

Catch and Release?

Examining the Endowment Effects in the NHL Expansion Draft

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Why Sport?

Coffee Mugs vs Hockey Players

- Coffee Mugs was used to show the bias of endowment under divestment aversion (Kahneman, Knetsch and Thaler 1990).
- The 2017 NHL Expansion Draft provides a natural experiment to analyze this effect.



Motivating Question

Do pre-existing relationships between players and their General Managers lead to endowment or divestment aversion biases?

Agenda

- Introduction and research motivation
- 2017 NHL Expansion Draft
- Research methodology
- Results, analysis, and findings
- Validation
- Conclusions

Why Sport?

- Sport is an excellent place to study organizations (Drucker 1995)
- Regulation creates an opportunity for a natural experiment because innovation is limited
 - On ice innovation can be
 - Quickly copied (“the trap”)
 - Thwarted via rule changes (Roger Neilson)



STAPLES Center

1ST ROUND DRAFT PICKS	
PICK	TEAM
1ST	BOSTON
2ND	MINNESOTA
3RD	FLORIDA
4TH	DETROIT
5TH	PHILADELPHIA
6TH	ST. LOUIS
7TH	NEW YORK
8TH	EDMONTON
9TH	CHICAGO
10TH	ATLANTA
11TH	ANAHEIM
12TH	OTTAWA
13TH	NEW JERSEY
14TH	WASHINGTON
15TH	PHOENIX
16TH	LOS ANGELES
17TH	COLGATE
18TH	NEW YORK
19TH	ST. LOUIS
20TH	MINNESOTA
21ST	FLORIDA
22ND	DETROIT
23RD	PHILADELPHIA
24TH	ST. LOUIS
25TH	NEW YORK
26TH	EDMONTON
27TH	CHICAGO
28TH	ATLANTA
29TH	ANAHEIM
30TH	OTTAWA
31ST	NEW JERSEY
32ND	WASHINGTON
33RD	PHOENIX
34TH	LOS ANGELES
35TH	COLGATE
36TH	NEW YORK
37TH	ST. LOUIS
38TH	MINNESOTA
39TH	FLORIDA
40TH	DETROIT
41ST	PHILADELPHIA
42ND	ST. LOUIS
43RD	NEW YORK
44TH	EDMONTON
45TH	CHICAGO
46TH	ATLANTA
47TH	ANAHEIM
48TH	OTTAWA
49TH	NEW JERSEY
50TH	WASHINGTON
51ST	PHOENIX
52ND	LOS ANGELES
53RD	COLGATE
54TH	NEW YORK
55TH	ST. LOUIS
56TH	MINNESOTA
57TH	FLORIDA
58TH	DETROIT
59TH	PHILADELPHIA
60TH	ST. LOUIS
61ST	NEW YORK
62ND	EDMONTON
63RD	CHICAGO
64TH	ATLANTA
65TH	ANAHEIM
66TH	OTTAWA
67TH	NEW JERSEY
68TH	WASHINGTON
69TH	PHOENIX
70TH	LOS ANGELES
71ST	COLGATE
72ND	NEW YORK
73RD	ST. LOUIS
74TH	MINNESOTA
75TH	FLORIDA
76TH	DETROIT
77TH	PHILADELPHIA
78TH	ST. LOUIS
79TH	NEW YORK
80TH	EDMONTON
81ST	CHICAGO
82ND	ATLANTA
83RD	ANAHEIM
84TH	OTTAWA
85TH	NEW JERSEY
86TH	WASHINGTON
87TH	PHOENIX
88TH	LOS ANGELES
89TH	COLGATE
90TH	NEW YORK
91ST	ST. LOUIS
92ND	MINNESOTA
93RD	FLORIDA
94TH	DETROIT
95TH	PHILADELPHIA
96TH	ST. LOUIS
97TH	NEW YORK
98TH	EDMONTON
99TH	CHICAGO
100TH	ATLANTA



NHL

NEXT SELECTION: BOSTON

DRAFT

McDonald's

GO

2017 NHL Expansion Draft

Addition of the Vegas Golden Knights to the NHL

- Expansion fee of US\$500 million paid equally to all 30 existing teams
- To avoid extra financial pressure of on-ice failure of newly formed teams
 - The NHL had the goal of making the new team instantly competitive

