The Relationship of Staff Experience and Continuity with Team Success in Division 1 NCAA Men's Basketball

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Outline

- About Carousel Analytics
- Quick review of the underlying data
- Staff Experience
- Staff Continuity (1)
- Staff Continuity (2)
- Brief Overview of Services

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About Carousel Analytics

- Based in St. Louis, MO

- Began as a hobby in early 2018
    - Do certain schools have more staff turnover than others?
    - Does increased staff turnover impact team success?

- Initially school focused

- Started with a few schools. Expanded to all High Majors. Expanded again to all D1 schools

- "Flipped" dataset to focus on individual coaches instead of schools

- Founded Carousel Analytics in early 2019

Goal:

To provide coaches and administrators with objective analytical insight into college basketball coaching hires through the use of _expedient_, _cost efficient,_ and _confidential_ services powered by data-driven practices.

Carousel Analytics

The Data

- Identified all Head, Associate, and Assistant coaches in D1 men's basketball since 2007-2008 season

- Collected complete career history for each coach (HS/AAU and above).

- Paired with…
  - On-court stats
  - Coach salaries
  - APR
  - School type & location
  - Etc…

	Count
Seasons	13*
Unique Coaches	5,158
Variables	359

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Question: Is Staff Experience Important?

- Why look at staff experience?
  - Scenario 1:
    - School X has hired an up an coming Assistant Coach as their next head coach
    - Conventional wisdom says that a young coach should hire an experienced staff to help offset the young coach's lack of experience
    - Is conventional wisdom correct?
  - Scenario 2:
    - School X has a successful program and a quality head coach
    - Other schools are approaching School X's top assistant coach
    - Is experience a factor that School X should consider when deciding whether to attempt to keep their prized Assistant Coach?

- Specific question:
  - Do teams with more experienced coaching staffs have more success on the court, as measured by efficiency margin?

Staff Experience - Inclusion Criteria

- Seasons 2007-2008 through 2018-2019

- When determining staff experience, only experience totals for Head and Assistant Coaches are included
  - This controls for variability in staff size (range: 2-12 members)

- Only included teams with a staff of exactly four "core" staff members
  - Typically 1 Head Coach, 3 Assistant Coaches
  - Service schools frequently have >4 coaches
  - A few schools regularly have <4 coaches

- N= 4,002

Staff Experience - Definitions

Total Experience
- Any coach experience High School/AAU level and above
- Includes men's and women's basketball coaching experience.

Men's D1 Experience
- Experience as a member of a D1 basketball staff (HC, AC, DOBO, Student Manager, etc…)
- Does not include women's basketball coaching experience.

Men's D1 Experience (Core)
- Experience as a Head or Associate/Assistant coach at the D1 level
- Does not include DOBO, Student Manager, etc…
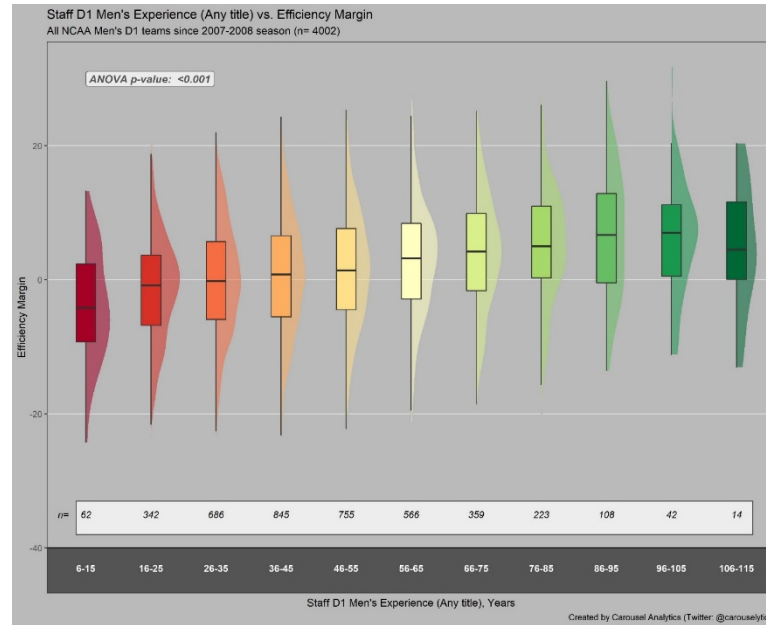- Does not include women's basketball coaching experience.

Staff Experience = Sum of individual coach experience within each team and season

