DOES FOREIGN LOBBYING INFLUENCE TRADE POLICY IN THE UNITED STATES?

by

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ABSTRACT

The increase in the number of organized interest groups and their lobbying activities in the United States (US) government in the past forty years have raised concerns regarding their implications for US public policy (CRS Report for Congress, 2006). This, coupled with the threat of foreign influence has led to the enactment of various laws, including the Foreign Agents Registration Acts, in order to maintain transparency in the US political system. In 1995, the Lobbying Disclosure Act was unanimously passed by the US congress to create a more effective and equitable system for administrating and enforcing disclosure requirements.

Despite the efforts made by the Congress to avoid influence of interest groups in the policy making process, studies have shown that lobbying of organized interest groups does have a significant effect on policy outcomes, including trade policy. Influence of organized domestic groups have been reported by several analysts (Gawande and Bandyopadhyay 2000; Gawande and Hoekman 2006; Mitra et al., 2002) using the Grossman-Helpman (G-H) protection for sale modeling framework. The G-H approach assumes perfect competition and predicts cross-sectional differences in protection via three explanatory variables; namely the import elasticity, import penetration ratio and whether or not the industry is politically organized. In the last decade, this framework has been extended to incorporate foreign lobbying (Gawande
et al, 2006), with significant evidence of foreign lobbying influence on US trade policy.

However, a recent study which incorporates monopolistic competition into the G-H framework found that measuring the impact foreign lobbying without accounting for the presence of FTA is likely to overestimate the effect of foreign lobbying on Canadian trade policy (Stoyanov, 2009). Thus, a re-examination of the impact of foreign lobbying on US trade policy seems appropriate. Such an investigation using US data could provide additional policy insights since earlier studies did not account for the presence of preferential market access between trading partners.

This study bridges a gap in the literature by re-examining the impact of foreign lobbying on US trade policy using the G-H model with monopolistic competition. The analysis focuses on congressional votes on foreign trade bills for the year 1997. Variables used in the model specification include level of protection (dependent variable), import elasticity, market shares and whether or not the industry is politically organized. Import penetration and the dummy variable for political organization were estimated using instrumental variables because of potential endogeneity of these variables.

Based on the empirical results from our analyses there is some empirical support for the monopolistic competition model of endogenous trade policy; the preferred specification with NTB coverage ratio as dependent variable gives results consistent with the predictions of the model. However, the result presents domestic
firms as sole determinants of US trade policy. The results of this study further shows that, contrary to the predictions of the benchmark G-H model unorganized firms do enjoy some level of protection from the government. Thus, an investigation of endogenous trade policy without accounting for the imperfect market structure which exists in reality might be underestimating the effect of protection on unorganized domestic firms.
Chapter 1

INTRODUCTION

1.1 Context for the Study

Growth in international trade has proven to be the major driving force of the world economy in the past two decades, with this growth doubling that of world output on average (IMF, 2001). This significant level of growth in trade can be attributed to concerted efforts made by many economies to reduce trade barriers through various multilateral trade agreements. Noteworthy of these significant trade reforms are the eight rounds of multilateral trade liberalization (General Agreement on Tariff and Trade between 1947 and 1994) as well as unilateral and regional liberalization. China’s recent prominence in the world economy is facilitated by its trade liberalization reforms and the general opening of its economy (Barnett et al., 2004). In the United States (US), President Clinton’s administration promoted a trade liberalization initiative to take advantage of opportunities for economic development through the expansion of international trade via membership in the North America Free Trade Agreement (NAFTA).

However, despite the growth-stimulating potential of free trade, policies that limit trade still persist in some countries, including the US. In the last two decades, there have been repeated accounts of special interest group influence on US trade policies (Goldberg and Maggi, 1999; Gawande and Bandyopadhyay, 2000; Gawande and Hoekman, 2006).
The role of special interest group lobbying in international trade dates back to the founding of the US republic when tariff legislation was in the forefront of policy debate. It had great impact on the society and also stimulated the greatest amount of lobbying at that time (United States Senate, 1989). According to a recent study that spanned a four-year duration, trade issues were ranked second among the issues on which lobbyists and government officials were found to be active (Baumgartner et al., 2009). As a result, policies on trade issues are likely to be influenced by activities of various interest groups.

Table 1.1  Interest group participation in lobbying activities

<table>
<thead>
<tr>
<th>Group type</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizens groups</td>
<td>329</td>
<td>26</td>
</tr>
<tr>
<td>Trade and business associations</td>
<td>265</td>
<td>21</td>
</tr>
<tr>
<td>Business corporations</td>
<td>179</td>
<td>14</td>
</tr>
<tr>
<td>Professional associations</td>
<td>140</td>
<td>11</td>
</tr>
<tr>
<td>Coalitions specific to the issue</td>
<td>90</td>
<td>7</td>
</tr>
<tr>
<td>Unions</td>
<td>77</td>
<td>6</td>
</tr>
<tr>
<td>Foundation and think tanks</td>
<td>71</td>
<td>6</td>
</tr>
<tr>
<td>Governmental associations</td>
<td>38</td>
<td>3</td>
</tr>
<tr>
<td>Institution and associations of institutions</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>35</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1244</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Baumgartner et al., 2009

