Simple measures of endogenous free-riding in protectionist lobbies

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ABSTRACT

Even though there is a well-known empirical and theoretical link between lobby and the free-rider problem, the existing literature only attributes its findings to the free-rider rather than the measurement of its extent. We develop broader theoretical micro-foundations for measuring free-riding and investigate the determinants of tariff rates from the perspective of corporate lobbying and free-riding. Our estimation result shows that the degree of free-riding not only varies across industries but is particularly high in larger industries indicating the underutilization of lobbying. The tariff rates under monopoly are about 8 times higher than under perfect competition in most industries suggesting that stakeholders should maintain higher industry protection levels through lobbying.

1. Introduction

In democracy, policies are determined by the political process which is affected by not only general voters but also pressure from special interest groups. In order to influence their stakes in political parties, special interest groups make lobby contribution to political campaigns. For example, industries may benefit from lobby by securing protection. A stronger political lobby can both increase the probability of election of its favored party and exert greater influence over that party's chosen policies.

In general, there are two types of lobbying.[1] The first is firm-level lobbying and the second is industry-level lobbying. In the case of firm-level lobbying, each individual firm privately contacts with government and makes lobbying contributions for its own special interest. Many studies have examined the effectiveness of firm-level lobbying, and the most representative of them is Chen et al. (2010). They proved that lobbying has a positive relationship with accounting and financial performance, such as that measured by net income and cash flows.[2]

Firm level lobbying, however, is subject to high initial costs, which can prevent firms from participating in lobbying. This cost separates the lobbying firms and the non-lobbying firms.[3] Most research, such as Bombardini (2008) and Kerr et al. (2014), conclude that the lobbying firms are usually bigger and have higher productivity, and that these characteristics allow them to bear the expenses of lobbying more easily than non-lobbying firms.[4]

However, even small-sized firms who cannot afford the high costs of firm-level lobbying may benefit from the second type of lobbying, industry-level lobbying. In this case, some firms make lobbying contributions directly in order to represent the interests of their industry rather than their own interests. Most of the industries in U.S. constitute political action committees (PAC), which are organized by firms in the industry, to which each firm in the industry may contribute a voluntary donation so that the PAC can contact the government for lobbying on their behalf.

This industry-level lobby is inevitably associated with a free-rider problem. The work of Olson (1965) demonstrated that this free-riding is natural in industry lobbies because all the domestic producers in an industry benefit from protection, but each firm wants the others to bear the costs of lobbying. Since the protection level is applied to every firm in the import-competing industry, the small-sized firms who cannot afford lobbying also enjoy the high level of protection provided by the contributions of the lobbying firms. Therefore, in recent years, the empirical and theoretical literature that deals with relations between free-riding and lobbying has been growing. It establishes that the

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   [1] In this paper, lobbying means the expenditure of money by a firm to attempt to influence trade policies.
   [2] In addition to Chen et al. (2010), Hersch et al. (2008), Vidal et al. (2012) and Hadani (2012) also found positive correlations between lobbying activity and the ownership and value of capital. Volker and Thomas (2008) proved that lobbying affects the value of the firm's headquarters.
   [3] Kerr et al. (2014) gathered from lobbying data from the Center for Responsive Politics (CRP) and found that only 10% of the firms participated in lobbying in the year of 2006.
   [4] Bombardini (2008) considered individual firms' lobbying behaviors and developed a model to explain which features determine individual firms' participation in lobbying, and found out that lobbying firms are more likely to be larger than non-lobbying firms.

politics of trade protection is a kind of collective action problem because protection benefits all firms in the industry including those who contributed nothing to the lobbying effort. The Grossman and Helpman (1994) modeled it, and completely overcome the free-rider problem for fully organized industries.[5]

Even though there is a well-known empirical and theoretical link between lobby and the free-rider problem, many studies only attribute their findings to free-rider problem without measuring it. To our knowledge, Gawande (1997) was the first to measure free-riding using actual lobby contribution data. Magee (2002) also developed a model in which tariffs are determined through bargaining between a utility maximizing policy maker and an industry lobby. More recently, Gawande and Magee (2012) examined the extent of free-riding in lobbying over tariffs in the context of the Grossman and Helpman (1994) protection for sales model.

Extending Gawande's (1994) work, this paper aims to investigate the determinants of tariff rate from the perspective of corporate lobbying and free-riding. For analysis, we constructed linear and non-linear empirical models based on Magee et al. (1989) and Lee (1996) and used 5-yearly NAICS panel data at the 4-digit level on 86 manufacturing industries in 2002, 2007 and 2012. To estimate the effect of lobbying, we calculated the tariff rate under monopoly (B) where there is no free-riding and the tariff rate under perfect competition (C) where everyone is a free-rider to obtain the ratio of the tariff rates, (B/C). The results of our analysis suggest that for most industries the tariff rates under monopoly are about 8 times higher than those under perfect competition. That is, through lobbying corporations maintain the protection of their industries at about 8 times higher.

