

Is Spending Over the NHL Salary Cap Associated with Playoff Success? An Econometric Analysis of NHL Long-Term Injured Reserve Usage, 2015–2026

Stanley Tang and Dolgoon Enkhbayar
stanley.tang.zhang@gmail.com, wildstock82@gmail.com

ABSTRACT

This study tests whether NHL teams that use Long-Term Injured Reserve (LTIR) to exceed the salary cap are associated with better playoff performance. Using eleven seasons of regular-season cap data and playoff results (2015–16 through 2025–26, excluding the 2019–20 COVID bubble), a linear regression was run with playoff win percentage as the outcome variable, LTIR overage in millions as the predictor, and regular-season points percentage as a control for the quality of each team.

The main finding is that every additional \$1M of LTIR overage is associated with a 0.65 percentage point higher playoff win rate ($p = 0.049$ under conventional standard errors). Because individual teams appear more than once in the sample across different seasons, standard errors were also clustered by team; the association survives this correction and is tighter ($p = 0.005$). This study used only publicly available aggregate datasets, and no human subjects research approval was required.

INTRODUCTION

The NHL salary cap sets a hard ceiling on what teams can spend on active player contracts. In 2025–26, the ceiling was \$95.5M [2]. When a player with a long-term injury is placed on LTIR, his cap hit is removed from the team's active cap calculation, given that the team is at or above the cap floor and meets certain roster conditions explained in the Collective Bargaining Agreement [2]. Teams can then use that freed space to sign replacement players, which temporarily exceeds what would otherwise be their spending cap limit. Historically, when the NHL playoffs began, the LTIR player was permitted to return to the active roster without the team being required to come back under the cap ceiling [2]. This meant a team could carry both the replacement depth acquired during the regular season and the returning injured player simultaneously in the playoffs, which effectively meant fielding a larger roster than the cap would normally allow.

The Tampa Bay Lightning used this mechanism to build their back-to-back championship rosters in 2020 and 2021, carrying over \$18M in LTIR salary cap relief [5]. Vegas used it to win the Cup in 2023 with nearly \$15M in relief [5]. However, Toronto has consistently been one of the heaviest users of this mechanism without winning anything meaningful in the postseason, which shows that the relationship is complex and possibly dependent on other variables. This study investigates whether LTIR usage, across a large enough sample, is associated with playoff performance once team quality in the regular season is controlled for.

METHODS AND MATERIALS

Data

Cap data were obtained from Spotrac [9] and PuckPedia [8], covering all 32 NHL teams (31 pre-Seattle expansion and 30 pre-Vegas expansion) for each season from 2015–16 through 2025–26. The LTIR Adjustment column in those databases reports a negative number representing how much a team's total cap allocations exceed the cap ceiling after accounting for LTIR relief. The absolute value of that figure was taken for teams carrying an overage, and zero was assigned to all others.

Playoff data was obtained from Hockey-Reference's playoff game logs [4,5], aggregated by team per season. The outcome variable is total playoff wins divided by total playoff games played. The 2019–20 season was excluded because the COVID bubble used a 24-team playoff format with best-of-5 play-in rounds, making it incompatible with a standard 16-team bracket. The final dataset contains 159 playoff team-seasons across ten seasons.

Table 1. Summary Statistics

	LTIR Users (n=66)	Non-Users (n=93)
Mean overage (\$M)	\$5.81	\$0
Median overage (\$M)	\$4.21	\$0
Max overage (\$M)	\$19.54 (TOR, 2023-24)	\$0
Mean playoff win%	.449	.395

Teams used LTIR in 41.5% of the playoff team-seasons in the sample. The raw difference in playoff win percentage between users and non-users is +5.4 percentage points before any covariates are taken into account.

Regression Model

The following linear regression model was estimated:

$$\text{Playoff_Win_Pct} = \beta_0 + \beta_1(\text{Overage_Millions}) + \beta_2(\text{RS_Pts_Pct}) + \varepsilon$$

Playoff_Win_Pct is the ratio of playoff wins to playoff games played across a team's full playoff run. Overage_Millions is the dollar value of LTIR salary cap relief used, in millions (zero for non-users). RS_Pts_Pct is the team's regular-season points as a fraction of the maximum possible, controlling for the fact that better regular-season teams advance further in the playoffs regardless of cap strategy. The intercept β_0 represents the predicted playoff win percentage when all predictors equal zero; β_1 and β_2 are the coefficients estimated by Ordinary Least Squares regression; and ε is the error term. Because 66 of the 159 observations come from 31 teams that appear more than once across seasons (Vegas appears three times and Tampa Bay twice, for example), standard errors were also clustered by team throughout, in addition to conventional standard errors.

