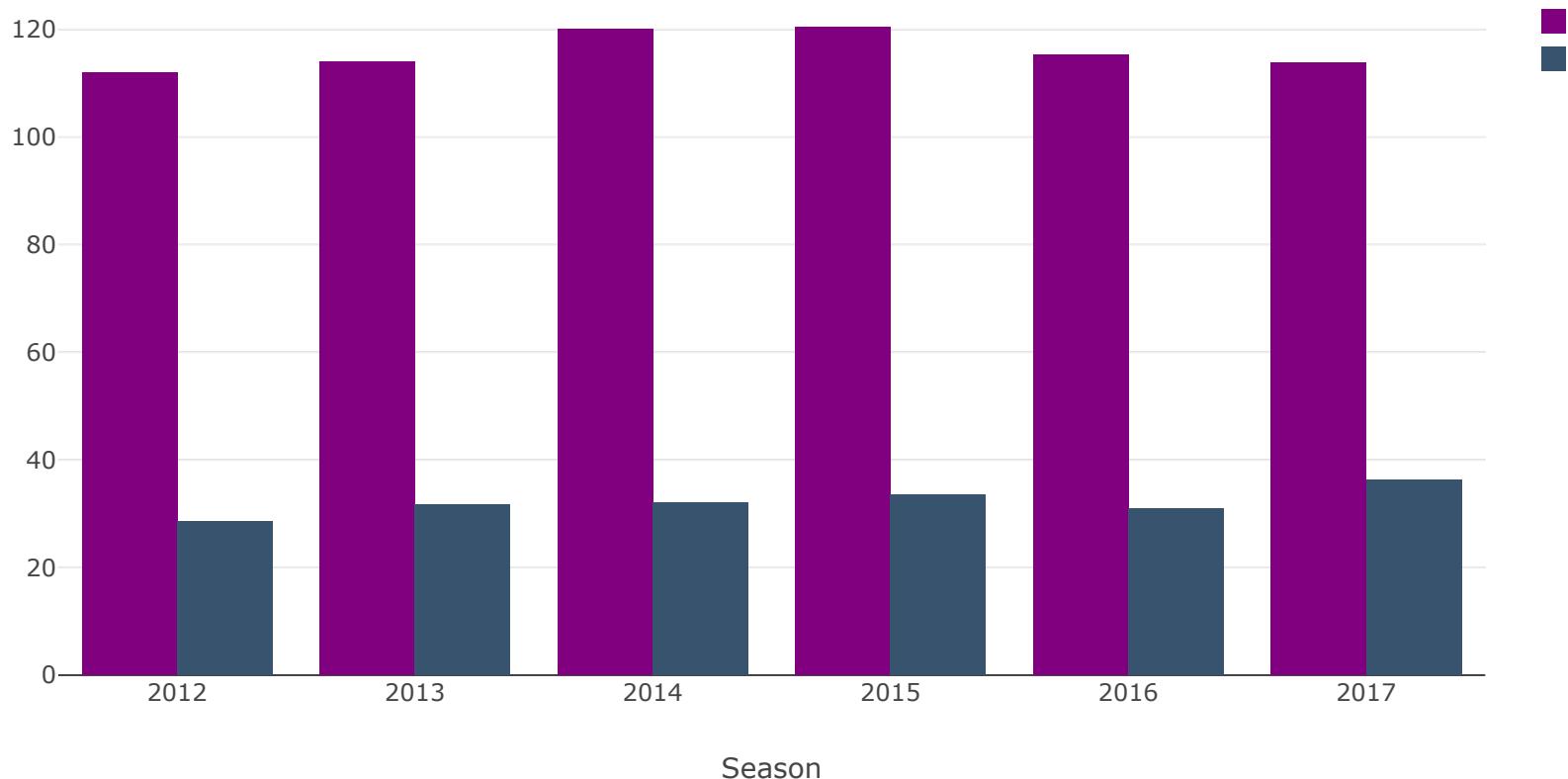
Efficiency

0	121.890244
1	123.780488
2	116.097561
3	114.073171
4	112.902439
5	102.975610

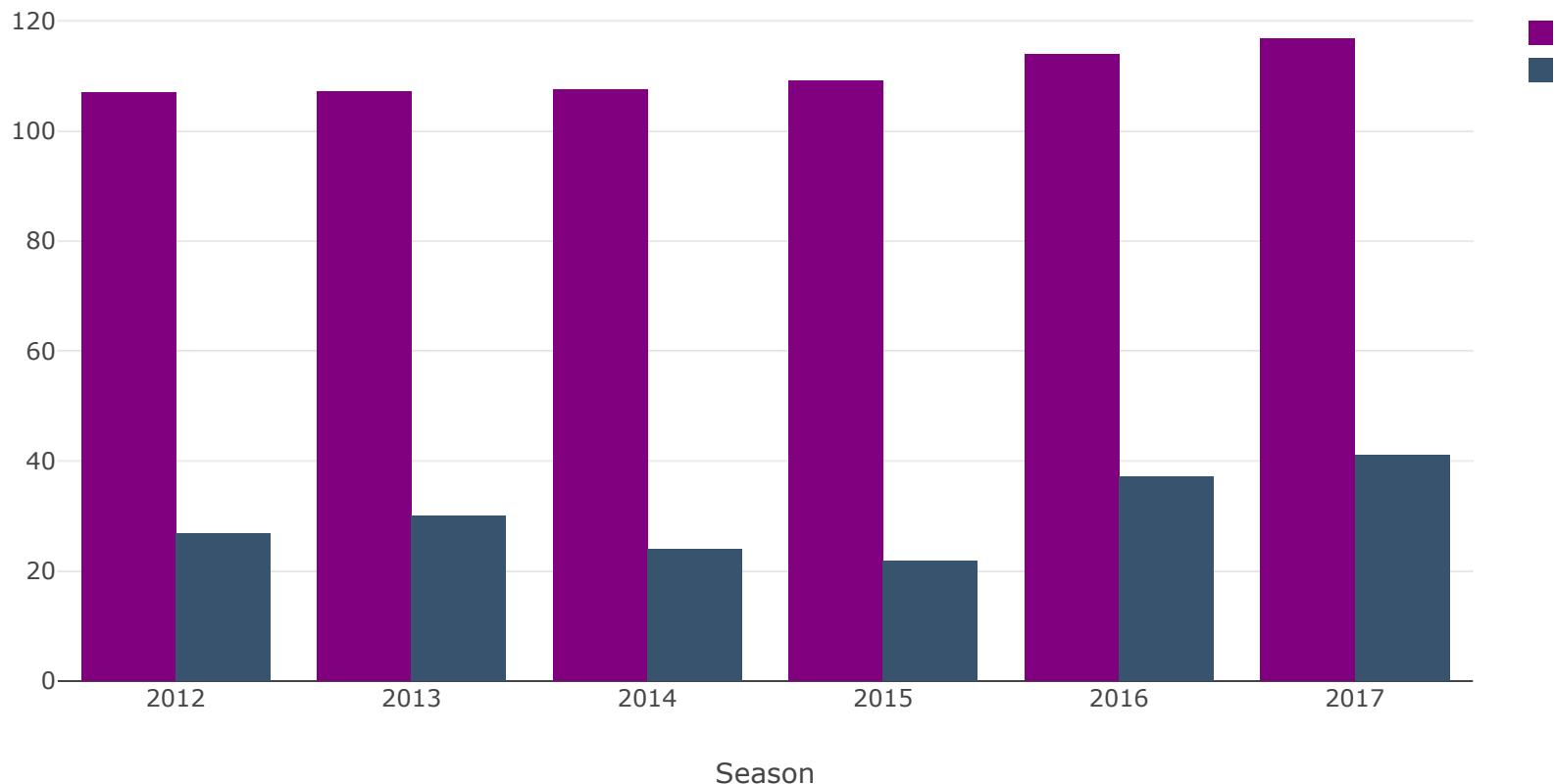
[6 rows x 21 columns]

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In [282]: for df in teamstats:
    data = []
    data.append(go.Bar(
        x = df['Season'],
        y = df['Efficiency'],
        name= 'Efficiency',
        marker = dict(
            color = "purple")
    ))
    data.append(go.Bar(
        x = df['Season'],
        y = df['3PA%'],
        name= '3 Point Attempt %',
        marker = dict(
            color = "rgb(55,83,109)")
    ))
    layout = dict(title= '3 Point Attempt % VS Efficiency For '+ df['Tm'][0],xaxis = dict(title = 'Season'))
    fig = dict(data=data, layout=layout)
    iplot(fig, filename='basic-line')
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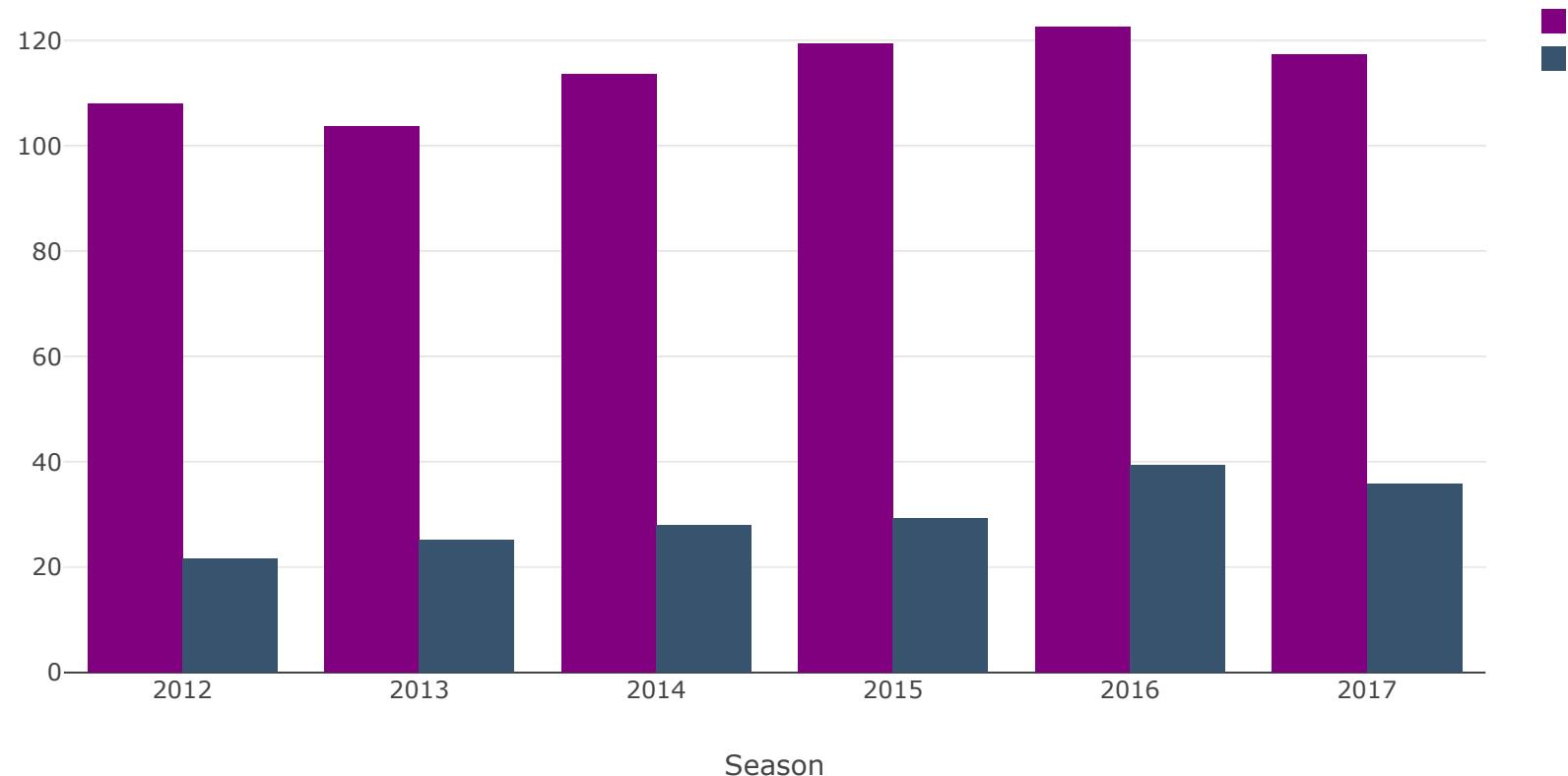
3 Point Attempt % VS Efficiency For ATL



