

# Value of a Draft Pick Analysis of the Ontario Hockey League Priority Selection

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In majority of professional sports the draft is a core component in building the framework of success for your organization. Successful drafting equals long-term success as it gives an opportunity to add youth and promise to the depth chart. On the other side, poor drafting or mishandling of draft picks in transactions can lead to many years of a poor product on the field of play.

Focusing on ice hockey, there has been prior research projects into the value of the draft and draft picks at the National Hockey League level however the same cannot be said for junior hockey in Canada, specifically the Ontario Hockey League which will be the main area of focus.

The objective of the thesis will be to determine value of each individual draft selection in the Ontario Hockey League Priority Selection in order to fully understand what can be expected with each pick and be better utilized in transaction and on draft day as well as to shed light on the undervaluing of draft picks.

Focusing on the drafts between 1996 and 2011, data will be gathered on 4886 players drafted between those dates. From all the data points we have available for use, including games played, goals, assists and points, we will collect this information to find trends in values and similarities between positional players (forwards, defenceman and goalies).

In summary, our results were similar to that of research done at the National Hockey League level in seeing the highest degree of regression coming between the 1st and 2nd round while showing the difference between the latter rounds 10th through 15th were relatively close in value.

#### **Keywords**

Draft, Value, Prospects, Hockey, OHL, Junior

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#### 1 Introduction - Value of a Draft Pick

The objective of my research is to put an absolute value on every individual draft selection in the Ontario Hockey League Priority Selection Draft. By the means of research into the past fifteen years of the draft, the objective is to find what a team can expect from a 5<sup>th</sup> overall draft pick versus a 25<sup>th</sup> overall draft pick versus a 150<sup>th</sup> overall draft pick and in the end will be able to apply this information in decision-making when deciding on a trade and determining value to refrain from undervaluing picks as well as what teams can expect in player ability based on their draft allotment.

In both business and mathematics, value can be defined as the monetary worth of an asset and a magnitude or quantity represented by numbers (Business Dictionary 2018.). Due to the fact there is limited data and statistics available at the junior hockey level, we will have to use basic statistics such as games played and point production or points per games played in order to evaluate value.

Since the first ever NHL Entry Draft on June 5<sup>th</sup> 1963, the draft has had a significant importance in dictating the future of NHL organizations on-ice product. The draft offers teams who haven't had recent on-ice success a chance to rebuild with young prospects in process of developing a brighter future. Similar to the NHL Entry Draft, the three Canadian Hockey League junior leagues hold their respective drafts where the organizations in those leagues, Ontario Hockey League, Western Hockey League and Quebec Major Junior Hockey League, have the opportunity to rebuild with fifteen to sixteen year old prospects. At the Canadian Hockey League level, teams in the Ontario Hockey League and Quebec Major Junior Hockey League are drafting players at sixteen years old, while the Western Hockey League teams are drafting players at fifteen years old. The age limit in all three leagues is twenty years old. The draft eligibility boundaries are specific between the three leagues and range across Canada and the United States of America.

An aspect of the draft that has only recently been researched by the likes of Michael E. Schucker, Scott Cullen and Stephen Burtch is what value a draft pick holds at the NHL level. Logically speaking, we know that a 1<sup>st</sup> overall draft pick is worth more than the 20<sup>th</sup> overall pick but can a value be placed on those respective picks to understand how big of a separation exists. Not only is this valuable for a organization in order to understand what they can generally expect a player selected in that specific draft slot to produce, but

additionally, what the draft pick is worth when involved in adding or subtracting picks via transactions.

The Ontario Hockey League consists of players from the age of sixteen to twenty years of age. The Ontario Hockey League Priority Selection draft is held for fifteen year old players entering the league who are eligible and within the league boundaries of Ontario, New York, Michigan, Pennsylvania, Wisconsin, Iowa, Missouri, Arkansas, Louisiana, Illinois, Indiana, Ohio, Kentucky, Tennessee, Mississippi, Alabama, New Jersey, Delaware, Maryland, DC, West Virginia, Virginia, North Carolina, South Carolina, Georgia, and Florida. The primary feeder leagues for the Ontario Hockey League Priority Selection are the Greater Toronto Hockey League, Ontario Minor Hockey Association SCTA and ETA, Hockey Eastern Ontario, Tier-1 Elite Hockey USA among others.

Consisting of twenty teams across Canada (seventeen) and the United States (three), the Ontario Hockey League teams compete for the J. Ross Robertson Cup, the championship trophy. The teams are primarily constructed of Canadian and American born players but are also allowed to carry two European players deemed as imports. The majority of players within the league are drafted out of the Ontario Hockey League Priority Selection draft. The teams are allowed to have thirty signed players, with only two being European, this means that up to 93.3% of the league was at one time eligible for the Priority Selection draft whether they were drafted or went undrafted.

With up to 93.3% of the league having once been eligible for the Priority Selection Draft, it is clearly a critical element to building a successful on-ice product. In this paper we will analyze data related to the Ontario Hockey League Priority Selection draft and in turn create a value chart to determine the difference in values between picks. In doing so, we will have many uses but most importantly we can determine the combinations of picks required to trade up or down in the draft and what one can expect with specific picks throughout the fifteen rounds.

#### 2 Usage of Draft Picks

#### 2.1 For Drafting

Not only at the NHL level but also in junior hockey, the draft holds tremendous weight in determining organizational success. The best example of developing a team through the draft is the Chicago Blackhawks who have seen major success from 2008-2016 winning three Stanley Cups in that time. Just four seasons prior, in 2003-2004 the Blackhawks were a leagues worst 20-43-11-8 with no promise in the foreseeable future. The start of their rebuild came before the disastrous 2003-2004 season when they drafted Duncan Keith (2<sup>nd</sup> round in 2002), Brent Seabrook (1<sup>st</sup> round in 2003), Corey Crawford (2<sup>nd</sup> round in 2003) and following that up with Niklas Hjalmarsson (4<sup>th</sup> round in 2005), Jonathan Toews (1<sup>st</sup> round in 2006) and Patrick Kane (1<sup>st</sup> round in 2007). The revitalization and rebuild of the on-ice product for the Blackhawks started through the draft and was a essential key to winning three Stanley Cups in that time-frame.

Focusing back on Junior hockey, specifically the Canadian Hockey League where the draft holds even more importance due to the age limit of its players, at sixteen to twenty years old. Canadian Hockey League teams are generally built with three years of success and three years of struggle as once players turn twenty-one years of age, they are deemed ineligible to participate in the Canadian Hockey League due to the age restriction, thus teams only have a small window to build a winning team before those players become too old. Due to successful teams drafting later in the round, there is less value on those picks resulting in a lower chance of drafting a player of value.