Many researchers have investigated the role of interest groups in trade policies. For example, previous studies have found evidence of influence of domestic lobbying on increasing trade barriers (Godberg and Maggi 1999; Gawande and Bandyopadhyay 2000; Gawande and Hoekman 2006) while others have demonstrated that foreign
lobbying do have significant influence in reducing trade barriers (Gawande et al., 2006). However, a recent study on the impact of foreign lobbying disaggregated by free trade agreement (FTA) on Canadian trade policy shows that FTA partners have the same lobbying objective as the domestic lobbying groups (Stoyanov, 2009). Thus, an investigation of the impact of foreign lobbying without accounting for the presence of FTA might be misleading.

1.2 Problem Statement

Influence of lobbying groups in policy making process has been a subject of concern in the past few decades and has led to various laws and reforms which tract the activities of these interest groups. Part of the laws and reforms is the public disclosure of interest group activities. This makes it possible for researchers to investigate the extent to which interest groups alter the policy making process. A branch of the political economy literature has been devoted to investigating the impact of interest group lobbying on domestic trade policy and has found evidence of domestic and foreign lobbying influence on US trade policy. However, a study in this area which was applied to Canadian data found that accounting for the imperfect nature of the market and also whether or not a foreign lobby joins a Free Trade Association (FTA) provide a different structure to the policy making process. Studies in the US that have investigated the activities of domestic and foreign interest groups did not account for these factors and thus, this study intends to bridge this gap in the political economy literature.
The political competition model (Magee et al., 1989; Hillman and Ursprung, 1988) and the political support model (Hillman, 1982) are prominent in the political economy literature on trade policy. However, a recent model which takes into account the influence of special interest groups on policy outcomes has been the work of Grossman and Helpman (1994). According to Mitra et al. (2002), the Grossman and Helpman model (henceforth called the G-H model) creates a multisectoral framework, provides a microfoundation to the behavior of organized lobbies and politicians, presents the government’s objective function as a weighted sum of political contributions and aggregate welfare, and predicts that each lobby group will maximize its welfare net of political contributions. The model assumes perfect competition and predicts cross-sectional differences in protection via three explanatory variables; import elasticity, import penetration ratio and whether or not the industry is politically organized.

The G-H model has been widely tested using US data, with evidence for the influence of organized domestic lobby groups in increasing US trade barriers (Gawande and Bandyopadhyay 2000; Gawande and Hoekman 2006). Also in the last decade, the model has been extended to study the influence of foreign lobbying on domestic trade policy, with significant support for the activities of organized foreign lobby groups in reducing US trade barriers (Gawande et al., 2006). While there has been empirical support for the influence of foreign lobby groups on US trade policy
using the G-H framework, advancement on the G-H model (through the incorporation of monopolistic competition into the G-H model) presents a slightly different result.

Application of the monopolistic competition model to Canadian data, taking into account the presence of a FTA partner country, reveals that organized lobby groups in the FTA partner country have the same lobbying objective as domestic lobby groups (Stoyanov, 2009).

This result seems plausible because the monopolistic framework allows foreign firms to gain and lose from an import tariff which is contrary to the perfect competition assumption upon which the G-H model was built. Moreover, it gives foreign firms incentive to lobby because pre-tariff prices are not exogenously fixed as found in the G-H model. In addition, the presence of FTA trading partners lead to differing lobbying objectives of foreign firms engaged in the trade policy game. As a result, one may conclude that earlier studies that have applied the US data, which failed to account for the presence of FTA, may have overestimated the effect of foreign lobbying through aggregation of foreign firms into one entity with a unified objective of reducing trade barriers. Thus, a re-examination of the influence of special interest group lobbying on US trade policies is important.

This study seeks to find answers to the following questions:

i) Does the monopolistic competition model have empirical support from US data?
ii) Are the activities of foreign lobbyists in the US, taking into account the presence of FTA, a significant determinant of US trade policy?

iii) Do politically organized foreign firms with preferential market access tend to receive more protection?

1.3 Justification of the study

This study re-examines the effect of foreign lobbying (disaggregated by Free Trade Agreement (FTA)) on US trade policy using the modified Grossman-Helpman model with monopolistic competition. Past literature on foreign lobbying is based on the G-H modeling framework which assumes perfect competition and permits free entry and exit of foreign firms. Thus, there is no incentive for foreign firms to partake in the US trade policy game since they have the option to opt out in cases where high import tariff is exogenously fixed by the importing country (US). However, in the monopolistic competition model, there is incentive for foreign firms to participate in US trade policy game, as profit of foreign firms are affected by high tariffs set by the importing country.