2017 NHL Expansion Draft

- Teams could protect
 - 7 F, 3 D and 1 G
 - or
 - 8 Skaters (F/D) and 1 G
- Teams had to protect
 - All players with “No Movement” clauses
- Vegas had to select
 - 1 player from each team
 - 14 F, 9 D, 3 G
 - 20 players under contract for next season
- Vegas couldn't select
 - 1st and 2nd year players
 - Unsigned Draftees

Research Hypotheses

- H1:** A General Manager who acquired a player through the entry draft or through a trade is more likely to protect the player.
- H2:** Players who play less minutes relative to their position on their team are less likely to be protected.
- H3:** Players past their prime are less likely to be protected.

Research Variables

1. Identifier if the player was **protected** or made **available** by his team.
2. Identifier if the player was **drafted** by or **traded** to his current team when the current general manager was in a leadership position within the organization.
3. Relative **rank for playing time** (1 being most playing time) within their position on their team.
4. Identifier if a player is “**past his prime**” (30 years or older before October 1st 2017).

Research Methodology

- Use players from teams with an even (between 1/3 and 2/3) split of positive and negative GM attachment.
- Train a Logistic Regression model of a player's availability on their time on ice rank, age and potential attachment.
- Validate the model
 - With protections of the remaining teams
 - Vegas Selections

GM Potential Attachment

Team	Potential Attachment	Team	Potential Attachment	Team	Potential Attachment	Team	Potential Attachment
LAK	6.7%	PIT	29.0%	COL	39.4%	WPG	57.1%
FLA	6.9%	NJD	33.2%	NYR	43.3%	MTL	59.4%
BUF	7.1%	DAL	34.3%	TOR	48.4%	NSH	61.1%
PHI	16.1%	CGY	34.4%	MIN	50.0%	DET	68.8
BOS	23.1%	CAR	34.5%	STL	50.0%	NYI	71.0%
WSH	23.7%	ARI	35.7%	CHI	52.44%	ANA	81.8%
OTT	27.0%	CBJ	35.7%	TBL	54.1%		
EDM	29.0%	VAN	37.0%	SJS	55.6%		

Test Set

Train Set

Analysis & Findings

- 1:** The GM is 1.67 times more likely to protect a player if the GM acquired the player for his current team through a trade or the entry draft.
- 2:** Players who have played less minutes relative to their position on their team are less likely to be protected.
- 3:** Players past their prime are less likely to be protected.

Accuracy

In Sample: 73% Sensitivity

Out of Sample: 69% Sensitivity

Sensitivity was considered instead of overall accuracy as the predictions took into account the constraints of the draft which led to a high overall success rate.

Vegas Selections (No Trades)

- When accounting for trades made, the Knights selected on average the 3rd ranked player by our model from his position and team
- Number 9 ranked Deryk Engelland is a Las Vegas native signed to a cheap deal, and celebrated for his veteran leadership (finalist for Mark Messier Leadership Award)

Predicted Rank	Count	Predicted Rank	Count
1	8	5	1
2	2	6	3
3	1	7	2
4	2	9	1

Vegas Trade Selections

- Teams wanted control over which player Vegas selected.
- Vegas was able to leverage their selections into trades for more assets (players/draft picks) from 10 teams.
- Predicted rank of selections involved in trades can be seen below

Predicted Rank	Count	Predicted Rank	Count
1	1	5	1
2	4	7	1
3	1	9	1

Vegas Trade Acquisitions

- Acquired: Reilly Smith, Shea Theodore, Alex Tuch, Nikita Gusev, Mikhail Gabovski, Jake Bischoff, David Clarkson

Draft Pick Round	Count	Draft Pick Round	Count
1	3	4	1
2	1	5	1
3	2	6	1

- Lost: a 1st round and 4th round pick

Conclusions

- Pre-existing relationships between players and their General Managers tend to lead to endowment or divestment aversion biases
- Within sport, managers who are aware of their bias may take advantage of those who are not
- The effect can be applied to other industries and markets.