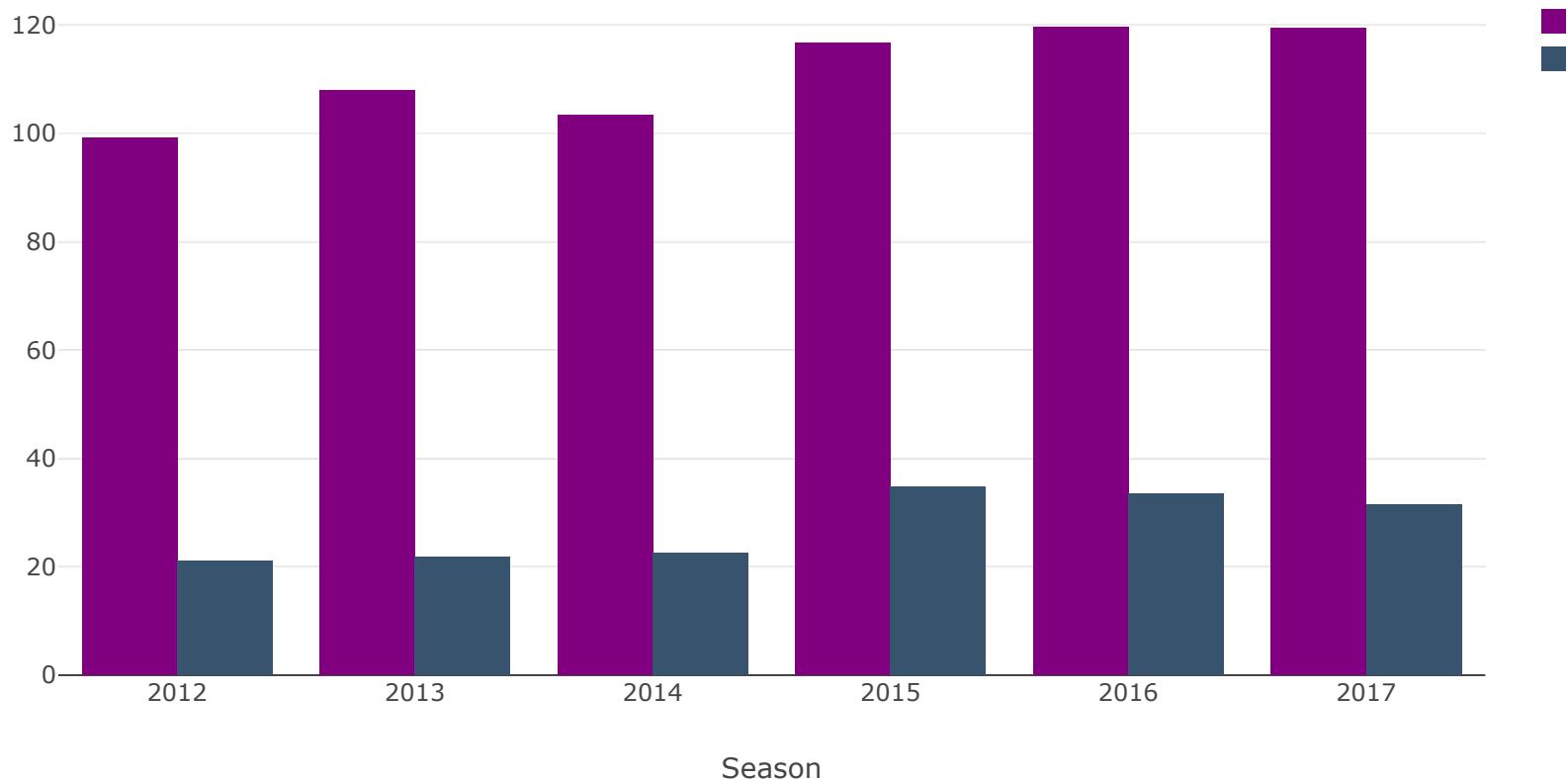
3 Point Attempt % VS Efficiency For BRK



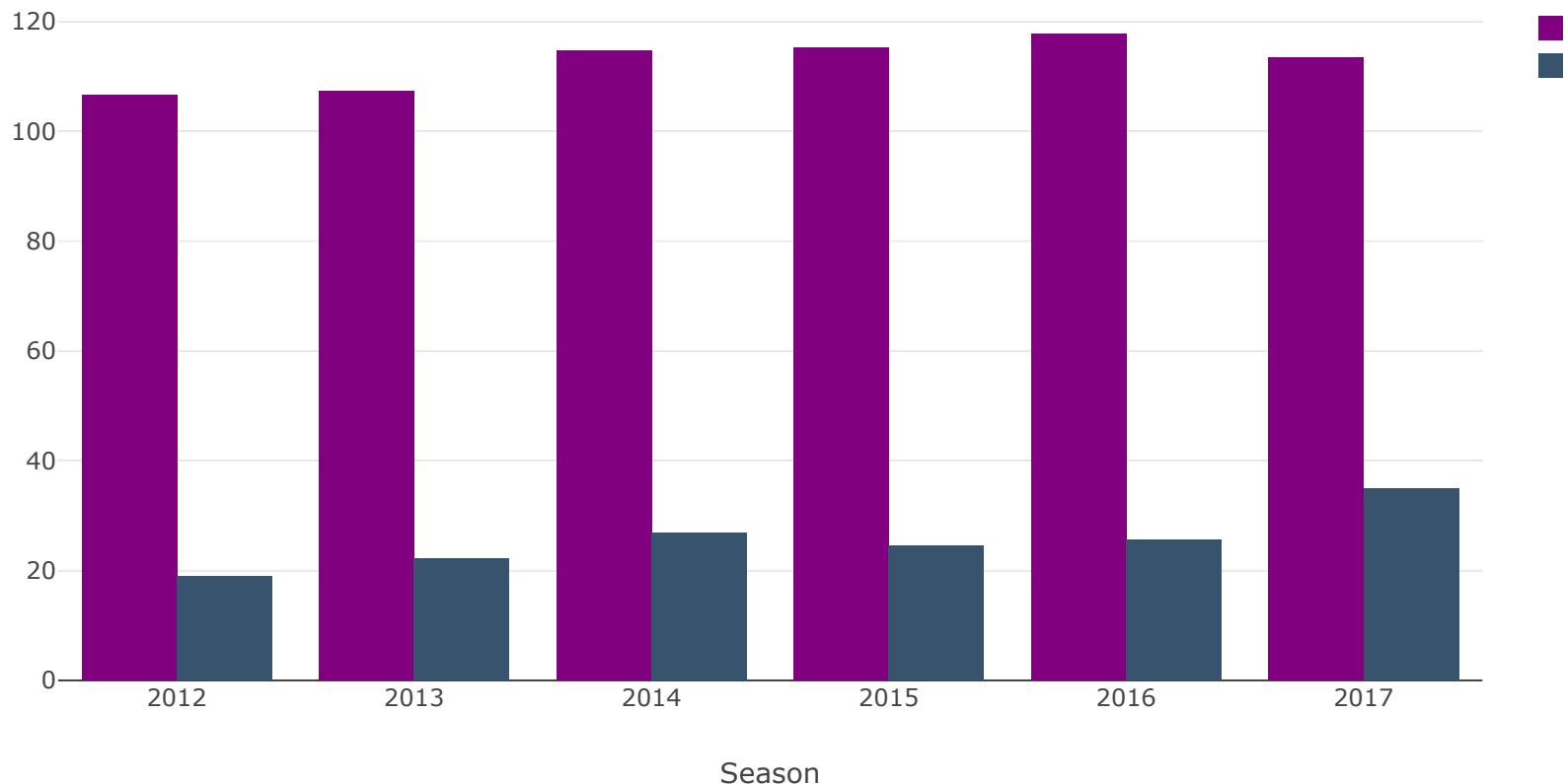
3 Point Attempt % VS Efficiency For BOS



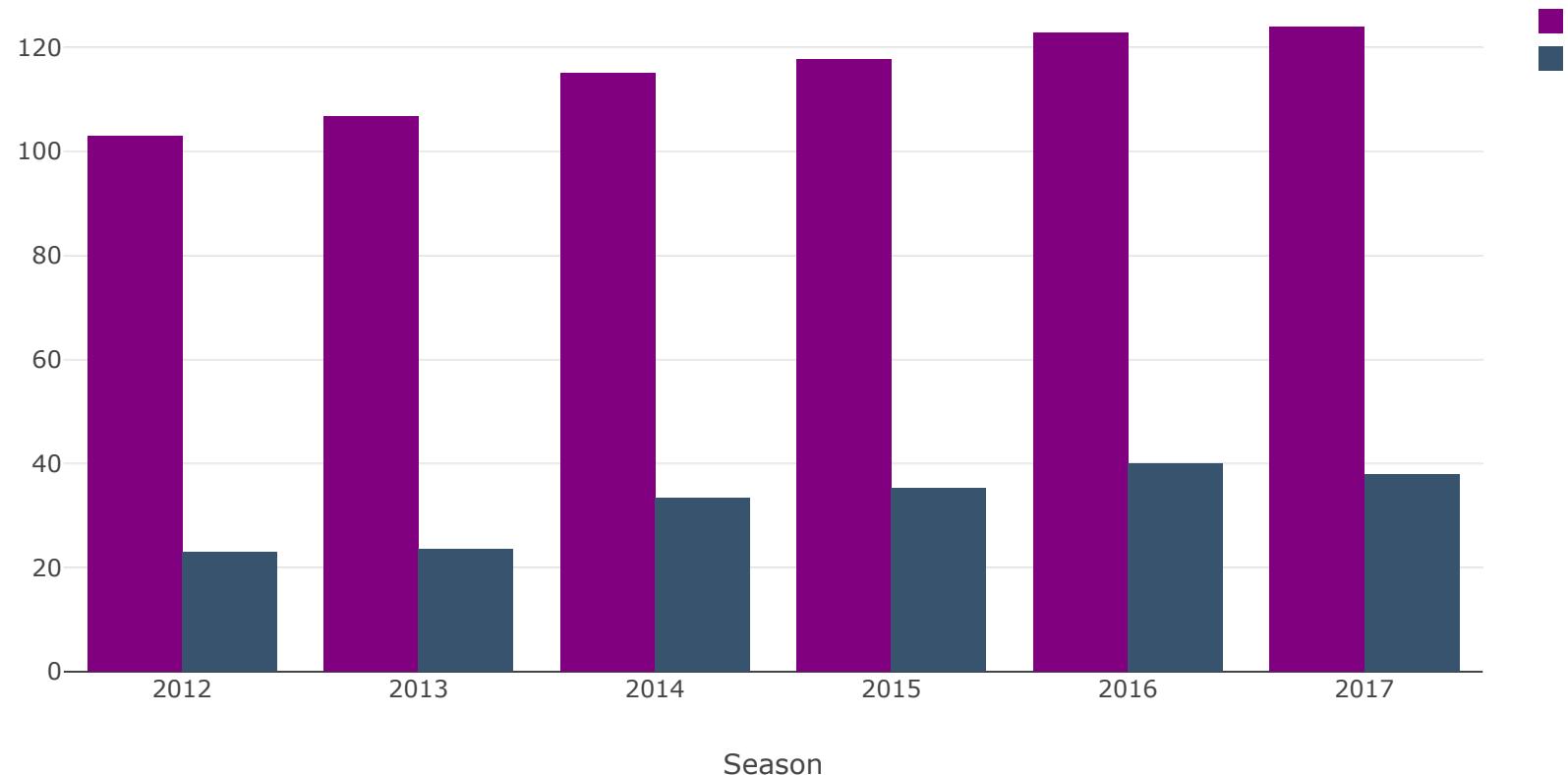
3 Point Attempt % VS Efficiency For CHO



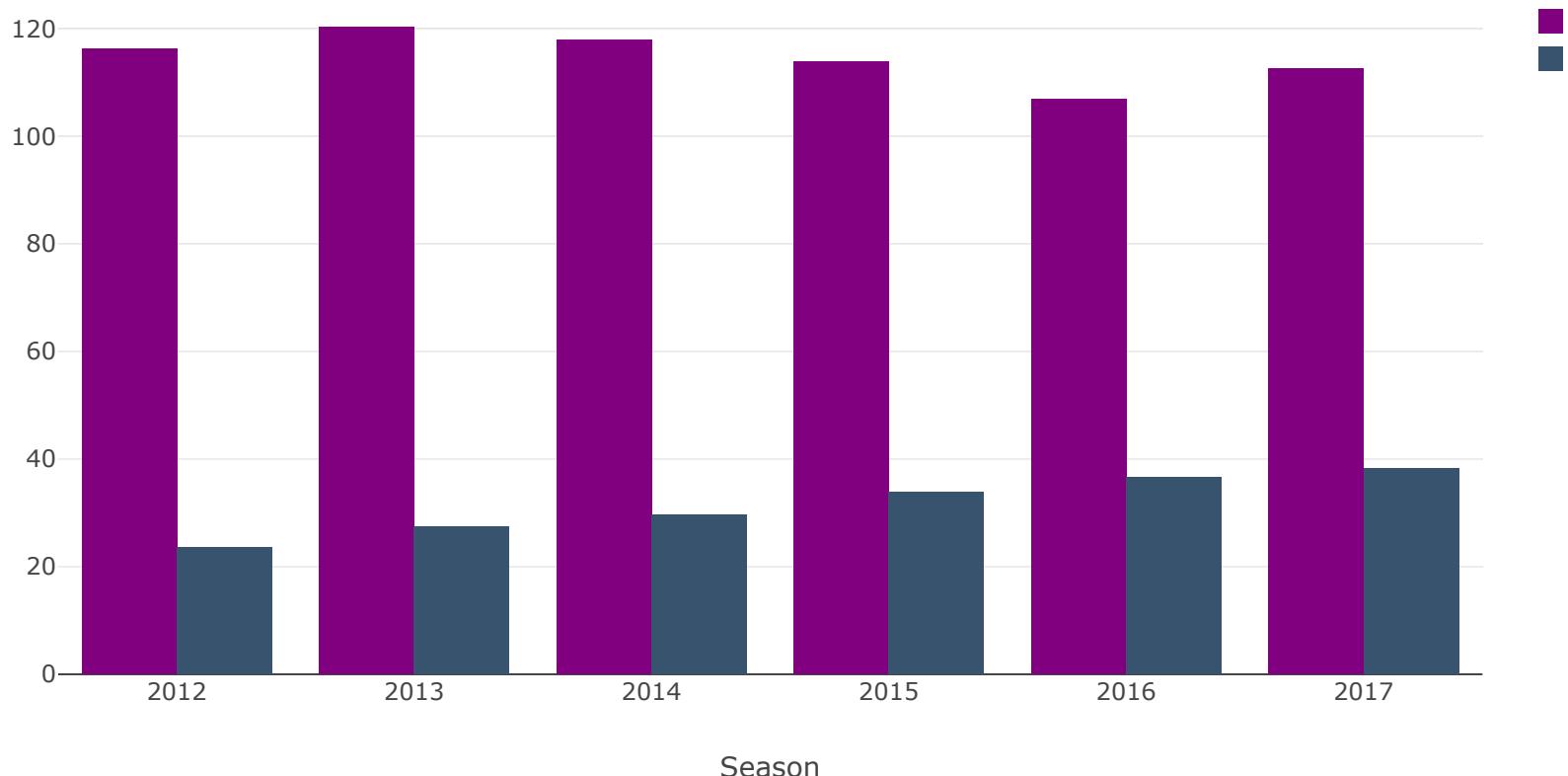
3 Point Attempt % VS Efficiency For CHI



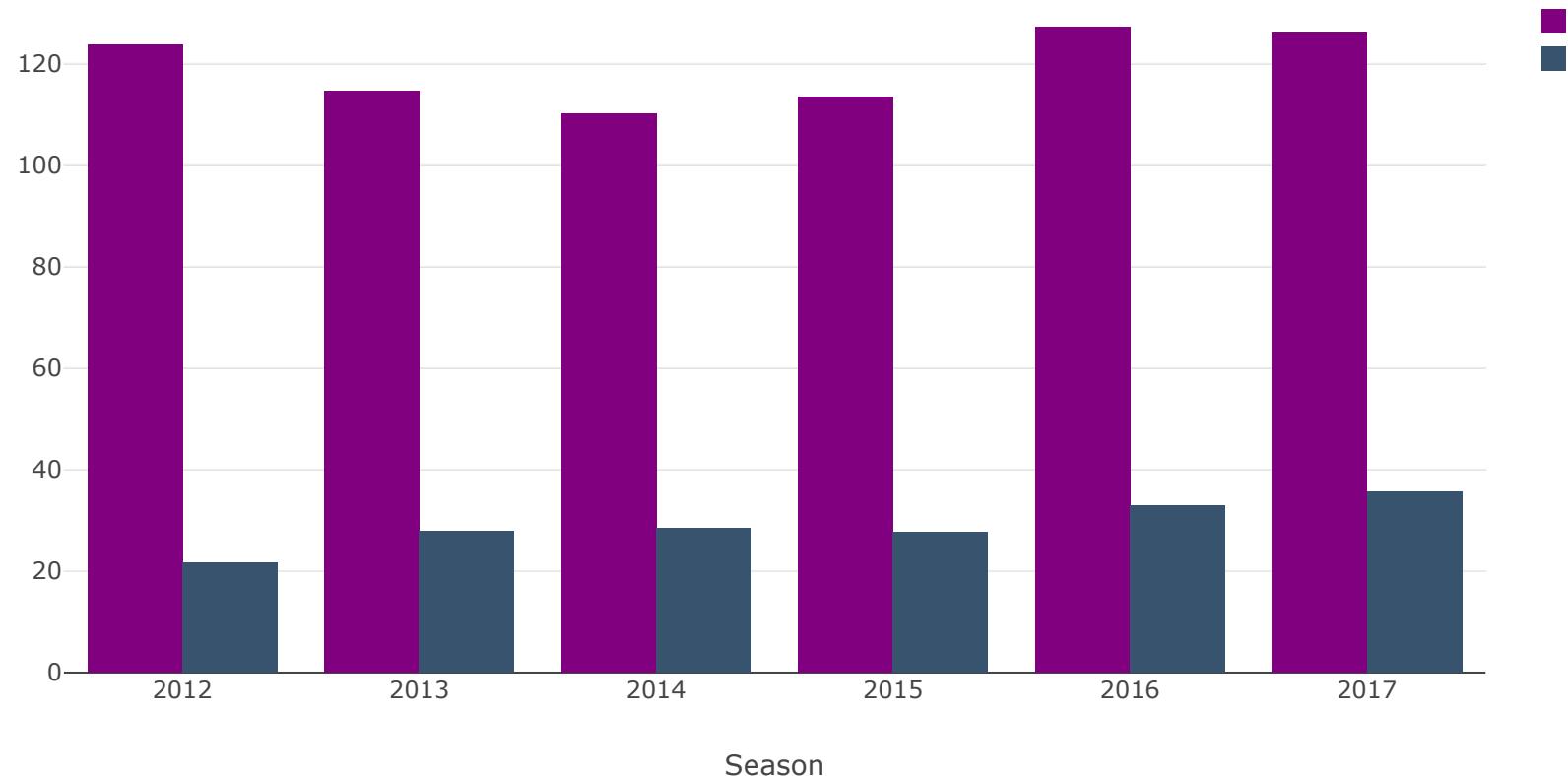
3 Point Attempt % VS Efficiency For CLE



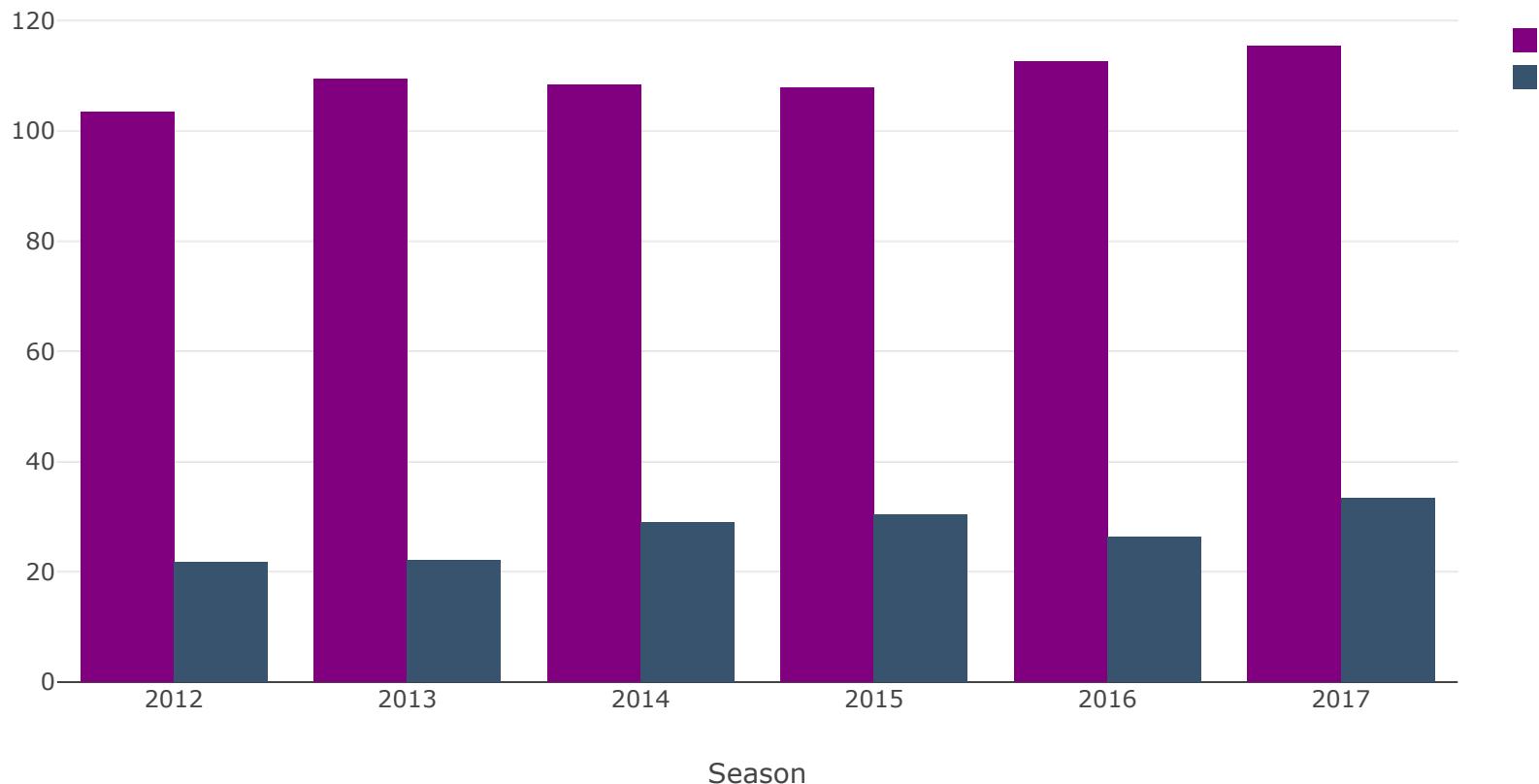
3 Point Attempt % VS Efficiency For DAL



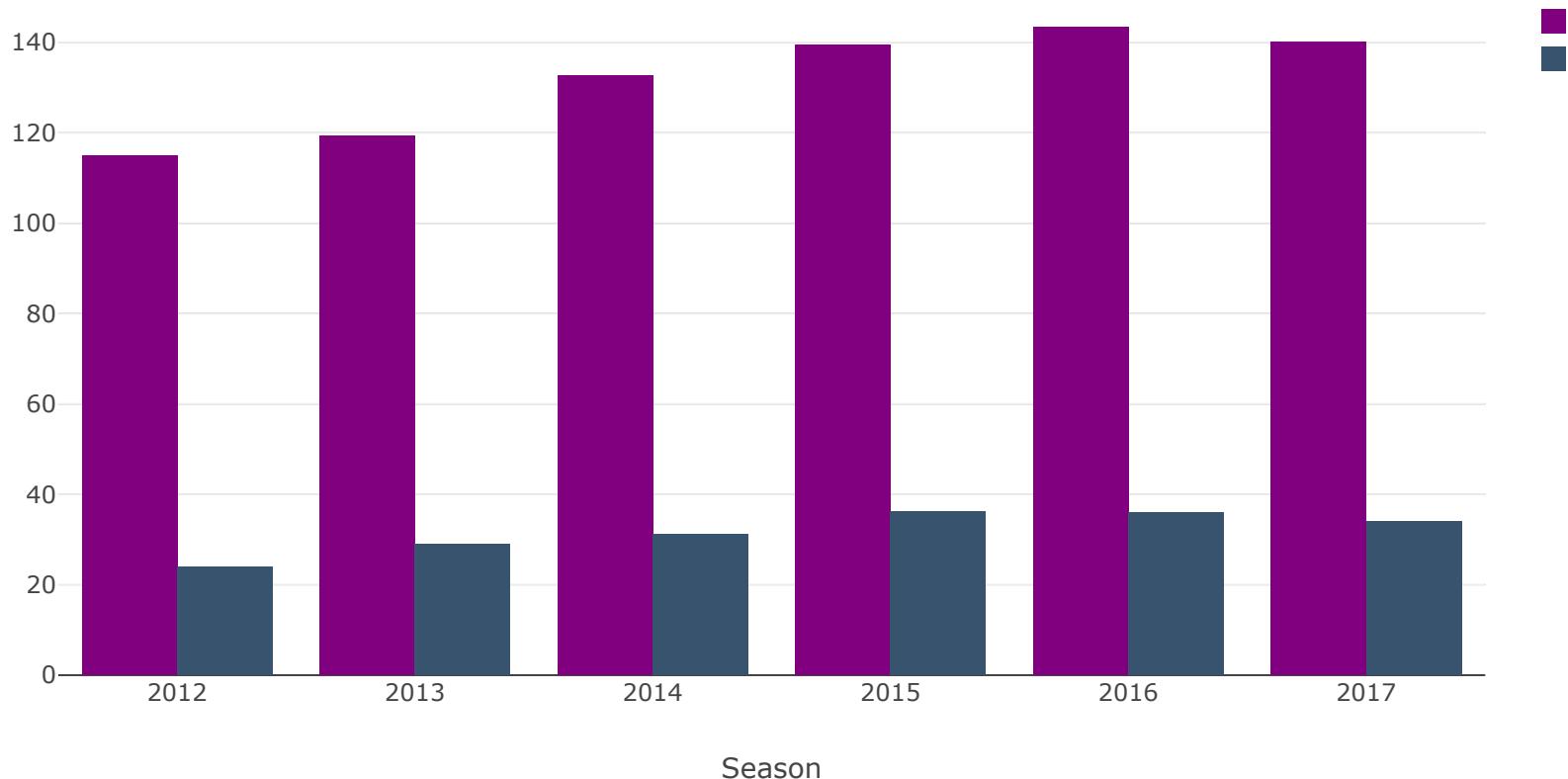
3 Point Attempt % VS Efficiency For DEN



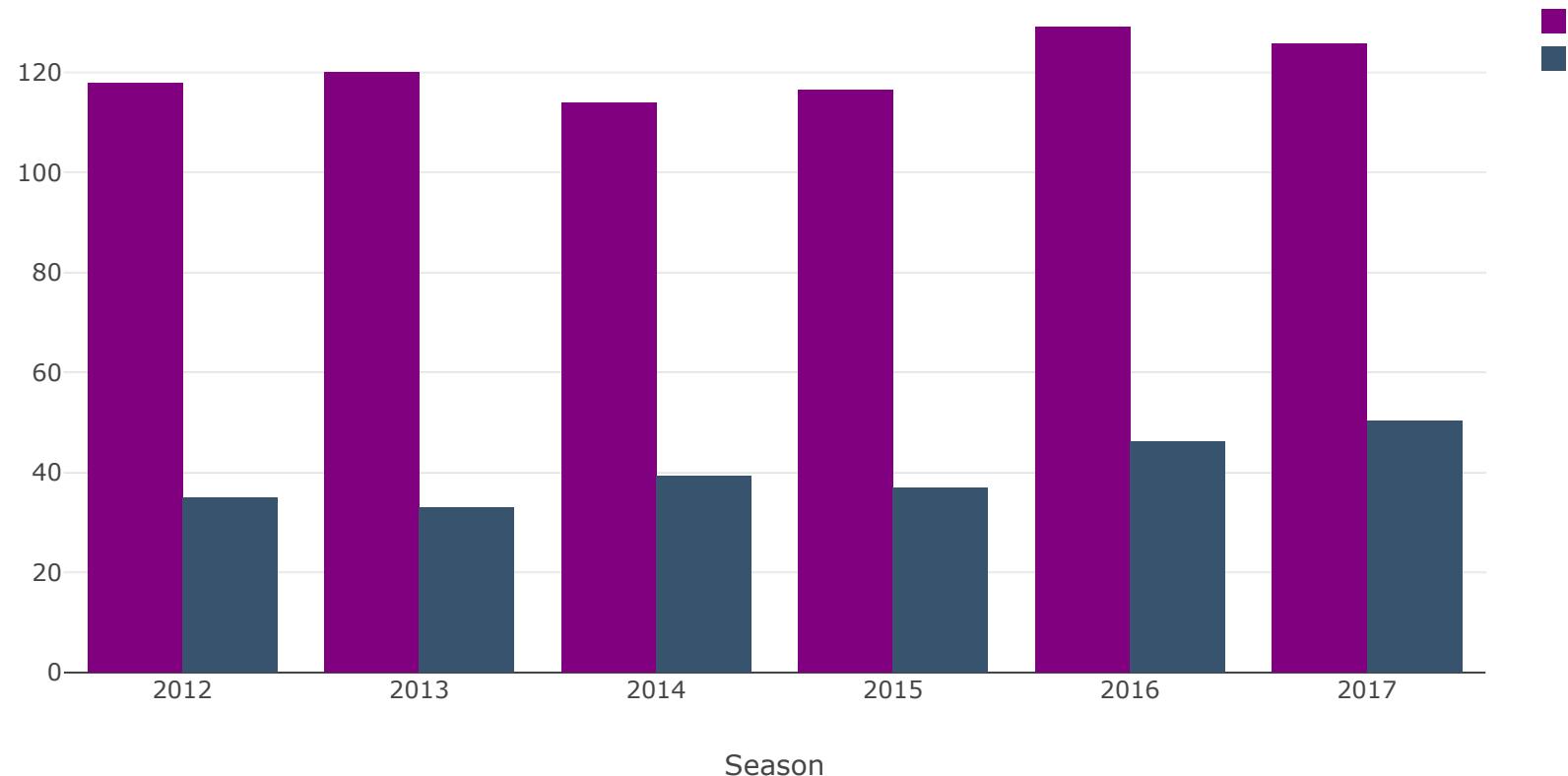
3 Point Attempt % VS Efficiency For DET



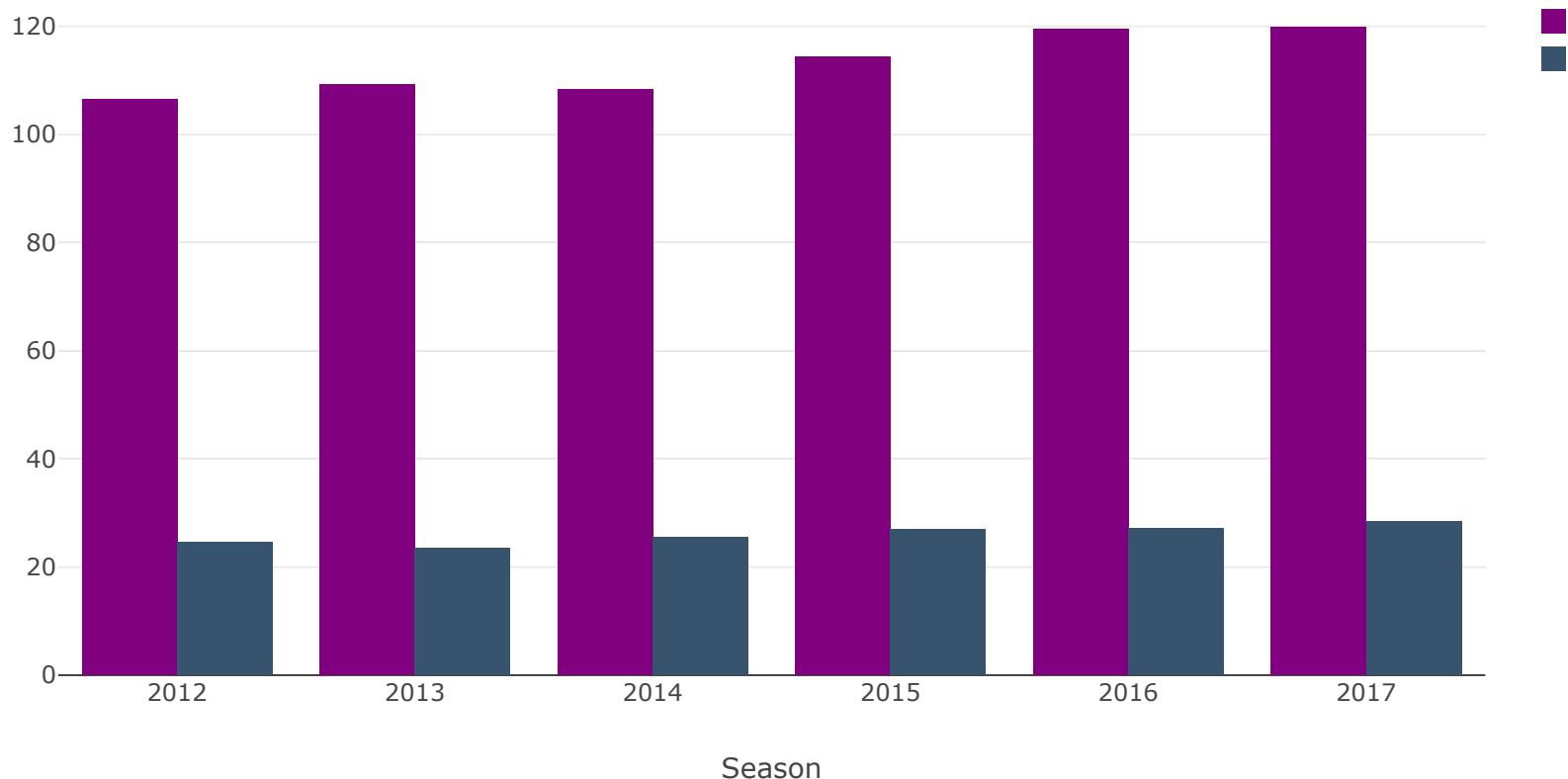
3 Point Attempt % VS Efficiency For GSW