Furthermore, the differing objectives of lobbying of foreign firms in the presence of preferential market access calls for a reconsideration of the effect of foreign lobbying on US trade policy. Such an investigation using US data could provide additional policy insight since earlier studies did not account for the presence of preferential market access between trading partners.
1.4 Organization of Study

This thesis is organized as follows. Chapter 2 presents a background on the role of trade in the US economy, trade instruments and lobbying. Chapter 3 follows with a review of the literature. Chapter 4 gives a detail description of the methodology used for the empirical work. Chapter 5 presents the results of the analysis and Chapter 6 consist of the conclusion of the study.
Chapter 2

BACKGROUND

2.1 Role of International trade in US economy

International trade has been a vital contributor to the US economy through the effective use of various trade policy instruments. In the 1800s, tariff was been a major means through which the US government generated revenue to finance public debt and war time expenses. Examples include the increase in tariff rates in the 1860’s during the civil war and the great depression in the 1930’s (Suranovic, 2010). Also the high tariff of 1890 in the tinplate industry depicts the protectionist measure of tariff as this was put in place to encourage entry and growth of domestic producers and protect domestic infant industries from foreign competition (Irwin, 2006). Thus, tariffs have been a powerful trade instrument used by the US government.

However, retaliatory measures from more than 60 US trading partners led the US congress to pass bills directed towards trade liberalization in 1934 which has kept US tariff at considerable low rates for the trading partners with which they have trade agreement. In addition to individual trade agreements between US and some of their trading partners, the seven global tariff reduction rounds of the General Agreement on Tariff and Trade (GATT) which started in 1948 and ended with the Uruguay round in 1994 also explains the low tariffs on US imports (Suranovic, 2010).
The US drive towards trade liberalization has been marked by tremendous growth in the US economy. For example, in the last decade, international trade (exports) accounts for over 10 percent of the US GDP, with an increase from 10.9 percent in 1998 to 13 percent in 2008. Also, US exports of goods and services in 2008 accounts for $1.84 trillion, an increase of 12 percent over 2007. In addition, service export in 2008 was $544.4 billion which suggests a 9.5 percent increase over the previous year (Ward, 2009).

Although the US trade policy is marked by decline in tariff rates in the last 50 years, studies have shown that there has been a shift from the use of tariffs to less visible protectionist measures; non-tariff barriers which have led to several trade disputes between US and some of their trading partners (Otsuki et al., 2001a, b). Some examples of these non-tariff barriers include quantity restrictions (quotas), regulatory legislation such as sanitary and phytosanitary standards, antidumping and countervailing duties. Following the decline in tariffs over the years and the influence of WTO on tariff for members of WTO, researchers have found tariffs to be inappropriate for studies on trade barriers and now advocate some measures of non-tariff barriers (Goldberg and Maggi, 1999).

Coverage ratio is widely used as proxy for non-tariff barrier but has been criticized as an imprecise measure of non-tariff barriers due to the way it is calculated. For a particular industry, it is calculated as the import share of a particular product relative to total imports in the industry multiplied by an indicator variable which takes
the value of one if the product is covered by a non-tariff barrier and zero otherwise. According to Goldberg and Maggi, the use of import shares as weights tends to attach low weights to products that are highly protected because they are likely to have low imports. However, Trefler (1993) gives us some level of confidence when he constructed coverage ratio for average tariff, he found the correlation coefficient between tariff and coverage ratio to be as high as 0.78, thus making coverage ratio a suitable alternative in the absence of better measures. In addition to the problem of imprecision, Maggi and Andres Rodriguez-Clare (1995) shows that quantitative measures of non-tariff barriers could still have some measure of cooperative influence which does not support the assumption of the domestic country setting its trade policy unilaterally. As a result, they suggested price oriented measures such as antidumping and countervailing duties which are void of external influence.

### 2.2 Free Trade Agreement

Free trade agreements (FTA) has been a way of opening foreign markets to domestic producers and exporters through reductions in trade barriers between trading partners who are members of these FTA. Such trade barriers include tariff subsidies and quantitative restrictions. An example of FTA is the North American Free Trade Agreement (NAFTA) which consists of the US, Canada and Mexico. NAFTA is the world’s largest free trade area and it has a linkage between 450 million people producing about goods and services worth about 17 trillion US dollars (Office of United States Trade Representative).
NAFTA fully came into force on the 1st of January, 1994 under President Clinton’s administration and, since then, the countries involved has experienced significant increase in trade. For example, between 1994 and 2000 the agricultural sectors of the NAFTA members experienced tremendous growth: exports from Mexico to US, US to Canada, Canada to US, Mexico to Canada, Canada to Mexico, and US to Mexico grew by 65%, 37%, 47%, 83%, 112% and 37% respectively (Veeman et al., 2001). Table 2.1 also shows the trade liberalizing effect of NAFTA. Thus, the establishment of NAFTA has been instrumental in enhancing trade between NAFTA trading partners. In addition to the growth in trade experienced by FTA trading partners, empirical studies have also shown that trading partners outside the FTA do benefit from formation of regional trading blocs: FTA trading partners were found to lower external tariffs once they join an FTA (Richardson, 1993; Bohara, Gawande, and Saguinetti, 2004; Bond, Riezman, and Syropoulos, 2004).