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Staff Experience - Results
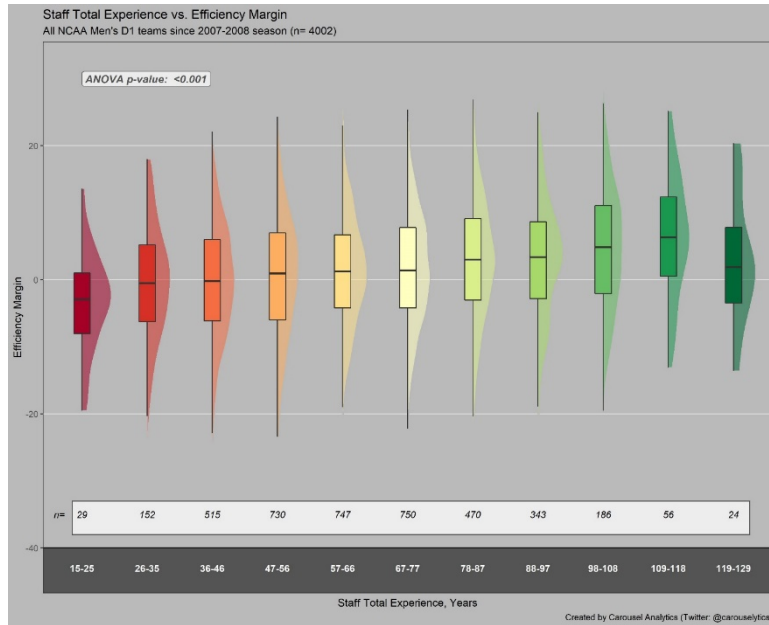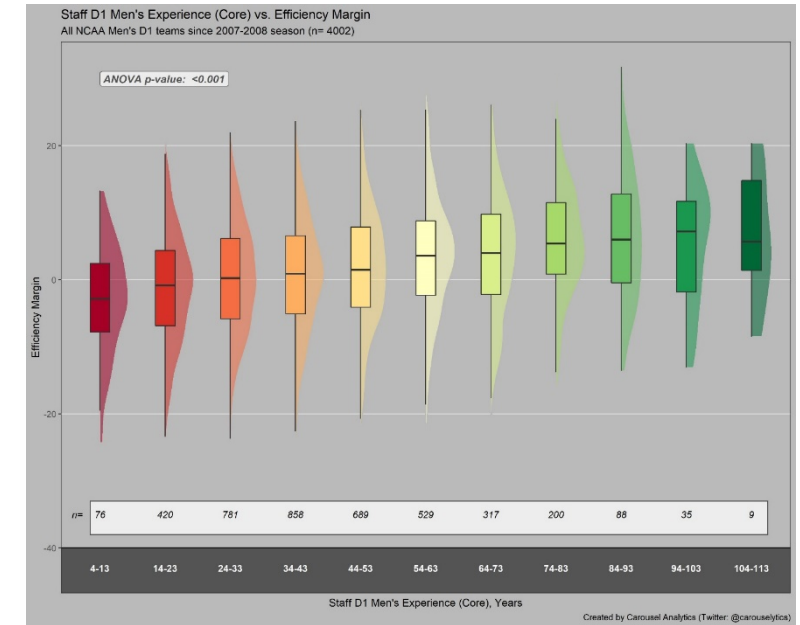
Total Experience   D1 Men's (Any Title)   D1 Men's (Core)
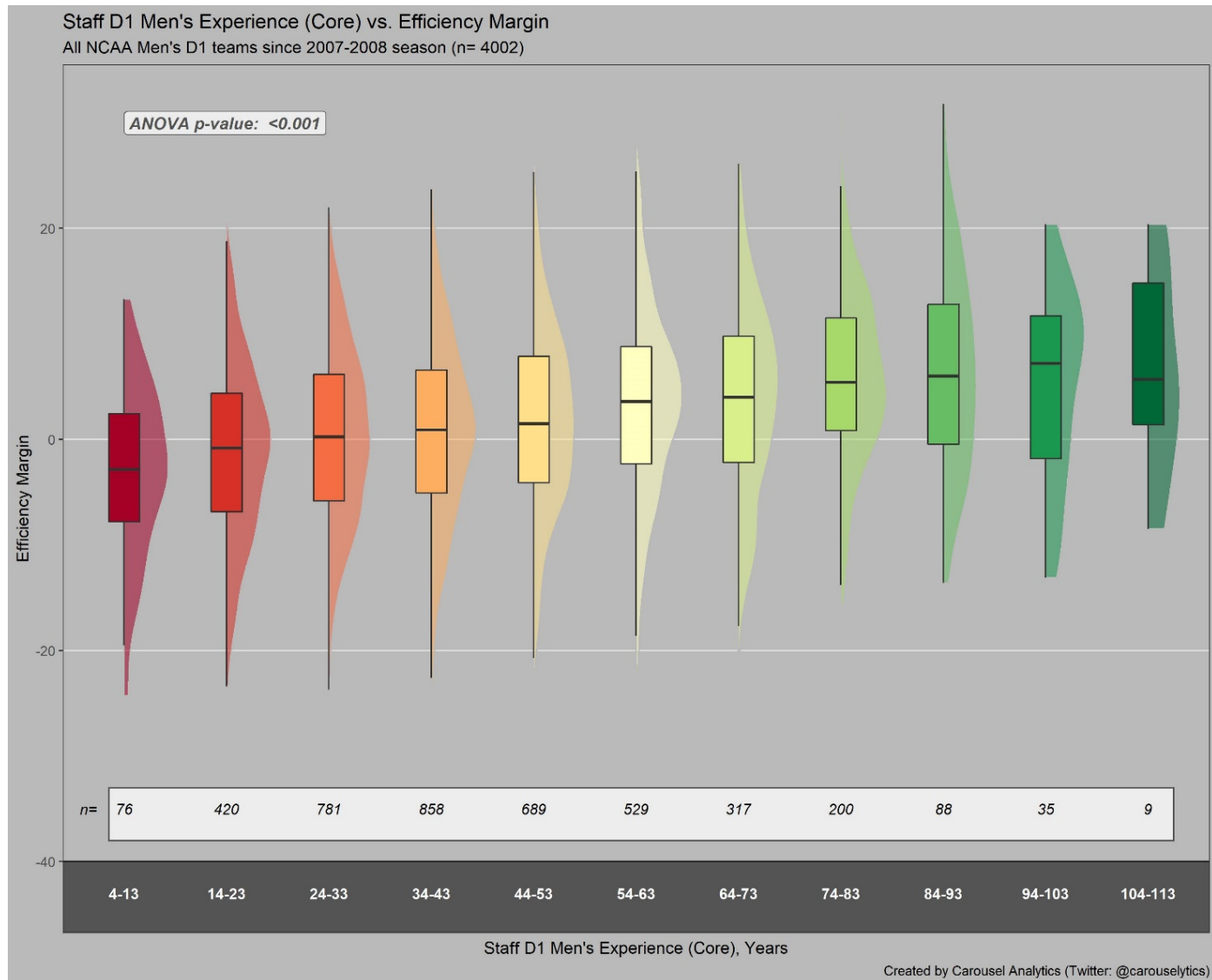

- **Big Picture:** Across all definitions, as staff experience increases so does team performance

- Possible dip in performance at the highest end of staff experience

Staff Experience – D1 Men's (Core)

