

# 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)







# 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

- 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
  - 1<sup>st</sup> and 2<sup>nd</sup> year players
  - Unsigned Draftees
- 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

# 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 3<sup>rd</sup> 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 1<sup>st</sup> round and 4<sup>th</sup> 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.