2.3 Monopolistic competition

Monopolistic competition is a kind of competition that exists in an industry where firms manufacture products that are similar but with some level of differentiation. Thus, firms operating in monopolistic competition are extremely competitive but they have some level of market control due to the product differentiation within the market. Monopolistic competition shares some similarities with perfect competition and monopoly and thus, it is a hybrid of these two market structures. It is characterized by large number of small firms and firms manufactures
similar but differentiated products. Firms within an industry are relatively free to enter and exit the market with few restrictions and buyers have relatively complete information about alternative prices.

**Figure 2.1** Aggregate trade figures for members of NAFTA from 1975 to 2009

![Aggregate trade figures for members of NAFTA from 1960 to 2009](image)

Source: World bank indicators
2.4 Lobbying activities in the US

According to Lobbying Disclosure Act (LDA) of 1995, lobbying activities refers to lobbying contacts and efforts in support of such contacts, including preparation and planning activities, research and other background work that is intended, at the time it is performed, for use in contacts, and coordination with the lobbying activities of others. Lobbying contacts means any written communication (including an electronic communication) to a covered legislative branch official or a covered executive branch official that is made on behalf of a client with regards to the formulation, modification, or adoption of federal legislation (including legislative proposals); the formulation, or adoption of a federal rule, regulation, executive order, or any other program, policy, or position of the United States Government; the administration or execution of a federal program or policy (including the negotiation, award, or administration of a federal contract, grant, loan, permit or license); or the nomination or confirmation of a person for a position subject to confirmation by the Senate (LDA, 1995).

The term “lobbyist” means any individual who is employed or retained by a client for financial or other compensation for services that include more than one lobbying contact, other than an individual whose lobbying activities constitute less than 20 percent of the time engaged in the services provided by such individual to the client over the six month period (LDA, 1995).
The Lobbying Disclosure Act provides clear guidance in terms of who is required to register as a lobbyist and what information they are required to disclose. It also makes provision for administration and enforcement of the statute, such as registration deadlines, content of registration and filing as well as content of semi-annual reports. The Secretary of the Senate and the Clerk of the House of Representatives are delegated with the duty of providing guidance and assistance on the registration and reporting requirements of the Act and also to develop common standards, rules and procedure to ensure compliance.

2.5 Foreign and domestic lobbying in the United States

Lobbying activities has been part of the United States Congress since its early days. Lobbyists play a major role of analyzing bills, preparing arguments in defense of their clients, drafting speeches, contacting committee members and orchestrating grassroot campaigns in favor of their bills. They also engage in several activities which promotes interaction with members of the congress. These include retreats, dinners, costly and extravagant entertainments, and in recent times, political contributions to incumbents and challengers for successful political campaigns (United States Senate, 1989).

There are some restrictions on these political contributions. For example, the 1938 Foreign Agent Registration Act (FARA) came into law due to the evidence of Nazi money spent on influencing the US political debate, and as a result, public disclosure of foreign activities to influence US policy making process was enforced.
Although there was no restriction placed on foreign contributions at that time, the campaign contributions made to federal candidates in 1960s by the Philippine sugar producers led the US congress to prohibit all foreign contributions, whether from governments, political parties, corporations or individuals, to the US electoral process. However, foreign nationals who are permanent residents of the US could make contributions in this regards. Thus, foreign agents who are US citizens and are acting on behalf of foreign government, political party, corporation or individual can make legal contributions on behalf of their clients once they are registered with FARA and the contributions are made with their own funds (Gawande et al., 2004).

On the other hand, there are also restrictions on how contributions from domestic sources can be made. For example, US nationals can make direct contributions while US corporations and labor unions are restricted from making direct contributions to election candidates but are allowed to make contributions through the political action committees (PACs) (Gawande et al., 2004).
Chapter 3

REVIEW OF LITERATURE

3.1 Overview of lobbying

Lobbying is an integral part of the US democratic system. It is a means by which private interests are able to impact the adoption and amendment of public policy. The US constitution provides opportunity for interest groups to exist by prohibiting laws abridging freedom of speech, the right for people to peaceably assemble and to petition the government for a redress of grievances (Petersen, 2006).

Over time, lobbying came to be perceived as a dangerous and corrupting influence on the government. This led to various reforms by Congress, the first of which was enacted in 1876. It required all lobbyists to register with the Clerk of the House. In 1879, this law was extended to members of the press galleries in the Senate and House chambers; enacting rules that bar all lobbyists posing as journalists. Several laws and reforms, including the 1938 Foreign Agents Registration Acts (FARA), have been enacted since then to check the activities of lobbyists. However, the loud complaints about lobbying pressures on Congress by several groups, including the American Political Science Association, after the World War II led to the adoption of the Federal Regulation of Lobbying Act in 1946. This required lobbyists to register their name, address, salary, and expenses with the Secretary of the Senate and the Clerk of the House, and to file quarterly reports on funds received or spent, “to whom and for what purpose” the funds were paid, “the names of the newspapers and
magazines in which the lobbyist ‘caused to be published’ articles or editorials” and the proposed legislation the lobbyists was employed to support or oppose (United States Senate, 1989). In addition, they were also required to keep detailed accounts of all contributions of five hundred dollars or more made to members of Congress. Penalties were assigned for violating any of the acts. For example noncompliance with any provision of the Lobbying Disclosure Act by lobbyists will attract a civil fine of not more than 50,000 US dollars, depending on the extent and gravity of the violation.