Although there can be many variables in junior hockey when building a roster due to teams loading-up with high end players around the league, we can take a look at the 2014-2015 Memorial Cup & Ontario Hockey League Champion Oshawa Generals to display the importance of the draft in the Ontario Hockey League. Sixteen of their twenty active roster players that played in the Memorial Cup were drafted, signed and developed by the Oshawa Generals and were massive pieces in winning the 2015 Memorial Cup.

A few of the key 2014-15 Oshawa Generals drafted players...

- -Michael Dal Colle (7th, 1st round in 2012)
- -Cole Cassels (16<sup>th</sup>, 1<sup>st</sup> round in 2011)
- -Stephen Desrochers (121st, 6th round in 2012)

- -Mitchell Vande Sompel (14th, 1st round in 2013)
- -Ken Appleby (35<sup>th</sup>, 2<sup>nd</sup> round in 2011)
- -Tobias Lindberg (46<sup>th</sup>, 1<sup>st</sup> round in 2014 \**Import Draft*) (Ontario Hockey League 2018.)

In addition to the six skaters above, their Memorial Cup championship roster was made up of 80% Oshawa Generals drafted and developed players (Ontario Hockey League 2018.).

Looking deeper into the above example of the Oshawa Generals recent success through the three-year span of 2012-2015, draft elements can be traced back to 2009 where they traded superstar forward John Tavares, defenceman Michael Del Zotto and goaltender Daryl Borden for three roster players and what turned out to be six draft picks in the years 2009, 2010, 2011 and 2012. Those draft picks along with the Generals existing picks would turn into Boone Jenner, Tyler Biggs, Collin Sullentrop, Scott Laughton, Josh Brown, Cole Cassels, Ken Appleby, Will Petschenig, Bradley Latour and Michael Dal Colle; all of whom played major roles in their years with the Generals eventually leading to a Memorial Cup Championship.

Year after year the draft proves its importance when further examining the top teams in the Canadian Hockey League as drafted and developed players play massive roles within their organizations current and future success. In junior hockey, the draft alone can hold a make it or break it mentality as this is where the foundation of your team is built. We have seen poor drafting lead to many years of dismay both on and off of the ice. Being responsible with your draft picks from a management perspective and having an intelligent, detail oriented plan as well as a capable scouting staff are all critical elements in building for the future.

#### 2.2 For Trading

Although the past has shown championship success starts with quality drafting, there have been several instances where a profound trade during the off-season or at the trade deadline has paid dividends in bringing a championship back to that organization. Draft picks tend to be difference makers in getting deals done, the team that can part ways with a piece of their future via draft picks, will hold high value. But the real question is, what is that value and what will that mean for the future of the organization. We will look into two aspects of trading picks, the first being value swaps and the other being the blockbuster trades.

Another area of consideration with understanding draft pick value is the process of making value swaps, where teams will trade a pick for two or more picks later in the draft to give the organization a higher hit percentage on those players. If we can determine Pick A is worth 90 value points while Pick B and Pick C are worth 105 value points, we can raise our chances of successful drafting. With the recent analytics boom in hockey and similar draft value research projects such as this, value swapping of picks has been more and more prevalent each year as teams look to load up with picks for the draft.

For instance, on the draft floor at the 2018 NHL Entry Draft, Toronto Maple Leafs General Manager Kyle Dubas traded their 25<sup>th</sup> overall pick to the St. Louis Blues for their 29<sup>th</sup> overall and 76<sup>th</sup> overall picks, which in their minds gave them a better possibility of coming away with higher value.

Toronto Maple Leafs receive
-2018 29<sup>th</sup> Overall Pick
-2018 76<sup>th</sup> Overall Pick

(TSN NHL Transactions 2018.)

St. Louis Blues receive
-2018 25<sup>th</sup> Overall Pick

Utilizing a Draft Value Chart, which indicates exact value of each of the 210 individual picks in the National Hockey League Entry Draft (Schuckers, M. E. 2011), we can determine the Toronto Maple Leafs came out of the trade above with a value of 156 + 78 = 234 for their two draft picks received and the St. Louis Blues added a value of 179 for their draft pick in return. This has given the Toronto Maple Leafs a increase in probability of landing a player of value with those two selections.

Another way draft picks have been utilized, with arguably less success, has been trading picks for players in blockbuster deals, meaning a significant player or players are involved. These are generally trades that can dictate draft pick or player worth as it sets a price for the market and for future transactions. This method can also be determined as blind dealing due to the fact you don't know exactly where your first round pick or fourth round pick will be amongst those thirty-one selections, this can dramatically change the value of a trade considering the value of the 1st overall pick is a value of 917 and the last pick in the first round is a value of 255 (Schuckers, M. E. 2011). We look at a recent and ongoing transaction between the Ottawa Senators, Nashville Predators and Colorado Avalanche that broke down as follows...

Ottawa Senators receive

-Matt Duchene

Nashville Predators receive
-Kyle Turris

Colorado Avalanche receive

- -2019 1st Round Pick OTT
- -2019 3rd Round Pick OTT
- -Shane Bowers (F)
- -Andrew Hammond (G)
- -Samuel Girard (D)
- -Vladislav Kamenev (F)

(TSN NHL Transactions 2018.)

The unknown aspect of the trade for the Ottawa Senators and Colorado Avalanche organizations, is not knowing exactly where that first round pick will be selected in 2019, and with the Ottawa Senators predicted to have a troublesome season, there is a chance that the pick could be of extremely high value. The element of risk is significant when trading future draft picks as you can't predict what state your organization will be in, and in turn how high the draft selection will be. The hit-and-miss rate in multiple player for draft pick trades is virtually unpredictable making it a high risk, high reward decision, in a management world that is best undertaken by minimizing risks and maximizing value.

#### 2.3 Variables

There are many variables that can skew draft pick value, it is important to collect the largest sample size possible in order to make an informed decision on a draft pick worth, which we will delve into in our data analysis. A range of organizational and scouting staff philosophies as well as quality of scouting staff and management decision-making can vastly change draft pick success rate. Similar to all levels of hockey, whether the National Hockey League or junior hockey, every team will have a different list in terms of who they feel will best fit into their organization. At the junior hockey level, those philosophies may differ even more as more questions come into play, for instance whether a player will report to your organization, philosophies on drafting for success now versus drafting players that fit the mould of advancing to the National Hockey League. These questions among many others can skew who teams perceive to be the best pick at their specific draft choice.