Staff D1 Men's Experience (Core) vs. Efficiency Margin
All NCAA Men's D1 teams since 2007-2008 season (n= 4002)

ANOVA p-value: <0.001

Staff Experience – Differences between groups

Staff D1 Men's Experience (Core), between group comparisons
p-values shown

Staff D1 Experience (Core), Years	4-13	14-23	24-33	34-43	45-53	54-63	64-73	74-83	84-93	94-103
104-113	0.091	0.283	0.617	0.716	0.922	0.997	0.998	1	1	1
94-103	0.001	0.003	0.062	0.131	0.594	0.994	0.998	1	1	
84-93	0.001	0.001	0.001	0.001	0.001	0.12	0.256	1		
74-83	0.001	0.001	0.001	0.001	0.001	0.02	0.104			
64-73	0.001	0.001	0.001	0.001	0.108	1				
54-63	0.001	0.001	0.001	0.001	0.08					
45-53	0.001	0.001	0.019	0.217						
34-43	0.027	0.013	0.997							
24-33	0.088	0.169								
14-23	0.871									

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Staff Continuity (part 1) - Definition

- **Definition**
  - Consecutive number of years a team's core staff has stayed together without <u>any</u> turnover

- **Why look at continuity?**
  - Scenario 1:
    - Head Coach X has a reputation for being difficult to work with, and his/her Assistant Coaches don't stick around longer than 1-2 years
    - Does this high level of turnover matter?
  - Scenario 2:
    - School X has a successful program and a quality Head Coach
    - Other schools are approaching School X's assistant coaches
    - Is staff continuity a factor that School X should consider when deciding whether to attempt to keep their up-and-coming Assistant Coach?
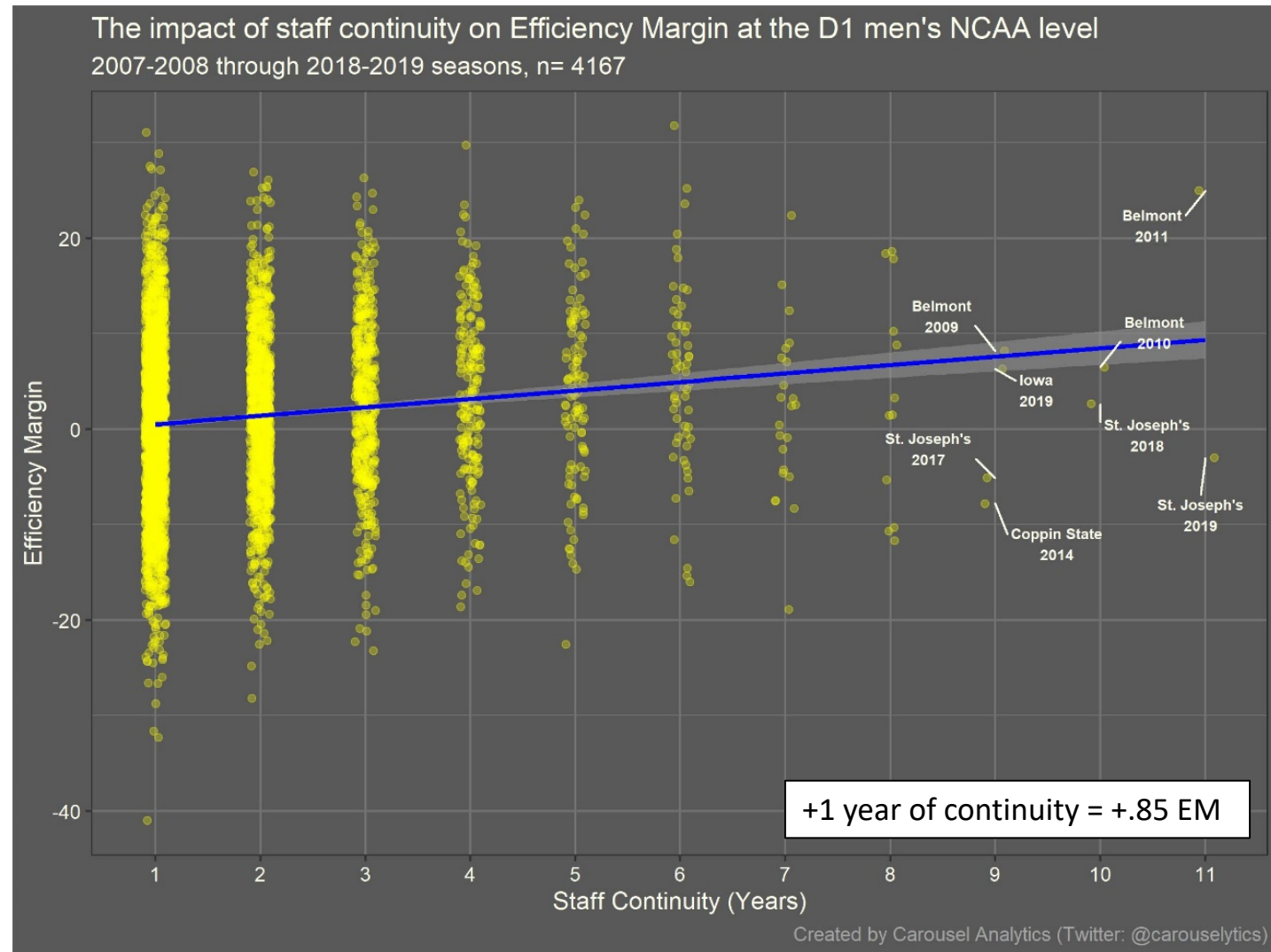
Staff Continuity (1) – Inclusion Criteria