Despite the frantic effort by Congress to check the activities of lobbyists, the advent of modern technology and the proliferation of Political Action Committees (PACs) in the past four decades for channeling contributions into political campaigns of members of Congress have taken the process of lobbying to the next level. The increase in the number of organized interest groups and their activities used to advance their interest to the government have raised concerns in public policy and have led to the increasing demand for transparency in the US political system (Petersen, 2006).

As a result, the Lobbying Disclosure Act of 1995 was unanimously passed by Congress to create a more effective and equitable system for administering and enforcing disclosure requirements. The LDA was designed to ensure accountability and strengthen public confidence in governmental processes. More importantly, it ensures that adequate and meaningful information is provided. It also requires all professional lobbyists to register and file regular, semi-annual reports identifying their clients, the issues on which they lobby, and the amount of their compensation. The
LDA thus provides for the disclosure of efforts by paid lobbyists to influence government decision making processes and actions of Federal legislative and executive branch officials while still protecting the constitutional right of people to petition the government for a redress of their grievances (Lobbying Disclosure Act, 1995).

3.2 Political strength and endogenous trade protection

There is a substantial body of empirical studies on the political economy of trade protection. Noteworthy in the earlier studies are the works of Marvel and Ray (1983), Ray (1981) and Lee and Swagel (1996) who included some measure of political strength of industries as determinants of trade restrictions. Marvel and Ray (1983) made use of industry growth rate, market concentration, customer characteristics and increased technology sophistication (measured by the fraction of engineers and scientists); Ray (1981), employed sellers’ concentration while Lee and Swagel (1996) adopted sectoral share of labor as measures of political power. Even though these studies have contributed to the literature on political economy, they are based on examination of some of the general determinants of trade protection and thus, had no theoretical basis. Moreover, they were unable to adequately account for the influence of industry groups in the policy making process. The work of Grossman and Helpman (1994) serves as the first theoretical foundation for the studies of endogenous trade policy. It also accounts for the influence of organized interest groups in the trade policy-making process.
Despite the simplicity of the G-H model, it has been able to explain the cross-sectional pattern of trade protection in developing and industrialized countries. Goldberg and Maggi (1999) tested the prediction of the Grossman-Helpman model of endogenous trade policy using the non-tariff barrier as a measure of restriction. They made use of the 1983 US data and a threshold of political contributions was used to determine whether or not an industry was organized. For example, an industry was considered organized if their level of contribution for the period considered is at least 100,000,000 US dollars. This threshold was used because there seems to be a natural break at this point when the data on political contributions was plotted. The strict version of the G-H model which explains cross sectional pattern of trade protection via the inverse import penetration ratio, the price elasticity and whether or not an industry is organized was tested. They made use of the maximum likelihood estimation technique and their results were consistent with theory because the variables included in the model appear to affect trade protection in the way that was predicted by the G-H model. However, they found weak support for some of the prediction of the model: the coefficient of inverse import penetration for unorganized domestic industry does not significantly explain the variation in the cross sectional pattern of protection. Thus, the study of Goldberg and Maggi was one of the earliest works to test the predictions of the G-H model and they found some empirical support for the model.

Gawande and Bandyopadhyay (2000) also tested the G-H model using a similar approach to that of Goldberg and Maggi. However, they introduced
intermediate goods into the model based on the belief of Grossman and Helpman that
the strongest lobbying opposition would probably come from the downstream. Similar
to Golberg and Maggi, non-tariff barriers in the form of coverage ratio was also used
as the measure of protection (the dependent variable) however; they employed two-
stage least square techniques in their mode of estimating the G-H model. In contrast to
the weak support found by Goldberg and Maggi for some of the predictions of the G-H
model, Gawande and Bandyopadhyay found strong support for the G-H hypotheses:
Unorganized domestic industries had less protection while domestic industries
represented by a lobby group do enjoy a high level of protection, the higher the inverse
import penetration ratio. Their results also showed that US government does have
equal preference for political contribution and welfare of citizens. Gawande and
Bandyopadhyay also compared the G-H specification with the existing model using
the Schwarz information criterion. They found that the G-H model was preferred over
the much larger specification that was popular in previous literature.

Earlier studies tested the G-H model using data from industrialized countries.
However, Mitra et al., 2002 applied the G-H framework to data from Turkey, a
developing economy. They deviated from the work of Goldberg and Maggi and
Gawande and Bandyopadhyay by estimating the G-H model using Non-linear Two
Stage least squares. Cross sectional as well as panel data estimations were considered
in order to compare endogenous trade policy during two different regimes: Democracy
and Dictatorship. Nominal rate of protection (NRP), effective rates of protection
(ERP) and non-tariff barriers in form of coverage ratios (NTB) were used as measures of trade restrictions. Similar to previous studies, they found strong support for the predictions of the G-H model. Their results also suggest that the Turkish government had preference for welfare over political contributions in both regimes considered but was much higher for the democratic regime.

