



Do Robert Horry and His Seven Rings have a Shot at the Hall of Fame? A Predictive Model of Entry into the Basketball Hall of Fame

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Background and Literature Review:

Bishop (1987) found that an increase in relative wages appeared after approximately one year for employees perceived to be more productive

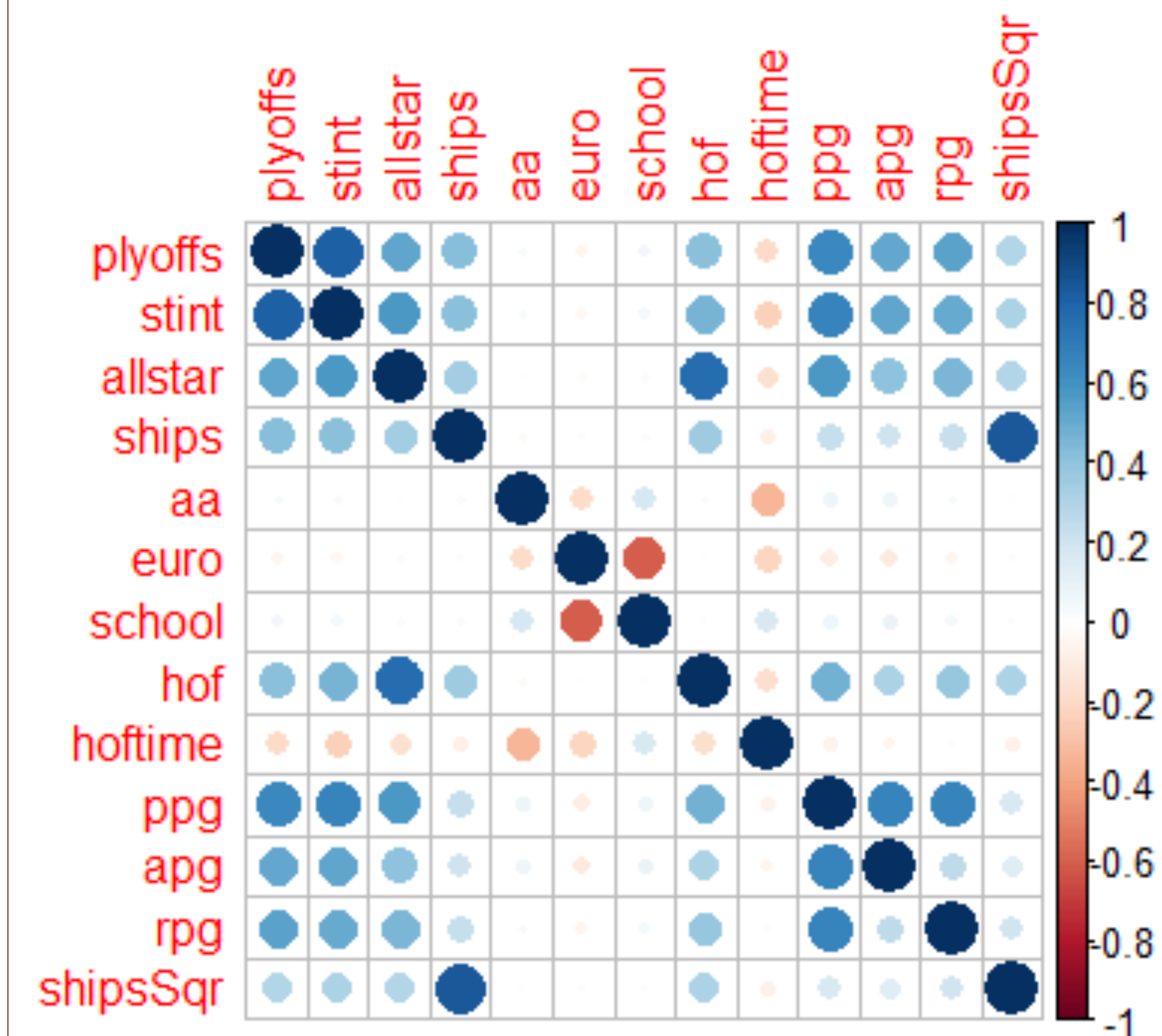
Bishop's one-year theory is capitalized by the HOF's 4-5 year wait period

Osterman (2006) found wages were higher in firms and for employees who were members of high performing work organization systems

Osterman's findings hint at possible results in our study

Summary Statistics:

Var	Obs	Min	Max	Median	Mean	St.Err of Mean	St.Dev
plyoffs	3262	0	19	1	2.419374617	0.056603989	3.232875794
stint	3262	1	19	2	2.725015328	0.042358828	2.41927877
allstar	3262	0	19	0	0.35959534	0.026724479	1.526339797
ships	3262	0	11	0	0.231759657	0.013339323	0.76186107
aa	3185	0	1	1	0.609419152	0.008646234	0.487957177
euro	3262	0	1	0	0.066523605	0.004363793	0.24923334
school	3262	0	1	1	0.961679951	0.003361653	0.191997197
hof	3262	0	1	0	0.035561006	0.003243015	0.18522132
hoftime	3262	1	58	25	25.74678112	0.295912645	16.90073152
ppg	3262	0	30.59872102	5.062177835	6.312031296	0.082737296	4.725451414
apg	3262	0	11.39324818	1	1.410845521	0.023288871	1.330118726
rpg	3262	0	23.10124481	2.310413964	2.936647973	0.041315292	2.359678352
shipsSqr	3262	0	121	0	0.633966891	0.077825724	4.444932285



Expected First Ballot HOF

Player	ships	hof	hoftime	CoxPH	Linear
Michael Jordan	6	1	1	12.23627	-45.5092
Kareem Abdul-Jabbar	6	1	1	13.13926	-42.957
Hakeem Olajuwon	2	1	1	11.8642	-41.9463
Wilt Chamberlain	2	1	1	12.46449	-35.1222
Jerry West	1	1	1	10.99836	-29.2658
Larry Bird	3	1	1	11.247	-28.741
Magic Johnson	5	1	1	11.9213	-28.2494
Karl Malone	0	1	1	10.68797	-24.6461
Elgin Baylor	1	1	1	10.59448	-24.4142
Oscar Robertson	1	1	1	10.68866	-20.8742
John Havlicek	8	1	1	10.75727	-20.8344
Bob Pettit	1	1	1	10.20053	-17.7629
Bob Cousy	6	1	3	10.57138	-15.5431
Dominique Wilkins	0	1	2	8.831937	-14.1331
Isiah Thomas	2	1	1	9.86067	-10.5199
Julius Erving	1	1	1	9.011861	-7.14928
David Robinson	2	1	1	8.965342	-6.3713
Bill Russell	11	1	1	11.29962	-5.42889
Dolph Schayes	1	1	4	9.058044	-1.79407
Shaquille O'Neal	0	1	1	9.007388	-0.26054

Player	ships	hof	hoftime	CoxPH	Linear
Robert Horry	7	2013	3	2.776703	63.79921
Jack Sikma	1	1996	21	6.194913	27.90139
Marques Johnson	0	1995	22	5.272658	31.52881
Kevin Johnson	0	2005	12	6.000493	24.30603
Mark Aguirre	2	1999	18	4.993442	29.88458
Swen Nater	0	1989	28	4.169785	43.42188
Sidney Moncrief	0	1996	21	4.611434	40.24269
Maurice Cheeks	1	1998	19	4.931398	40.16494
Paul Westphal	1	1989	28	3.886593	48.66311
Bobby Jones	1	1991	26	3.909668	50.26896
Chris Webber	0	2013	4	5.809594	28.10098
Mark Price	0	2003	14	4.693039	40.38561
Tim Hardaway	0	2008	9	--	34.6382
Ben Wallace	1	2016	1	--	31.9114
Junior Bridgeman	0	1992	25	2.254628	60.86374
Terry Cummings	0	2005	12	3.226722	53.03403
Muggsy Bogues	0	2006	11	2.702711	65.54853
Tracy McGrady	0	2017	0	--	63.1388

Modeling Techniques and Justifications:

Logistic Regression:

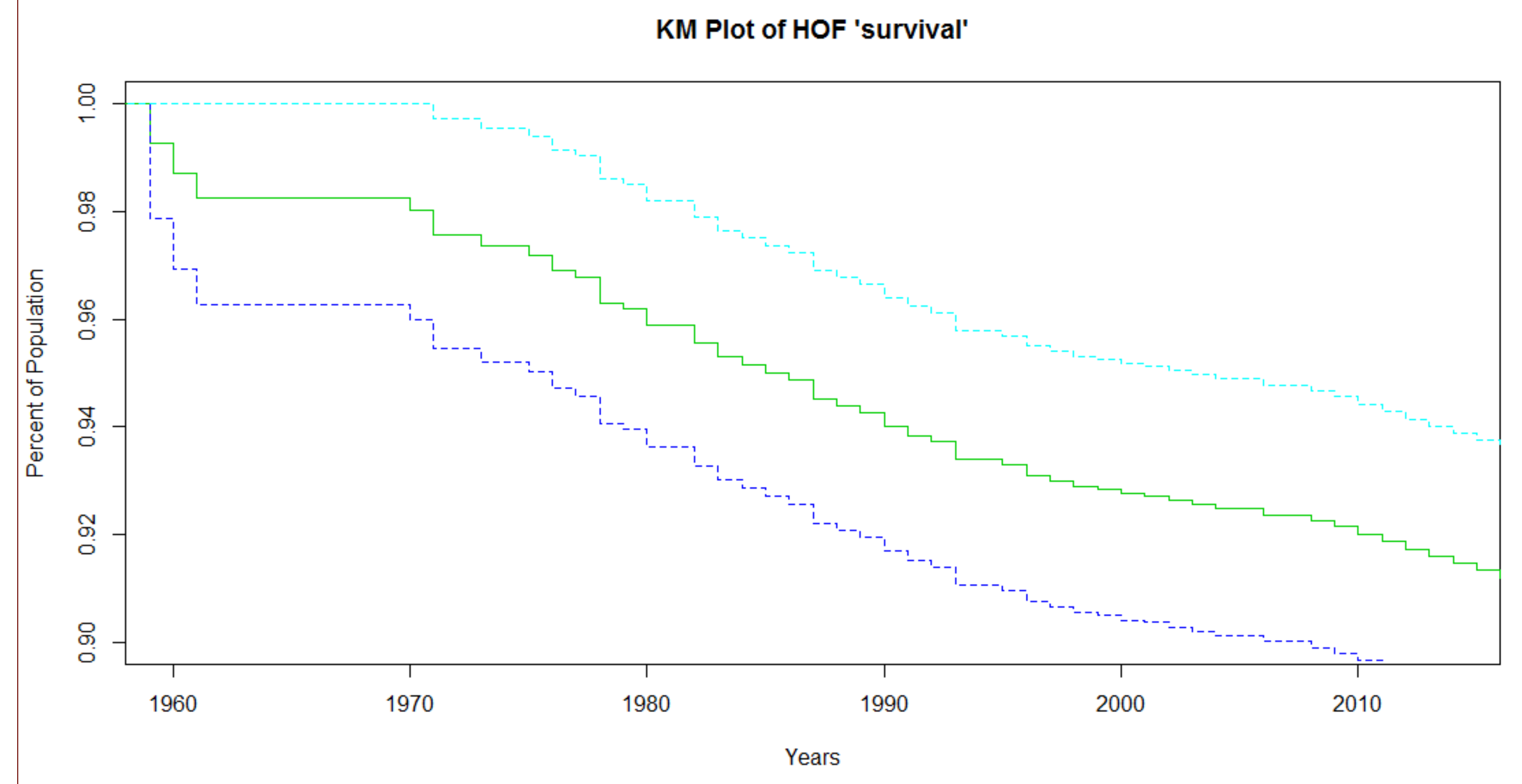
- Measures Odds a player will eventually make the HOF
- Will not specify how long – therefore lends insight into our problem, but not an answer
- Championships Coefficient = .65933

Cox Proportional Hazard Model:

- Combines measures of probability as well as a component of time.
- This type of model should give us exactly what we are looking to find.
- Championships Coefficient = 0.51150
- Championships Squared = -0.03904
- This implies a diminishing return

Issues with Both:

- Logistic Regression does not answer our question.
- The Cox model assumes a proportional risk at every point in time which is a strong assumption
- There is relatively low variance in the model as well as dependency problems.



Preliminary Results and Implications:

- Championship rings seem to decrease wait time
- Our results back up Osterman and Bishop

	coef	se(coef)	z	Pr(> z)
euro	1.54833	0.46337	3.341	0.000833
ships	0.5115	0.14749	3.468	0.000524
shipsSqr	-0.03904	0.01886	-2.07	0.038472
allstar	0.26259	0.04579	5.734	9.79E-09
ppg	0.15495	0.03039	5.098	3.43E-07
apg	0.29831	0.06858	4.35	1.36E-05
rpg	0.18292	0.03515	5.205	1.94E-07
stint	0.16073	0.04398	3.655	0.000257