- Inclusion Criteria
  - Only included the 2007-2008 through 2018-2019 seasons.
  - Only included core staff in the continuity calculation.
  - Only included teams with at least 3 core staff members in a given year
  - Associate Head Coach title is combined with Assistant Coach title
  - Promotions from within do not extend staff continuity
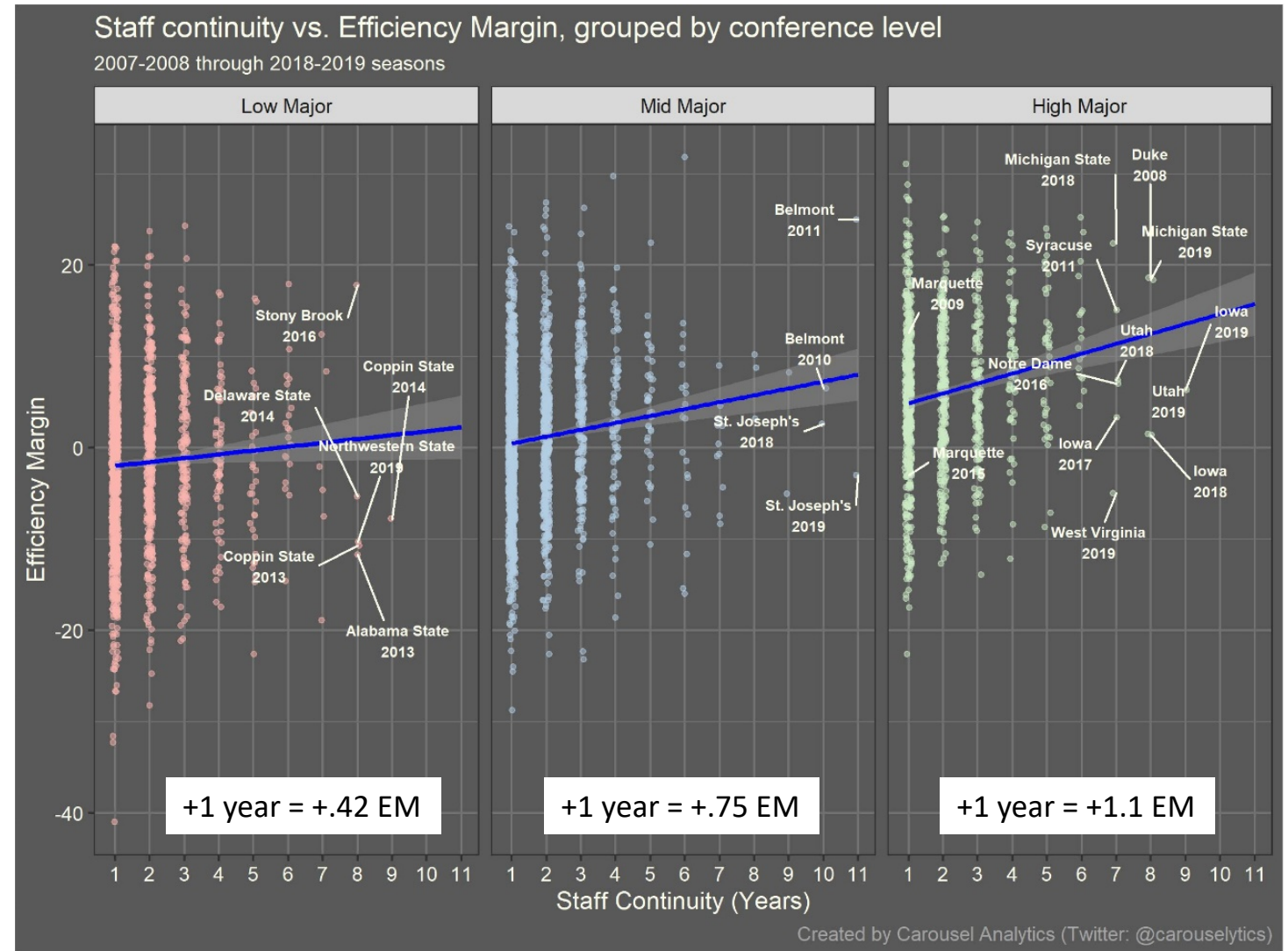- N= 4,167

Staff Continuity vs EM – All Conference Levels

Continuity	n
1	2216
2	1044
3	491
4	208
5	107
6	58
7	23
8	12
9	4
10	2
11	2

At each level of continuity, n drops by just over 50%

The impact of staff continuity on Efficiency Margin at the D1 men's NCAA level
2007-2008 through 2018-2019 seasons, n= 4167

Belmont 2011
Belmont 2009
Belmont 2010
Iowa 2019
St. Joseph's 2017
St. Joseph's 2018
St. Joseph's 2019
Coppin State 2014

+1 year of continuity = +.85 EM

Efficiency Margin

Staff Continuity (Years)

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Staff Continuity vs EM – By Conference Level

Staff Continuity	Low Major	Mid Major	High Major
1	848	897	471
2	384	413	247
3	161	197	133
4	68	77	63
5	32	37	38
6	20	21	17
7	6	11	6
8	5	3	4
9	1	2	1
10	0	2	0
11	0	2	0

Staff continuity vs. Efficiency Margin, grouped by conference level
2007-2008 through 2018-2019 seasons

+1 year = +.42 EM

+1 year = +.75 EM

+1 year = +1.1 EM

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Staff experience and continuity multivariate model

- After adding staff D1 men's core experience and staff continuity to a multivariate model, both remained significantly related to efficiency margin.

- Controlling for conference level...

  - At the low major level, experience is no longer significant when continuity is added to the model.

  - At the mid and high major levels, both remain significant.