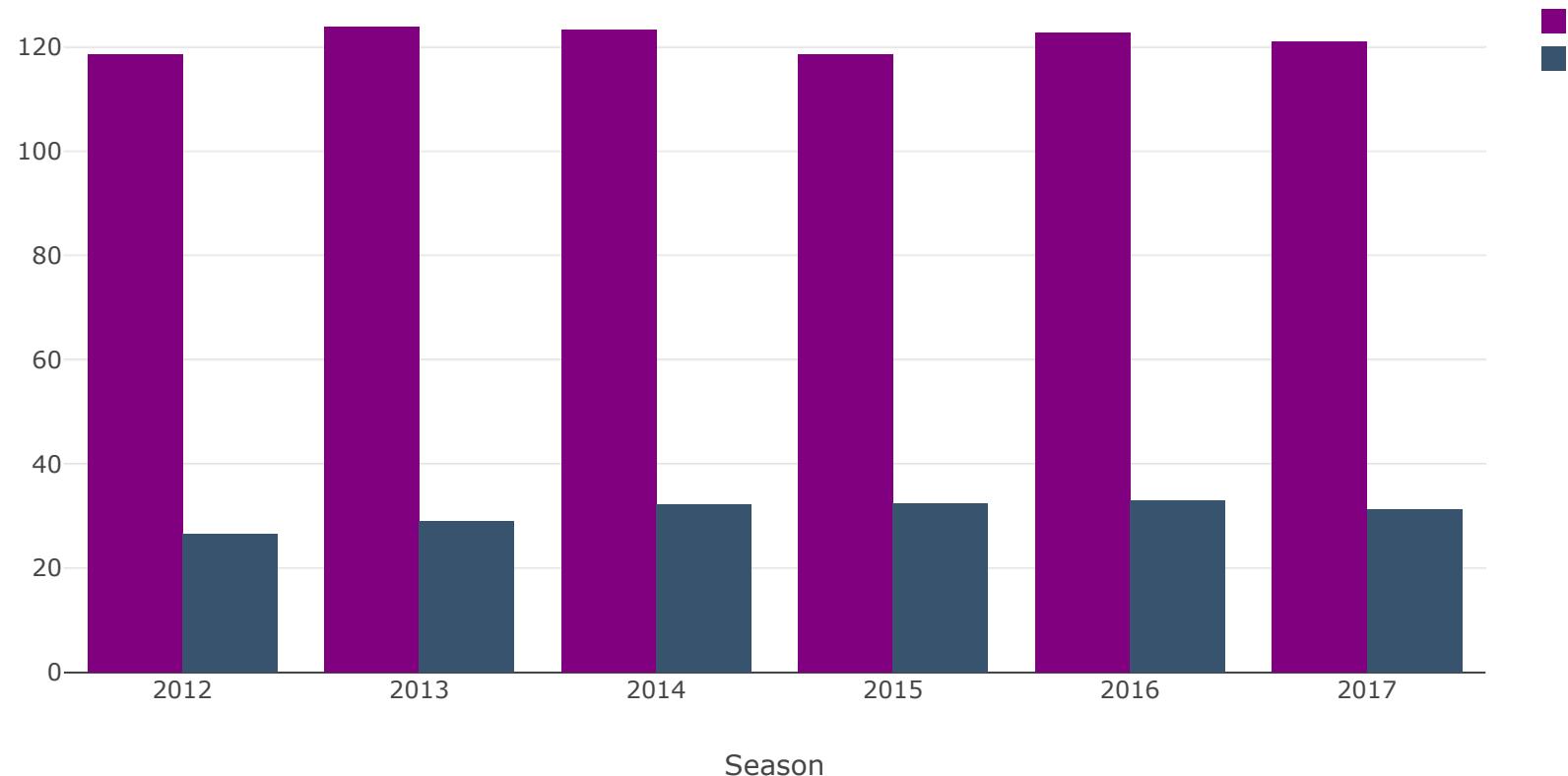
3 Point Attempt % VS Efficiency For HOU



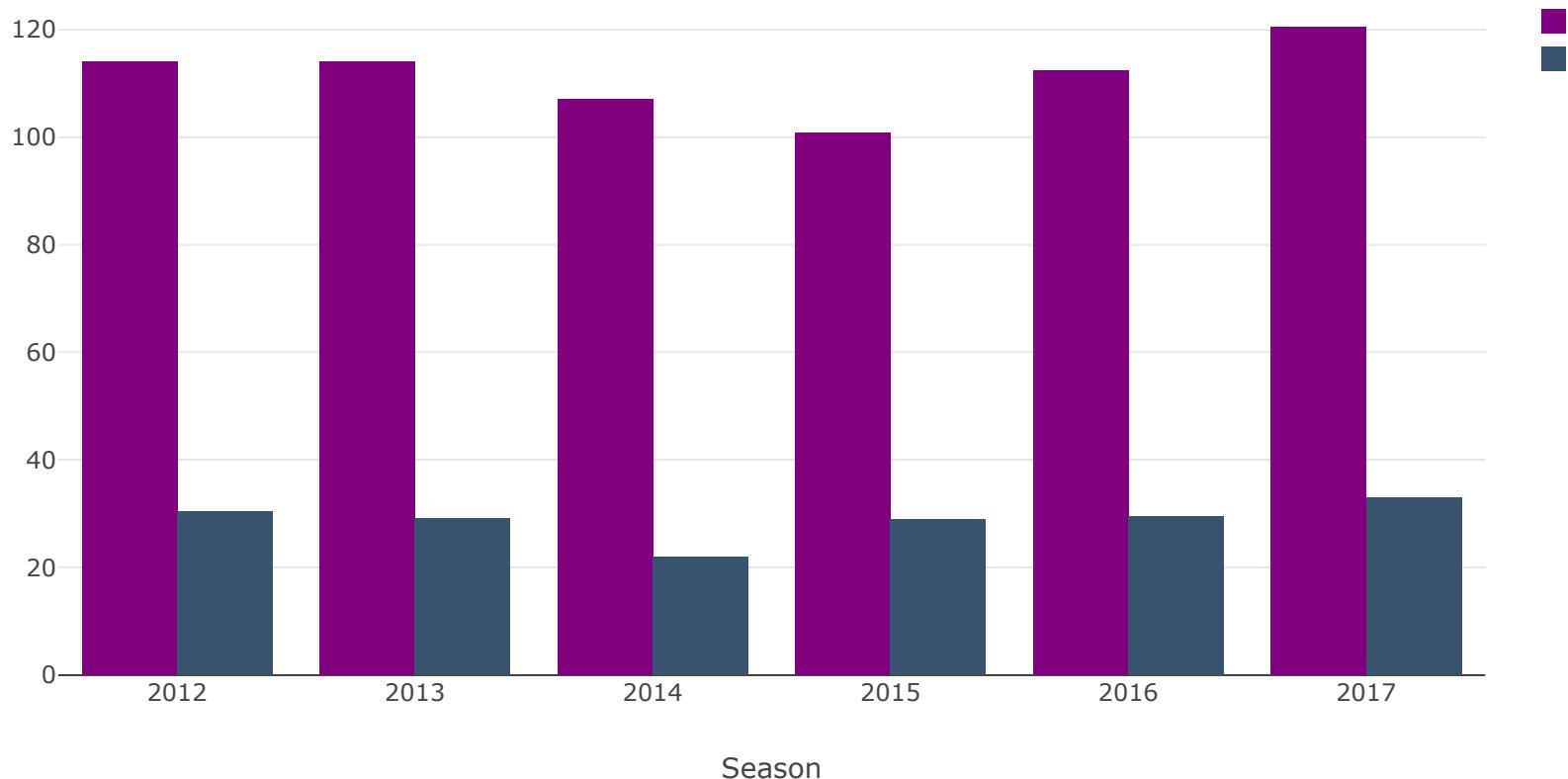
3 Point Attempt % VS Efficiency For IND



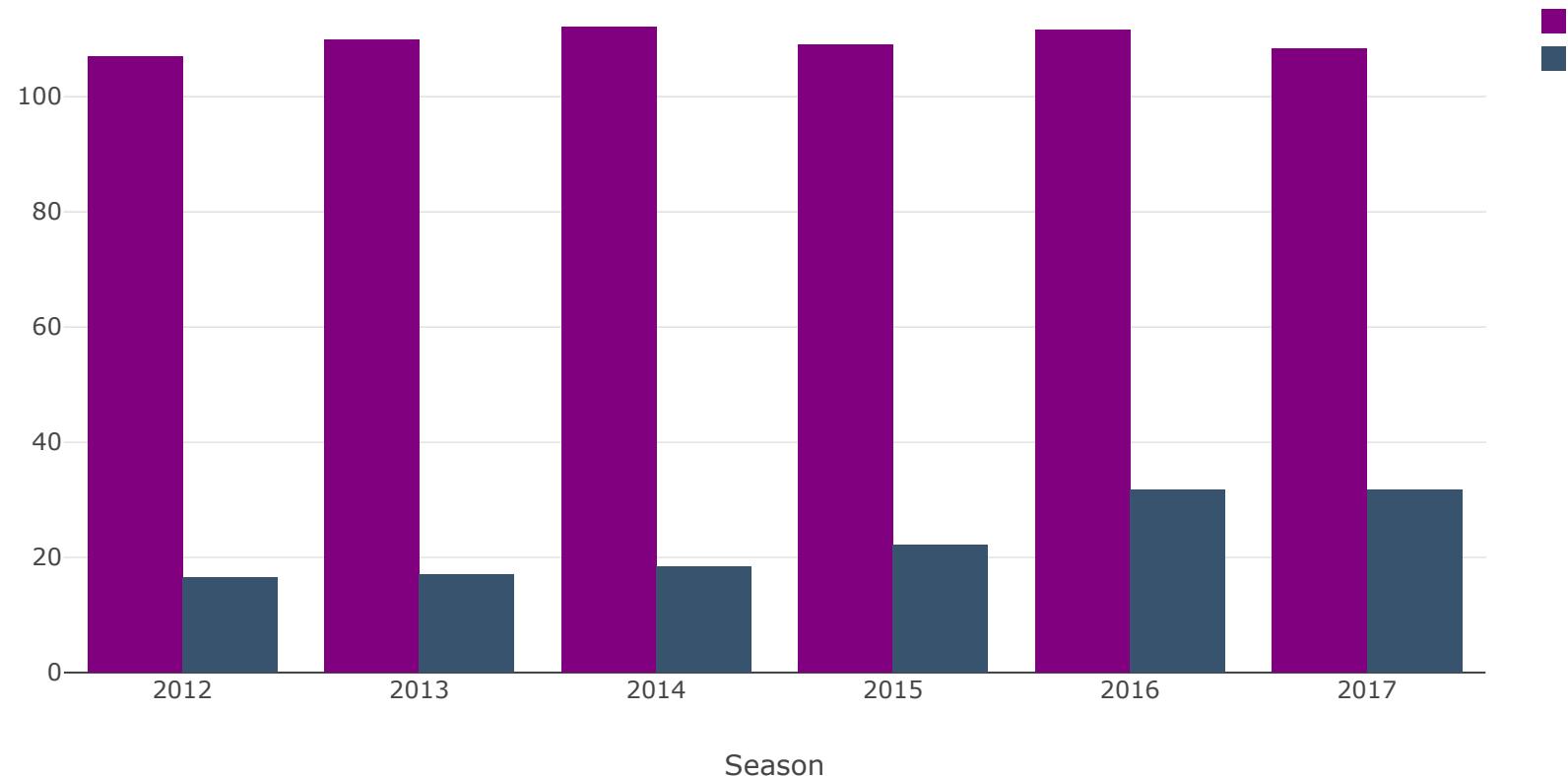
3 Point Attempt % VS Efficiency For LAC



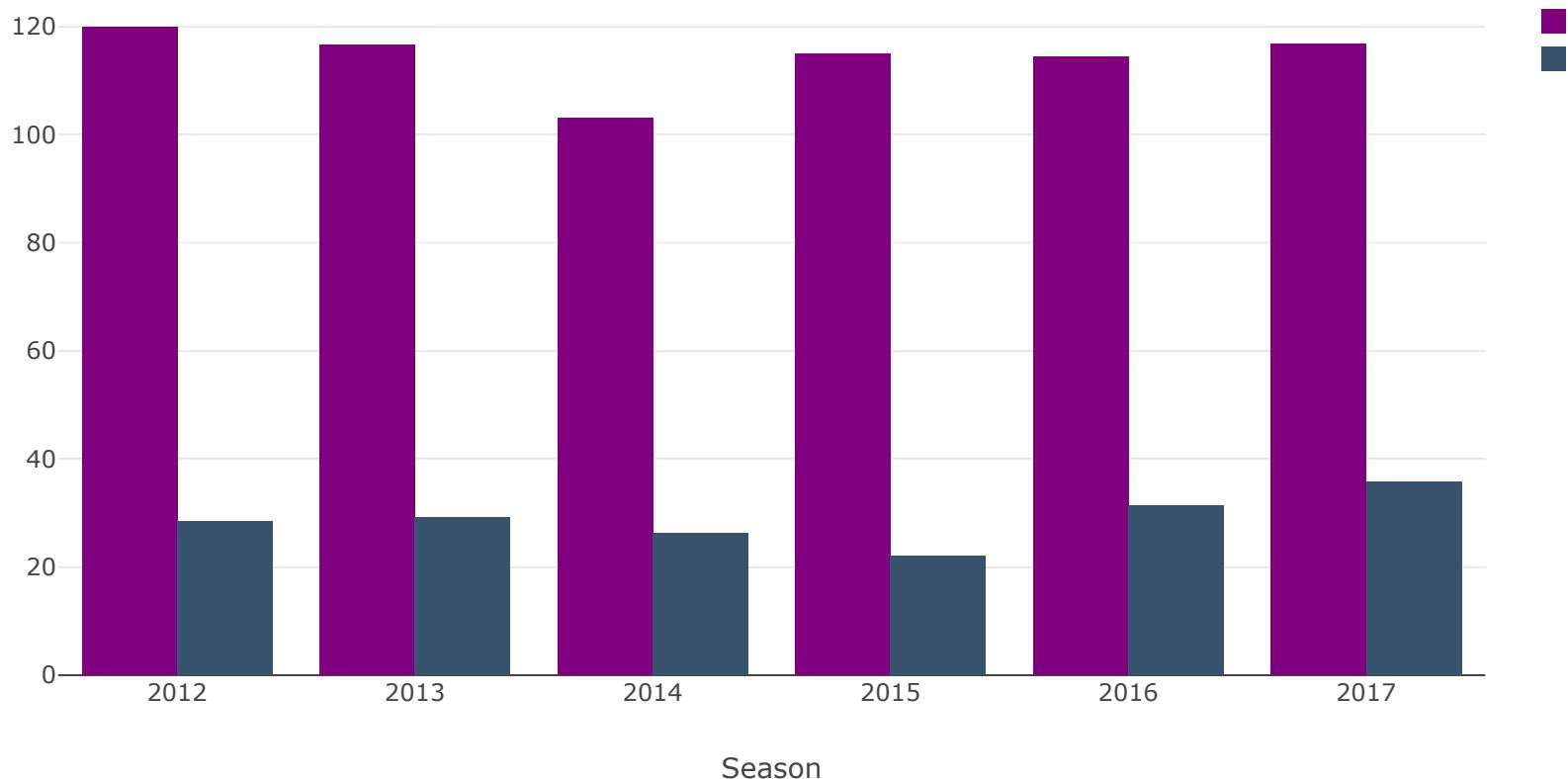
3 Point Attempt % VS Efficiency For LAL



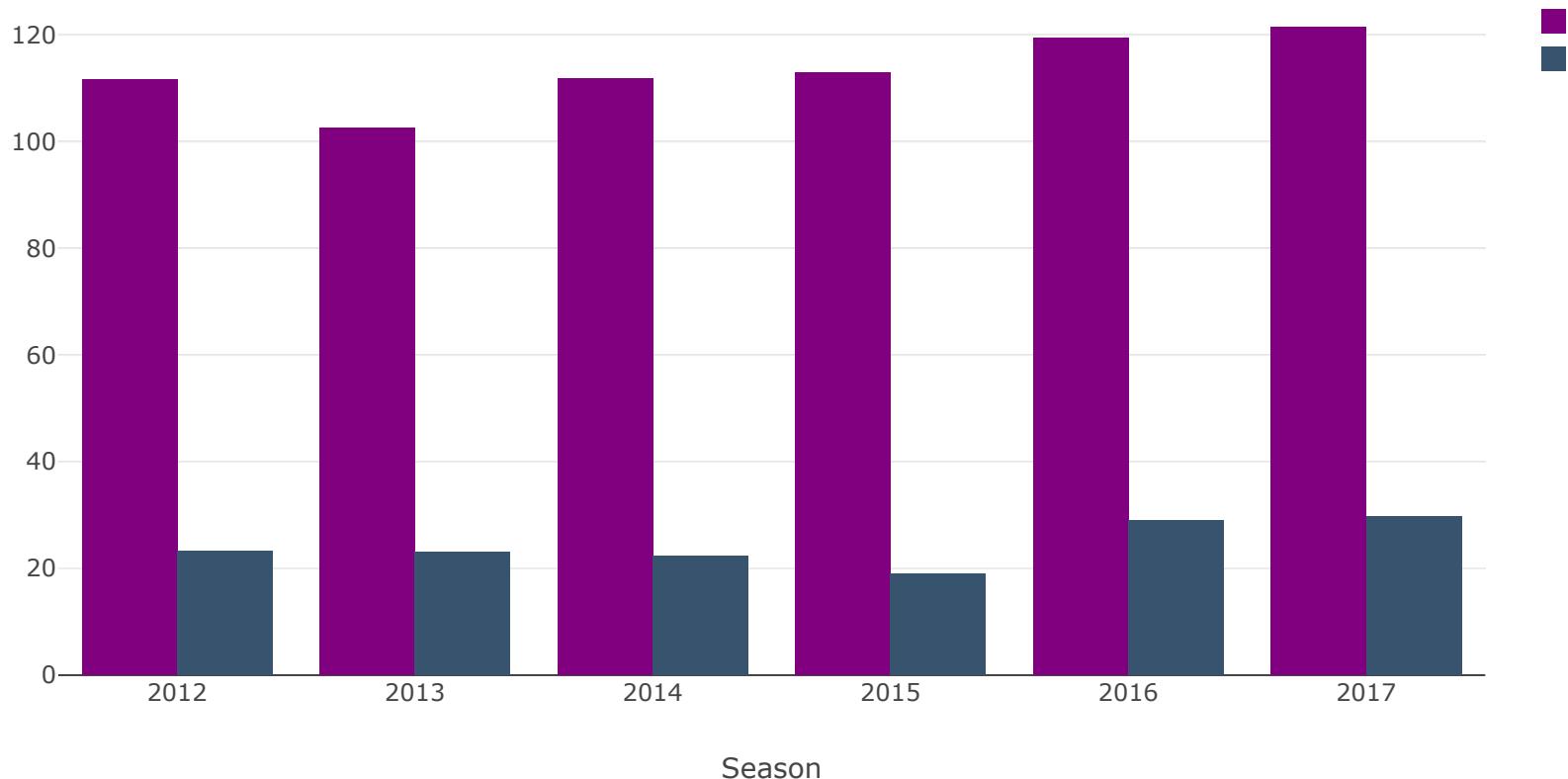
3 Point Attempt % VS Efficiency For MEM



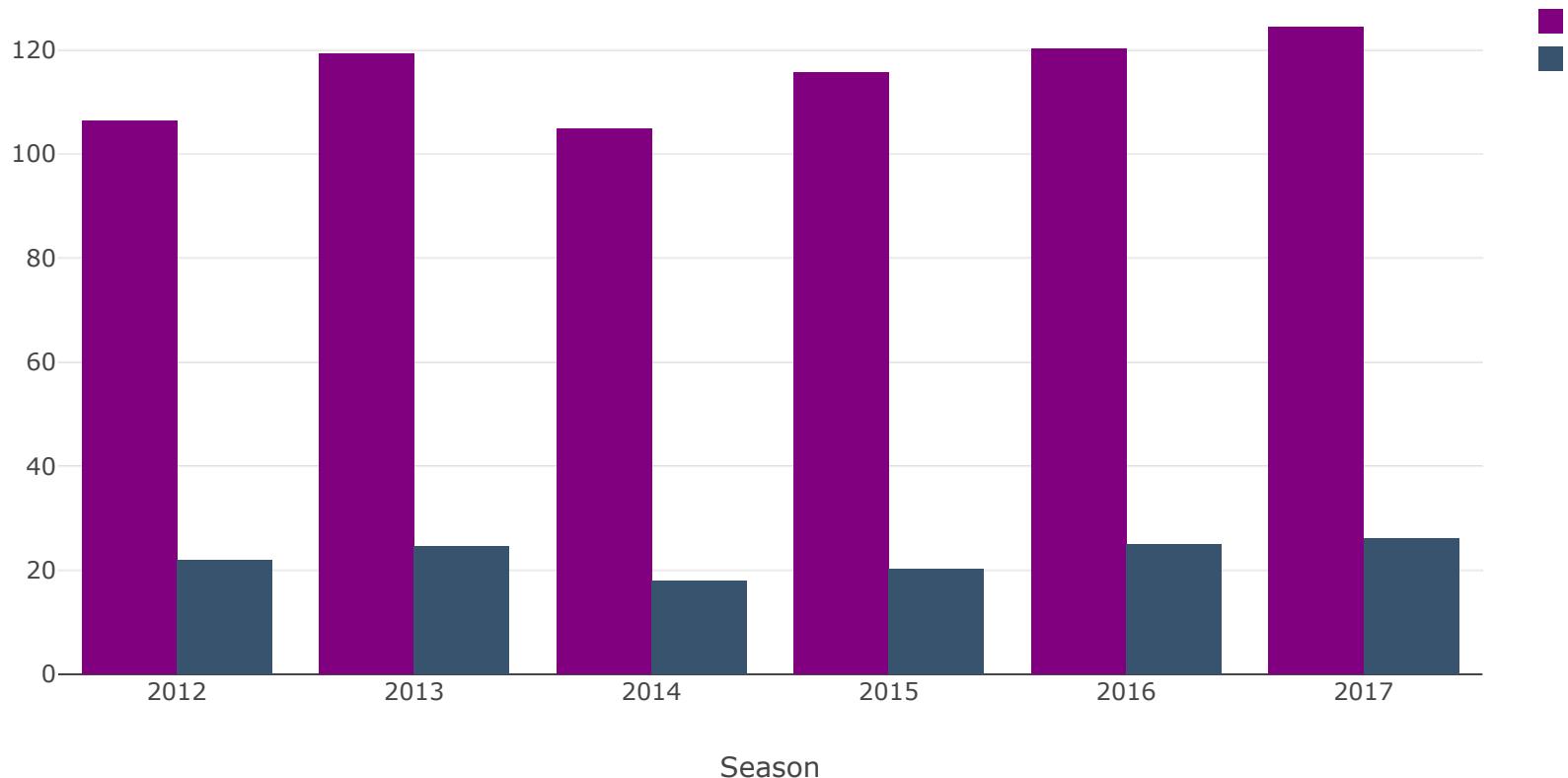
3 Point Attempt % VS Efficiency For MIA



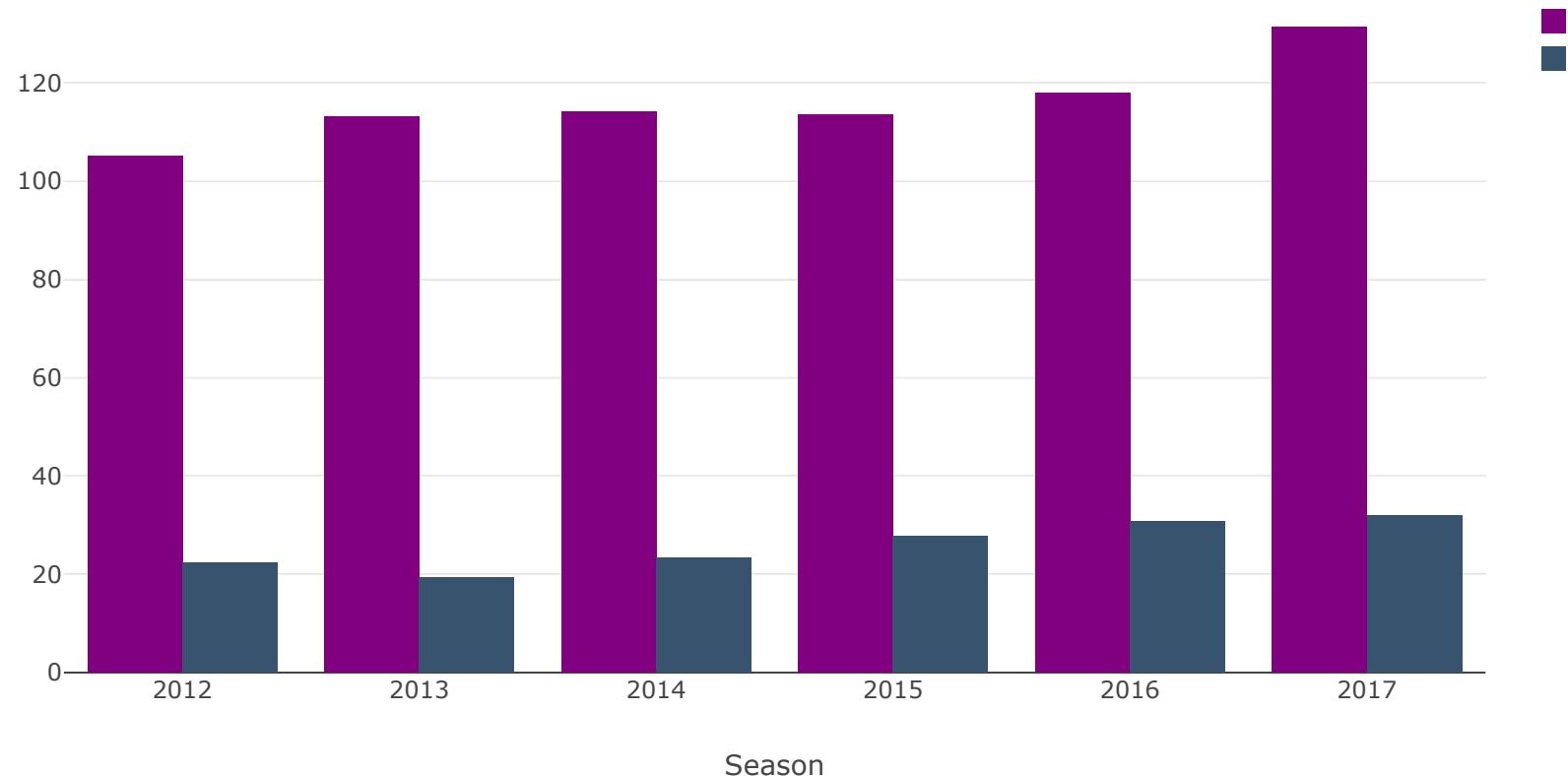
3 Point Attempt % VS Efficiency For MIL



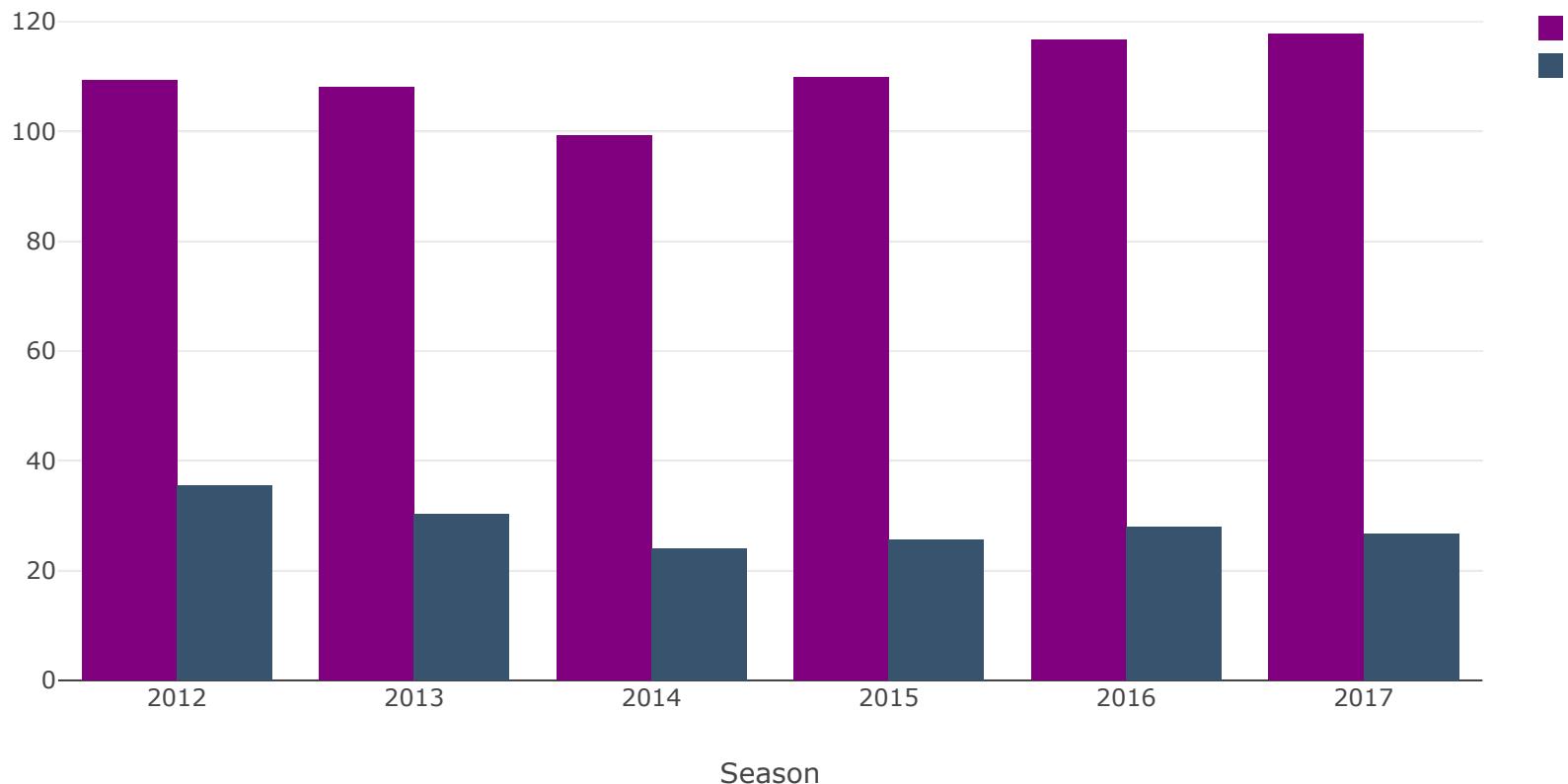
3 Point Attempt % VS Efficiency For MIN



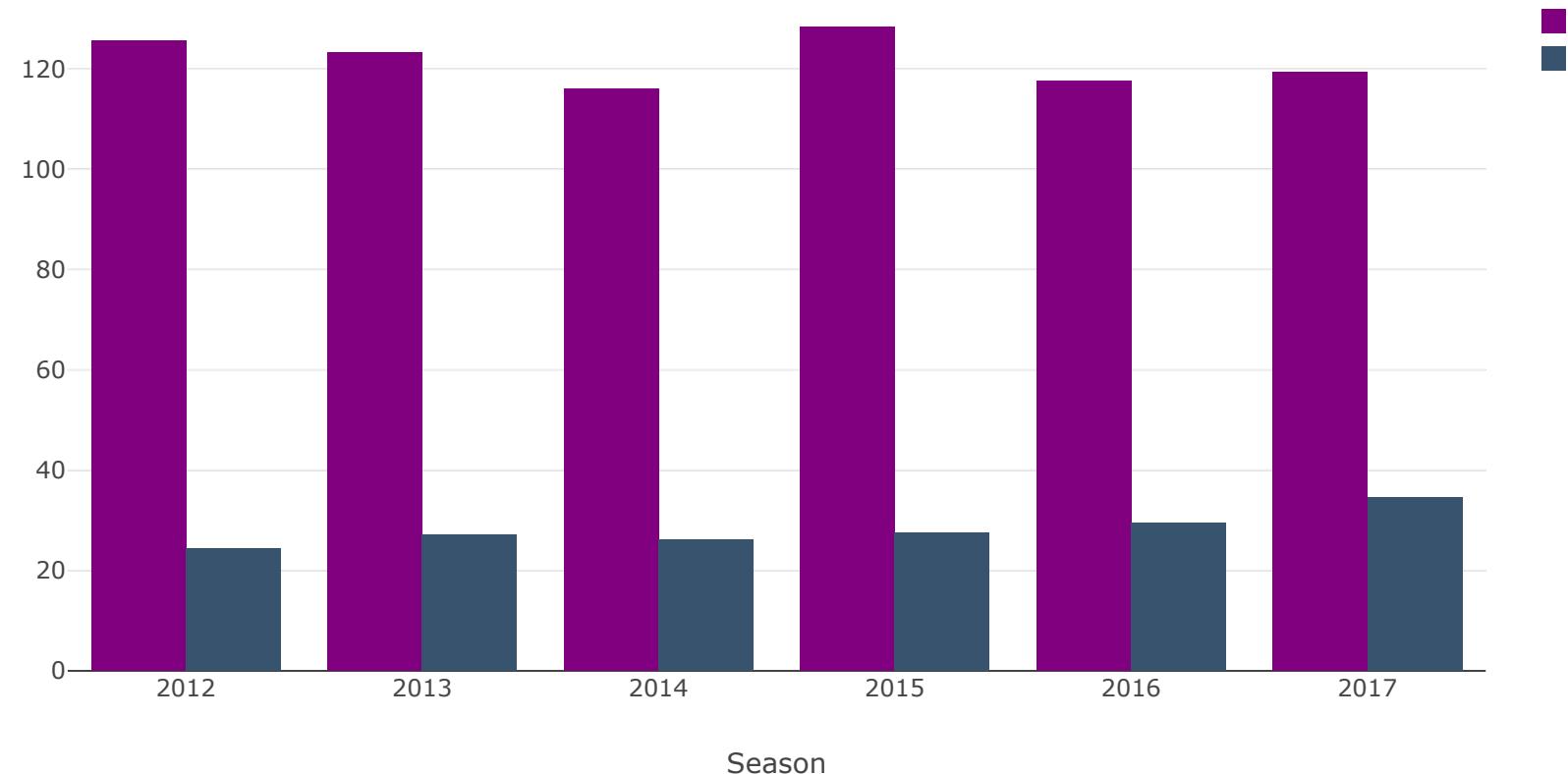
3 Point Attempt % VS Efficiency For NOP