Three model configurations were estimated. Model A uses overage only, with no controls. Model B adds regular-season strength as a covariate and serves as the primary specification throughout this paper. Model C expresses overage as a percentage of the cap ceiling rather than raw dollars, to account for cap inflation across the study time window.

Model B is preferred as the headline specification for two reasons. First, raw dollar overage is the figure that actually appears in cap-tracking tools, trade-deadline coverage, and front-office decision-making; it is the number a general manager is managing against in real time. Second, while Model C's percentage-of-cap framing is theoretically appropriate for comparing across a period when the cap grew from \$71.4M to \$95.5M, it does not change the substantive conclusion that under cluster-robust standard errors, both specifications are statistically significant (see Table 2), and the two convey the same underlying relationship in different units. Model B is reported as primary for interpretability; Model C is retained as a robustness check.

A fourth specification, adding average roster age as a covariate, was also tested. Age was not a significant predictor of playoff win percentage ($\beta = -0.0095$, $p = 0.47$ with $n = 157$ after dropping two team-seasons with missing age data) and did not meaningfully change the LTIR coefficient. Because it added no explanatory value, it is reported here in the text rather than as a separate model column.

RESULTS

Table 2. Regression Results (Cluster-Robust Standard Errors by Team)

Model	Variable	Coef.	SE (clustered)	95% CI	p-value	R ²
A	Overage_Millions	+0.0073	0.0023	[0.003, 0.012]	0.002	0.029
B	Overage_Millions	+0.0065	0.0023	[0.002, 0.011]	0.005	0.098
B	RS_Pts_Pct	+0.8875	0.2406	[0.416, 1.359]	<0.001	
C	Overage_Pct_of_Cap	+0.0053	0.0019	[0.002, 0.009]	0.006	0.097
C	RS_Pts_Pct	+0.8862	0.2406	[0.415, 1.358]	<0.001	

Standard errors are clustered by team to account for the fact that individual teams show up more than once in the sample across different seasons (Table 3). Under conventional, non-clustered standard errors, the same three coefficients yield $p = 0.032$ (Model A), $p = 0.049$ (Model B), and $p = 0.055$ (Model C). Clustering tightens the result, most likely because year-to-year variation in a given team's overage is larger than the correlation between that team's playoff outcomes in different years. The primary finding maintains significance even when standard errors are clustered by team to account for year-to-year correlation within the same franchise.

The main finding from Model B is that every additional \$1M spent over the cap through LTIR is associated with a 0.65 percentage point higher playoff win percentage, after holding regular-season strength constant. A team carrying \$10M in LTIR salary cap relief would be expected to have a playoff win rate about 6.5 percentage points higher than an equally good team with no LTIR usage.

Regular-season strength (RS_Pts_Pct) shows a substantially larger and more reliable association, with a coefficient of +0.888 ($p < 0.001$, clustered). Being a better team in the regular season predicts better playoff performance far more strongly than cap strategy does.

Model C, which expresses overage as a percentage of the cap ceiling rather than raw dollars, was only marginally significant under conventional standard errors ($p = 0.055$) but is significant once clustered by team ($p = 0.006$). A \$6M overage in 2015–16, when the cap was \$71.4M, represented an 8.4% advantage; the same \$6M in 2025–26, against a \$95.5M ceiling [2], amounts to only 6.3%. The inflation-adjusted specification is arguably more theoretically appropriate for comparing across the full study window, and it now points to the same conclusion as Model B.

Table 3. Ten Largest LTIR Overages in Sample

Season	Team	Overage (\$M)	Overage (% Cap)	RS Pts%	Playoff Win%
2023-24	TOR	\$19.54	23.4%	.622	.429
2020-21	TBL	\$18.38	22.6%	.670	.696
2023-24	VGK	\$17.62	21.1%	.598	.429
2023-24	TBL	\$16.87	20.2%	.598	.200
2024-25	WAS	\$14.76	16.8%	.640	.500
2022-23	VGK	\$14.66	17.8%	.677	.727
2024-25	FLA	\$13.40	15.2%	.677	.696
2020-21	NYI	\$12.86	15.8%	.634	.579
2025-26	VGK	\$11.99	12.6%	.579	.636
2024-25	DAL	\$11.54	13.1%	.622	.500

Sources: Hockey-Reference, PuckPedia, Spotrac.

The results in Table 3 demonstrate variability, with many teams utilizing the LTIR tool. Tampa Bay in 2020–21 and Florida in 2024–25 represent instances where high LTIR usage coincided with deep playoff runs. Both teams had large overages and made deep playoff runs [4,5]. Vegas in 2022–23 won the Cup at a .727 win rate with \$14.7M in relief [4,5]. However, the 2023–24 season presents a contrasting outcome. Toronto spent more over the cap than any other team in the dataset and lost in the first round, and Vegas carried \$17.6M that year and also lost in the first round, and Tampa Bay had \$16.9M and was swept as well.