	All Conference Levels		Low Major Only		Mid Major Only		High Major Only	
	Coeff.	p	Coeff.	p	Coeff.	p	Coeff.	p
Continuity	.473	<.05	.39	.05	.622	<.05	.780	<.05
Experience	.102	<.05	.009	.54	.043	<.05	.06	<.05

Staff Continuity (part 2) – A new definition

- Why the new definition?
  - Not all staff turnover is the same
  - Need to take into account how much turnover happened between seasons, not just whether turnover happened
- New Definition(s):
  - **4 member continuity**: All core staff from previous season returned
  - **3 member continuity**: At least 3 core staff from previous season returned
  - **2 member continuity**: At least 2 core staff from previous season returned
  - **1 member continuity**: At least 1 core staff from previous season returned
- Inclusion Criteria
  - Same as previous continuity definition

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How Continuity Definition Changed

- 1-year lag due to comparing staff to previous season
- Set 2007-2008 season as index season

Season	Head Coach	Assistant Coach	Assistant Coach	Assistant Coach	Previous Continuity Definition	New Continuity Definition			
						4 member	3 member	2 member	1 member
2008	Bill Smith	Max Meyer	Jim Towns	Gary Barry	1	0	0	0	0
2009	Bill Smith	Max Meyer	Jim Towns	Gary Barry	2	1	1	1	1
2010	Bill Smith	Max Meyer	Jim Towns	Gary Barry	3	2	2	2	2
2011	Bill Smith	Max Meyer	Jim Towns	Merl West	1	0	3	3	3
2012	Bill Smith	Max Meyer	Jim Towns	Merl West	2	1	4	4	4
2013	Bill Smith	Max Meyer	Les Carter	Jerry Wu	1	0	0	5	5
2014	Max Meyer	Wes Matts	Mark Maker	JJ Cleary	1	0	0	0	0
2015	Max Meyer	Dale Haas	Mark Maker	Pat Schnee	1	0	0	1	1
2016	Max Meyer	Dale Haas	Mark Maker	Pat Schnee	2	1	1	2	2
2017	Max Meyer	Jeff Bilson	Clark Swiss	Dieter Rohn	1	0	0	0	3

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Staff Continuity vs EM (2) – All Conference Levels
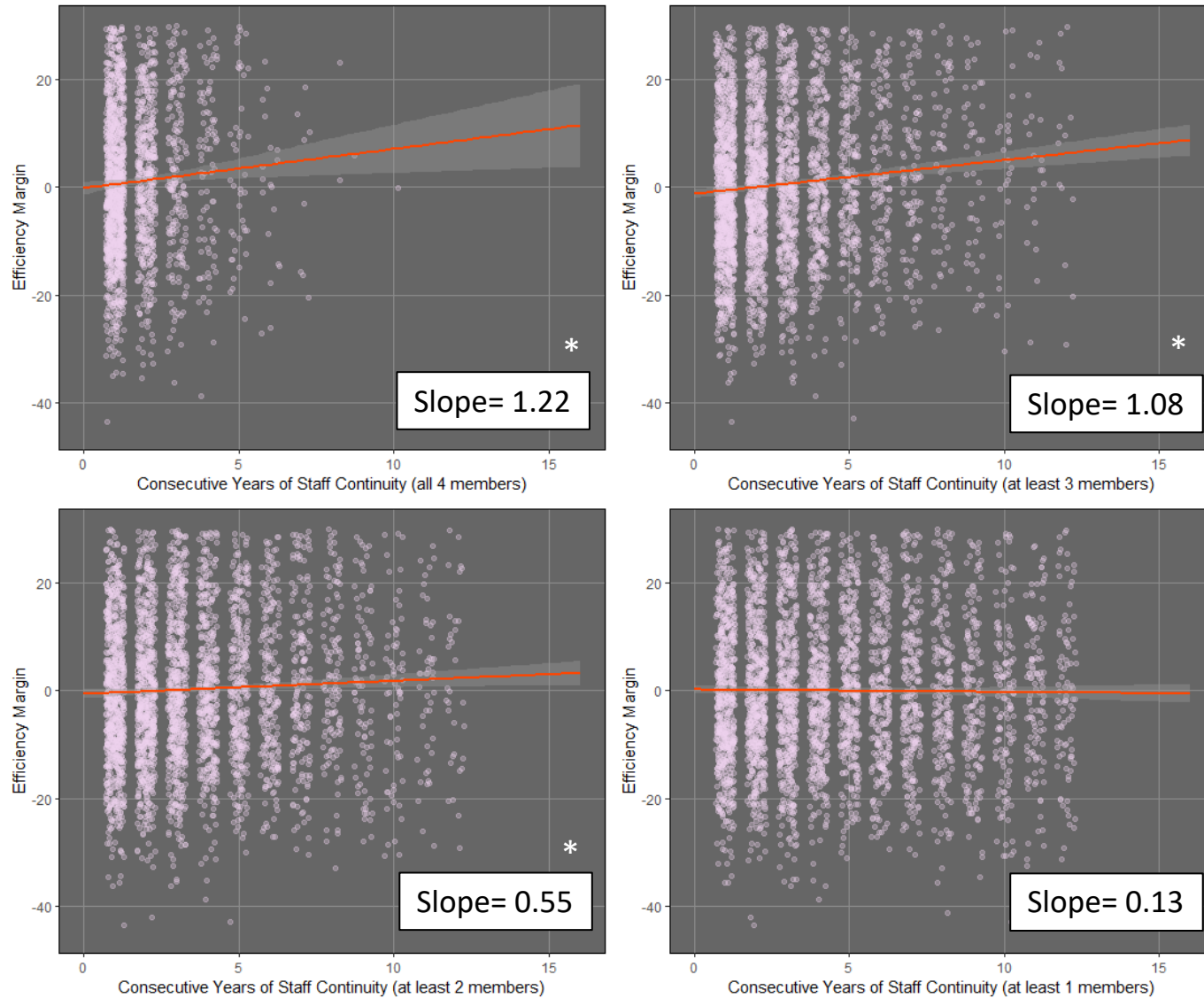
- The impact of staff continuity on efficiency margin decreases as staff continuity decreases