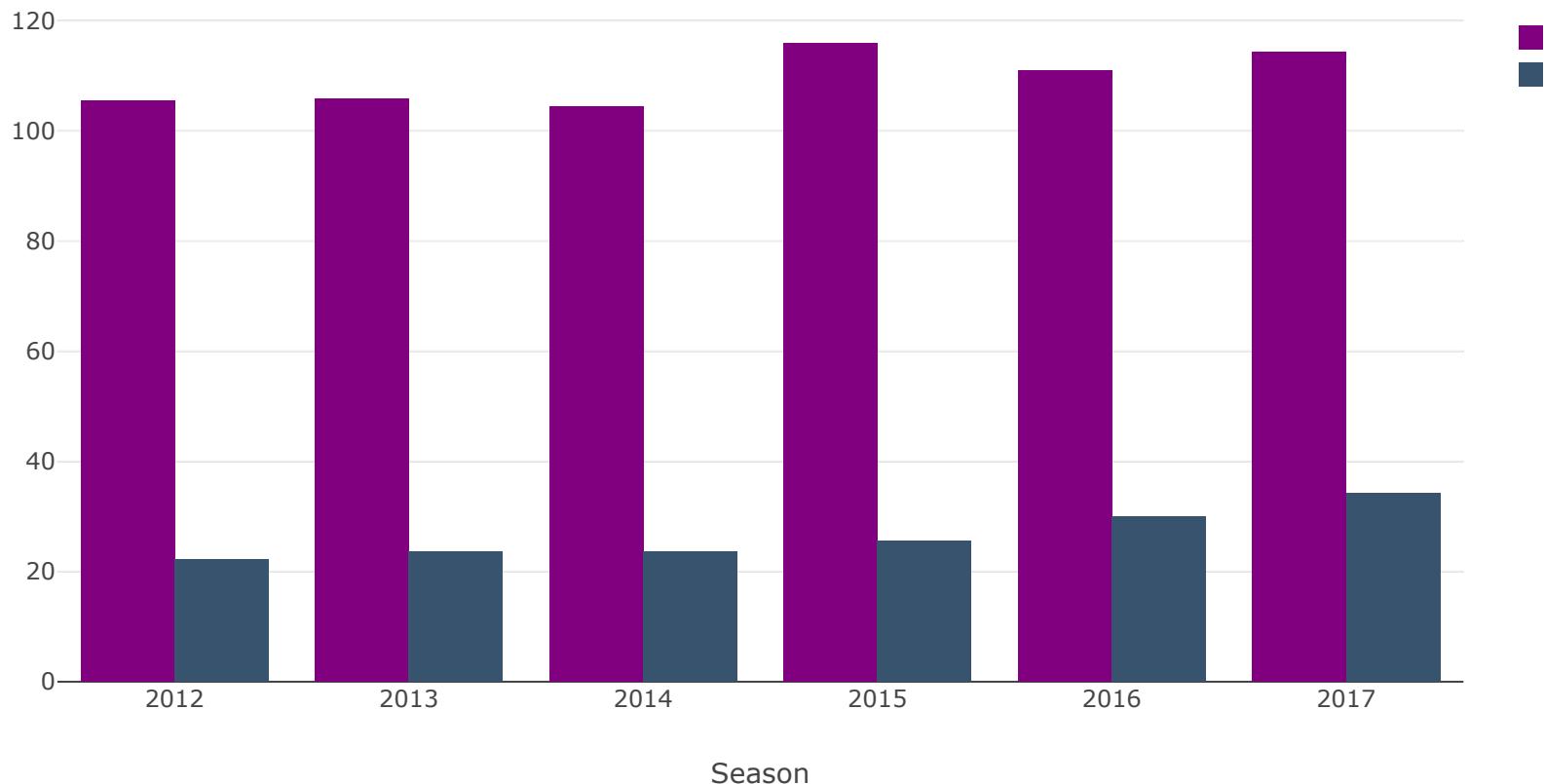
3 Point Attempt % VS Efficiency For NYK



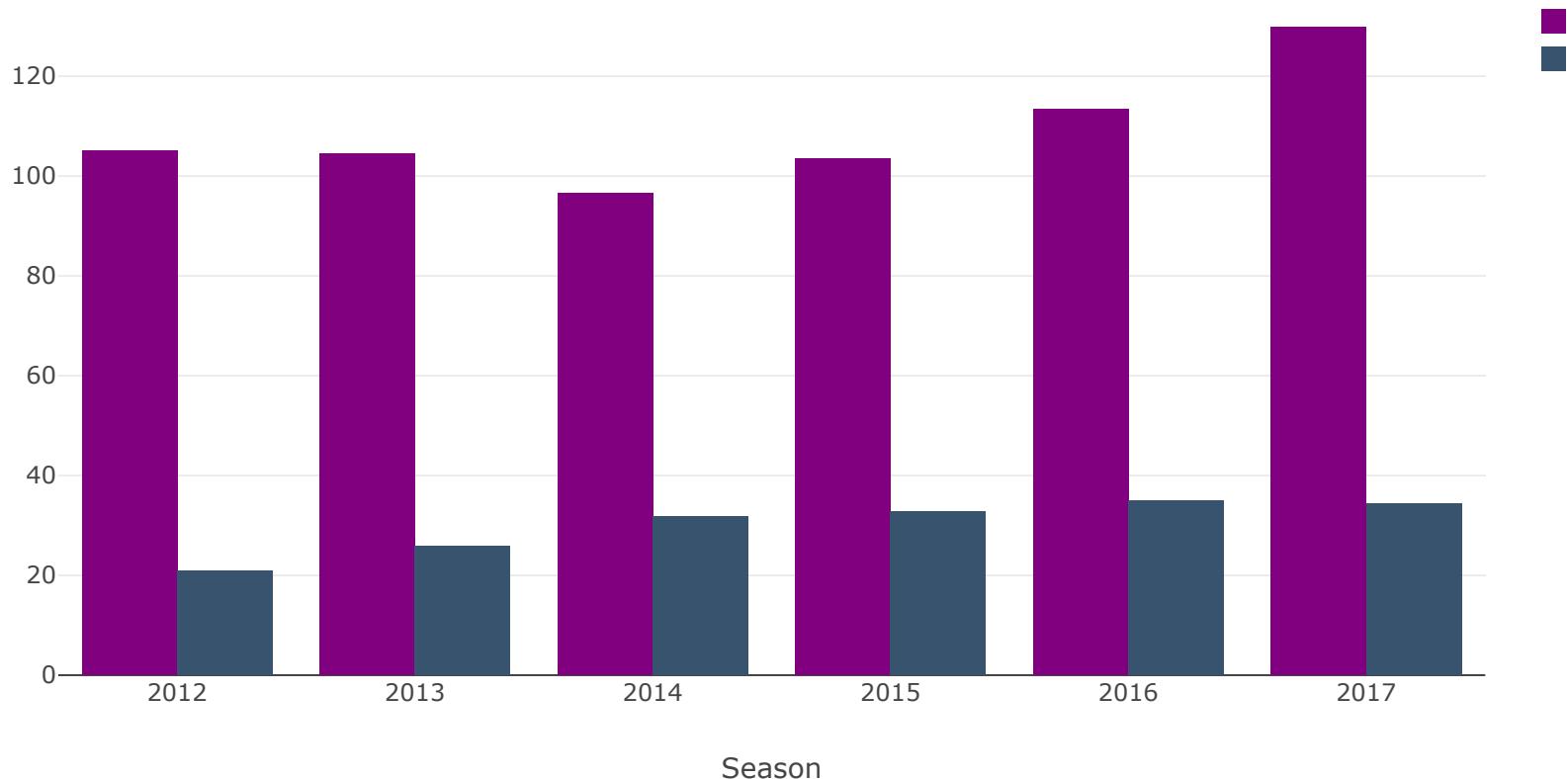
3 Point Attempt % VS Efficiency For OKC



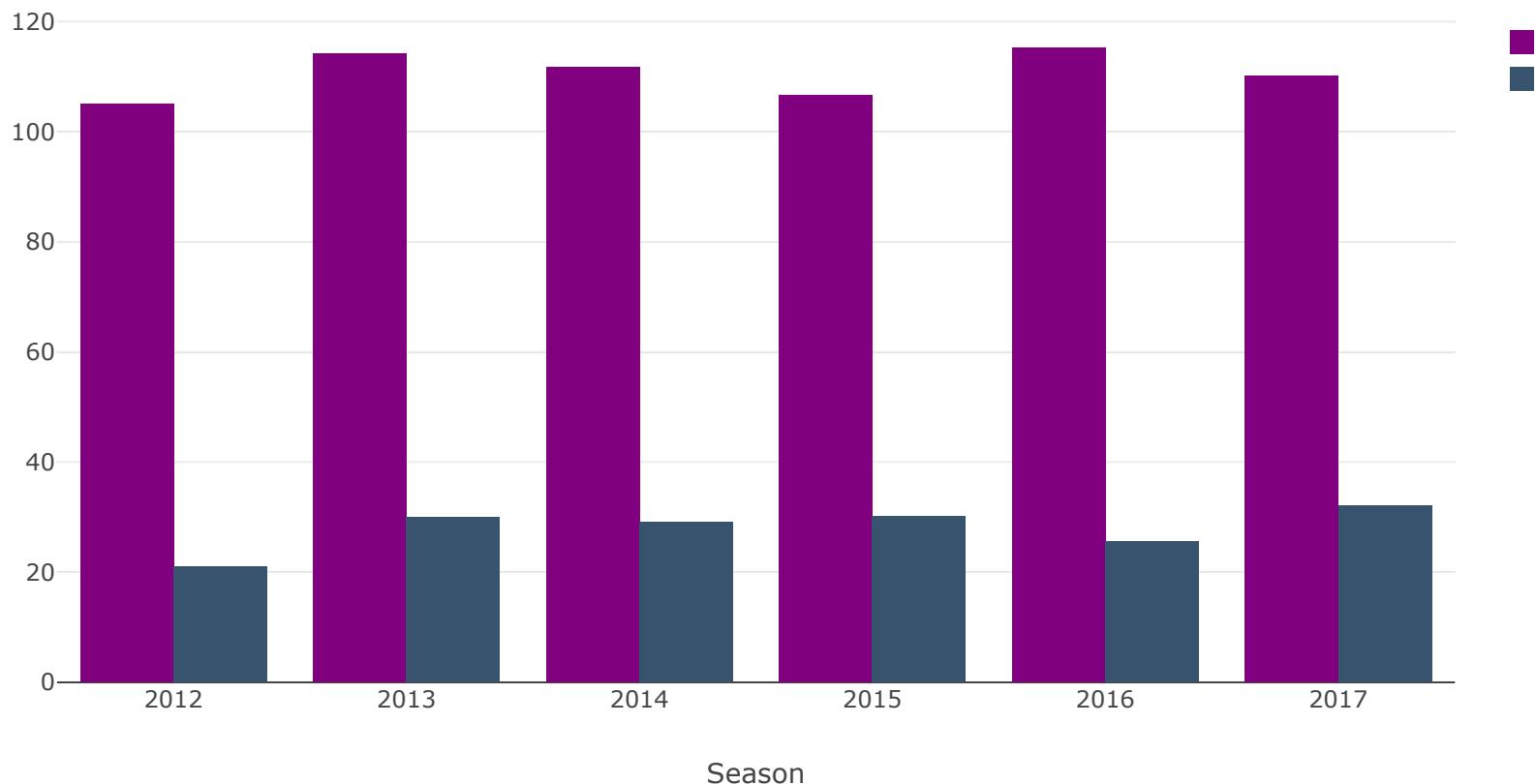
3 Point Attempt % VS Efficiency For ORL



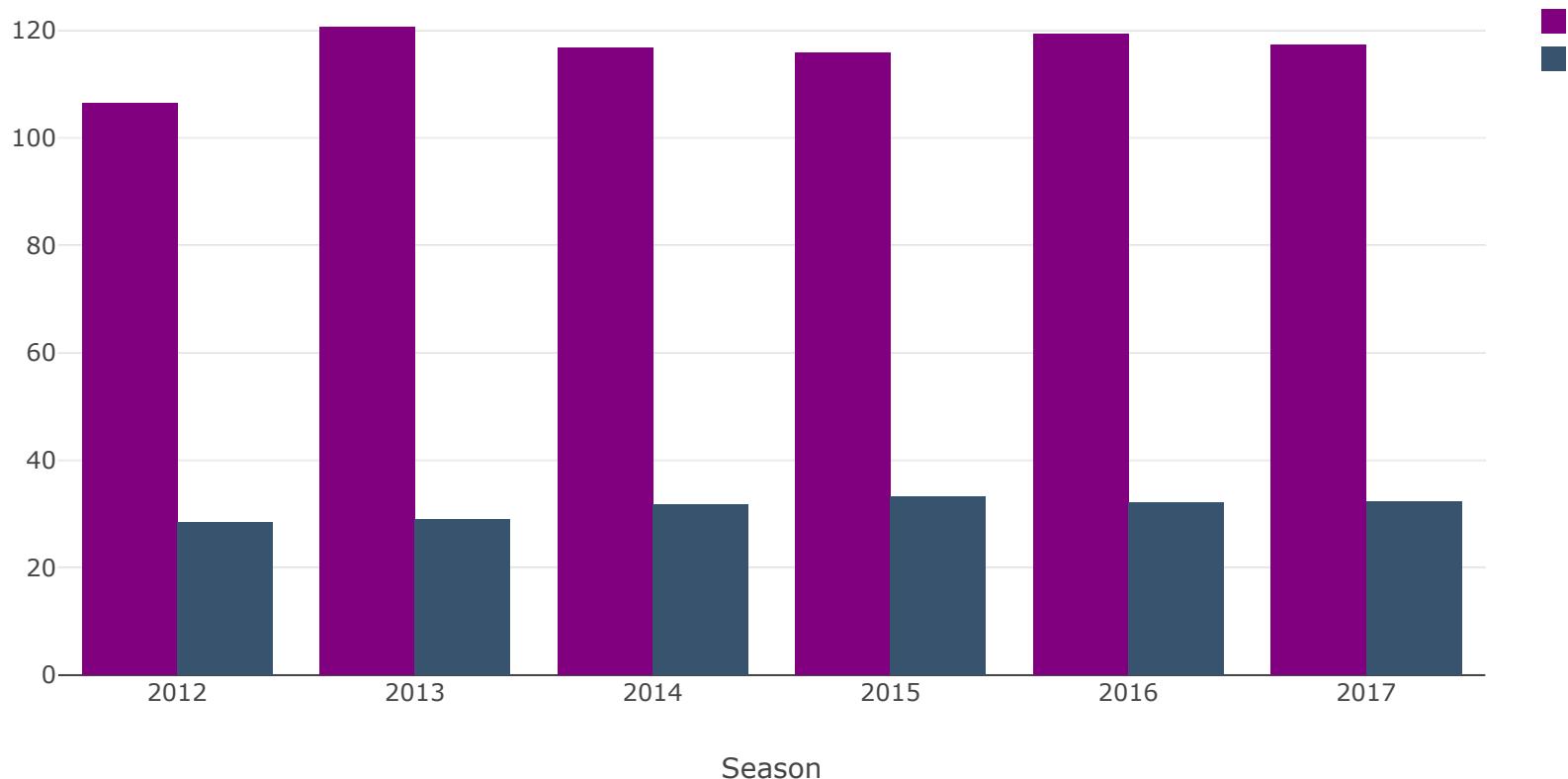
3 Point Attempt % VS Efficiency For PHI



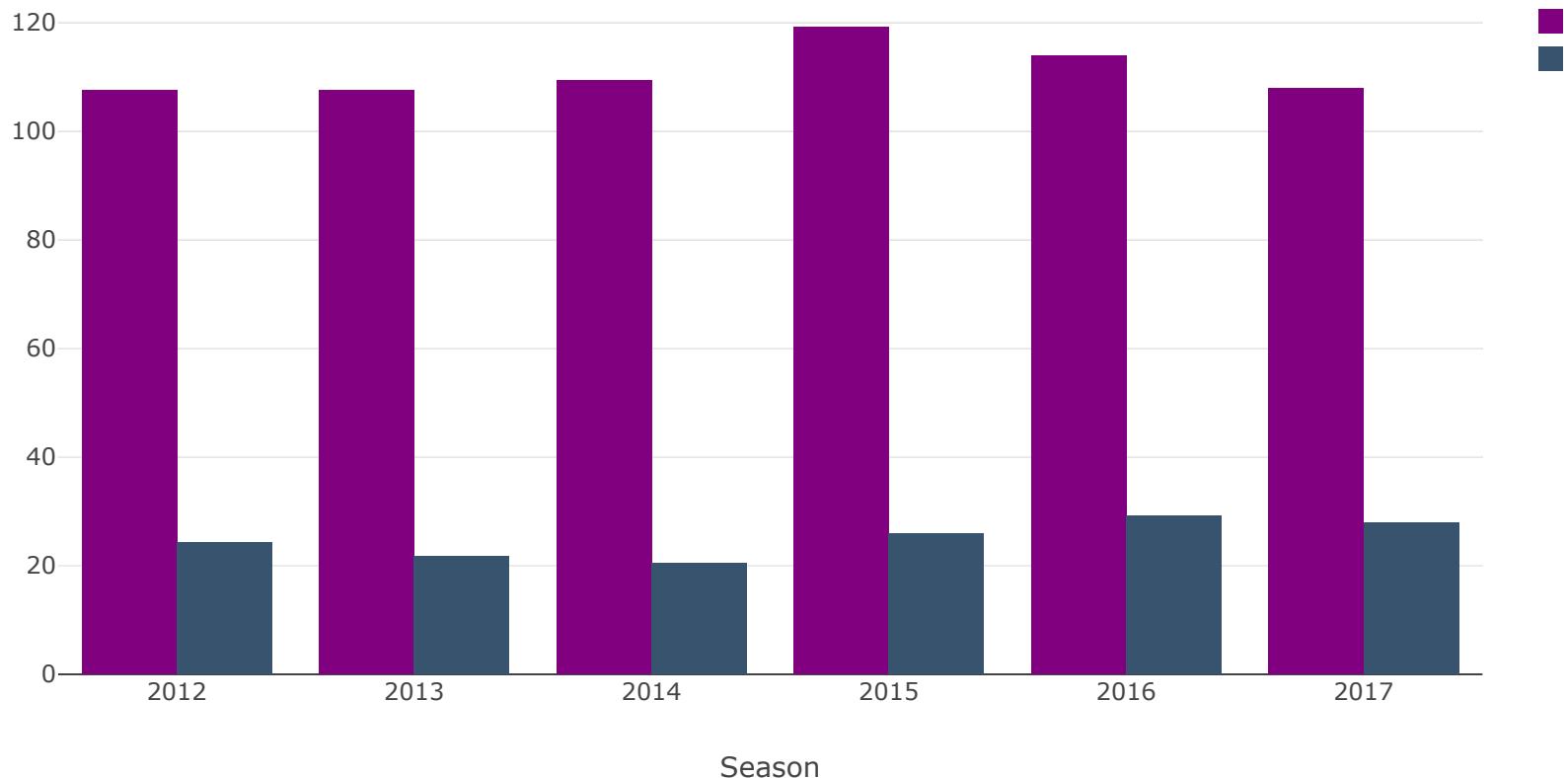
3 Point Attempt % VS Efficiency For PHO



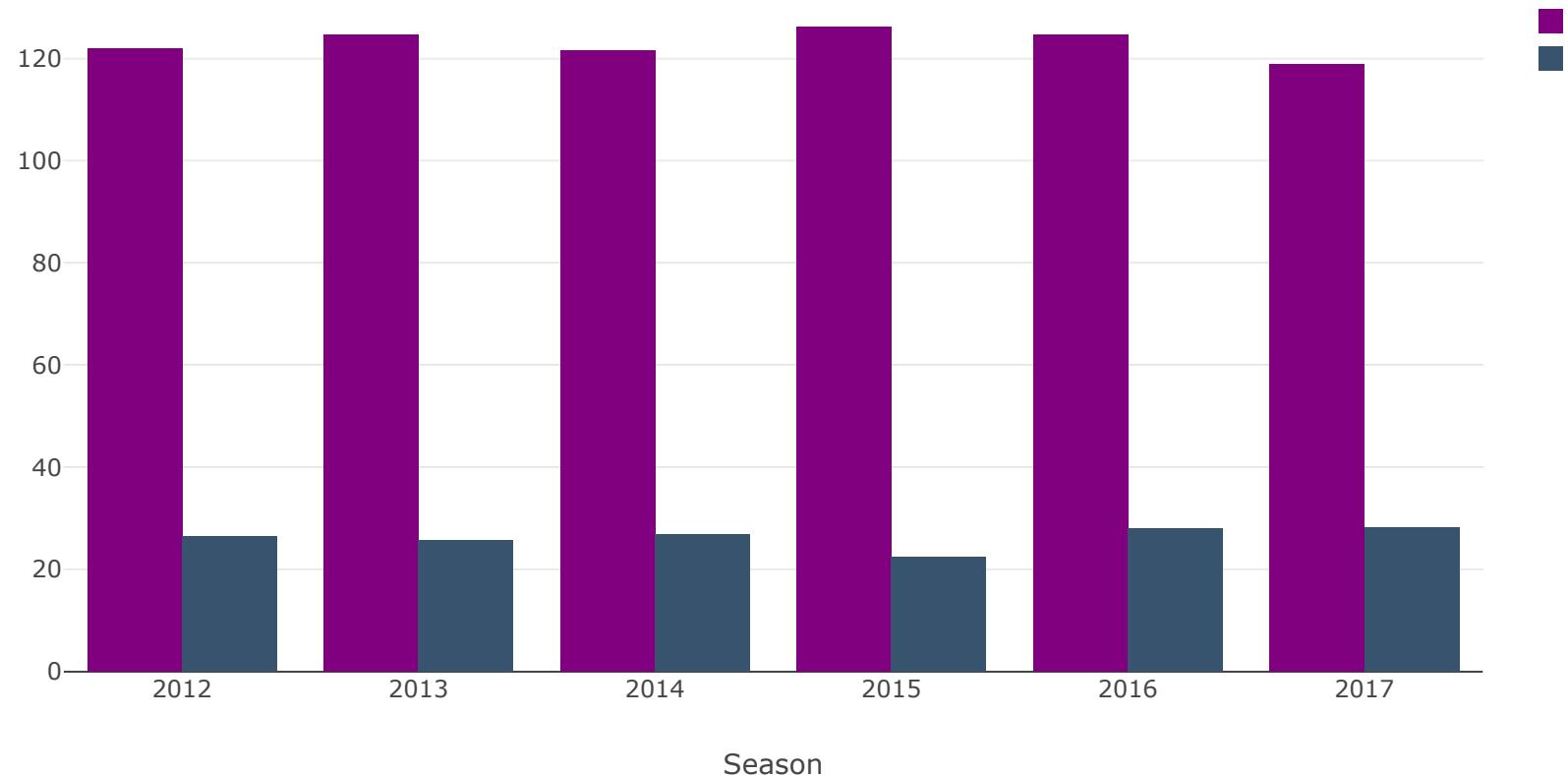
3 Point Attempt % VS Efficiency For POR



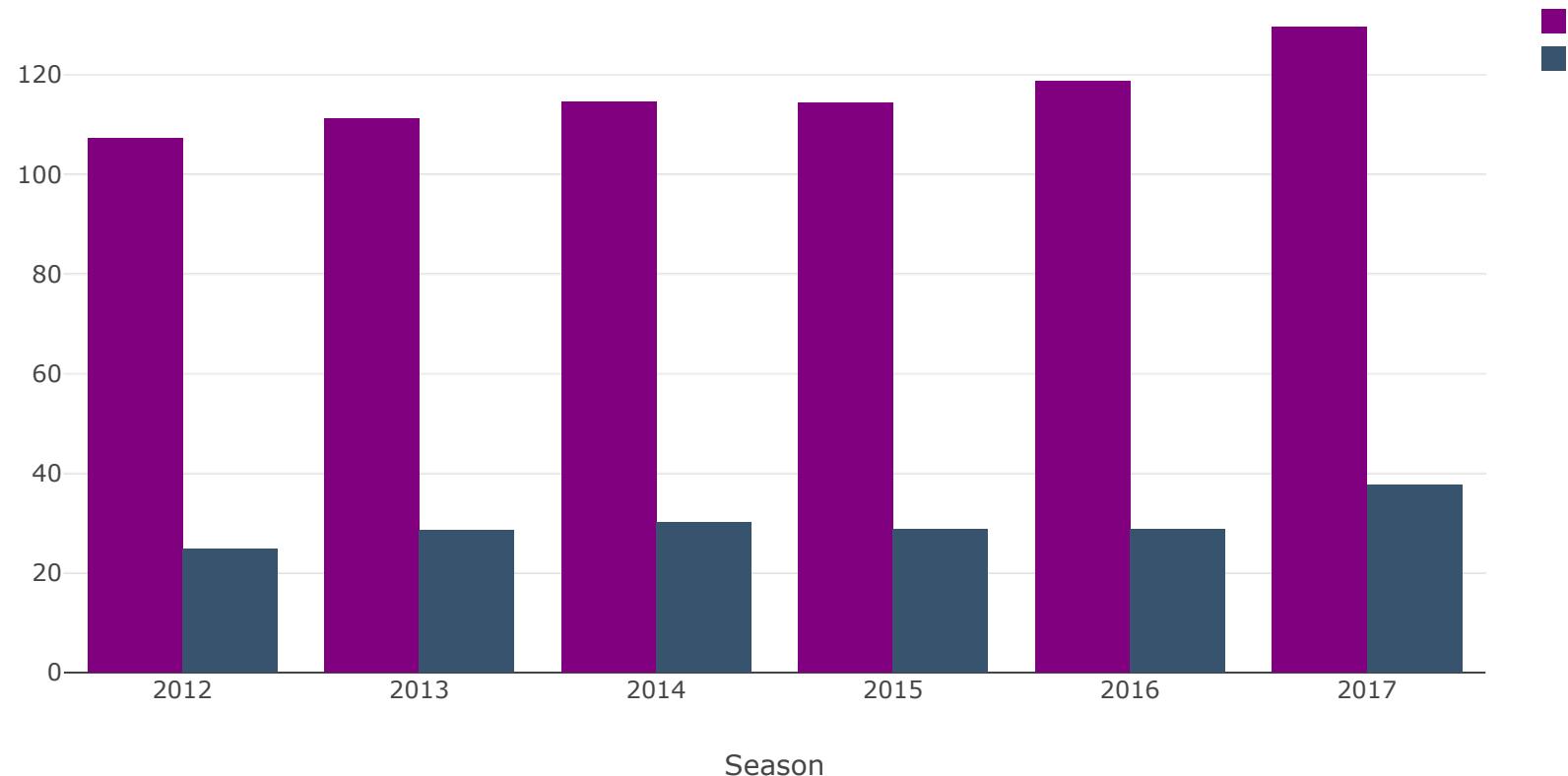
3 Point Attempt % VS Efficiency For SAC



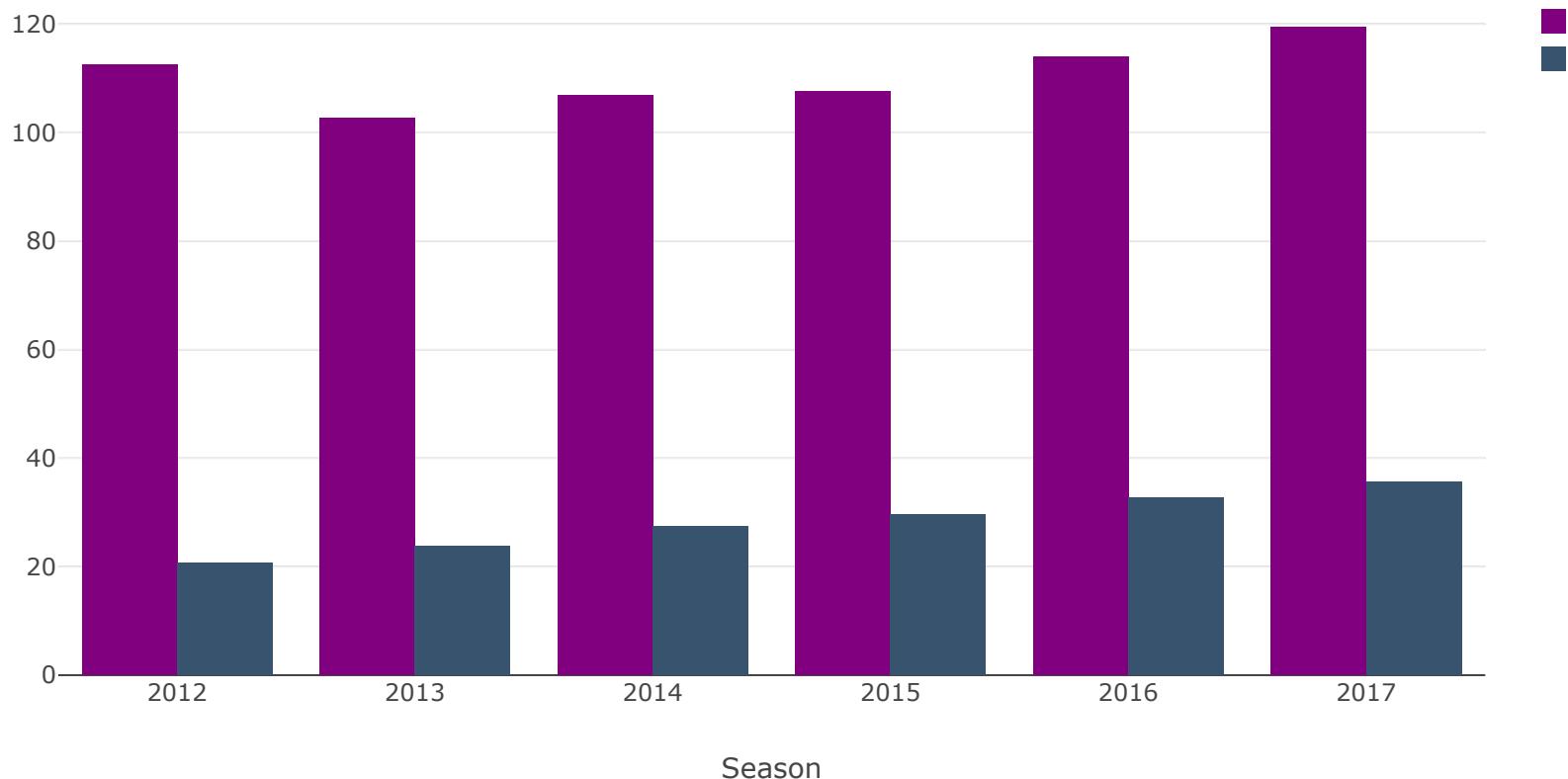
3 Point Attempt % VS Efficiency For SAS



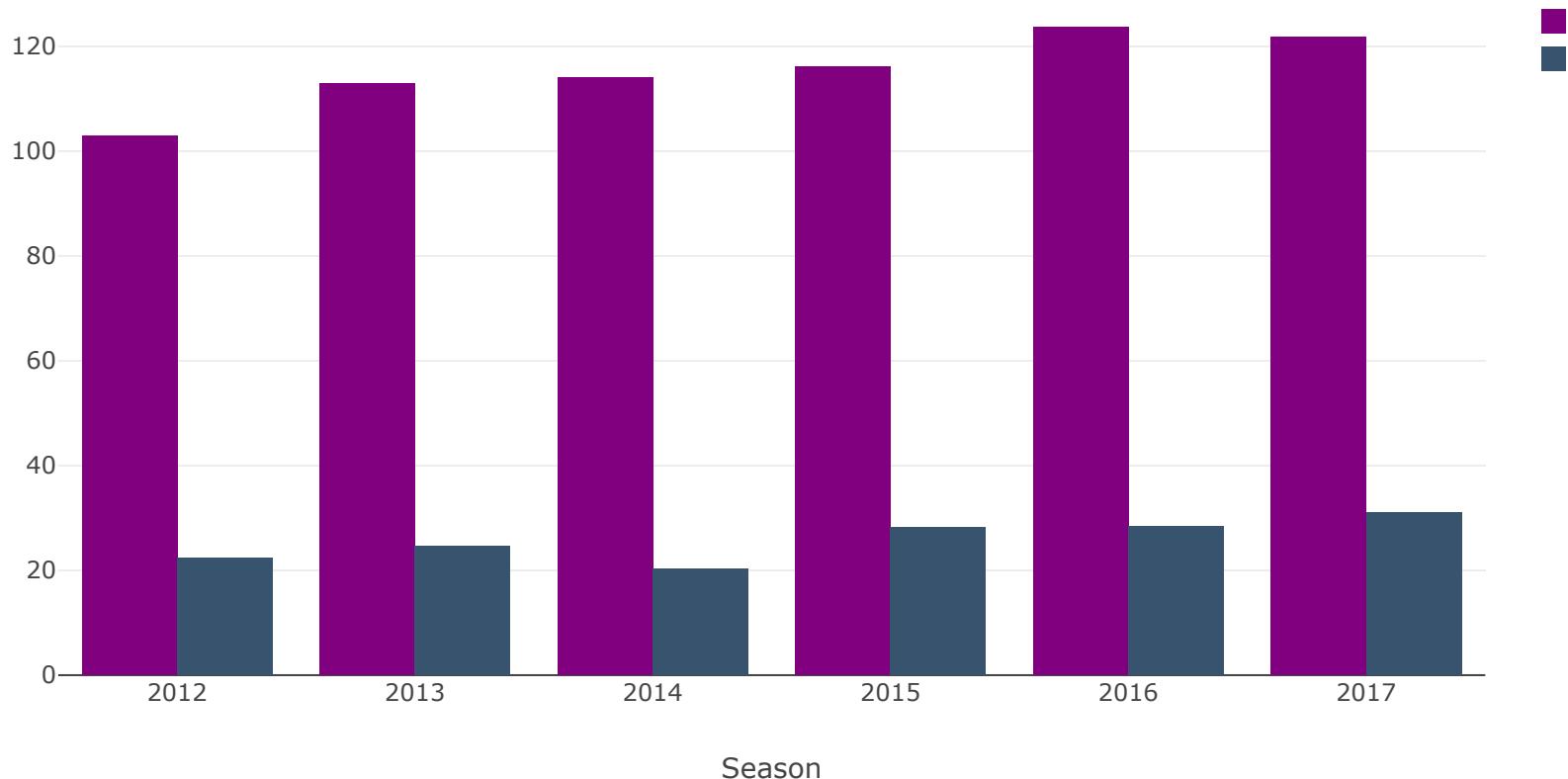
3 Point Attempt % VS Efficiency For TOR