DISCUSSION

A coefficient of +0.0065 per million dollars is meaningful across large overages, but it is not a guarantee of anything. The model's R^2 is 0.098, meaning it explains less than 10% of the variance in playoff win percentage [6]. Regular-season strength remains the stronger predictor. Injury outcomes and first-round matchups, neither of which is captured in this model, arguably also matter a lot.

This finding could also be subject to some selection bias, as teams that utilize heavy LTIR tend to be expensive rosters that still made the playoffs, not usually 70-point rebuild clubs. LTIR users in the sample are disproportionately teams with costly, competitive rosters who believe they can win. Some of the positive associations with playoff performance may reflect that quality instead of the LTIR mechanism itself.

It is also worth noting that LTIR is not technically a “loophole.” The mechanism was written into the NHL Collective Bargaining Agreement to protect teams from roster crises caused by catastrophic injuries to star players [2]. Questions regarding the integrity of the salary cap arise because teams have become better at engineering situations in which a player lands on LTIR before the playoffs. Whether that constitutes strategic exploitation or rational roster management is heavily debated.

Sports-law commentary has traced how teams learned to time LTIR designations to maximize in-season cap relief while still activating the player for the playoffs [3], and players themselves have been candid about viewing the mechanism as a loophole rather than an accounting quirk. Montreal Canadiens captain Nick Suzuki called it “obviously a loophole in the system” that any team would be “fine to take advantage of” [1]. Both describe the same strategic incentive that teams close to Cup contention have a reason to carry LTIR relief into the postseason.

Since this paper's data collection concluded, the NHL and NHLPA have moved to close the mechanism studied here. Under the four-year CBA extension the two sides ratified on June 27, 2025, playoff rosters must now be salary-cap compliant for every game dressed, a change the league fast-tracked to begin with the 2025–26 season rather than waiting for the full agreement's September 2026 start date [7]. In practical terms, the final season in this sample already fell under the new compliance rule, and any team relying on LTIR-fueled playoff depth going forward will need to build a roster that fits under the cap once the injured player returns. This does not undo the historical association documented here, but it does mean the mechanism this paper analyzes is now closing; future research on LTIR and playoff performance will effectively be studying a natural experiment bounded by this rule change.

Finally, three of the four teams with the largest overages in the sample all played in the same season, 2023–24, and all three lost in the first round. Re-estimating Model B after excluding the 2023–24 season ($n = 143$) raises the LTIR coefficient to +0.0097, with $p = 0.014$ under conventional standard errors and $p = 0.008$ clustered by team (95% CI: [0.002, 0.017]; $R^2 = 0.095$), both tighter than the full-sample estimate. One bad year for heavy spenders moves the estimate substantially, which underscores that the underlying sample, while the most comprehensive available for this question, is still not large for the effect sizes involved.

CONCLUSION

Across 159 playoff team-seasons from 2015–16 through 2025–26, teams that spent more over the salary cap through LTIR were associated with better playoff performance on average, even after controlling for regular-season strength. The association is statistically significant ($p = 0.049$, under conventional standard errors; $p = 0.005$ clustered by team to account for teams appearing repeatedly in the sample), with each additional \$1M of overage associated with a 0.65 percentage point higher playoff win rate. That said, the model explains less than 10% of what determines playoff success. The LTIR-heavy teams that won the Cup (Tampa Bay 2020–21 [5], Vegas 2022–23 [5], Florida 2024–25 [4]) probably did so because they were genuinely good hockey teams that also happened to carry extra roster depth through a favorable cap structure. The first-round exits of high-spending teams in 2023–24 (Toronto and Vegas) suggest that cap-derived depth cannot compensate for other critical performance factors, such as goaltending quality or unfavorable playoff matchups, which fall outside the scope of this analysis. With the new CBA closing this mechanism beginning with the 2025–26 playoffs, this study is likely to stand as a historical account of a roster-construction strategy that is no longer available in its original form.

CONFLICT OF INTEREST

The authors declare no conflicts of interest related to this work.

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ABOUT THE AUTHORS

Stanley Tang is a high school student at Palo Alto High School in Palo Alto, California. He is interested in data science and analytics, hoping to explore how these areas intersect with his love for sports, especially hockey. He plans to go into a data science-related field in college.

Dolgoon Enkhbayar is a student at Foothill Middle College. He is interested in economics and how he can apply his knowledge to markets he is passionate about, such as sports. He plans to go into business economics in college.