- There is no significant difference between Tier 3 and Tier 4

- Tiers 3 and 4 are significantly better than tiers 1 and 2

Staff Continuity vs EM (2) – By Conference Level
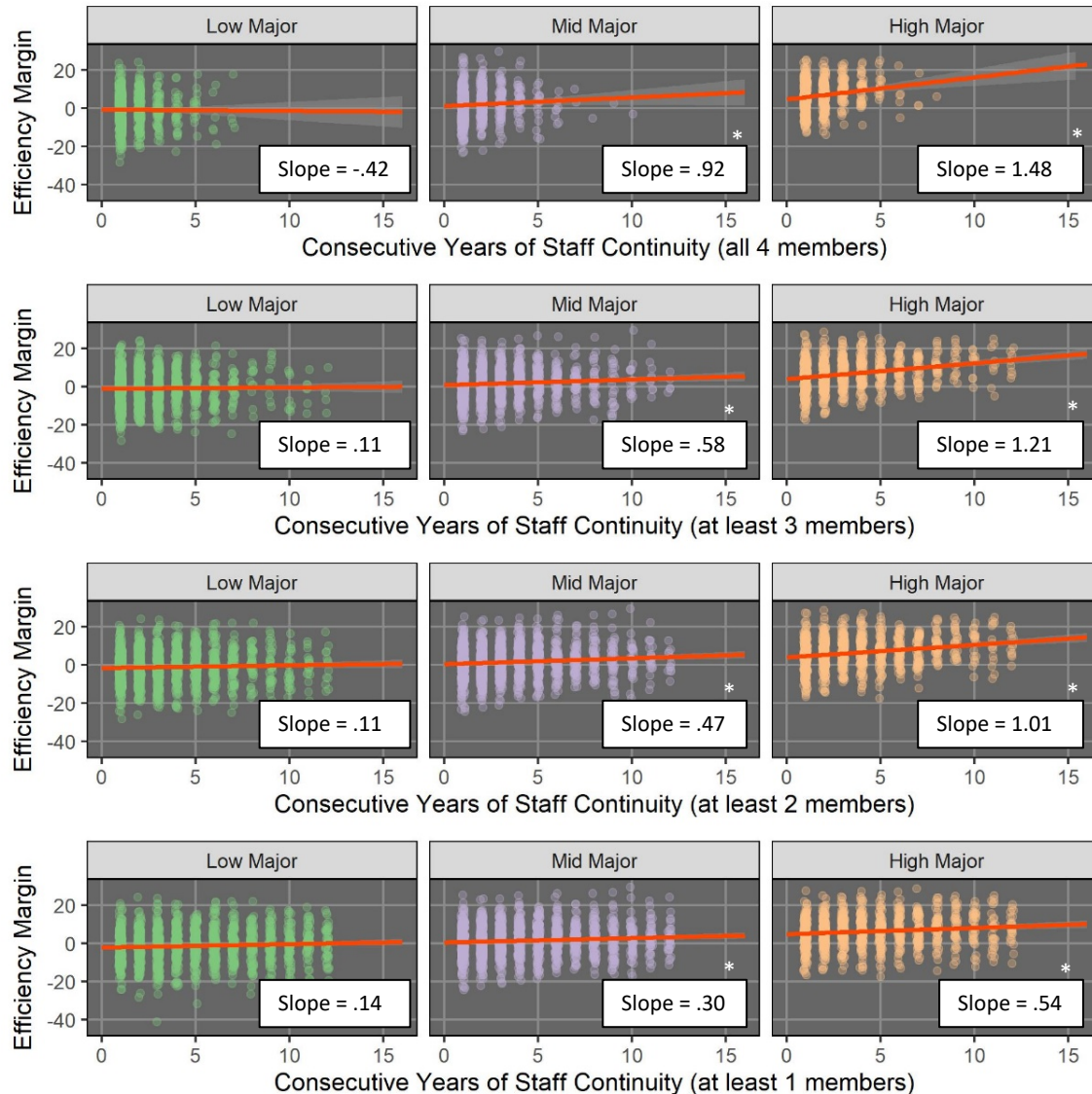
- At the mid and high major levels, the amount of staff continuity is significantly related to increased efficiency margin

- At the low major level, there is no relationship between staff continuity and efficiency margin
  - To the naked eye there appears to be a negative relationship

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Takeaways and Application

- First, keep in mind that this data does not exist in a vacuum.
  - Roster make-up/turnover
  - School resources
  - Interpersonal relationships

- Takeaways…
  - Staff experience and staff continuity are important factors to consider when building or retaining a staff
  - Low major schools may behave differently than mid and high major schools

- Application…
  - It is harder to keep a staff together than it is to find an experienced coach
  - If you have a good staff, emphasize staff continuity (when possible)
  - Statistically, retaining at least 3 core staff members year-on-year is ideal
  - If all else fails, replace departing staff with experienced coaches to cover gaps
    - At least at the mid and high major levels