Over the years we have seen many organizations sink to the bottom of the standings due to poor drafting, the number one variable in utilizing draft value charts is have the right personnel in charge. It's up to the management and scouting staff to make an educated pick but also up to the coaching staff and development coaches to help that player take forward developmental steps throughout their career, which is essential to maximizing player development.

Generally speaking, the best picks in the draft will only play with their junior team for one to two years before making the jump to professional hockey whereas a player with less pedigree could play 4-5 years and in turn have a bigger window to produce points and games for that team which is why we will extrapolate data for those players who advanced to professional hockey before playing their final year of junior hockey.

#### 3 Related Literature and Studies

#### 3.1 Scott Cullen – Expected Value of NHL Draft Picks (Three Part)

Scott Cullen with TSN.ca analytics attempted to find expected value of NHL Draft Pick selection by his own method of assigning a value to each player based on their career achievements in the National Hockey League, which in Scott's mind is best assessed in their best four years. Those ratings were as followed...

- 10 Generational
- 9 Elite player
- 8 First line, Top pair D
- 7 Top six F, Top four D
- 6 Top nine F, Top six D
- 5 NHL Regular, 350+ NHL games
- 4 Fringe NHLer, 200+ NHL games
- 3 Very Good Minor Leaguer, 50-200 NHL games
- 2 Minor Leaguer, under 50 NHL games
- 1 10 or fewer NHL games

(Cullen, S. 2015.)

Keep in mind that Cullen's approach is completely arbitrary to what he determines the value of each given player, however majority of players can be placed into each category laid out above.

By looking at a twenty-three-year window between 1990 and 2013, Scott placed a number rating on every player selected in those drafts between 10 being generational talent and 1 having played 10 or fewer NHL games. From this exercise, he found the average rating per selection, percentage of those players that played at least one hundred games, the percentage of players that hit the top six forward, top four defenceman thresholds as well as those who were deemed to be fourth line or worse.

Cullen's work provides no exact value on the selections to be used in differentiating value from pick to pick however gives a different look in classifying players based on their achievements and not a statistic like games played or points produced.

A summary of his findings can be found below in Table 1, in the second column from the left we see the determined average rating on the 1-10 scale and what you can expect that that selection. Using Cullen's scale, you can determine that the first three selections will give a team, at the very least, a top six forward or top four defenceman, in comparison to the final three selections of the  $1^{st}$  round giving you a likely very good minor league player.

Table 1: NHL Draft Value Chart (Cullen, S. 2015)

PICK	AVG. RATING %	PLAY 100 GP	TOP 6 F, TOP 4 D, 1 G 4TH LI	NE OR WORSE
1	7.82	100.0%	84.0%	8.0%
2	7.88	100.0%	88.0%	0.0%
3	7.10	100.0%	80.0%	12.0%
4	6.18	84.0%	48.0%	24.0%
5	6.64	96.0%	60.0%	12.0%
6	5.78	84.0%	52.0%	32.0%
7	5.78	92.0%	48.0%	36.0%
8	5.08	76.0%	32.0%	44.0%
9	5.50	88.0%	44.0%	48.0%
10	4.65	83.3%	8.3%	64.0%
11	4.98	64.0%	40.0%	48.0%
12	5.24	76.0%	44.0%	48.0%
13	5.18	72.0%	36.0%	36.0%
14	5.34	84.0%	40.0%	37.5%
15	3.78	48.0%	24.0%	68.0%
16	4.36	68.0%	20.0%	60.0%
17	4.48	70.8%	25.0%	50.0%
18	4.40	76.0%	20.0%	60.0%
19				
20	4.60	60.0%	28.0%	60.0%
21	4.84	76.0%	32.0%	56.0%
22	4.72	72.0%	20.0%	52.0%
	3.84	56.0%	20.0%	72.0%
23	4.74	72.0%	36.0%	52.0%
24	4.52	64.0%	32.0%	64.0%
25	3.80	56.0%	12.0%	72.0%
26	4.42	64.0%	28.0%	52.0%
27	3.94	60.0%	16.0%	60.0%
28	3.74	48.0%	24.0%	68.0%
29	3.46	40.0%	8.0%	76.0%
30	3.42	44.0%	16.0%	76.0%
31	2.60	28.0%	4.0%	96.0%
32-36	2.87	36.8%	12.0%	82.4%
37-41	2.76	34.4%	8.8%	84.8%
42-46	3.10	39.2%	12.8%	76.0%
47-51	2.76	32.0%	12.0%	79.2%
52-56	2.78	32.8%	10.4%	80.8%
57-62	2.50	32.0%	9.3%	87.3%
63-72	2.59	34.5%	8.8%	85.1%
73-82	2.19	22.8%	6.4%	88.8%
83-93	2.20	25.5%	6.2%	89.5%
94-103	2.06	24.4%	3.6%	90.0%
104-113	1.84	17.2%	4.0%	91.2%
114-124	1.80	17.2%	4.4%	92.3%
125-139	1.87	16.5%	4.0%	92.2%
140-155	1.64	13.0%	2.5%	93.7%
156-170	1.75	14.4%	3.7%	93.1%
171-186	1.71	14.3%	2.0%	93.5%
187-201	1.43	7.7%	1.6%	96.8%
202-217	1.66	11.8%	3.8%	94.2%
218+	1.59	12.0%	1.6%	94.6%

#### 3.2 Stephen Burtch – Analyzing the Value of NHL Draft Picks

Stephen Burtch's goal was to find exact value on each individual draft pick in the National Hockey League Entry Draft, as he perceived a flaw in todays hockey game is not knowing the true value of a draft pick when being utilized in transactions, for example, what exactly is the 16<sup>th</sup> overall pick worth, would it be worth trading for a third line center or are you hurting yourself in the long run losing out on value.

In his research he used the data of drafts from 1995 to 2007 and explored the probabilities of playing 60, 100 and 200 NHL games per draft selection and round.

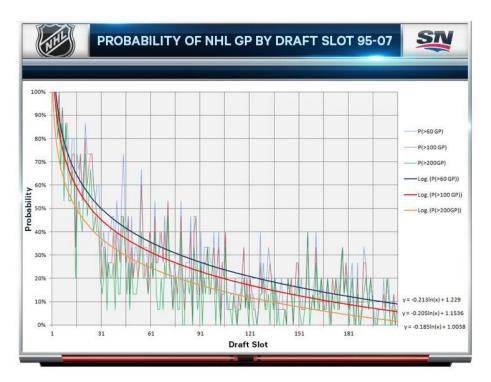


Figure 1: Probability of 60, 100 & 200 NHL Games Played by Draft Slot (Burtch, S. 2015)

In order to further his investigation, Burtch then looked at production at each draft slot using points per games played. He found that you can normalize the results by removing defencemen and goaltenders as point per games played aren't great indicators for player value at those positions. In order to find a measure of expected production he multiplied the probability of success in Figure 1, by the average production or points per games played for each forward selected in that slot which is shown below in Figure 2.