3 Point Attempt % VS Efficiency For UTA



3 Point Attempt % VS Efficiency For WAS

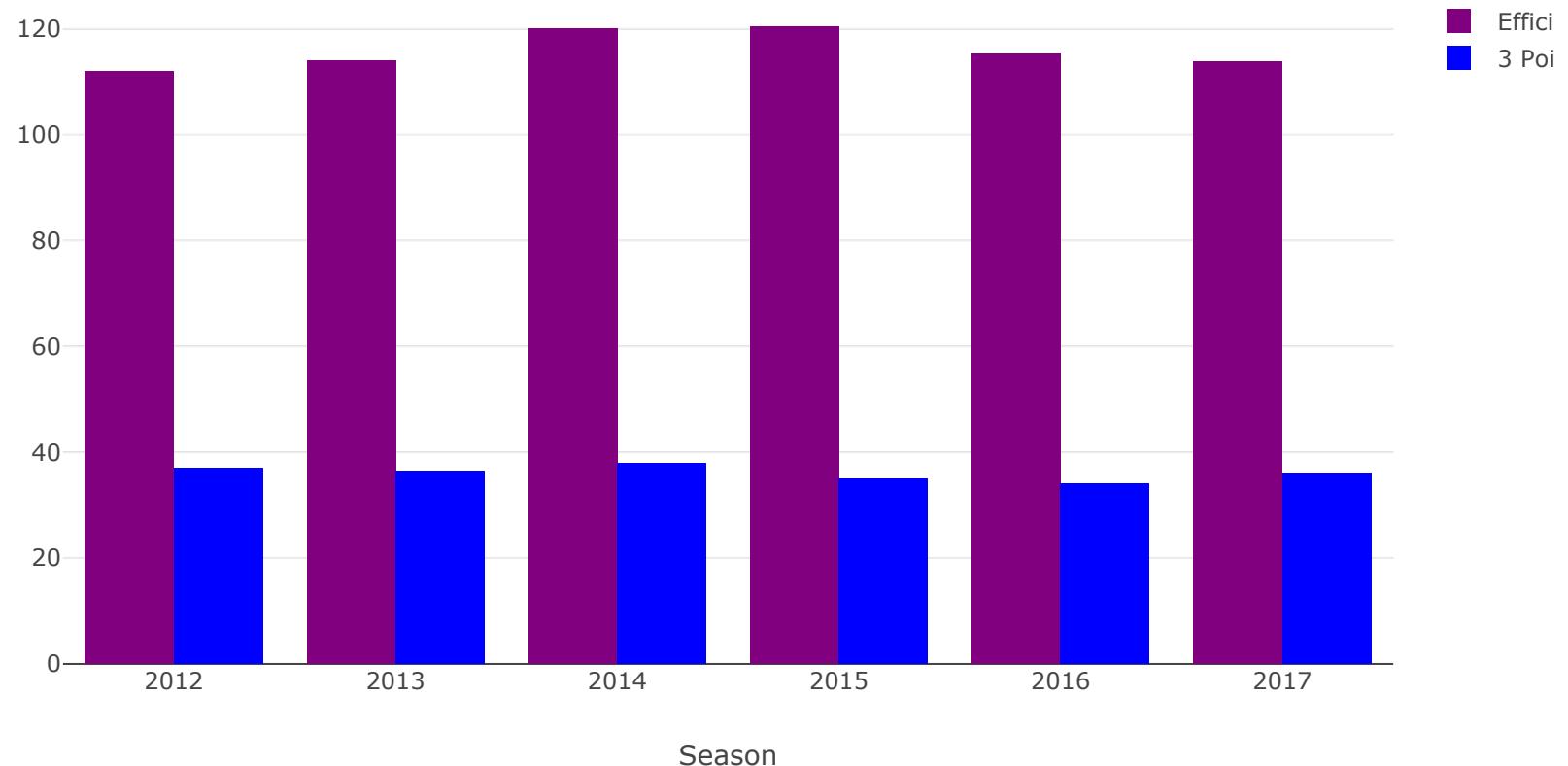


```
In [279]: for df in teamstats:
    data = []
    data.append(go.Bar(
        x = df['Season'],
        y = df['Efficiency'],
        name = 'Efficiency',
        marker = dict(
            color = "purple"))

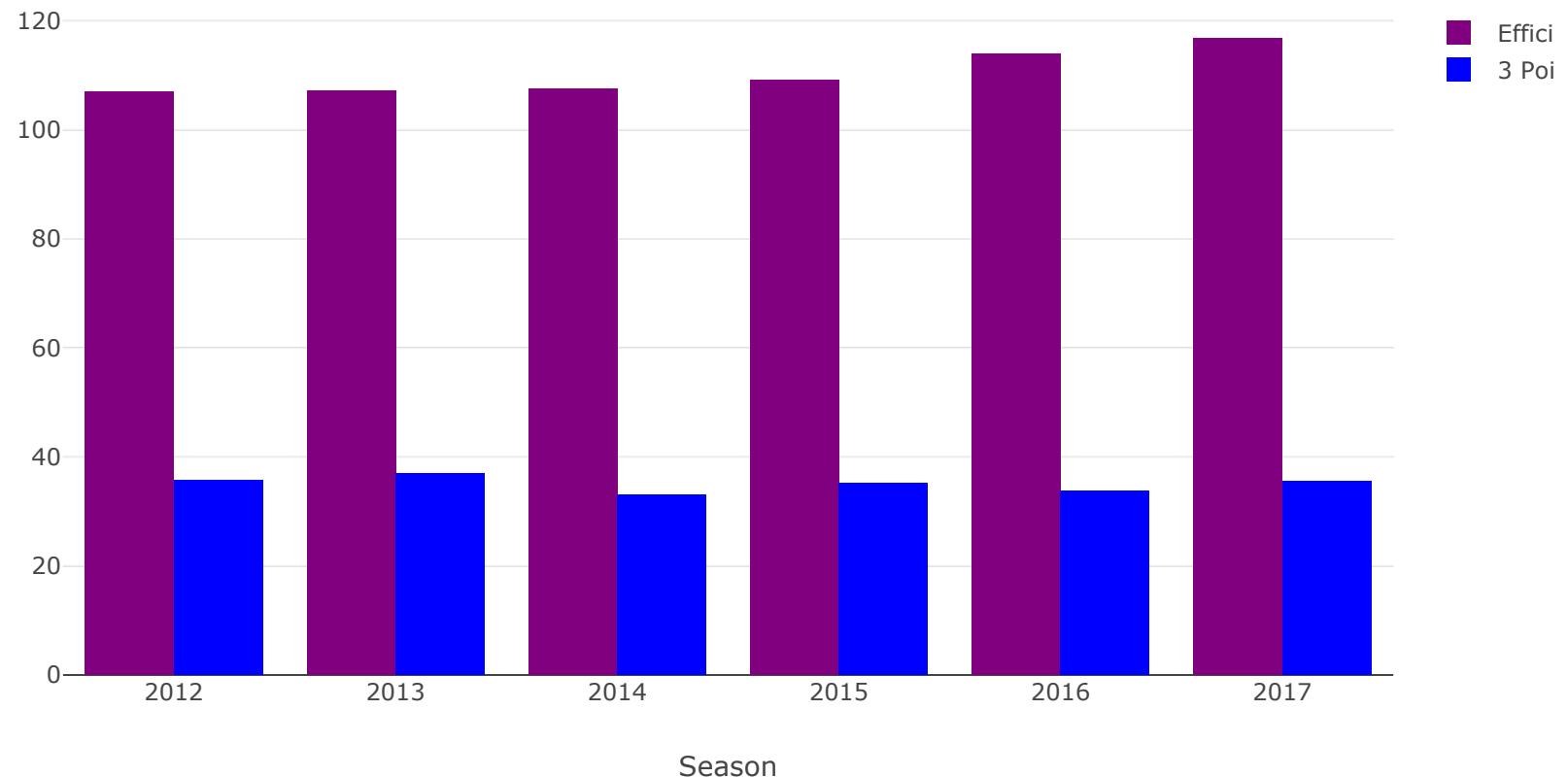
    ))
    data.append(go.Bar(
        x = df['Season'],
        y = df['3P%'],
        name = '3 Point Percentage Made',
        marker = dict(
            color = "blue"))

))
layout = dict(title= 'Efficiency VS 3 Point Percentage Made for ' + df['Tm'][0],xaxis = dict(title = 'Season'))
fig = dict(data=data, layout=layout)
iplot(fig, filename='basic-line')
```

