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Research Proposal

Introduction and Literature Review

The impact of COVID-19 has been profound and reverberated widely, leaving a lasting impact that is still being analyzed today. Spanning from healthcare systems to global economies, its repercussions have affected every facet of society, from supply chains to mental health, leaving no aspect untouched. This includes the world of sports and sports economics. My paper answers the question of did COVID-19 had an impact on home-ice advantage in the National Hockey League (NHL). "Home Ice Advantage" refers to the phenomenon where the home team is typically favored to win a game due to various factors. These may include the absence of travel, familiarity with the rink, and, notably, the support of thousands of fans cheering for their victory during each game, ranging from 10,000 to 20,000 in number.

Covid-19 led to government policies throughout the United States and Canada that banned or limited large gatherings, directly affecting sporting events as fans could no longer attend games. Through this scope, we can exploit exogenous variation by analyzing NHL games in which no fans were present compared to games with fans. Our paper builds off of previous research done by Cross et. al in their paper "Do Fans Impact Sports Outcomes? A COVID-19 Natural Experiment", which found that the no-fans policy had an impact on top European soccer leagues home field advantage, reducing the home goal scoring differential by more than 50%.

We plan on further contributing to the literature by analyzing this impact within the context of the National Hockey League.

Our paper takes advantage of the natural experiment strategy to analyze the home ice advantage over a five-year period leading up to the COVID-19 pandemic when arenas hosted fans compared with the period during COVID-19 restrictions when no fans were permitted to attend games. Similar research by Arboix-Alió et. al in the paper “The Behaviour of Home Advantage during the COVID-19 Pandemic in European Rink Hockey Leagues” has been conducted on European hockey before but no research has been done specifically in the context of the National Hockey League. Additionally, we plan on adding to the current research by exploring if playing a close team (defined as a team within 400 miles), mitigates the home-ice advantage due to traveling fans, along with exploring the impact during the regular season vs more important playoff games. These results can help quantify the importance of having a strong, home-biased crowd in attendance every night to help the home team win and further explain the causal effects COVID-19 had on sports.

The idea of Home advantage has been well-established through various sports and sporting leagues. For example, “The Home Advantage” by Carron et. al, conducted a literature review analyzing the impact of home advantage over the past 5 years in professional Baseball, Soccer, Ice Hockey, American Football, and Basketball. These sports resulted in improved performance when at home. Additionally, they found a strong increase in individual sports by assessing World Cup Alpine Skiing in which athletes competing in their home country performed 16% better from their initial seeding going into the race. Carron explains this advantage in a few ways such as crowd support, officiating bias, travel, and comfort/familiarity. Additionally, a paper done by Guérette et. al, titled “The absence of fans removes the home advantage

associated with penalties called by National Hockey League referees” shows precisely what the title says in that the removal of fans during COVID-19 removes the home penalty call bias that Carron and others (Gong, Boyko) have found in professional sports. Referring back to Carron’s explanations of Home Advantage we see that in the National Hockey League when no fans were in attendance officiating bias is eliminated but also travel and comfort/familiarity stay consistent allowing for a causal analysis of home team performance when fans are no longer in attendance.

Empirical Approach

To analyze the impact of fans on home team performance in the NHL, we collected 7 years of game data from hockey-reference.com, which showed home and away team names, score of the game, and total attendance. This resulted in 7,551 games total of which 701 (9.3%) of the games had an attendance of 0. Additional binary variables were created within this dataset to establish whether a game occurred during the playoffs, whether a crowd was present if the game occurred against a team of close distance, and a continuous variable of home goal differential. To test the impact of having no crowd in attendance, we will regress the dependent variable of home goal differential on the independent variables of no crowd, playoffs, and closeness of the team. We plan on running multiple regressions and exploring the interaction between variables such as seeing if playoffs and no crowd have a strong impact on home goal differential compared to no crowd during the regular season. The results of these regressions will show the impact of having no crowd in attendance on numerous different game circumstances.

Sources

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