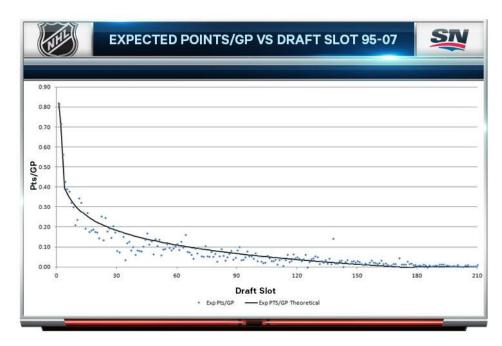


Figure 2: Expected Points per Games Played vs Draft Slot (Burtch, S. 2015)

From here, Burtch used the 1<sup>st</sup> overall selection as the top value and compared the remaining draft positions as a ratio with the first overall pick. His final value chart can be found below in Figure 3.

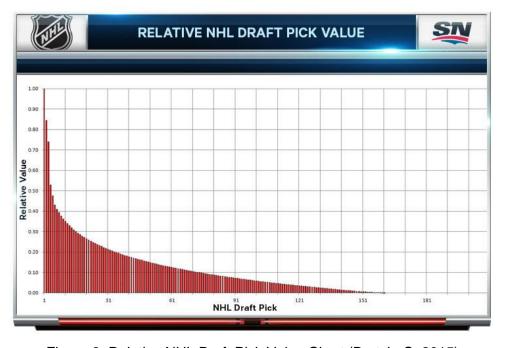


Figure 3: Relative NHL Draft Pick Value Chart (Burtch, S. 2015)

From the final chart in Figure 3, Burtch determined how significant the top three selections are with the largest drop off in pick value being from 3<sup>rd</sup> to 4<sup>th</sup> overall selections. Players selected from the 4<sup>th</sup> to 15<sup>th</sup> overall pick still remain valuable respectively but are in a significantly lower category of value than the top three selections.

In summary, Burtch concluded that trading a second line winger for a first round pick a year before the draft can hold a high level of risk due to the disparity in value between the thirty-one first round picks and not knowing where the selection will take place. One of the final selections in the first round have a much closer value to a teams third round pick than a pick in the top five selections of the first round.

DRAFT PICK VALUE									
DRAFT PICK	Pick Range	Pick Value							
BOTTOM FEEDER 1ST ROUND PICK	1-5	0.47 - 1.00	GAP IN VALUE						
STANLEY CUP CONTENDER 1ST ROUND PICK	26 - 30	0.22 - 0.24	0.23						
ANY TEAM 3RD ROUND PICK	61 - 90	0.07 - 0.13	0.09						

Figure 4: Closer Look at the Gap in Value amongst Draft Picks (Burtch, S. 2015)

A finding that remains consistent with most draft pick value research studies finds the adage of quantity over quality is a valuable draft strategy summarizing that multiple picks in the second – third round can be more valuable than a bottom end first round pick due to increasing probability of selecting a player of value due to less separation of talent compared to the top five to ten prospects in the first round. One of the most prominent examples of this comes from Bill Belichick and the New England Patriots of the NFL who utilized this strategy with much success (Gaines, C. 2018).

Draft picks can provide significant value in not only selecting players for the future of your organization but also can be the tipping point in getting deals done for players that will help you now as well as swapping picks for more picks. Which ever way draft picks are

being used, a framework must be in place in order to find the value and make educated decisions.

#### 3.3 Michael E. Schuckers – What's an NHL Draft Pick Worth?

Michael E. Schuckers was among the first to research the National Hockey League Entry Draft and develop his own value chart in reference for transactions regarding multiple picks and evaluating what each individual pick is worth in regards to true value. Utilizing data from the 1988 to 1997 NHL Entry Drafts, the aim of his paper was to analyze data related to the National Hockey League draft and develop a value pick chart for establishing the value of each selection. In turn, he concluded through his research what each of the 210 picks of the NHL Entry Draft are worth.

In the ten-year window that Schuckers used for research, he gathered the following performance metrics on the 2100 players (1212 forwards, 696 defencemen, 192 goaltenders) selected, career NHL games played, career number of goals, career number of assists, career number of points and the career plus/minus of that given individual. For goaltenders, he used number of career NHL games played, wins, losses, overtime and shootout losses, career save percentage and career goals against average.

The basis of Schuckers analysis was utilizing games played to determine the value of each individual pick based on finding how many players reached a minimum of 200 games played per round and selection. In Figure 6, the chart shows the highest value on the first overall pick being 917 while the lowest value on the last selection of the draft being 51, which is also an estimation on the number of games that a given player will play in their career. Based on these findings we can determine the difference in value between picks, for instance if the 1<sup>st</sup> overall pick is valued at 917 games played a similar value would be combining the 23<sup>rd</sup>, 24<sup>th</sup> and 25<sup>th</sup> overall picks at a total value of 925.

# NHL Draft Value Pick Chart michael.schuckers@statsportsconsulting.com

Round 1	Value	Round 2	Value	Round 3	Value	Round 4	Value	Round 5	Value	Round 6	Value	Round 7	Value
1	917	31	255	61	175	91	128	121	88	151	79	181	67
2	871	32	246	62	176	92	125	122	88	152	79	182	66
3	826	33	237	63	176	93	122	123	87	153	79	183	66
4	783	34	228	64	177	94	119	124	87	154	78	184	65
5	741	35	222	65	177	95	117	125	86	155	78	185	65
6	702	36	217	66	177	96	114	126	86	156	78	186	64
7	665	37	213	67	176	97	113	127	85	157	77	187	64
8	629	38	211	68	176	98	111	128	85	158	77	188	63
9	596	39	209	69	174	99	109	129	85	159	77	189	63
10	565	40	208	70	173	100	107	130	85	160	77	190	62
11	535	41	206	71	171	101	106	131	84	161	76	191	62
12	507	42	203	72	169	102	104	132	84	162	76	192	61
13	481	43	199	73	167	103	103	133	84	163	76	193	60
14	456	44	196	74	165	104	101	134	84	164	75	194	60
15	433	45	192	75	164	105	99	135	84	165	75	195	59
16	413	46	189	76	162	106	98	136	84	166	75	196	59
17	395	47	188	77	160	107	97	137	83	167	74	197	58
18	379	48	186	78	158	108	95	138	83	168	74	198	58
19	364	49	186	79	156	109	94	139	83	169	73	199	57
20	350	50	185	80	155	110	93	140	83	170	73	200	57
21	336	51	185	81	153	111	92	141	82	171	72	201	56
22	324	52	184	82	151	112	91	142	82	172	72	202	55
23	315	53	183	83	149	113	90	143	82	173	71	203	55
24	308	54	182	84	147	114	89	144	82	174	70	204	54
25	302	55	180	85	145	115	89	145	81	175	70	205	54
26	297	56	178	86	142	116	89	146	81	176	69	206	53
27	291	57	176	87	140	117	89	147	81	177	69	207	53
28	283	58	176	88	137	118	88	148	80	178	68	208	52
29	275	59	175	89	134	119	88	149	80	179	68	209	52
30	265	60	175	90	131	120	88	150	80	180	67	210	51