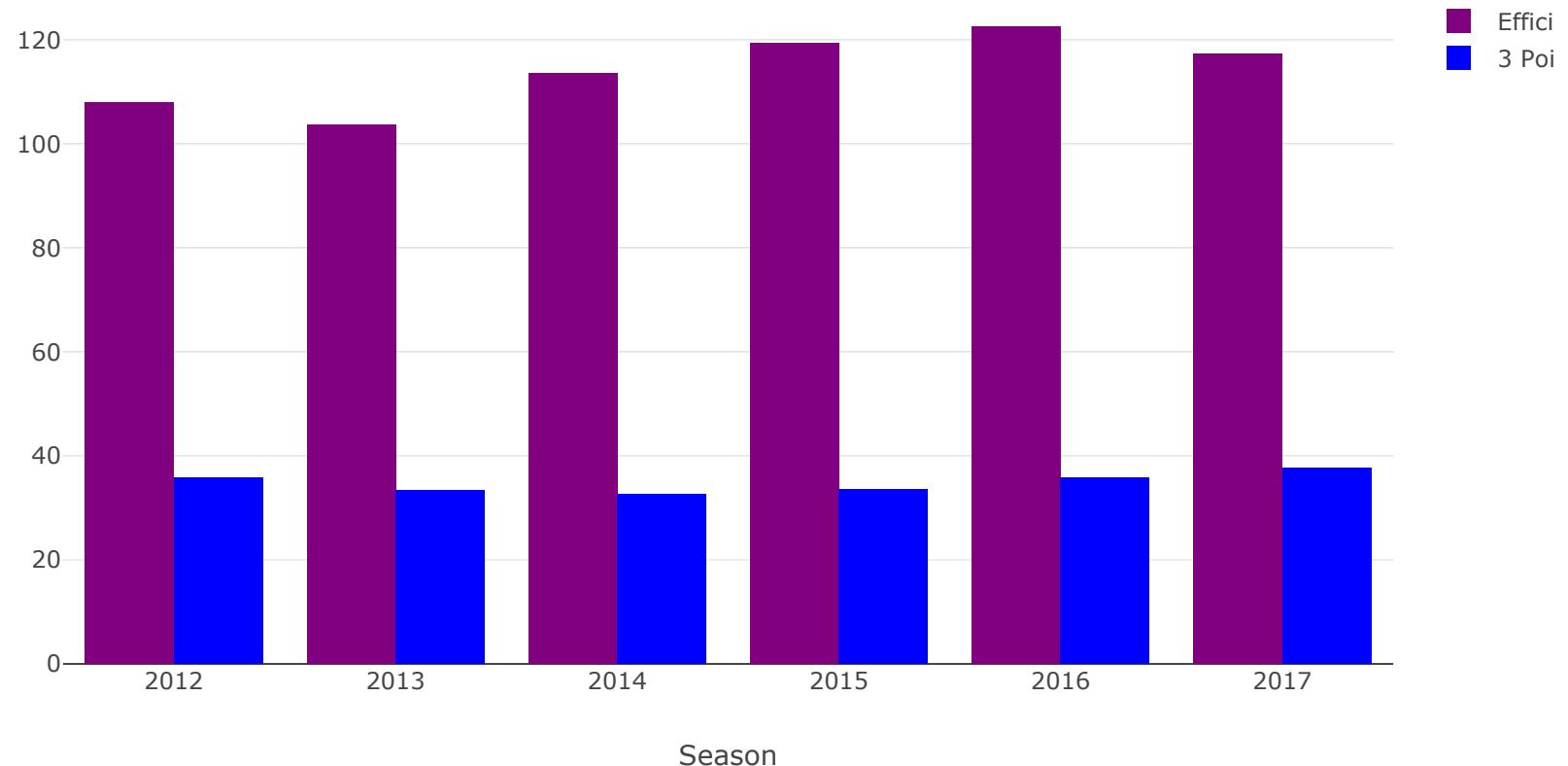
Efficiency VS 3 Point Percentage Made for ATL



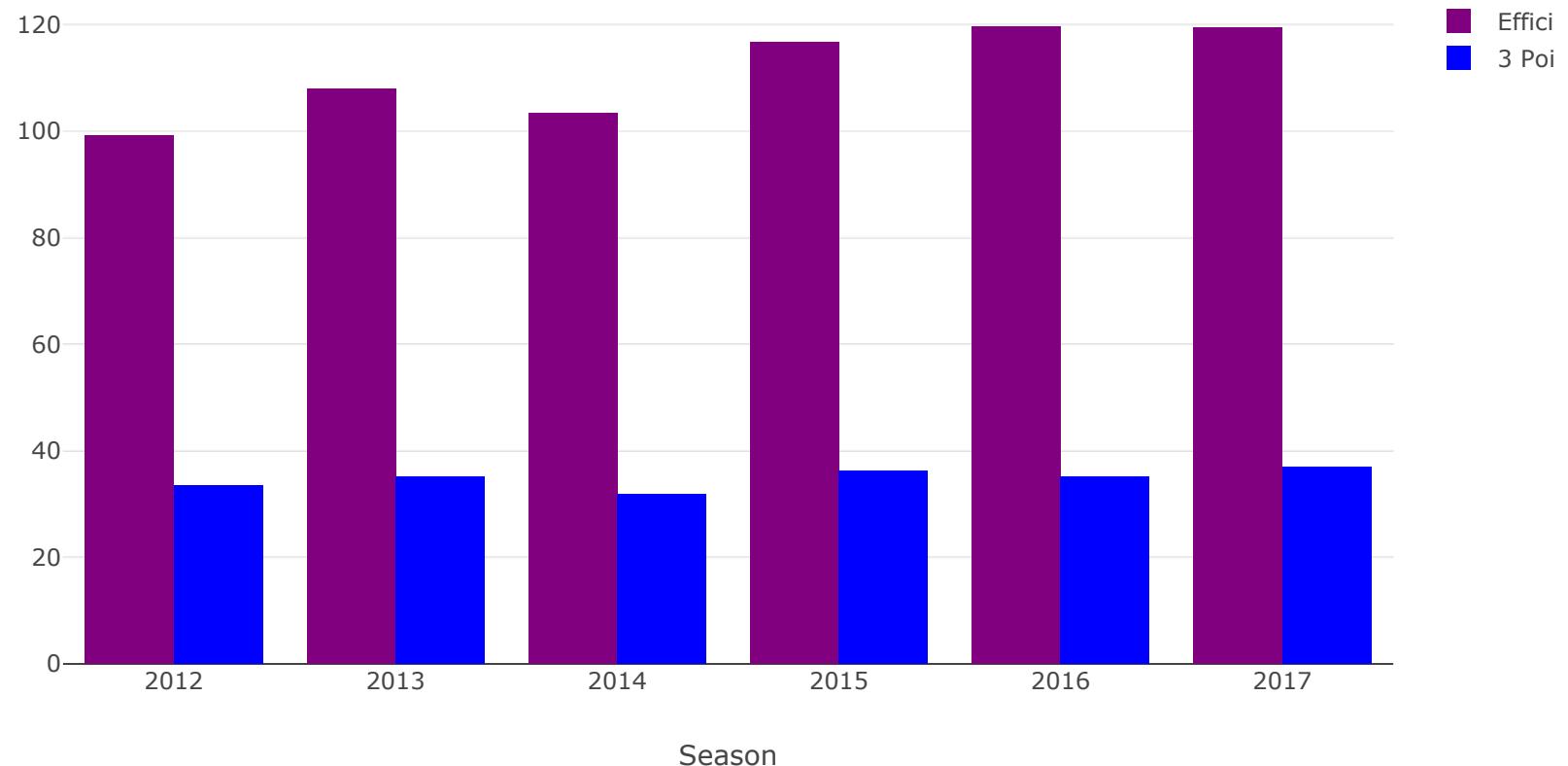
Efficiency VS 3 Point Percentage Made for BRK



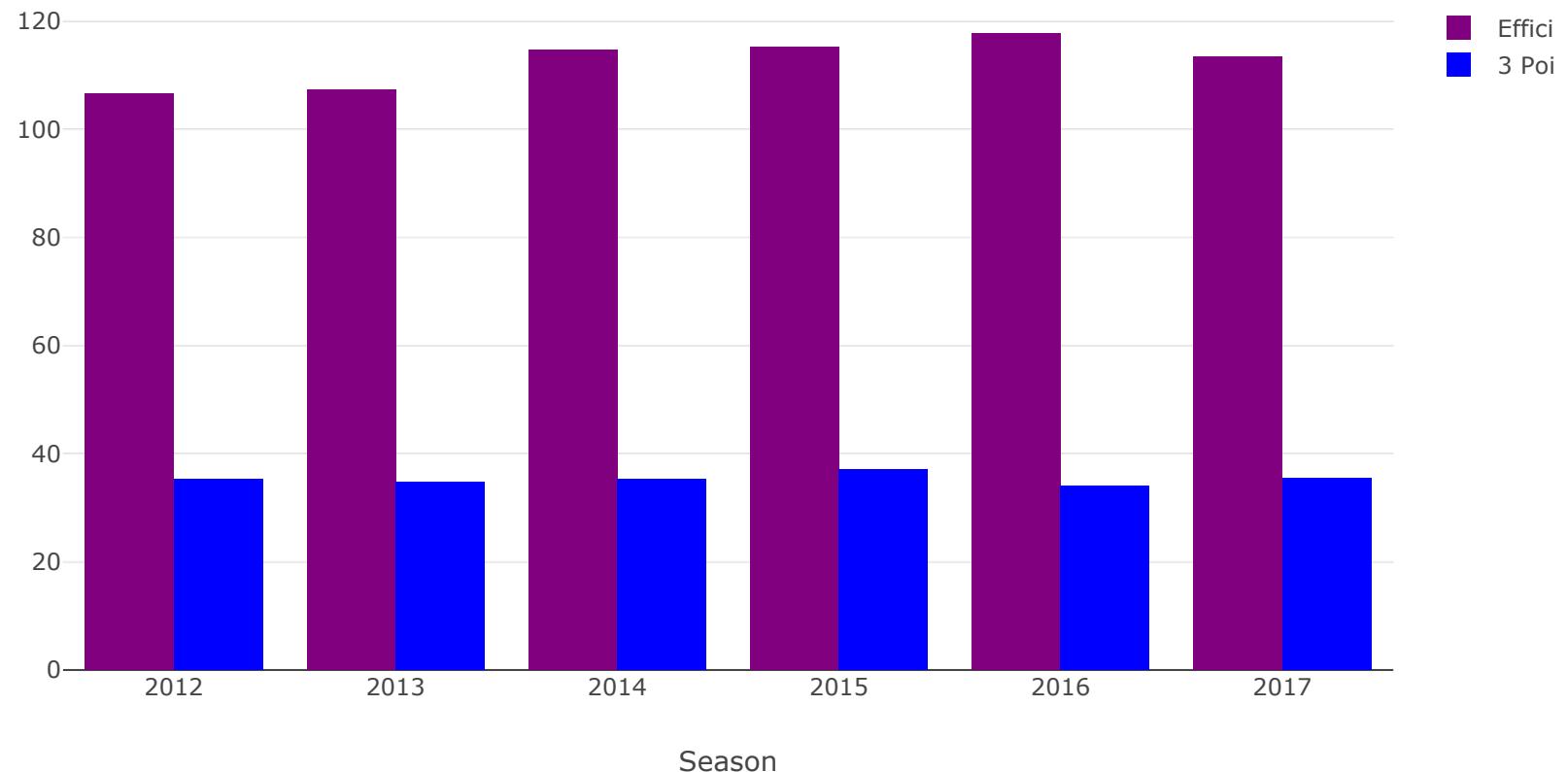
Efficiency VS 3 Point Percentage Made for BOS



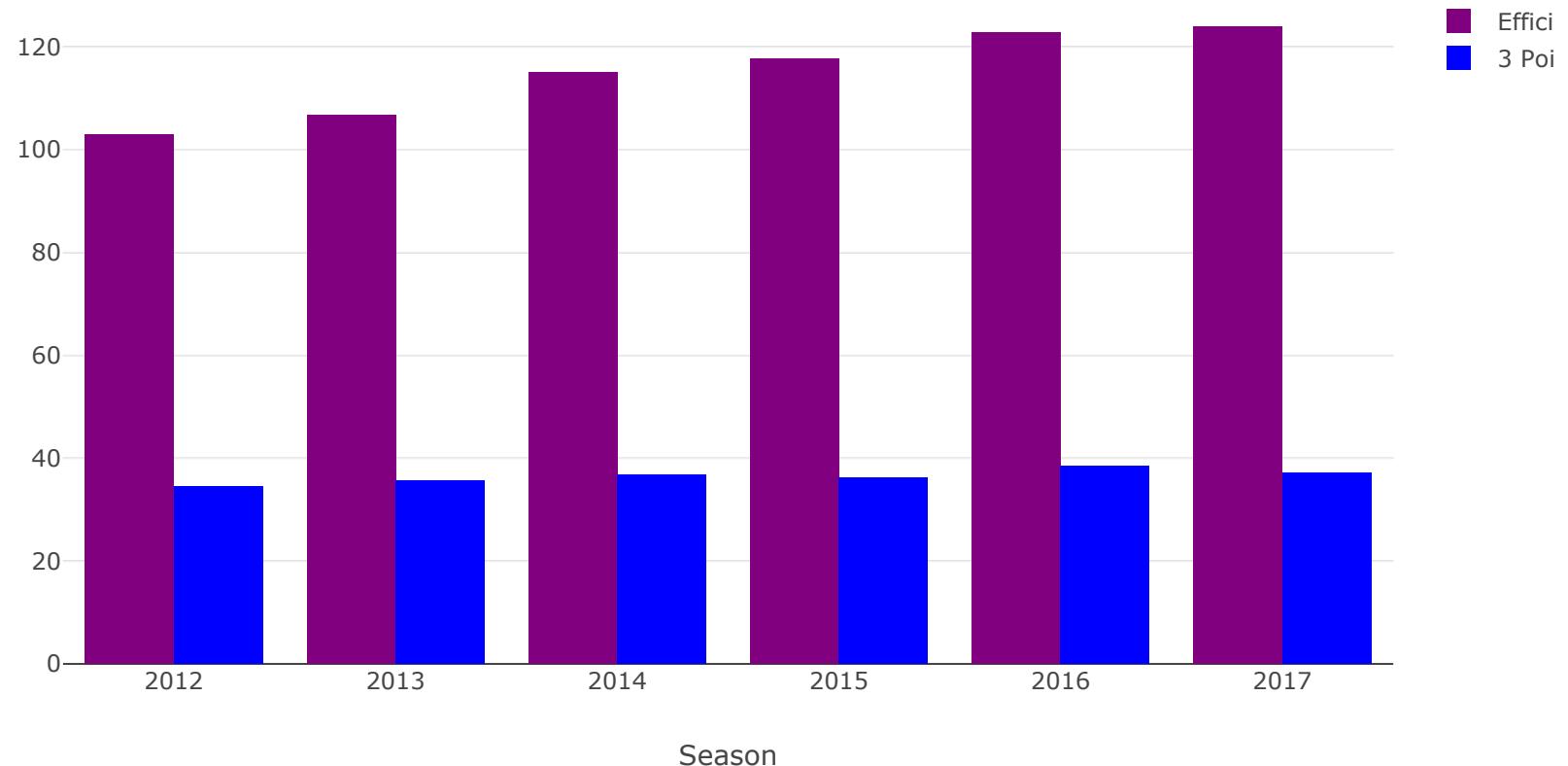
Efficiency VS 3 Point Percentage Made for CHO



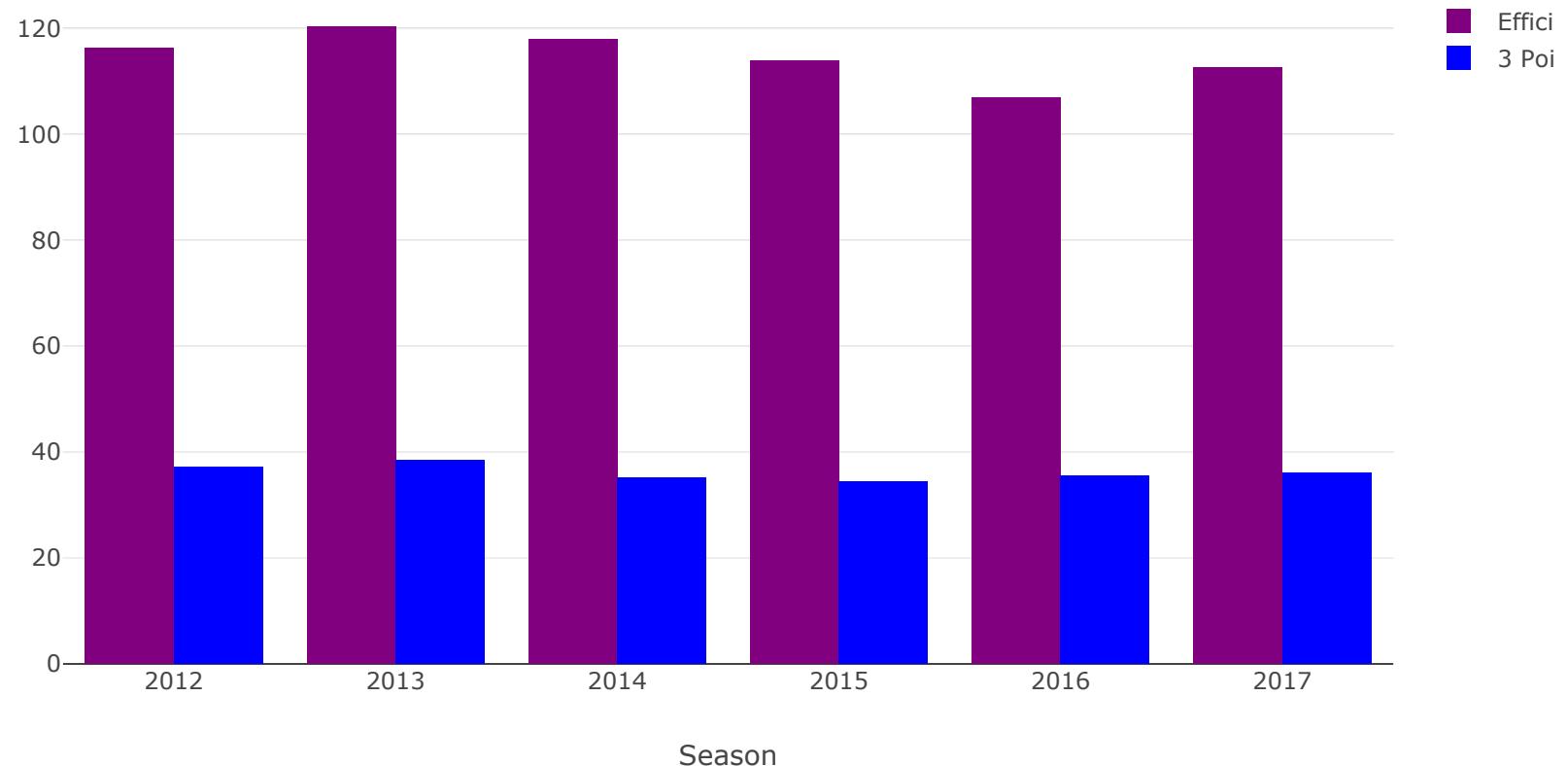
Efficiency VS 3 Point Percentage Made for CHI