Services – Candidate Identification

- Establish criteria to develop a list of coaching candidates

- List to the right includes 20 (of 74) coaches who fit the following criteria:
  - Active at least since the 2012-2013 season
  - 20+ years of total coaching experience
  - 1+ year of D1 men's Head Coaching experience
  - Career average points scored per 100 possessions > 50th %ile
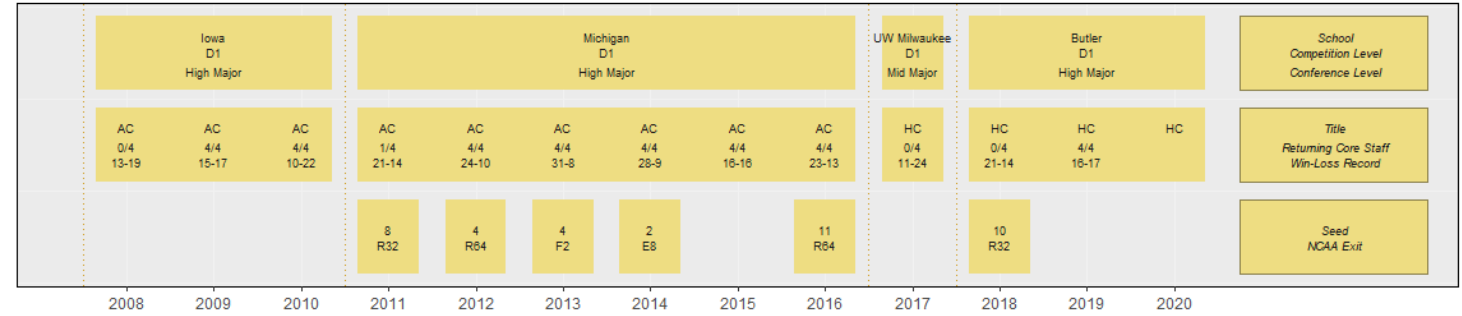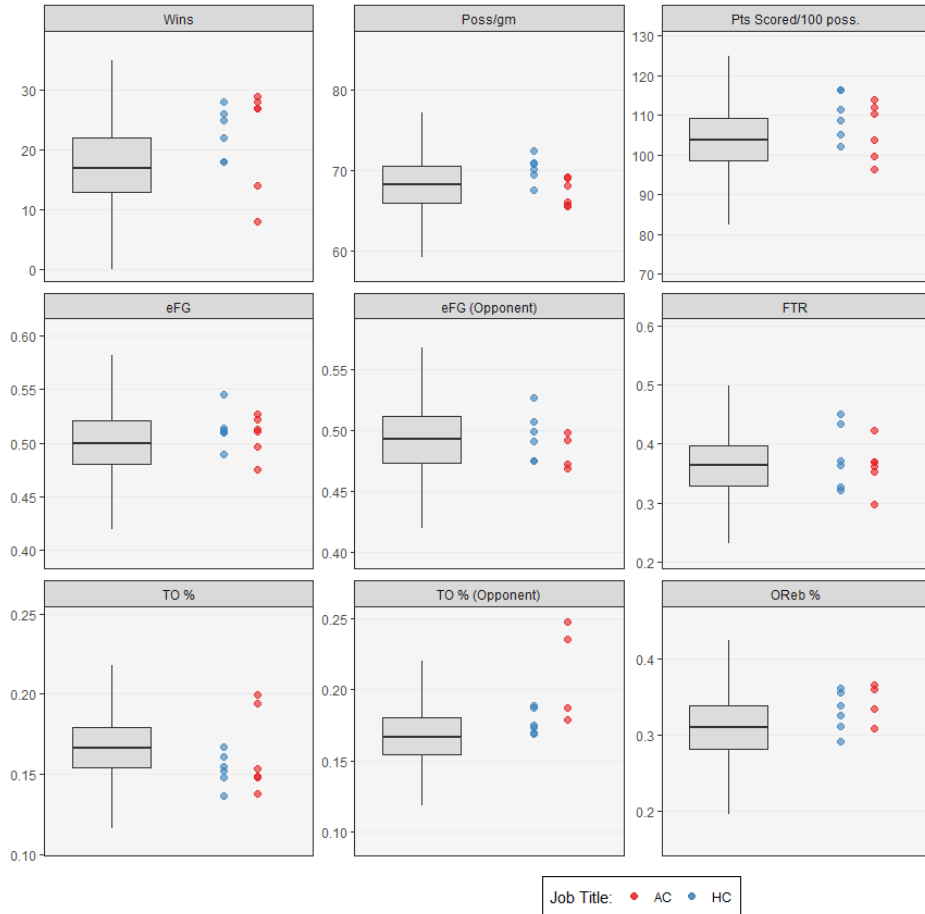 - Career average points allowed per 100 possessions > 75th %ile

Name	Last School/Team	Last Season	Comp. Sex	Comp. Level	Title
Alvin Brooks	Houston	2020	m	D1	AC
Barclay Radebaugh	Charleston Southern	2020	m	D1	HC
Bill Grier	Colorado	2020	m	D1	AC
Billy Hahn	West Virginia	2017	m	D1	SATHC
Blaine Taylor	UC Irvine	2020	m	D1	AC
Brad Soderberg	Virginia	2020	m	D1	AC
Brian Dutcher	SDSU	2020	m	D1	HC
Bruce Pearl	Auburn	2020	m	D1	HC
Buzz Williams	Texas A&M	2020	m	D1	HC
Cameron Dollar	Washington	2020	m	D1	AC
Casey Alexander	Belmont	2020	m	D1	HC
Charlton Young	Florida State	2020	m	D1	AC
Chris Beard	Texas Tech	2020	m	D1	HC
Chris Jans	New Mexico State	2020	m	D1	HC
Craig Smith	Utah State	2020	m	D1	HC
Dale Layer	Texas A&M	2020	m	D1	SATHC
Dana Altman	Oregon	2020	m	D1	HC
Danny Kaspar	Texas State	2020	m	D1	HC
Dave Rice	Washington	2020	m	D1	AC
Doc Sadler	Nebraska	2020	m	D1	AC