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Figure 5: National Hockey League Draft Value Chart (Schuckers, M. E. 2011)

#### 4 OHL Priority Selection

The data in this paper comes from a large sample size of players selected in the Ontario Hockey League Priority Selection draft from the years of 1996 – 2011 which focuses specifically on players who played in the Ontario Hockey League, weren't talented enough to make the league, and we removed data on players who opted to pursue an NCAA playing career, as those players willingly chose to pursue that route. This data was obtained from www.eliteprospects.com with additional information from www.ontariohockeyleague.com and www.hockeydraftcentral.com. The focus of a sixteenyear research period is based on three factors including the availability of data beyond 1996 is sparse, fifteen years gives us a larger sample size compared to related literature on similar studies at the National Hockey League level as well as ensuring that all players have completed their five-year Ontario Hockey League careers. For each of the sixteen years from 1996 to 2011 we have collected data from the first 300 selections in each OHL Priority Selection draft which covers all fifteen rounds. It should be noteworthy that there have been additional picks due to compensatory picks given, additionally as noted above we have removed players who opted to pursue the NCAA Division-1 route as these players were likely talented enough to make the Ontario Hockey League thus should not be defined as having zero games played. To note, Ontario Hockey League teams cannot trade their first round picks, they are deemed untouchable, which in relation to this thesis restrains teams from carelessly trading away the highest of value draft picks. Although unable to trade away first round picks, we can use those values to determine what combination of picks in rounds two through fifteen can equate to any given pick in the first.

For each player we have collected their selection number in the draft, playing position (forward, defenceman, goaltender), the OHL team that selected them as well as a range of performance metrics throughout their playing career. These performance metrics are similar to previous studies at the National Hockey League level. We utilized all statistics that are publicly available including games played, goals, assists, points, points per game played and penalty minutes for forwards and defencemen while utilizing games played, goals against average and save percentage for goaltenders.

Additionally, due to the fact that the top Ontario Hockey League players will likely only play two to three years due to advancing to the American Hockey League or National Hockey League, we have extrapolated those players career numbers in the Ontario Hockey League to get an approximate number of games played and points that they would have earned if they played a full OHL career similar to their counterparts that weren't talented

enough to leave the league earlier. In doing so, we won't penalize players for being the best of the best and advancing to professional hockey.

In the following section we will focus on games played as it provides us with a common comparison amongst all players and positions in the draft. In turn, our goal is to produce a valuation measurement for the value of each Ontario Hockey League Priority Selection draft pick. Our research methods comes primarily from the framework of Burtch (Burtch S. 2015) and Schuckers (Schuckers M. E. 2011) at the National Hockey League, using games played as primary metric measurements with the addition of player production or points per games played.

#### 4.1 Analysis of Data

During the researched draft years ranging from 1996 to 2011 there were 2908 forwards, 1478 defencemen and 500 goaltenders for a total of 4886 players drafted; from the total number we removed the NCAA Division-1 players who chose to not play in the Ontario Hockey League but very likely would have been able to play as the quality of the Ontario Hockey League and NCAA Division-1 is very similar, if not better due to older athletes. Table 2 shows the distribution of positions by round over the sixteen years. With Ontario Hockey League roster consisting of twelve forwards, six defencemen and two goaltenders, we can see the distribution of forwards versus defencemen taken is roughly similar to the 2:1 ratio we see on an OHL roster. The ratio remains relatively standard throughout rounds one through fifteen however goaltenders taken begin to rise in the latter rounds nine through fifteen.

Table 2: Total Number of Players Selected by Round and Position (1996 – 2011)

Round	Forwards	Defencemen	Goaltenders
Kouna	Selected	Selected	Selected
1	210	99	7
2	206	95	21
3	184	102	26
4	177	112	29
5	194	88	35
6	185	94	35
7	176	99	36

8	210	103	26
9	197	107	43
10	211	93	31
11	201	99	42
12	190	105	41
13	203	88	46
14	173	100	41
15	191	94	41

In Table 3 & Figure 6 we look at one of our primary career performance metrics, games played. The table is broken down by round and the average career games played per position. The forwards column starts high in rounds one through six of the draft but gradually shows a drop in production as we get to round fifteen. The defencemen column gradually decreases as well until rounds eleven to fifteen where there are some skewed results however nothing overly dramatic as just round eleven and fifteen show abnormalities. At first sight in Figure 6, we can see through a measure of games played that first round picks are of much higher value than the latter half of the draft. As expected, goaltender games played numbers are substantially lower due to only one of the two goalies on the team able to play in a given game. The distribution of games played for goaltenders also decreases relatively even throughout the draft rounds, the only skewed result being in round fourteen.

Table 3: Average games played by round & position 1996 – 2011)

Round	Forwards Average	Defencemen Aver-	Goaltender Aver-
	Career GP	age Career GP	age Career GP
1	272	251	140
2	227	222	138
3	171	194	125
4	164	154	85
5	122	120	75
6	101	99	66
7	74	73	41
8	60	50	32
9	49	49	23

10	44	39	21
11	44	57	21
12	32	36	9
13	31	34	7
14	22	29	12
15	16	37	4

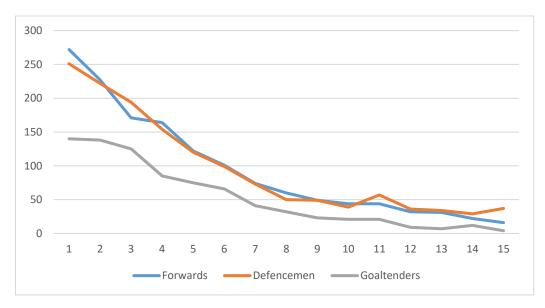


Figure 6: Average Games Played by Round and Position (1996 – 2011)

Additionally, Table 4 & Figure 7 below give a breakdown of when players who played more than 150 OHL games were drafted. We use this data to further explore the value regression from early draft round to the latter stages. 150 games is used, similar to Burtch's reasoning to use 200 games, it is a substantial number that is rare to see from a player who doesn't bring value to his organization. In Table 4, the columns from left to right represent the players position, total number of players draft by position, probability (in percentage) that each position will play 150 games in the Ontario Hockey League, and finally broken down by rounds the probability that a player selected will play 150 games. For example, forwards selected will have a 38% chance of playing 150 OHL games with the highest probability coming in the 1st round at 94% and the lowest probability coming in the 15th round at 4%. We note that there is a fairly consistent trend between forwards and defencemen throughout while the goaltenders start high but having no fluid trend throughout the draft rounds.