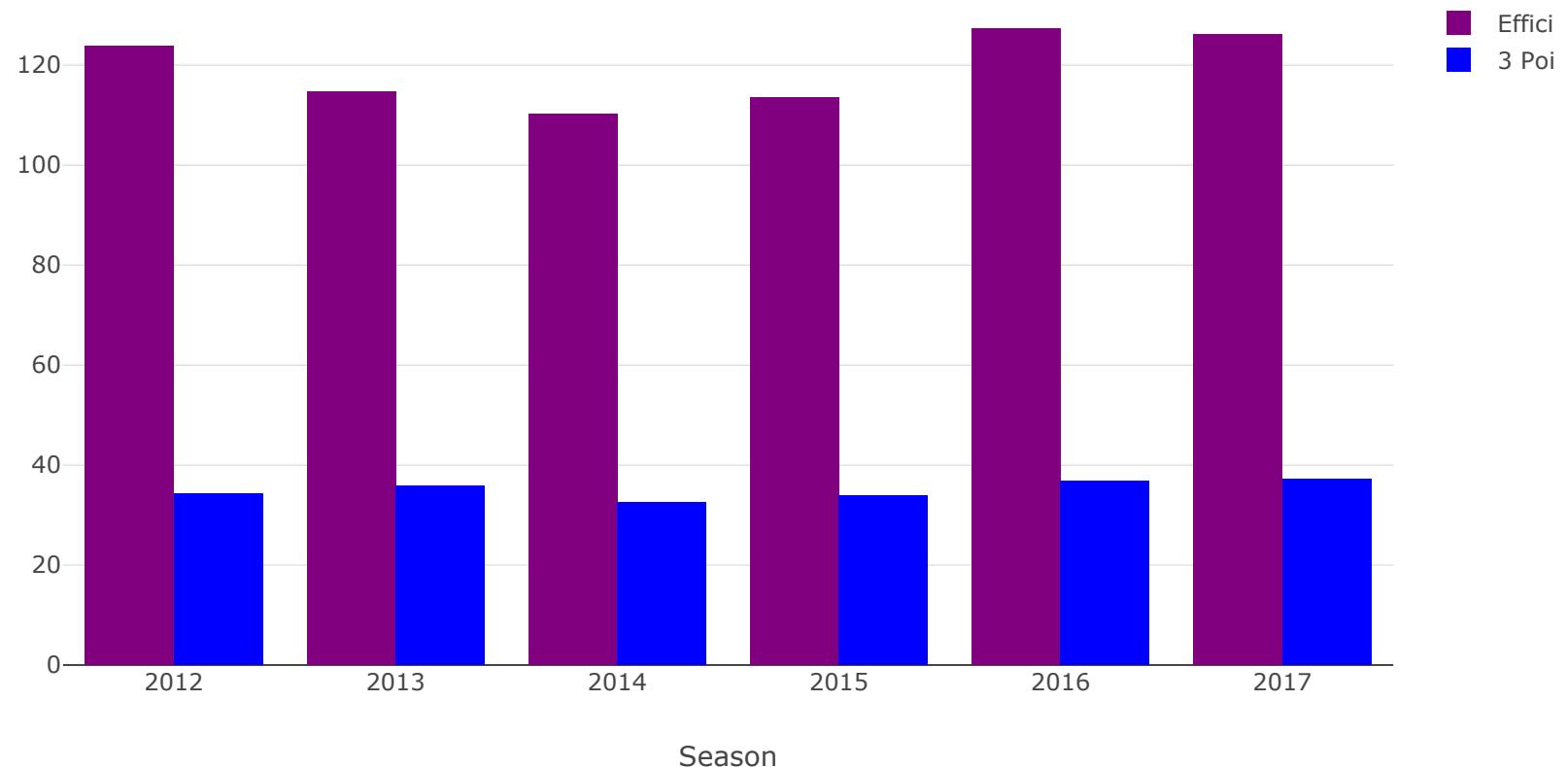
Efficiency VS 3 Point Percentage Made for CLE



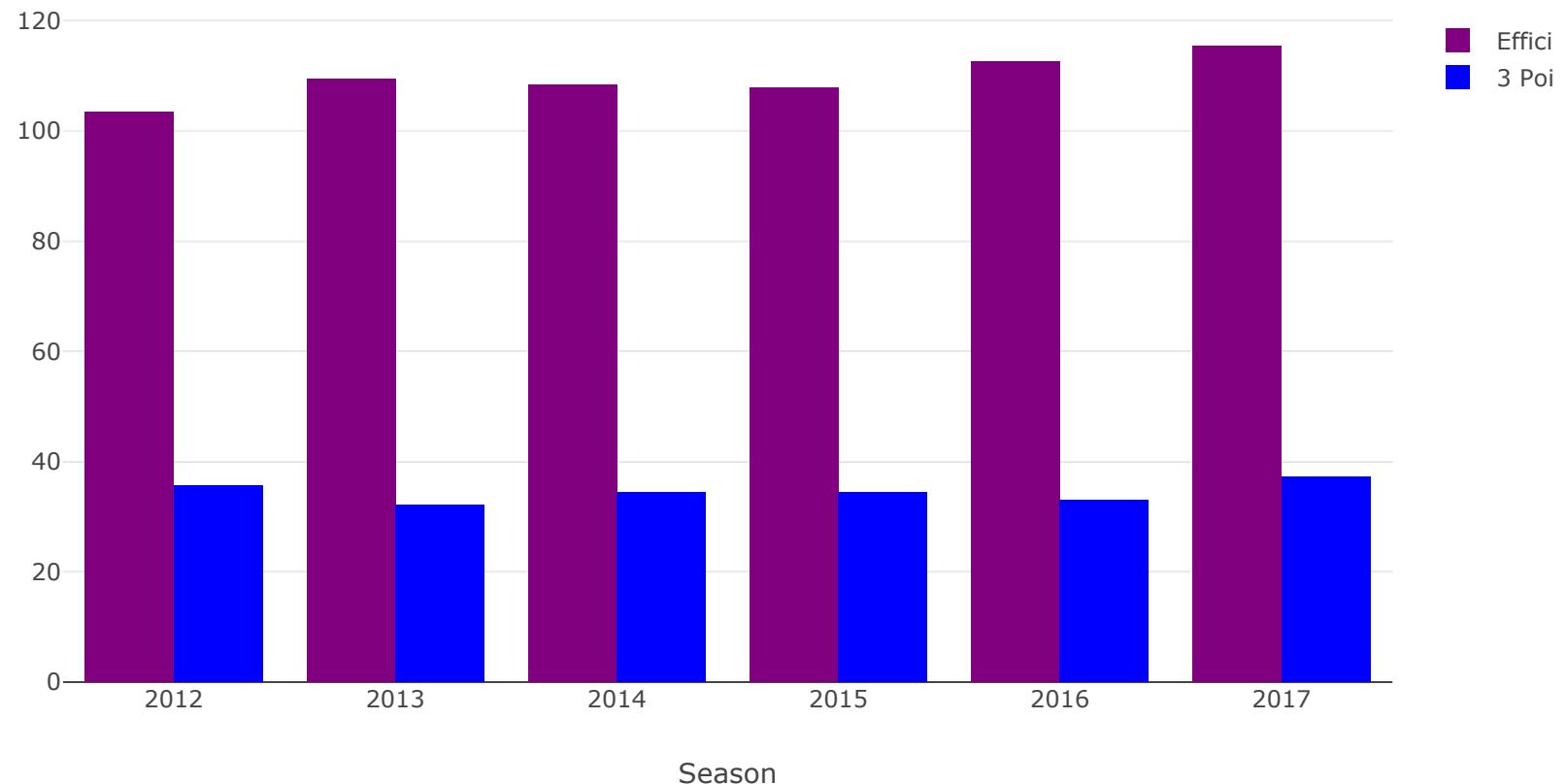
Efficiency VS 3 Point Percentage Made for DAL



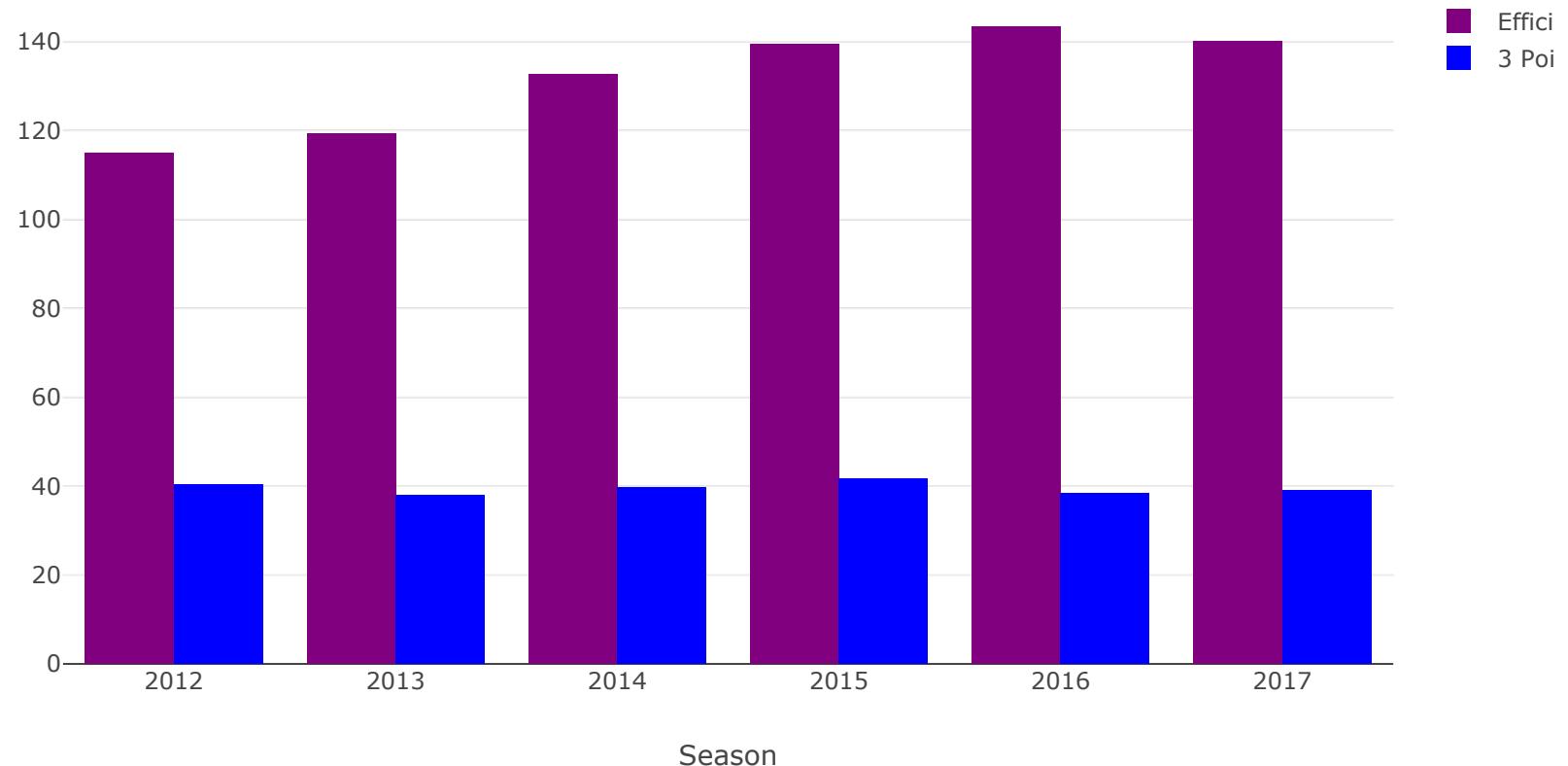
Efficiency VS 3 Point Percentage Made for DEN



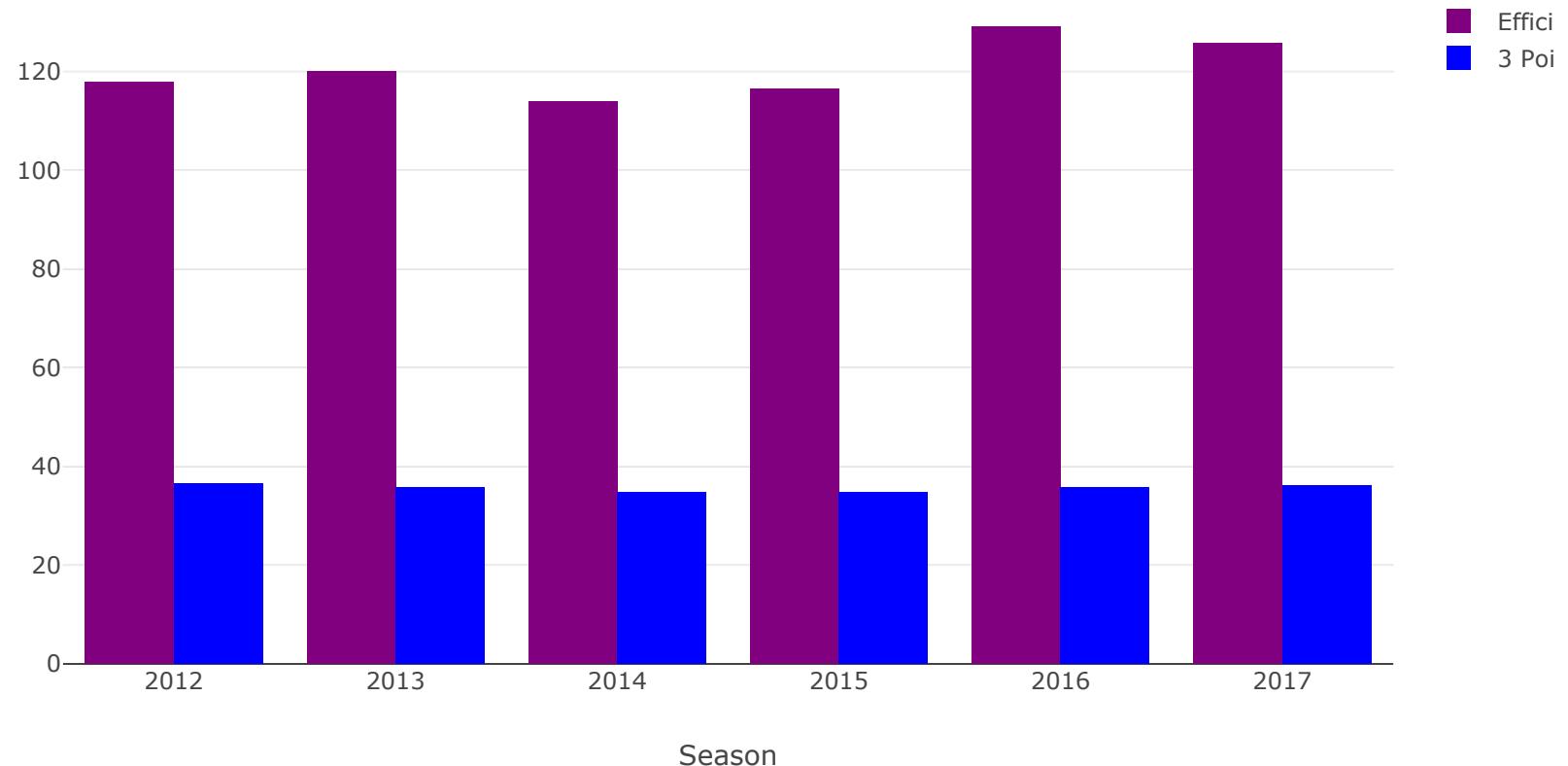
Efficiency VS 3 Point Percentage Made for DET



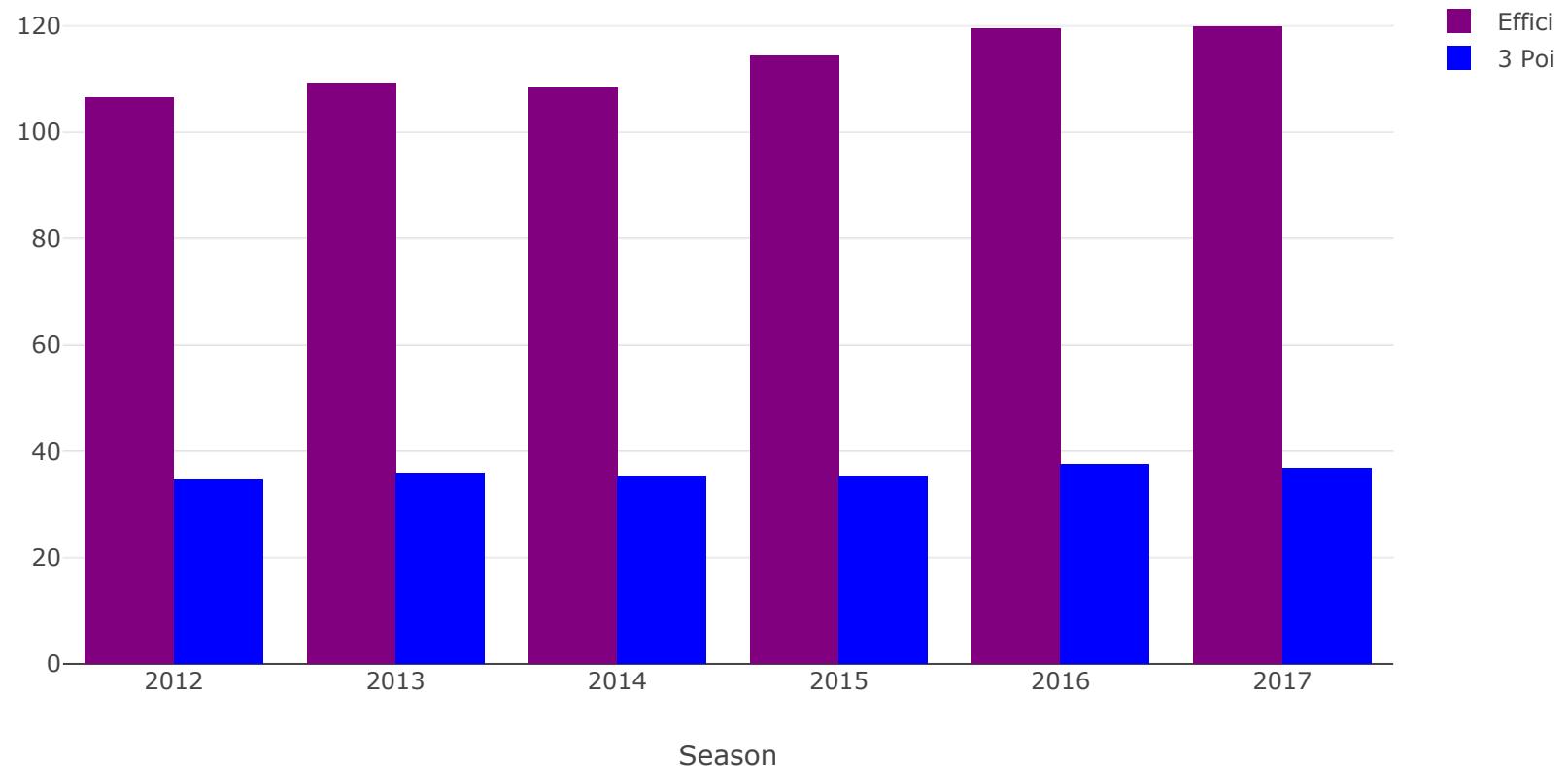
Efficiency VS 3 Point Percentage Made for GSW



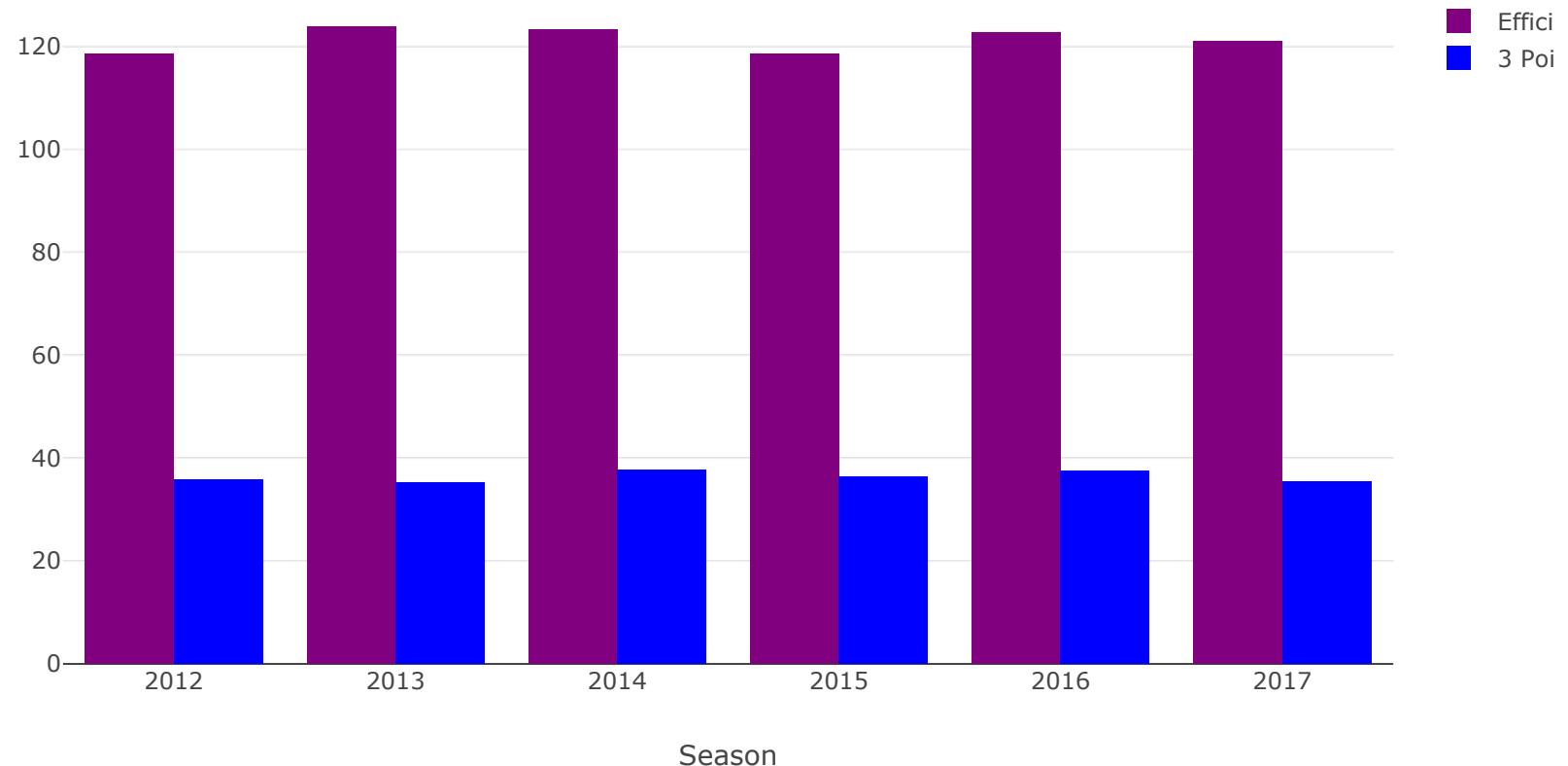
Efficiency VS 3 Point Percentage Made for HOU



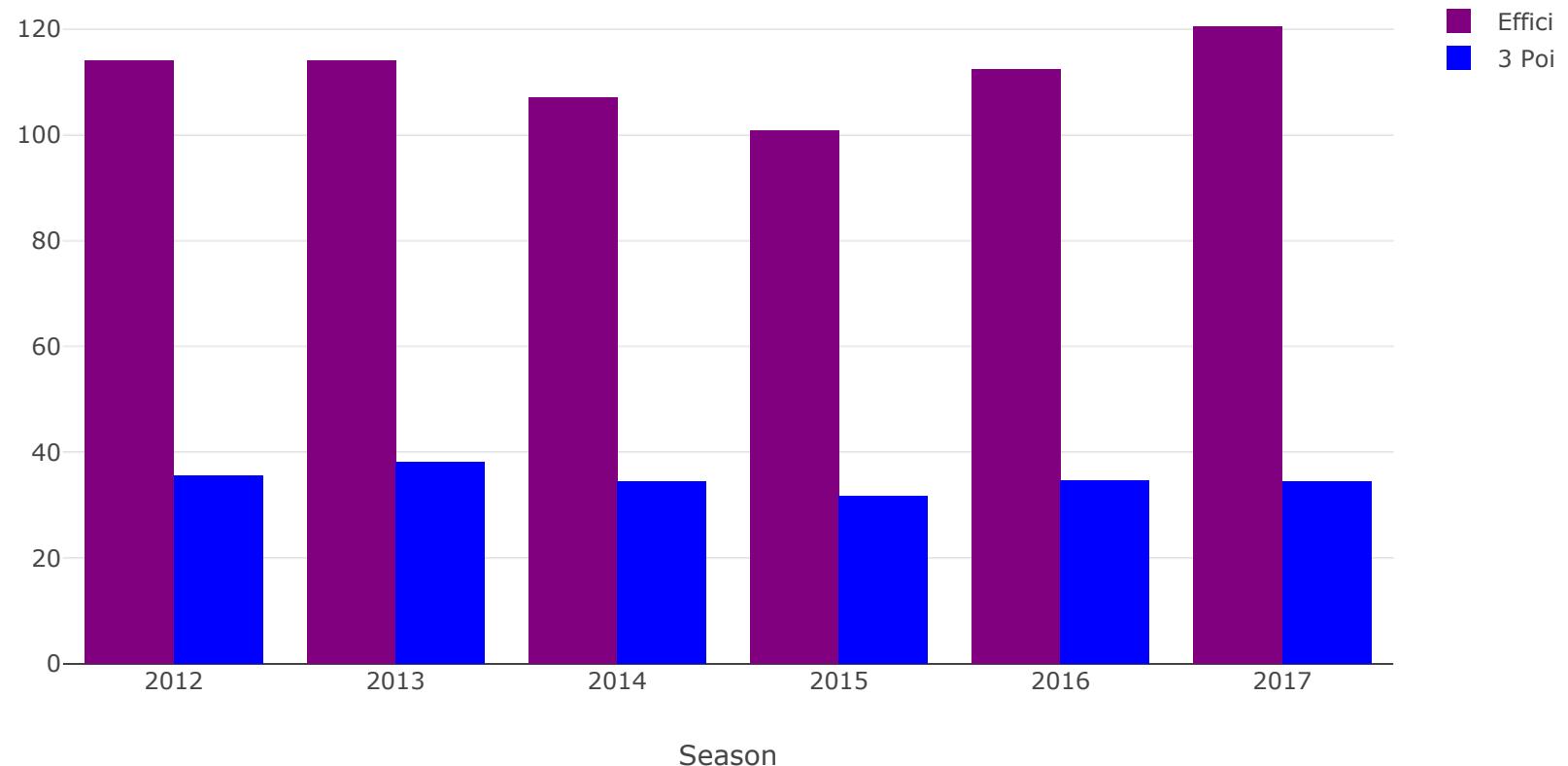
Efficiency VS 3 Point Percentage Made for IND