Gawande et al. (2006), using the 1982 US data, extended the G-H model to incorporate foreign lobbying. They incorporated oligopolistic structure into the G-H framework in order to accommodate foreign lobbying and used two stage least squares techniques in their estimation. Non-tariff barriers in form of coverage ratio was also used as the measure of trade restriction and various thresholds were also constructed with political contributions in order to determine whether or not an industry is organized. The results of their study suggested foreign lobbying as a significant determinant of US trade policy: foreign industries represented by a lobby group appeared to have a great impact on lowering trade restrictions on imports into the US while the reverse was the case for organized domestic lobby groups. As a result, Gawande et al., found that the presence of foreign lobbying could be beneficial to consumers in terms of price reduction and increase in consumer surplus. Thus, the extension of the G-H model to incorporate foreign lobbying was found to have a welfare increasing effect on US consumers through reduction in welfare-reducing trade barriers.
There is a growing literature on endogenous trade policies that have investigated the effect of joining FTA on external tariffs. A common conclusion in these studies has been that governments who care about citizens’ welfare will lower tariffs applied to imports from countries outside the FTA once they join an FTA (Richardson, 1993; Bohara, Gawande, and Saguinetti, 2004; Bond, Riezman, and Syropoulos, 2004). In addition, Ornelas, (2005a, b) built an oligopolistic market structure into the G-H model to examine the effect of FTA without foreign lobbying. He concluded that FTA reduces the impact of domestic lobbying firms as a result of shifting some of the tariff rent away from the domestic firms to their FTA counterparts. A further advancement in this literature allows for foreign lobbying as well as heterogeneity (in terms of market access) of foreign firms.

Stoyanov (2009) incorporated the monopolistic competition structure into the G-H model in order to allow for foreign lobbying to gain or lose in the trade policy game. The model accommodates two types of foreign lobbying; those within and outside the Free trade Agreement (FTA). The monopolistic competition framework was applied to Canadian data in which case Canada was regarded as the domestic country, US as the FTA partner country and all other trading partners outside the FTA was aggregated into the rest of the world. He made use of three measures of trade restrictions: tariffs, protection share and NTB coverage ratio and Limited Information Maximum Likelihood (LIML) with Bekker (1994) standards error correction was used in estimating the model. In contrast to previous models that made use of political
contributions to determine whether or not an industry is organized, lobbying intensity measured by the number of lobbyists’ representing an industry was used to determine whether or not an industry is organized. Accounting for heterogeneity (due to preferential market access) among foreign firms, he showed that the presence of an organized foreign lobby group within the FTA tends to raise trade barriers. However, firms whose countries were non-members of the FTA under study had less protection compared to their FTA counterparts. In addition, accounting for the imperfect market structure also shows that unorganized domestic industries do enjoy some level of protection from the government. This contradicts the G-H model which predicts that unorganized domestic industries receive less protection from the government. Thus, heterogeneity of foreign firms and accounting for the imperfect nature of the market introduced a different structure to the nature of endogenous trade policy.
Chapter 4

METHODOLOGY

4.1 The Econometric Model

In the political economy literature on endogenous trade policy, several approaches have been used to examine the influence of interest groups on domestic trade policy. During the last two decades, the political support function introduced into lobbying models by Hillman, (1989) and Magee, Brock and Young, (1989) served as foundation for the Grossman and Helpman (1994) “Protection for Sale” model which has been widely tested and has good empirical support when applied to data from developing and industrialized economies (Goldberg and Maggi, 1999; Gawande and Bandyopadhyay, 2000; Gawande and Hoekman, 2006; Mitra et al, 2002).

However, advancement in the literature on endogenous trade policies has questioned some of the assumptions of the G-H framework. Stoyanov (2009) shows that the assumption of perfect competition in the G-H framework does not permit foreign lobbies to participate in the trade policy game because they could opt out (free exit) in cases where high import tariffs are set by the importing countries. Thus, the assumption of pre-tariff prices being exogenously fixed does not support lobbying activities of foreign lobbies. In spite of this, the G-H model has been a good starting point for studies focused on endogenous trade policies. Ornelas (2005a, b) incorporated the oligopolistic market structure into the G-H model to examine the effect of joining an FTA (without foreign lobbying) on domestic trade policy.
Stoyanov (2009) also introduced the monopolistic competition assumption into the G-H framework in order to investigate the effect of foreign lobbying (disaggregated by FTA) on Canadian trade policy.