Then, using the ratio of the actual tariff rate (A) to the monopoly tariff rate (B), (B/A), we measured the degree of free-riding. It appears that the degree of free-riding not only varies significantly across industries but also is particularly high in larger industries.

This paper makes four contributions to the understanding of free-riding in protectionist lobbies. First, based on Magee et al. (1989) and Lee (1996) model, we establish broader theoretical micro-foundations for measuring free-riding. Second, our model extends Gawande (1997) by constructing two additional measures of free-riding. Third, in most countries, including the United States, good data on lobby expenditures is unavailable. Therefore, our third innovation allows our model to measure free-riding without needing lobby spending data. In our framework, all that is required to estimate lobby free-riding is the tariff rate (or total protection), the Herfindahl measure of industry concentration, and other control variables. Fourth, by estimating protection using a reduced form, we avoid the problem of simultaneity between tariffs and lobby contributions.

An interesting implication of this work is one explanation for Tullock (1988) under-dissipation puzzle. That is, why do industries spend so little on lobbying for protection when the economic benefits are so large? Various explanations have been suggested, such as rent seekers' asymmetric valuations of the contested object in Hillman and Riley (1989) and the public good nature of the sought-after prize in Ursprung (1990). This work extends Ursprung's explanation the pervasiveness of free-riding.

The paper is structured as follows. In Section 2, we summarize the previous literature related to lobbying and free-riding, and in Section 3 we outline our model which builds heavily on Magee et al. (1989) and Lee (1996). We show how the free-riding coefficient increases with the number of group members or the relationship between aggregate lobbying contribution, the free-riding probability and each industry's stake in having protection. In Section 4 we discuss the data that we used and how we construct it. In Section 5 we focus on the empirical results, and report the linear and non-linear estimates of the prob-

ability of free-riding and the U.S. tariff levels for four-digit NAICS industries assuming either complete free-riding or no free-riding at all. We conclude in Section 6.

2. Literature review

Extensive discussion of free-riding of lobbying began with Olson (1965) who first suggested that free-riding in industry lobbies was natural. Since then, a growing empirical and theoretical literature has dealt with the free-rider issue in lobbying. In a non-cooperative setting, Rodrik (1986) found that as the number of firms rise, the free-rider problem worsens, and this result was re-examined by Pecorino (1998). Pecorino (1998) explains the mixed empirical results with a model. He shows that we cannot always assume that maintaining cooperation becomes more difficult as the number of firms in an industry rises (i.e., the free-rider problem does not necessarily worsen as an industry becomes less concentrated).

Related studies in the same tradition are Findlay and Wellisz (1982) and Mitra (1999). They developed models incorporating both endogenous lobby formation and endogenous trade policies. Findlay and Wellisz (1982) provided the first model of endogenous lobbying in general equilibrium. They created a Ricardo–Viner model of a developing country in which there is one mobile factor of production (labor) and two immobile factors (capital and land). Capital is employed producing importable manufactured goods while land is employed producing exportable agricultural products. Goldberg and Magee (1997) and Gawande and Bandyopadhyay (2000) supported this model empirically, and Sandler (1992) found that the tariff lobbying problem is related to the more general problem of public goods provision.

Despite much literature illustrating the theoretical mechanism of free-riding in industry lobby, there are few studies measuring free-riding in terms of protection. Magee et al. (1989) first explicitly presented a method of measuring free-riding. Gawande (1997) empirically tested the free-rider problem by using the lobbying power function suggested by Magee et al. (1989). He tested the model with cross-sectional data, at the 4-digit SIC level, on lobbying spending per firm and the Herfindahl index of industry concentration. He found that free-riders definitely exist in industrial lobbying. Magee (2002) developed a model in which tariffs are determined through bargaining between government and industry lobbying, and he applied this model to the free-rider problem. The model identifies the general conditions under which increasing the number of firms in an industry hinders cooperation.

More recently, Gawande and Magee (2012) examined the extent of free-riding in lobbying over tariffs in the context of the Grossman and Helpman (1994) protection for sale model. While previous studies have produced the puzzling result that governments care little about campaign contributions, contrary to numerous examples of welfare-reducing policies, Gawande and Magee introduced free-riding into the Grossman–Helpman model, and allowed industries to be partially organized. By doing so, they revealed that the puzzle can be explained by the extent of free-riding.

Many studies have investigated the effectiveness of lobbying. For example, Kelleher et al. (2009) found out that firms, which increase their lobbying contribution by 1% in a year, reduce their tax rate by almost 1 percentage point the following year. Yu and Yu (2012) proved that lobbying firms are subject to a much lower hazard rate of being identified as fraud than non-lobbying firms. Faccio and Parsley (2009) also determined that the existing firms could create entry barriers against infant companies through lobbying. Mattew et al. (2013) proved that when companies make lobby contribution more, their potential payoff from favorable policy is higher using political action committee (PAC) data.

Although these studies explain the effectiveness of lobbying, they investigate the impact only of firm-level lobbying, and ignore the non-lobbying firms also benefit through the free-riding of industry-level

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[5] There is much literature related to this issue, such as Rodrik (1986) and Pecorino (1998), which are covered in more detail in the next chapter.