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Services – Coach Profile
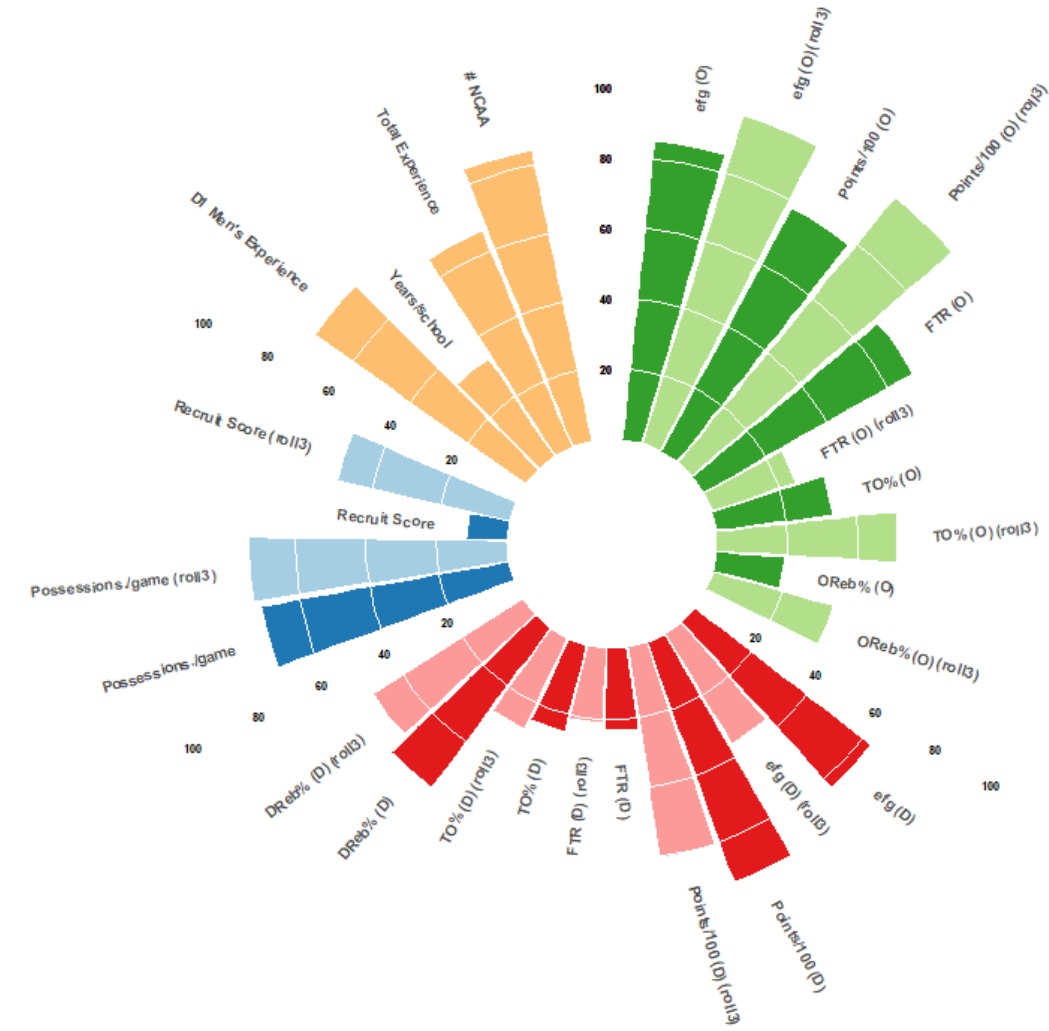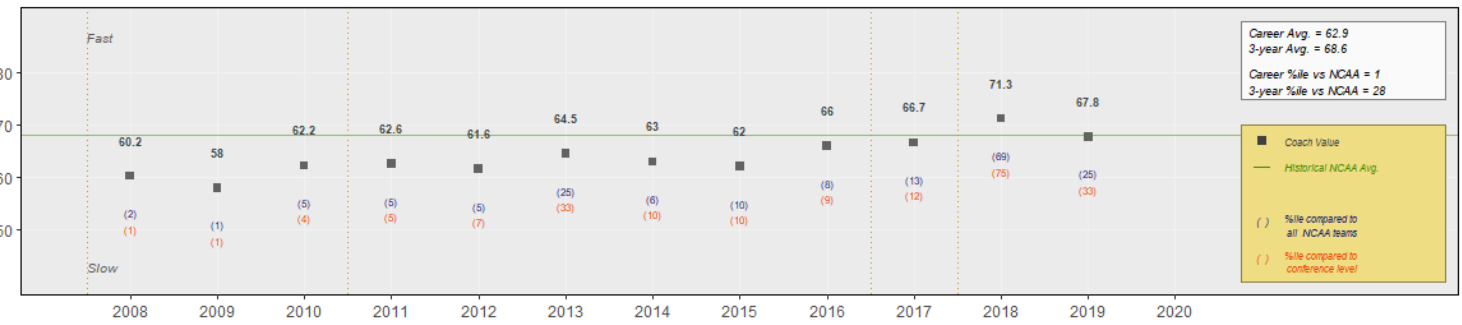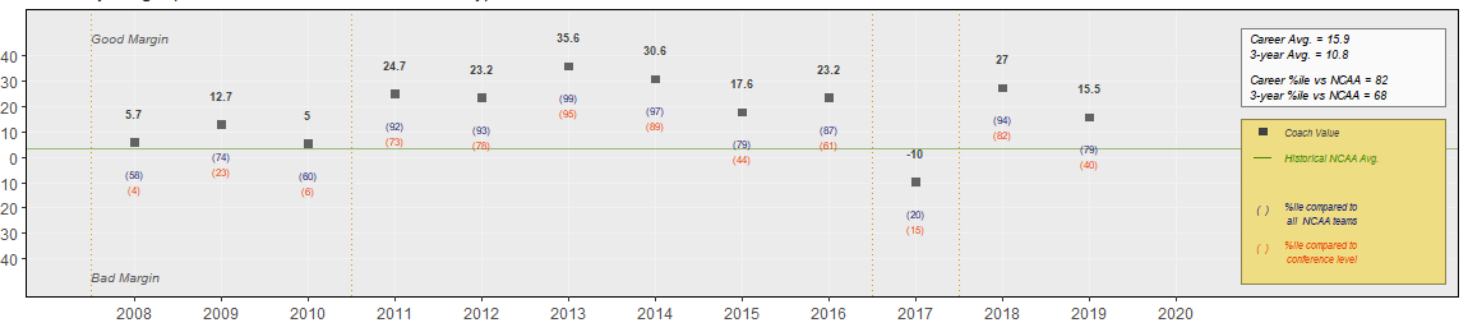
Services – Coach Comparisons

Services – Custom Consulting/Analytics Work

- Clients can commission a study to look at specific questions that may help develop long-term decision making parameters for their administration.

- Examples:
  - Is it better to promote from within or hire from outside to fill a Head Coaching position?

  - Is there a benefit in hiring former head coaches as core staff members?

  - How do D2 head coaches fare when they jump up to D1 without prior D1 head coaching experience?

  - How do head coaches fare when given a second chance to be a head coach at a high major school (HM → MM or HM AC → HM)?

Thank you!

- Questions?

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