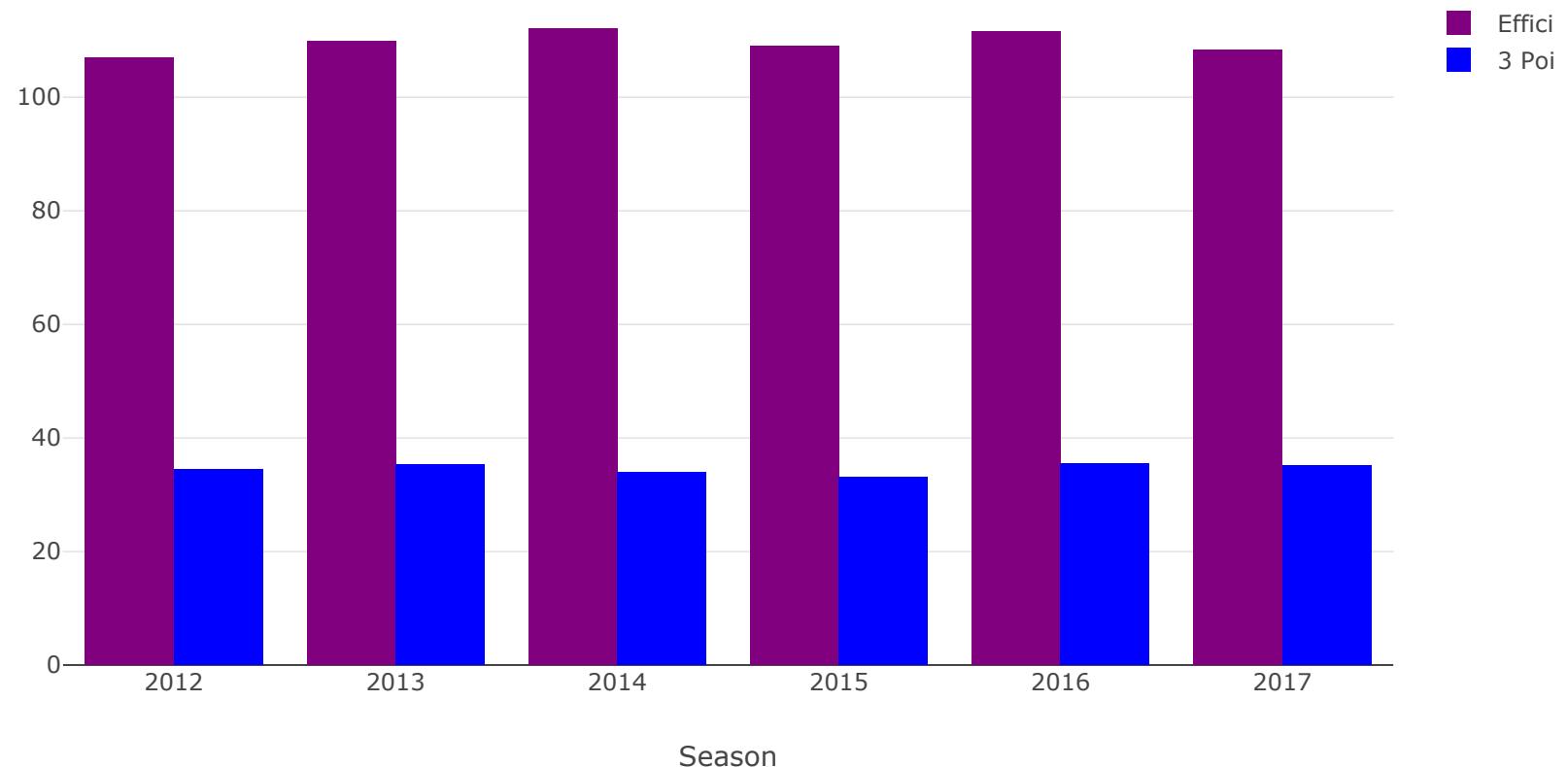
Efficiency VS 3 Point Percentage Made for LAC



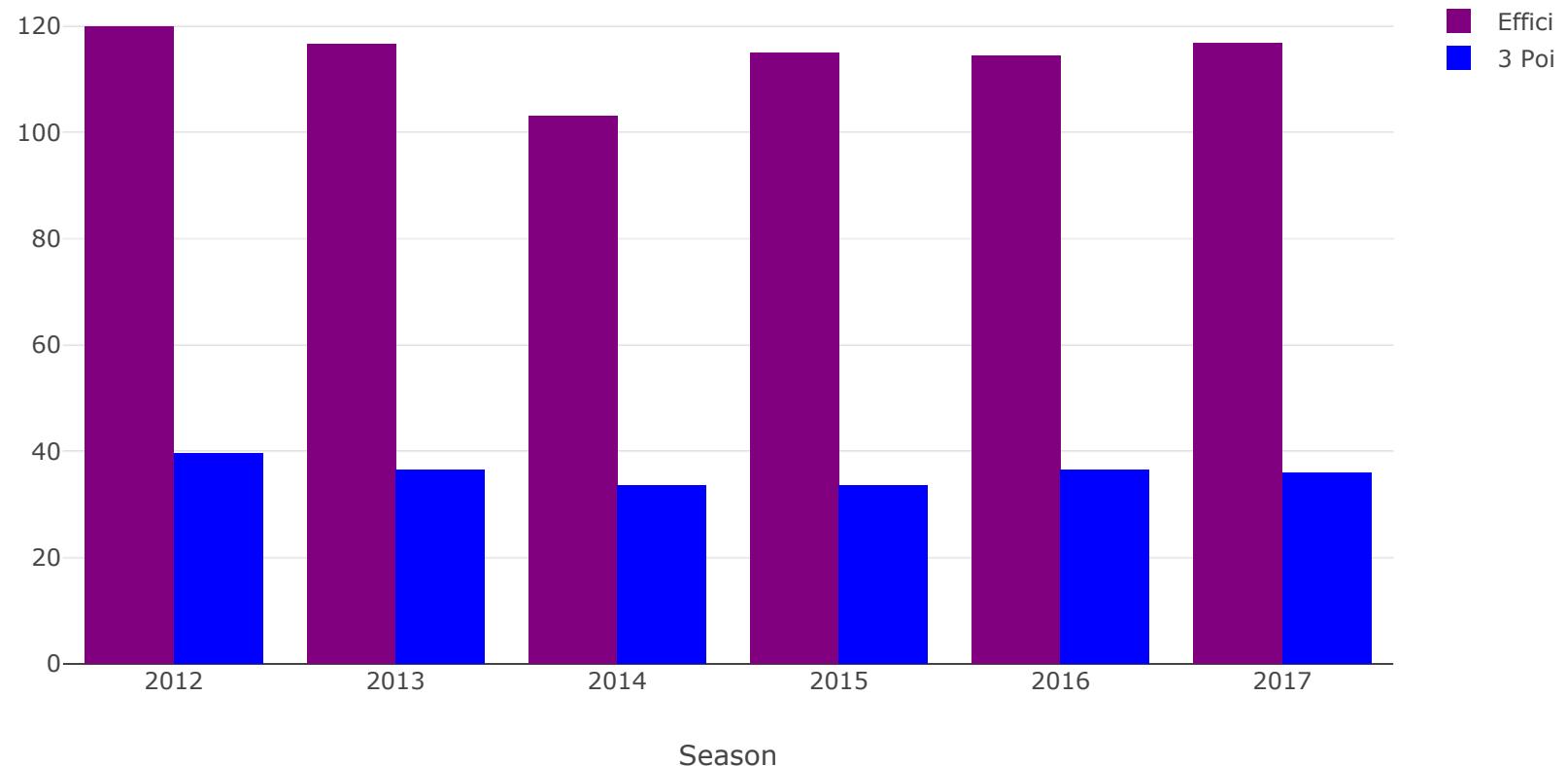
Efficiency VS 3 Point Percentage Made for LAL



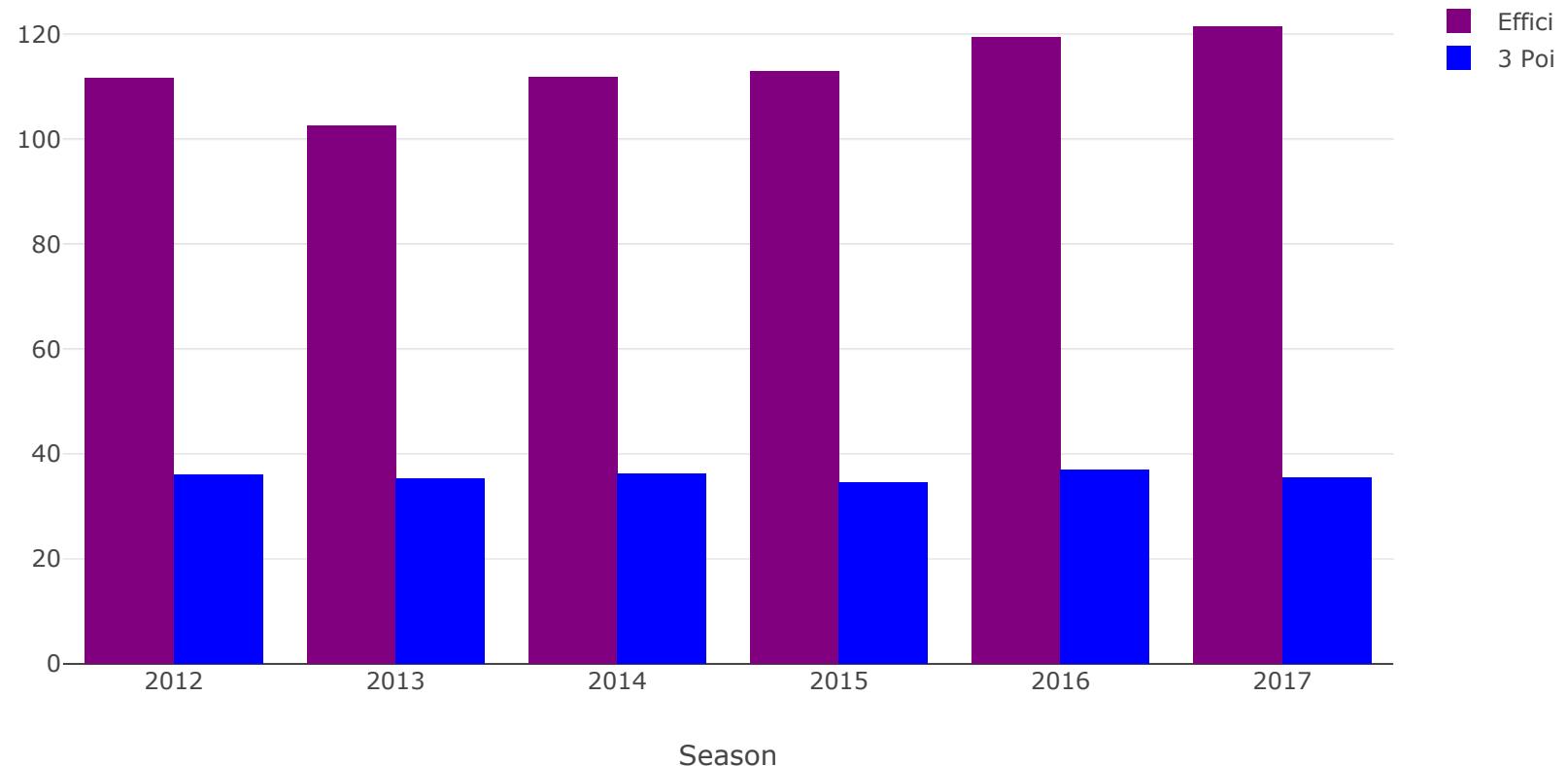
Efficiency VS 3 Point Percentage Made for MEM



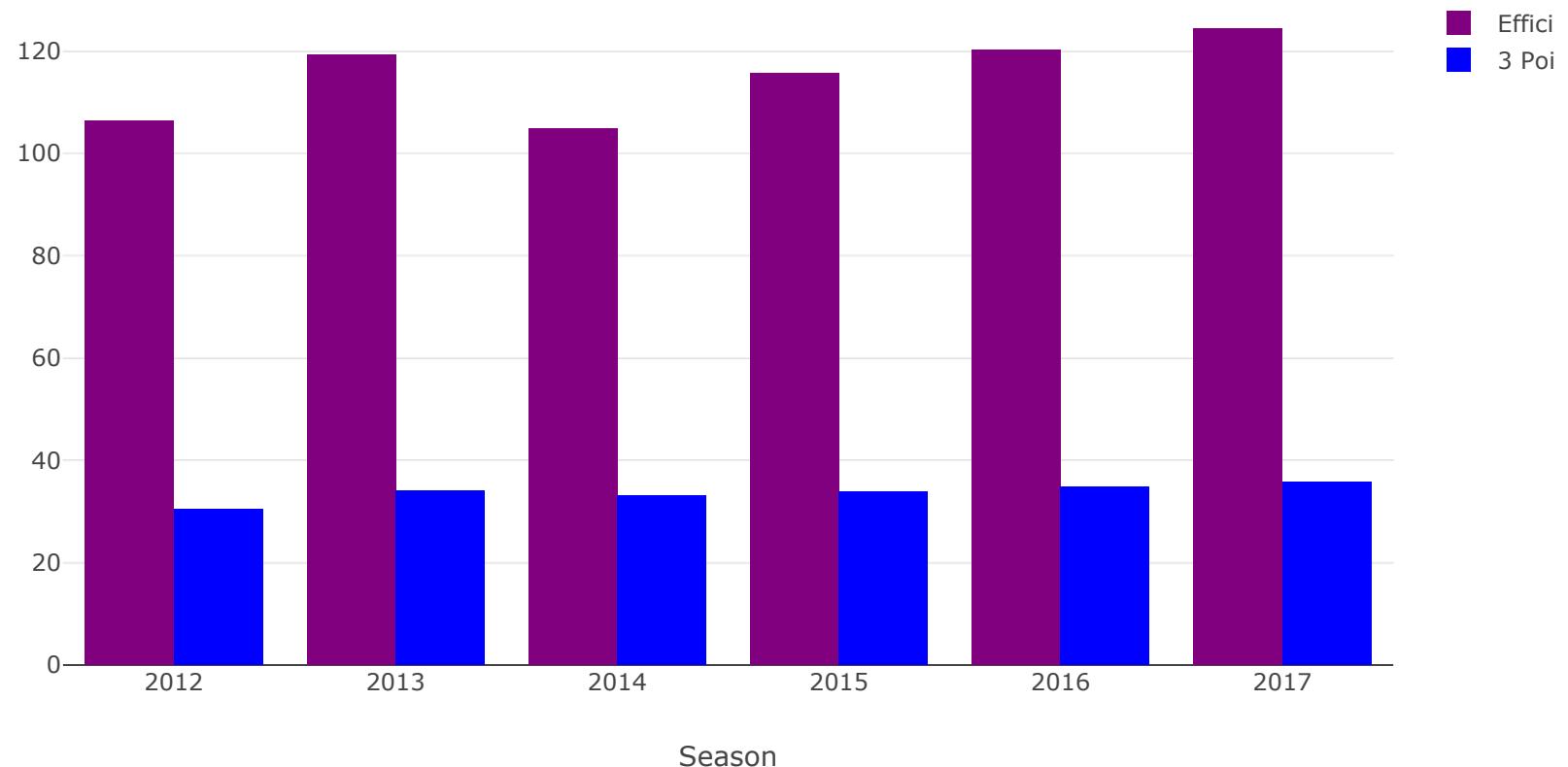
Efficiency VS 3 Point Percentage Made for MIA



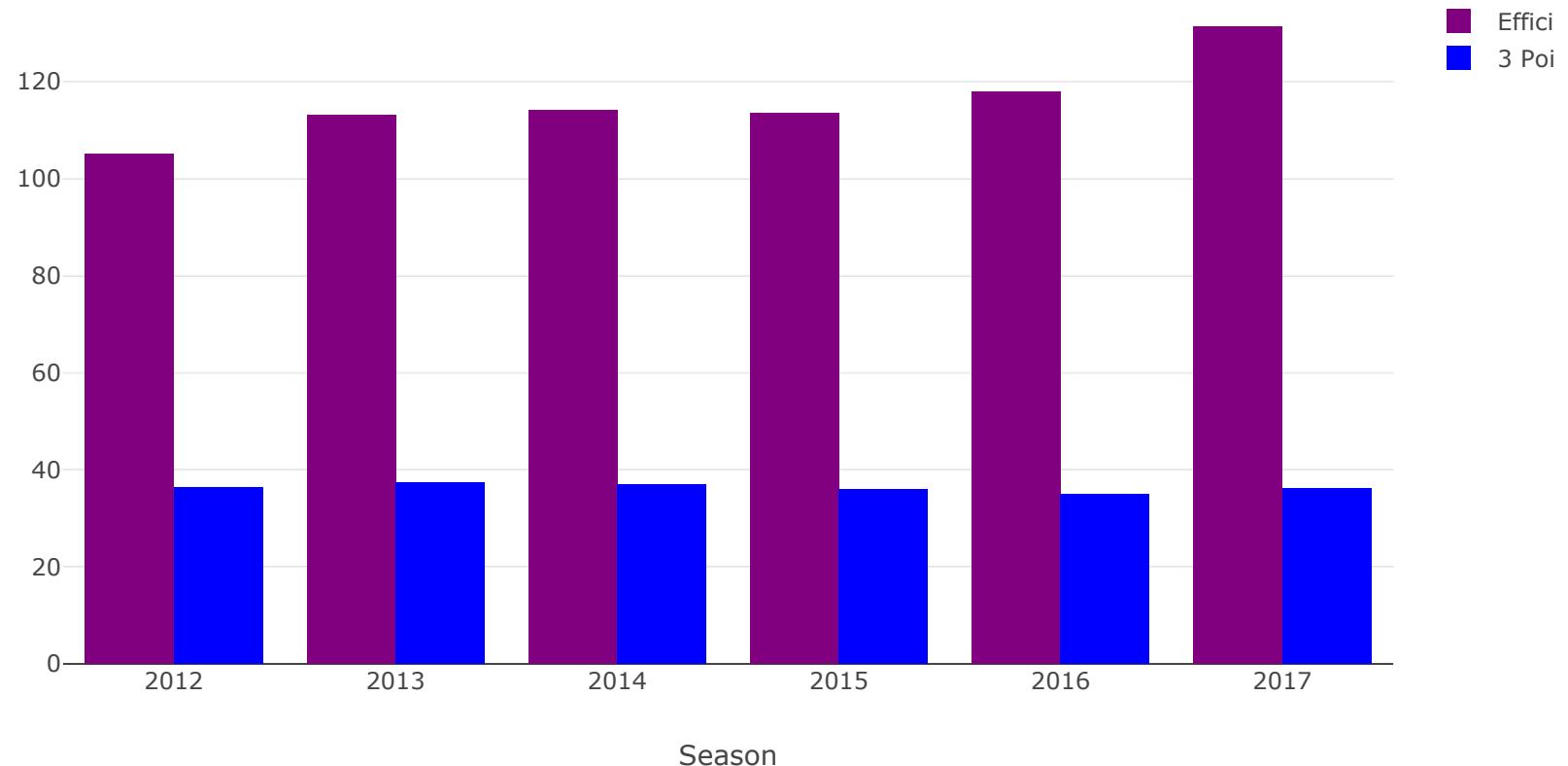
Efficiency VS 3 Point Percentage Made for MIL



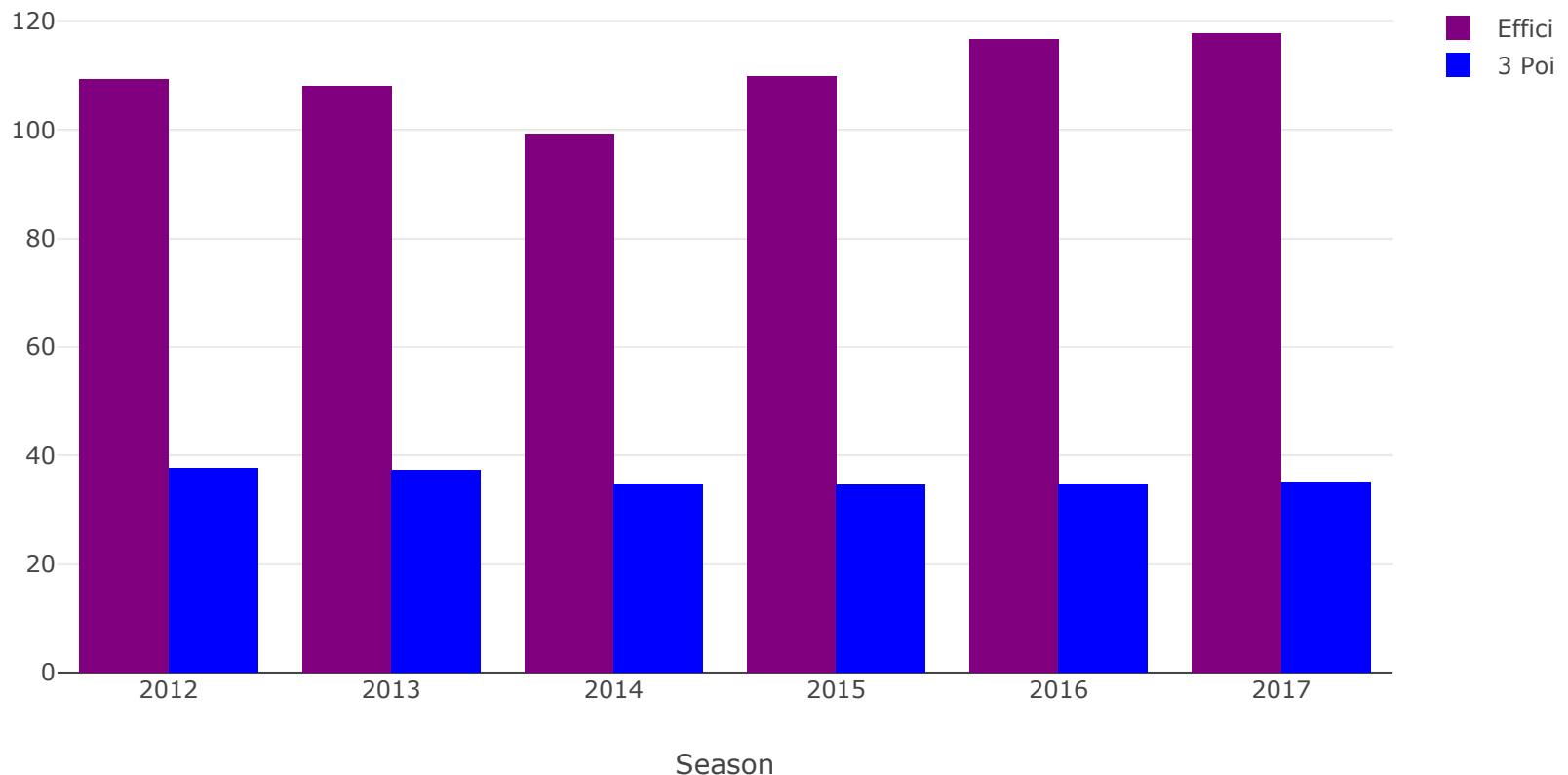
Efficiency VS 3 Point Percentage Made for MIN



Efficiency VS 3 Point Percentage Made for NOP



Efficiency VS 3 Point Percentage Made for NYK



Efficiency VS 3 Point Percentage Made for OKC

