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Reference-dependent preferences, team relocations, and major league expansion[☆]

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ABSTRACT

Professional sports teams receive large subsidies, some in excess of $500 million, from local governments for the construction of new facilities. These subsidies cannot be explained by tangible economic benefits, and estimates of the value of intangible benefits also fall short of typical subsidies. In this paper, we incorporate fans' reference-dependent preferences into a model of the bargaining between local governments and teams. The model predicts that teams use relocation threats to exploit fans' utility loss from team departures, a negative deviation from the status quo, to extract large subsidies from local governments. Fans' loss aversion provides an explanation of the current team distribution, and observed team relocation and league expansion decisions in North America. The model also highlights the importance of anti-trust exemptions of the leagues in creating credible relocation threats for existing teams.

1. Introduction

In North America, professional sports teams receive large subsidies from federal, state, provincial and local governments. Federal subsidies flow from the financing of new stadium and arena construction with tax exempt bonds, as well as allowing professional sports teams to depreciate the value of contracts as an expense, reducing tax liabilities (Coulson and Fort, 2010). The state, provincial, and local government subsidies typically take the form of public funds for the construction, renovation, and operation of stadiums and arenas, and exemptions from local property and corporation taxes. Long (2005) estimates that the average state and local subsidy for the 99 stadiums and arenas used by teams in the National Football League (NFL), National Basketball Association (NBA), National Hockey League (NHL) and Major League Baseball (MLB) was $175 million per facility.

The creation of net new income and jobs by professional sports teams is frequently mentioned as a justification for these subsidies; a large body of evidence suggests that tangible economic benefits like higher local incomes and wages, and sports-led job creation, are negligible (Coates, 2007; Coates and Humphreys, 2008). Another line of research values the intangible

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benefits generated by professional sports teams. These papers estimate the consumer surplus generated by professional sports teams based on ticket prices (Alexander et al., 2000) or use contingent valuation method (CVM) models to value these intangibles (Johnson et al., 2001, 2007; Fenn and Crooker, 2009). The estimates from this line of research, with the exception of Fenn and Crooker (2009), while substantial, do not appear large enough to justify the typical subsidy provided to a professional sports team. A full explanation for these large subsidies appears to lie elsewhere.[1]

In this paper, we incorporate fans' reference-dependent preferences into a bargaining model with outside options to explain the existence of large subsidies as well as observed team relocation and league expansion decisions. Fenn and Crooker (2009) find that the willingness to pay (WTP) for a new stadium for the Minnesota Vikings was higher when residents believed that the relocation threat of the team was credible. Relocation threats usually are a standard negotiation tactic of teams to introduce outside options (or threat points) and to extract as large a public subsidy as possible (Owen, 2003; Owen and Polley, 2007). In this context, the social value of keeping a team in the host city is unaffected by the relocation threat; only the share of the subsidy provided by residents and the team are affected. The results in Fenn and Crooker (2009) suggests that the value of the Vikings to Minnesotans increases when there are credible relocation threats. This is consistent with reference-dependent preferences of local residents because relocation threats would not affect WTP if fans' preferences are independent of the status quo. Our model suggests that teams can use relocation threats to increase the total WTP for a new stadium by triggering fans' intention to avoid the utility loss from a negative deviation from the reference point—the status quo of having the team.

Strategic interactions between cities and teams over subsidies have been analyzed in the literature (Owen, 2003; Owen and Polley, 2007; Porter and Thomas, 2010).[2] We extend this literature by introducing fans with reference-dependent preferences (Koszegi and Rabin, 2006) and potential loss aversion. We assume that, in addition to the intrinsic "consumption utility" from attending live sporting events played by the home team, fans also have "gain-loss utility" that corresponds to the sensation of gain or loss due to a departure of outcomes from a reference point, which, in this paper, is the status quo—whether a team was present in the city in the past period. Loss aversion in this context is that fans experience a larger loss if a beloved local team relocates to another city than the benefit generated by a new team moving to a city. We also extend the analysis to the wider issue of league expansion into open markets.

The model predicts that the existence of "gain-loss utility" allows teams to extract a larger subsidy than would be possible absent this utility change for fans due to deviations from the reference point, even when accounting for the presence of outside options in the form of larger cities without teams. We show that the outcome of some smaller cities with teams and some larger cities without one can be an equilibrium (e.g., Los Angeles having no NFL team when Green Bay has one) sustained by fans' loss aversion.[3] The model also predicts that, when fans have loss aversion, leagues and teams can extract larger subsidies by following a policy of first moving a team out of a city and then placing a new expansion franchise in that city, an increasingly popular strategy followed by leagues.

Our paper is the first, to our knowledge, to provide a consistent understanding of the size of public subsidies, current team distribution, and observed team relocation and league expansion decisions in North America. It highlights the role of relocation threats, which are frequently used by teams and discussed in the media, as both a negotiation strategy to grab a larger share of the social value of keeping a team at the host city and, more importantly, as a way to force fans to factor their potential utility loss due to a negative deviation from the status quo into their WTP for a new stadium for the local team. The addition of fans' "gain-loss utility" can help to explain why the typical subsidy provided to a professional sports team often exceeds the total estimated tangible and intangible value of a team conditioned on the status quo of keeping the team in place, a situation different from the one occurring during negotiation over subsidies, when relocation threats are credible. Our model calls for a re-examination of the anti-trust protections given to sports leagues taking into account that the ability of leagues to consistently generate credible relocation threats originates from their monopoly power.

The literature on reference-dependent preferences and loss aversion focuses on the role in individual decision making,[4] and their importance in more macro-level issues is rarely studied. By embedding reference-dependent preferences in a game theoretical bargaining setting where one party has the ability to create a negative deviation from the status quo and uses it to increase the total value under negotiation, our paper identifies a setting where reference-dependent preferences play an important role in local public policies.

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1 Porter and Thomas (2010) use a public choice model to show that teams may charge a lower ticket price to create a bigger fan base to obtain larger subsidies that are not optimal for the population. In this paper, it is possible that the size of subsidies exceeds the total social value to the city.

2 The main insight from Owen (2003) and Owen and Polley (2007) is that as long as sports teams have value as a public good, then the existence of public subsidies are justified, and that the size of the subsidies may be the result of asymmetric bargaining positions of the two parties. In both papers, the subsidies should not be bigger than the standard total consumer surplus to the city, which is independent of relocation threats.

3 Such a situation will not be an equilibrium in the model developed by Porter and Thomas (2010). In their model, public subsidies do not affect the location distribution of teams and cities that have teams are the most profitable locations absent public subsidies. By this logic, when there is an emerging city without a team that is more profitable than the least profitable city with a team, then a team will relocate to the emerging city in equilibrium.

4 See Abeler et al. (2011), Card and Dahl (2011), Coates et al. (2014), Crawford and Meng (2011), Ericson and Fuster (2011), Gill and Prowse (2012), Pope and Schweitzer (2011), and Post et al. (2008) for empirical evidence of reference-dependent preferences and loss aversion in different context of individual decision making.