Limitations



- Contract Length and Size was not accounted for.
- Logistic Regression model fit with dependent observations (“All models are wrong some are useful”)

Future Research

- Investigate whether the trades made during the draft ensure the protection of players that a GM was attached to.

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* No endorsement of the findings is claimed or provided. The conclusions are those of the researchers.

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Appendix

Team	Pos	Name	pred.rank
Boston Bruins	D	Miller, Colin	1
Chicago Blackhawks	D	van, Trevor	1
Colorado Avalanche	G	Pickard, Calvin	1
Dallas Stars	F	Eakin, Cody	1
Nashville Predators	F	Neal, James	1
New Jersey Devils	D	Merrill, Jon	1
Pittsburgh Penguins	G	Fleury, Marc-Andre	1
St. Louis Blues	F	Perron, David	1
Vancouver Canucks	D	Sbisa, Luca	1
Columbus Blue Jackets	F	Karlsson, William	2
Los Angeles Kings	D	McNabb, Brayden	2
Minnesota Wild	F	Haula, Erik	2
New York Islanders	G	Berube, Jean-Francois	2
Tampa Bay Lightning	D	Garrison, Jason	2
Toronto Maple Leafs	F	Leipsic, Brendan	2
Florida Panthers	F	Marchessault, Jonathan	3
San Jose Sharks	D	Schlemko, David	3
Edmonton Oilers	D	Reinhart, Griffin	4
Washington Capitals	D	Schmidt, Nate	4
Buffalo Sabres	F	Carrier, William	5
Detroit Red Wings	F	Nosek, Tomas	5
Anaheim Ducks	D	Stoner, Clayton	6
New York Rangers	F	Lindberg, Oscar	6
Ottawa Senators	D	Methot, Marc	6
Philadelphia Flyers	F	Bellemare, Pierre-Edouard	6
Arizona Coyotes	F	Pulkkinen, Teemu	7
Carolina Hurricanes	F	Brickley, Connor	7
Montreal Canadiens	D	Emelin, Alexei	7
Calgary Flames	D	Engelland, Deryk	9
Winnipeg Jets	F	Thorburn, Chris	9

Appendix

The Buffalo Sabres traded their sixth-round pick in the 2017 NHL Entry Draft in exchange for Vegas selecting William Carrier

The Florida Panthers traded Reilly Smith in exchange for Vegas selecting Jonathan Marchessault and a fourth-round pick in the 2018 NHL Entry Draft.

The Carolina Hurricanes traded Boston's fifth-round pick in the 2017 NHL Entry Draft (previously acquired) in exchange for Vegas selecting Connor Brickley.

The Winnipeg Jets traded their first-round pick in the 2017 NHL Entry Draft and a third-round pick in the 2019 NHL Entry Draft in exchange for Vegas selecting Chris Thorburn and Columbus' first-round pick in the 2017 NHL Entry Draft (previously acquired).

The Tampa Bay Lightning traded their second-round pick in the 2017 NHL Entry Draft, Pittsburgh's fourth-round pick in the 2018 NHL Entry Draft (previously acquired) and Nikita Gusev in exchange for Vegas selecting Jason Garrison.

The New York Islanders traded their first-round pick in the 2017 NHL Entry Draft, a second-round pick in the 2019 NHL Entry Draft, Mikhail Grabovski and Jake Bischoff in exchange for Vegas selecting Jean-Francois Berube.

The Anaheim Ducks traded Shea Theodore in exchange for Vegas selecting Clayton Stoner.

The Minnesota Wild traded Alex Tuch in exchange for Vegas selecting Erik Haula and a conditional third-round pick in the 2017 or 2018 NHL Entry Draft.

The Columbus Blue Jackets traded their first-round pick in the 2017 NHL Entry Draft, a second-round pick in the 2019 NHL Entry Draft and David Clarkson in exchange for Vegas selecting William Karlsson.

The Pittsburgh Penguins traded their second-round pick in the 2020 NHL Entry Draft in exchange for Vegas selecting Marc-Andre Fleury.