4.1.1 The monopolistic competition model

In this study, Stoyanov’s modeling approach is used. It assumes monopolistic competition and allows foreign lobby groups to gain or lose from a tariff set by the importing country. Thus, this study modifies the G–H Model by incorporating monopolistic competition market structure in order to accommodate two types of foreign lobbies; FTA partner lobbies and lobbies from other trading partners outside the FTA. The US is the home (domestic) country, Canada is the FTA partner country and we have other trading partners with the US that are outside the FTA, denoted by $D$, $P$ and $OTP$ respectively. Assuming a domestic economy; we have a continuum of individuals with similar preferences but with different endowments (factors of production) except for labor which they all have in common. Labor is used to produce the numeraire good under the constant returns to scale assumption and a unit of labor equal to one. The numeraire good is homogenous with world and domestic price equal to one.

Each representative consumer maximizes a quasi-linear utility function represented by:

$$ U = X_0 + \sum_{i=1}^{n} U_i(X_i) $$

(1)
Where $X_0$ is the consumption of the numeraire good and $X_i$ the aggregate consumption index for differentiated products in industry $i$; where $i = 1, 2, 3 \ldots n$. $U_i$ is an increasing concave function. Similar to Dixit and Stiglitz (1977), I assume that $X_i$ takes the Dixit-Stiglitz Constant elasticity of substitution (CES) specification, $U_i$ is a symmetric function and all the differentiated products in industry $i$ within the same country have equal fixed and marginal costs and thus face similar demand functions. The study further assumes that the utility function $U_i$ takes the Cobb-Douglas functional form: 

$$U_i = \omega_i \ln X_i;$$

where $\omega_i$ denotes the proportion of the consumer’s income devoted to the purchase of the nonnumeraire good $i$. This functional form allows for intra-industry substitution. Preferences are assumed to be the same in all the countries but expenditure allocation on the goods may vary. Labor and a specific input are assumed to be used in the production of the differentiated products in industry $i$.

According to Grossman and Helpman (1994), those who own specific inputs used in producing good $i$ will see their income tied to the price of that good. As a result, their interest in trade policies goes beyond that of ordinary consumers, given that they have a direct stake in the trade policy as regards good $i$. Due to common interest; owners of specific factors organize themselves into lobby groups. The joint welfare function of lobby $i$, given by $V_i$, is lobby $i$’s gross welfare $W_i$ net of the contribution $C_i$ made to the government. Thus, the gross welfare function of lobby $i$ is:

$$W_i = l_i + \sum_{j=1}^{n} \pi_j + \alpha_i M (\tau_i + S(P))$$

(2)
Where \( l_i \) is the total labor supply of the owners of specific input in industry \( i \), \( \pi_i \) denotes the firm’s profit, \( \alpha_i \) is the fraction of the population that owns some specific factor, \( M \) represents the total population, \( \tau_i \) is the specific import tariff on product \( i \) while \( S(P) \) denotes individual consumer surplus. Based on the contribution schedules offered to the government by the lobby \( i \) in the first stage, the government sets a trade-policy vector (in this case import tariff) to maximize its objective function which has political contributions and social welfare as its arguments. Thus, the government maximizes a weighted sum of national welfare and political contributions of lobby groups from domestic, FTA partner and OTP countries:

\[
G(\tau^i, C^j) = \sum_i C^D_i + aW + b\sum_i C^P_i + c\sum_i C^{OTP}_i, (a \geq 0, b \geq 0, c \geq 0)
\]

(3)

where \( C^D_i, C^P_i \) and \( C^{OTP}_i \) are political contributions made by industry \( i \) from the domestic country, FTA partner country and other trading partners. The coefficient \( a \) is the weight that the government attaches to national welfare relative to political contributions. Coefficients \( b \) and \( c \) represent the preferential weight the government attaches to Canada and other parts of the world contributions respectively, relative to contributions by the domestic firms. Grossman and Helpman (1994) show that if the contributions are truthful schedules (a contribution that reflects the true preference of the lobby), the optimal trade policy is the one that maximizes joint surplus of the government and the organized lobbying groups. Let \( I^j_i \) denote an index variable that
takes the value of one when an industry $i$ in country $j$ is politically organized and zero otherwise. The joint welfare function takes the following form:

$$
\Omega = \sum_{i=1}^{n} I_i^P W_i^D + aW + b \sum_{i=1}^{n} I_i^P W_i^P + c \sum_{i=1}^{n} I_i^{OTP} W_i^{OTP}
$$

(4)

Where $W_i^j = n_i^j \pi_i^j \in (P, OTP)$ is the gross welfare of foreign industries $i$ from exports to the home country market, $n_i^j$ represents the number of firms $i$ in country $j$ and

$$W = l + \sum_{i=1}^{n} \pi_i + M (\tau_i + S(P))$$

is the national welfare.

