

**The National Hockey League and Cross-Border Fandom: Travel Costs, Incumbent Compensation, and International Boundaries**

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**Economics**

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(including questions)  
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Introduction and Purpose

The expansion of the National Hockey League (NHL) to areas in the southern continental United States has fueled debate over the ability for teams to be financially successful in areas where the sport is less popular. This has resulted in proposals for franchise expansion or relocation (back) to Canada. However, with much of the Canadian population living within 100 miles of the United States border, the impact of relocation on northern teams' potential fan base must be understood. This close proximity and relative lack of teams in Canada could mean that a large number of U.S.-based hockey team supporters reside outside a team's home country. In this work, we address this cross-border fandom in the NHL and its importance with respect to gate revenues.

Background and Justification

Despite rather well-defined exclusive markets in professional sports, recent history has produced disagreements over the rights to areas near an incumbent professional team. The Greater Toronto Area-Hamilton area has been discussed as a possibility for a relocated franchise or expansion team. Both Markham, just north of Toronto, and Hamilton, located further from Toronto, want to host an NHL team. The city of Hamilton, however, is located far closer to market areas in Canada served by the Buffalo Sabres. Hamilton's efforts to secure a team could be complicated by any dispute with the Sabres, as that team could well draw fans that might find a Hamilton location more convenient. The Maple Leafs could also argue that damages are produced from a team in either area, despite the region's growth. Though a Hamilton-based team would be located beyond their exclusive market area, Buffalo leadership has maligned that much of this exclusive territory includes large bodies of water (Breunig, 2012). As a result, the team may be entitled to more land area inside Ontario Province.

The Sabres' claim regarding its market boundaries begs the question of whether a U.S.-based team faces barriers to entry into the Canadian market, or if compensation from a new team across an international border is appropriate. Past research has found that international borders are viewed as somewhat strong barriers to international tourism (Timothy & Tosun, 2003). While the U.S.-Canadian border has historically been relatively easy to cross, the implicit cost of crossing has fundamentally changed during the span of our data in the form of passport requirements. Therefore, its impact on fans of the nearby U.S. hockey team can also be assessed.

Methods and Data

We use this case as an evaluation of the propensity for international tourism for the NHL, and refer to this phenomenon as "cross-border fandom". Using Canada-to-U.S. passenger automobile border crossing data, we estimate a generalized additive model to evaluate increases in border crossing on Buffalo Sabres game days. We include mutually exclusive indicators of U.S. and Canadian based opposing teams in the model in order to evaluate heterogeneity in fan travel based on the national origin of the opponent.

The data for this analysis come from multiple sources. Game dates for the NHL come from The Hockey Summary Project (2011), while daily border bridge-crossing data come from the Niagara Falls Bridge Commission (2011) and Peace Bridge Historical Traffic Statistics (2011). Historical Dow Jones averages are used as a proxy for economic well-being, with the U.S.-to-Canadian dollar exchange rate used to control for the relative strength of currency in the two countries. Data span from May of 2003 through August of 2011, and include 7 seasons worth of NHL game information (there was no season for 2004-2005 due to the lockout).

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### Results

We estimate that a non-trivial proportion of attendance at Sabres home games come from Canada. Based on our regression estimates, Buffalo's Canadian fan base accounts for as much as 15 to 29 percent of gate revenues. This effect is heterogeneous with respect to the opponent: when a Canadian opponent comes to town—and especially so for the Toronto Maple Leafs—border crossings are significantly larger than when a U.S.-based team is visiting. Finally, while an increase in implicit costs to crossing the Canada-U.S. border decreased average daily border crossings into the United States, this change did not have any discernible negative effect on the number of additional Canadians crossing the border on Sabres game days. As a test for validity, we estimated a nearly identical model for commercial truck traffic, as the occurrence of a hockey game should not impact the number of truck crossings into the U.S. This additional model confirms this, signifying that only the number of passenger cars increased on days when the Buffalo Sabres were hosting an NHL game.

### Implications

The findings here are of course important to sport managers when estimating demand. However, implications extend to NHL expansion near international borders, and compensation to incumbent teams both within and across the national border where an expansion team is placed. Both losses in terms of demand for tickets, and gains—for example, additional programming for the regional sport network owned by an incumbent team—should be accounted for in any calculation. Public leaders, the professional leagues, and fans need to understand the issues of increasing the number of teams and the effect of expansion on existing franchises in order to make informed decisions about public funding and private compensation falling within league bylaws.

### Limitations and Future Work

While this work shows the propensity for fans to cross borders to attend NHL games, the nature of the data does not allow for further inspection of reasons for this travel. Fans could be attending Sabres games for a number of reasons including demand surpluses and the Toronto Maple Leaf's limited supply of tickets, or lower travel costs and closer proximity. In order to understand the full impact on the Sabres' revenues, further evaluation of fans' attachment must be assessed. It could be that even nationalistic tendencies would not be enough to lead fans astray from a team across the border. However, it seems likely that over time the more local team would gain market share through younger fans in the vicinity. We leave these natural extensions to future research.