Table 4: Probability of Playing 150 or More Ontario Hockey League Games by Position (1996 – 2011)

Pos.	To- tal Play- ers	Prob.	1 <sup>st</sup>	2 <sup>nd</sup>	3rd	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>	10 <sup>th</sup>	11 <sup>th</sup>	12 <sup>th</sup>	13 <sup>th</sup>	14 <sup>th</sup>	15 <sup>th</sup>
F	2908	38%	0.94	0.81	0.59	0.61	0.42	0.37	0.26	0.17	0.16	0.15	0.15	0.12	0.10	0.06	0.04
D	1478	29%	0.90	0.82	0.72	0.56	0.39	0.37	0.22	0.15	0.19	0.14	0.18	0.14	0.09	0.10	0.12
G	500	9%	0.40	0.43	0.48	0.15	0.13	0.11	0.05	0.04	0.05	0.03	0.00	0.02	0.00	0.04	0.00

In Figure 7 below, we see the same data from Table 4 but gives us a better look at the regression trend we can see as the draft gets deeper in rounds. In the y-axis we have probability to play 150 career games while the x-axis represents the round that the players were drafted. We can visibly see how close the relation between forwards and defencemen are throughout all fifteen rounds. Goaltenders are most definitely the outlier in the data set.

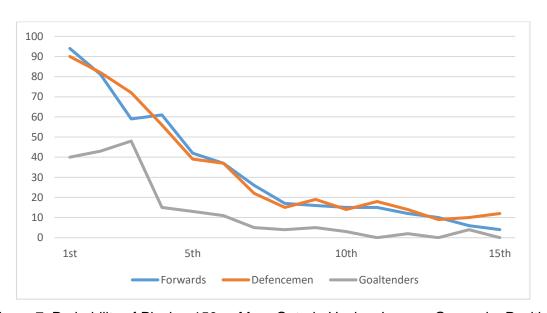


Figure 7: Probability of Playing 150 or More Ontario Hockey League Games by Position (1996-2011)

From this as well as previous work, we can determine that the 500 goaltenders in the research project should be removed based on drafting goaltenders has no trend or science to it, they are a completely rare breed with a lot of guess work going into evaluation. In removing the 500 data points we reduce our sample size by 10.2%, however this still gives

us 4386 data points to use between forwards and defencemen giving us more than a big enough sample size giving us a 1.4 to 2.2% margin of error (Niles, R. 2006).

Like Burtch's work, after collecting all of our games played data, we will then use our points per game played data to simply multiply the average games played per draft slot with our average points per game per corresponding draft slot to find weighted values. In Burtch's work, he removed defencemen points per game played data as he concluded that there is less of a trend in defencemen value versus point production. However, in junior hockey it has been evident that quality defencemen, whether deemed as a defensive defenceman or not, are able to put up strong point production in junior hockey.

Table 5: Point Production (Point per Games Played) versus Selection (1996 – 2011)

Round	Forwards	Defencemen	Combined
	Point Production Point Production		Point Production
	(PTS/GP)	(PTS /GP)	(PTS /GP)
1	0.82	0.46	0.71
2	0.53	0.34	0.47
3	0.42	0.27	0.37
4	0.43	0.23	0.36
5	0.32	0.17	0.28
6	0.31	0.16	0.26
7	0.19	0.12	0.17
8	0.16	0.08	0.13
9	0.12	0.11	0.11
10	0.11	0.07	0.10
11	0.13	0.10	0.12
12	0.09	0.06	0.08
13	0.11	0.05	0.09
14	0.10	0.04	0.08
15	0.05	0.07	0.06

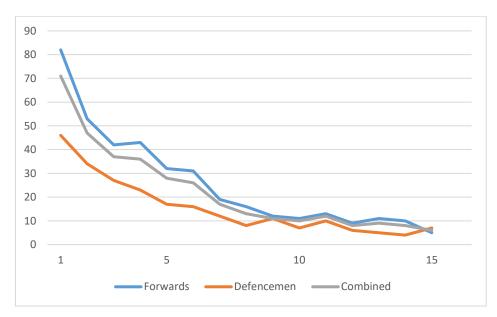


Figure 8: Point Production (Point per Games Played) versus Selection (1996 – 2011)

As we see from both Table 5 and Figure 8, the value in both point production and games played remains a very high value in the early rounds especially in the first round before regressing dramatically as it starts to even out in rounds eight to fifteen.

In order to find the expected production of a player selected in each individual draft selection slot, we need to multiply the probability of playing 150 Ontario Hockey League games per draft slot, forwards and defencemen combined, by the point production or points per game played for each skater selected in the same slot.

Table 6: Point Production and Probability to Play 150 Games with Corresponding Value for each Round (1996 – 2011)

Round	Point Production	Probability of Value	Value
	PTS /GP (Combined)	% (Combined)	
1	0.71	92	65.32
2	0.47	78	36.66
3	0.37	57	21.09
4	0.36	50	18.00
5	0.28	34	9.52
6	0.26	29	7.54

7	0.17	19	3.23
8	0.13	13	1.69
9	0.11	13	1.43
10	0.10	11	1.10
11	0.12	12	1.44
12	0.08	10	0.80
13	0.09	7	0.63
14	0.08	5	0.40
15	0.06	5	0.30

The final values in the far-right column will represent our values for the 1<sup>st</sup> overall pick in each round. The separation between rounds follows a consistent regression however we have an outlier in the eleventh round at 1.44. We will normalize round eleven to flow evenly between round ten 1.10 and round twelve at 0.80. Additionally, we will adjust the highest value of 65.32 to value at 100 and adjust the following values to reflect the same ratio based off the highest value.

Below, in Figure 9, we will see our final values to use in our Ontario Hockey League Priority Selection Value Chart with a complete detail pick by pick chart in the appendices.



Figure 9: Point Production and Probability to Play 150 Games with Corresponding Value for each Round (1996 – 2011)

In our final value chart, we can see the biggest gap between rounds is round one to round two. We will delve further into the exact value amount, but from first look at Figure 10, we can determine the first overall pick is worth about double of the first pick in the second round. Picks in rounds three and four have relatively close value, as do picks in round five and six and take a fall in round seven and continue to regress to very limited value.

Rou	ınd 1	Rou	ind 3	Rou	nd 5	Rou	nd 7	Rou	nd 9	Rour	nd 11	Roun	d 13	Rour	nd 15
1	1000	41	323	81	146	121	49	161	22	201	15	241	10	281	5
2	978	42	321	82	144	122	48	162	22	202	15	242	10	282	5
3	956	43	318	83	143	123	47	163	22	203	15	243	10	283	5
4	934	44	316	84	141	124	46	164	21	204	15	244	9	284	4
5	912	45	314	85	140	125	44	165	21	205	14	245	9	285	4
6	890	46	311	86	138	126	43	166	21	206	14	246	9	286	4
7	868	47	309	87	137	127	42	167	21	207	14	247	9	287	4
8	846	48	307	88	135	128	41	168	20	208	14	248	9	288	4
9	824	49	304	89	134	129	40	169	20	209	14	249	8	289	3
10	802	50	302	90	132	130	39	170	20	210	14	250	8	290	3
11	781	51	300	91	131	131	38	171	20	211	14	251	8	291	3
12	759	52	297	92	129	132	36	172	19	212	13	252	8	292	3
13	737	53	295	93	127	133	35	173	19	213	13	253	8	293	3
14	715	54	292	94	126	134	34	174	19	214	13	254	7	294	2
15	693	55	290	95	124	135	33	175	19	215	13	255	7	295	2
16	671	56	288	96	123	136	32	176	18	216	13	256	7	296	2
17	649	57	285	97	121	137	31	177	18	217	13	257	7	297	2
18	627	58	283	98	120	138	29	178	18	218	12	258	7	298	2
19	605	59	281	99	118	139	28	179	18	219	12	259	6	299	1
20	583	60	278	100	117	140	27	180	17	220	12	260	6	300	1
	ınd 2		ind 4		nd 6	Rou		Rour			nd 12	Roun			
21	561	61	276	101	115	141	26	181	17	221	12	261	6		
22	549	62	270	102	112	142	26	182	17	222	12	262	6		
23	537	63	263	103	108	143	26	183	17	223	12	263	6		
24	525	64	257	104	105	144	25	184	17	224	12	264	6		
25	513	65	250	105	102	145	25	185	17	225	12	265	6		
26	502	66	244	106	99	146	25	186	17	226	12	266	6		
27	490 478	67	237	107	95 92	147	25 25	187	16 16	227	11	267	6		
28 29		68 69	231	108		148		188 189		228 229		268 269			
30	466 454	70	224	110	89 85	149 150	24	190	16 16	230	11	270	6		
31	442	71	211	111	82	151	24	191	16	231	11	271	6		
32	430	72	205	112	79	152	24	191	16	232	11	271	5		
33	418	73	198	113	75	153	24	193	16	232	11	272	5		
34	406	74	192	114	72	154	23	194	16	234	11	274	5		
35	394	75	192	115	69	155	23	194	16	234	11	274	5		
36	383	76	179	116	66	156	23	196	16	236	11	276	5		
37	371	77	172	117	62	157	23	196	15	237	10	277	5		
38	359	78	166	118	59	158	23	198	15	238	10	278	5		
39	347	79	159	119	56	159	22	199	15	239	10	279	5		
33	347	80	133	120	50	160	22	200	20	233	10	280			

Figure 10: Ontario Hockey League Priority Selection Value Chart. (Cocker, S. 2018)

At first look we can see how dramatically more valuable first and second round pick are to organizational success. Due to the inability to trade first round picks in the Ontario Hockey League, second round picks are the highest value that can be moved in transactions from team to team. The chart above in Figure 10 can now be implemented into practice with any Ontario Hockey League organization to find true value in picks at the draft table as well in trades.

#### 5 Discussion

Our objective in this research project was to find a value for each individual draft selection slot in order to make transactions involving draft picks more transparent in what each team is subtracting and adding to their future.

By the use of utilizing games played and point production as our primary weights of value, we have been able to create a chart that is ready for use amongst Ontario Hockey League organizations to further gain knowledge and put value on their assets and understanding where true value is in the draft to refrain from undervaluing in transactions.

Although career games played and point production aren't perfect to find value in players at each draft slot, we have utilized all data that is publicly available to come to a better conclusion than we had previous to this work. Value was defined as the monetary worth of an asset and a magnitude or quantity represented by numbers (Business Dictionary 2018.), in relation to this study we used what information we had (games played and points) in order to generate our meaning of value.

Although we have shown ability to compare trades swapping numerous picks for picks and picks for prospects, or players who have yet to play an Ontario Hockey League game. One drawback with our method is the inability to compare draft picks for veteran players who have already amassed Ontario Hockey League games played through their career. However, the next phase of this value chart would be to normalize the values that can directly reflect measurable statistics of current Ontario Hockey League players.

#### 5.1 Applicability of the Chart

With the final Ontario Hockey League Priority Selection Value Chart complete, we can now look into observations, findings and ways that Ontario Hockey League teams can implement it to maximize efficiency and minimize mistakes in dealing draft picks.

Going back to our objective in this thesis, our goal was to put an absolute value on every individual draft selection in the Ontario Hockey League Priority Selection Draft. In doing so, teams can fully understand what the upside of the 34<sup>th</sup> overall pick is when dealing it for a third line winger. Or when making a trade to swap draft picks, teams can get an exact value comparison to see if they are any further ahead by trading two picks in the third

round for a high second round pick. In summary, we determined every value of the 300 picks in the OHL Priority Selection Draft that will assist in making knowledgeable decisions and stop the undervaluing of draft picks in trades.

In order to test our system we will look back at so-called lopsided deals in the Ontario Hockey League in order to review what outcomes could have been determined before the trades took place.

#### Example 1: April 6th, 2018

-BAR 3<sup>rd</sup> round (56<sup>th</sup> overall)

-GUE 5<sup>th</sup> round (87<sup>th</sup> overall)

-WSR 6th round in 2019

Barrie Colts receive

#### **Barrie Colts and Windsor Spitfires**

Windsor Spitfires receive

-SAR 3<sup>rd</sup> round (59<sup>th</sup> overall)

-SSM 4<sup>th</sup> round (80<sup>th</sup> overall)

This draft pick swap occurred one day before the Ontario Hockey League Priority Selection draft with both teams knowing exactly what slot each pick was being selected, besides the Windsor sixth round pick in 2019. Because we don't know the exact draft slot in the sixth round in 2019, we will use the mean value in the sixth round being 85 value points. In summary, Barrie Colts received 288 + 137 + 85 = 510 value points and the Windsor Spitfires received 281 + 153 = 434 value points. We can determine Barrie came away with more value at the draft.

#### Example 2: August 31<sup>st</sup>, 2018

Peterborough Petes receive

-KGN 2<sup>nd</sup> round in 2019

-KGN 3<sup>rd</sup> round in 2020

-WSR 5<sup>th</sup> round in 2020

-WSR 3<sup>rd</sup> round in 2021

-BAR 2<sup>nd</sup> round in 2022

-WSR 3rd round in 2023

#### **Peterborough Petes and Windsor Spitfires**

Windsor Spitfires receive

-Will Cuylle (3<sup>rd</sup> overall pick in 2018)

The blockbuster trade occurred before the 2018 Ontario Hockey League season with six draft picks (one conditional pick) going to Peterborough for the 3<sup>rd</sup> overall pick in the recent Ontario Hockey League Priority Selection draft, Will Cuylle, who has yet to play a game.

Thus, we can determine Will Cuylle will have a value of 956 for the Windsor Spitfires, the value of a 3<sup>rd</sup> overall pick. Peterborough's return is slightly more complicated as the values can range with what slot they are picking in. We will look at the highest possible value of return versus the least possible value of return and the average.

The best possible value: 561 + 323 + 146 + 323 + 561 + 323 = 2237Least possible value: 335 + 278 + 117 + 278 + 335 + 278 = 1621

In summary, we can determine that Peterborough won the trade on value by a large margin and will have higher value at future drafts than Windsor will have with the one player, Will Cuylle. However, the one aspect that doesn't come into play is market value, which we will touch on below.

Example 3: April 7<sup>th</sup>, 2016 Sudbury Wolves and Kitchener Rangers

Sudbury Wolves receive
-SAG 5<sup>th</sup> round in 2018
-SBY 6<sup>th</sup> round (103<sup>rd</sup> overall)
-OSH 10<sup>th</sup> round in 2018
-SBY 12<sup>th</sup> round (223<sup>rd</sup> overall)

We will look at two scenarios, the actual value that was determined after the 2018 draft when Sudbury used both picks they received and the value that would have been given the day the trade was made. The determined value on the day the trade was completed was as follows.

Kitchener Rangers: 108 + 12 = 120

Sudbury Wolves: 146 + 17 = 163 (highest) 117 + 15 = 132 (lowest)

Either way, the Sudbury Wolves came away with the higher value without having to worry what selection slot their fifth and tenth round picks would be in 2018. Actual value Subdury received is as follows.

Sudbury Wolves: 140 + 16 = 156

#### 5.2 Draft Pick Value versus Market Value

One of the biggest differences between actual value and getting the deal done comes down to market value. Market value and our proposed draft pick value differ as the market (in this instance the market is defined as the Ontario Hockey League teams) can dictate what the market value of a player or draft pick is through previous similar transactions and trades amongst teams. If team 'A' trades a second round pick to team 'B' for two third round picks and a depth forward, the current market would be dictated by this deal for future dealings of a second round draft pick.

Market value can be defined as the highest estimated price that a buyer, in this case other OHL teams, would pay and a seller would accept for an item in the open market (Business Dictionary 2018.). This can often be determined with early season deals whether minor or small that put a general price tag on what something is worth; the value of a second round pick, a fourteenth round pick, a first line 100+ point winger or a third paring shutdown defender, all have values that can change from year to year depending on previous and the history of similar transactions.

Our Ontario Hockey League Priority Selection Draft Pick Value Chart similar to previous research at the National Hockey League level with work by Schuckers, Cullen and Burtch, can be utilized to determine actual worth and value of a trade with picks involved or can give you a sense of what to expect at each selection. What the value charts cannot determine is what the Market will deem as the value, which will generally lean towards the seller, meaning much more future return.

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# **Appendices**

# **Appendices 1. OHL Priority Selection Chart**

**OHL Priority Selection** 

**Draft Pick Value Chart** 

Rou	ınd 1	Round 3	Round 5	Round 7	Round 9	Round 11	Round 13	Round 15
1	1000	41 32	81 146	<b>121</b> 49	161 22	201 15	241 10	281 5
2	978	42 32:	82 144	122 48	162 22	202 15	242 10	282 5
3	956	43 318	83 143	123 47	163 22	203 15	243 10	283 5
4	934	44 316	84 141	<b>124</b> 46	164 21	204 15	244 9	284 4
5	912	45 314	85 140	125 44	165 21	205 14	245 <i>9</i>	285 4
6	890	46 31:	86 138	126 43	166 21	206 14	246 9	286 4
7	868	47 309	87 137	127 42	167 21	207 14	247 9	287 4
8	846	48 30		128 41	168 20	208 14	248 9	288 4
9	824	49 304	89 134	129 40	169 20	209 14	249 8	289 3
10	802	50 302	90 132	130 39	170 20	210 14	250 8	290 3
11	781	51 300		131 38	171 20	211 14	251 8	291 3
12	759	52 297		132 <i>36</i>	172 19	212 13	252 8	292 3
13	737	53 295		133 35	173 19	213 13	253 8	293 3
14	715	54 292		134 34	174 19	214 13	254 7	294 2
15	693	55 290		135 33	175 19	215 13	255 7	295 2
16	671	56 288		136 32	176 18	216 13	256 7	296 2
17	649	57 285	170.00	137 31	177 18	217 13	257 7	297 2
18	627	58 283		138 29	178 18	218 12	258 7	298 2
19	605	59 28:		139 28	179 18	219 12	259 6	299 1
20	583	60 278	30 TO TO 10 10 10 10 10 10 10 10 10 10 10 10 10	140 27	180 17	220 12	260 6	300 1
	ınd 2	Round 4	Round 6	Round 8	Round 10	Round 12	Round 14	
21	561	61 270		141 26	181 17	221 12	261 6	
22	549	62 270	102 112	142 26	182 17	222 12	262 6	
22 23	549 537	62 270 63 263	102 112 103 108	142 <i>26</i> 143 <i>26</i>	182 17 183 17	222 12 223 12	262 <i>6</i> 263 <i>6</i>	
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2018 Cocker

#### Appendices 2. Research Work (1996-2011)

Corresponding attachments (files too big to include). Information gathered coming from Elite Prospects – Ontario Hockey League and Hockey Draft Central.

- OHL Draft Pick Value Research (Forwards, Defencemen) 78 pages
- OHL Draft Pick Value Research (Goalies) 9 pages