Taking the first order condition of the joint welfare function with respect to OTP import tariff rate and rearranging it, gives rise to the equilibrium trade policy:

$$\frac{\tau_i^{OTP}}{p_i^{OTP}} = -\frac{1}{\sigma_i} + (\sigma_i - 1) \frac{\tau_i^p}{p_i^p} s_i^p + \frac{a}{a+\alpha} \frac{\sigma_i - 1}{\sigma_i} s_i^{P^D} + \frac{b l_i^P}{a+\alpha} \frac{\sigma_i - 1}{\sigma_i} s_i^P + \frac{c l_i^{OTP}}{a+\alpha} \frac{\sigma_i - 1}{\sigma_i} (s_i^{OTP} - 1)
$$

(5)

Where $\frac{\tau_i^{OTP}}{p_i^{OTP}}$ is the ad-valorem tariff on the other trading partners outside the FTA and $\varepsilon_i$ is the price elasticity of demand for imports from other trading partners outside the FTA. $\sigma_i$ is the elasticity of substitution between different varieties of good $i$ while $\frac{\sigma_i - 1}{\sigma_i}$ is a scaling factor. $s_i^j$ is the share of country $j$ firms on the US market for product $i$ at the tax-included price in the home market.

According to Stoyanov (2009), the first term on the right hand side $\left( -\frac{1}{\sigma_i} \right)$ is negative and thus suggests an import subsidy on products that are differentiated; the
second element \( (\sigma_i - 1 - \frac{s_i^p}{p_i^p}) \) predicts a positive relationship between the within and the outside FTA tariff rate; the third component \( \left( \frac{a \sigma_i - 1}{a + \alpha \sigma_i} s_i^p \right) \) implies positive protection for unorganized domestic industries and this is due to the imperfect nature of the market. This is contrary to the predictions of the benchmark G-H model which suggests that unorganized domestic industries receive less protection. The fourth \( \left( \frac{1}{a + \alpha} \frac{\sigma_i - 1}{\sigma_i} s_i^p \right) \) indicates higher protection for politically organized domestic industries: organized domestic industries also receive a positive level of protection and this level of protection increases with increase in their market share and elasticity of substitution. The fifth term \( \left( \frac{b l_i^p \sigma_i - 1}{a + \alpha \sigma_i} s_i^p \right) \) is a reflection of lobbying activities by organized interest groups from the FTA partner country. Similar to the organized domestic industry, organized FTA partner industry also enjoy positive protection from the domestic government and the level of protection also increases with increase in the market share of the FTA partner. The last component \( \left( \frac{c l_i^{opt} \sigma_i - 1}{a + \alpha \sigma_i} (s_i^{opt} - 1) \right) \) (which is negative) represents the lobbying activities of organized other trading partners (OTP) outside the FTA to reduce the level of protection enjoyed by domestic and FTA partner firms. However, the lobbying intensity decreases with the OTP market share.

Equation (5) is the motivation behind the following equation that is being estimated:
\[ Y_i = \beta_0 + \beta_1 s_i^D + \beta_2 i_i^D s_i^D + \beta_3 i_i^P s_i^P + \beta_4 i_i^{OTP}(1-s_i^{OTP}) \]

(6)

Where

\[ Y_i = \left( \frac{\sigma_i}{\sigma_i - 1} \right) \left( e_i \frac{\tau_i^{OTP}}{p_i^{OTP}} + \frac{1}{\sigma_i} \right) \]

\[ \beta_1 = \frac{a}{a+\alpha}, \beta_2 = \frac{1}{a+\alpha}, \beta_3 = \frac{b}{a+\alpha}, \beta_4 = -\frac{C}{a+\alpha} \]

4.2 Measures of trade restriction

Three measures of trade restrictions (dependent variable) was used in this study, and they include ad-valorem tariff, protection share and non-tariff barriers in form of coverage ratio. The ad-valorem tariff was constructed by dividing the value of US imports duties by the total value of US imports. The protection share was calculated by dividing the value of US imports subject to duty by the total value of US imports. NTB coverage ratio is defined as \( \sum_k n_i^k w_i^k \), where \( n_i^k \) is an indicator variable that takes a value of 1 if product \( k \) is covered by one or more non-tariff barrier, \( w_i^k \) is the share of import of product \( k \) relative to total imports in the industry and \( \sum_k \) is the summation taken over all the products within an industry.

4.3 Sources of data and variable specification

The model I adopt in this study calls for a cross section analysis. Post-NAFTA (North American Free Trade Agreement) trade data is used in order to allow for differential effect of domestic and foreign lobbying within and outside the FTA on US trade policy. The study made use of 248 industry level data at the US 6-digit NAICS
code for manufacturing sectors for the year 1997. Canada was treated as a US FTA partner country while other countries without preferential trade agreements with the US are aggregated into other trading partners (OTP). Variables of interest in this study are similar to those in previous studies and include imports by the country of origin and by sector, domestic output by sector, substitution and price elasticities, political organization dummies, and a set of instruments for market shares.

4.3.1 Foreign and Domestic Lobbying Activities

Previous studies have employed political contributions in assigning the value for a political organization dummy variable; however, I made use of the number of registered lobbyists as a measure of lobbying intensity. This is based on some logical reasons highlighted by Stoyanov; foreign corporations prefer direct lobbying because transparency in the political system makes foreign contributions more visible and may raise concerns of foreign interference into political processes. Secondly, the assumption that political contributions will be ineffective for trade policy determination in the absence of such contacts seems reasonable. Thirdly, the identification of subject matter of their lobbying activity helps to identify lobbyists associated with trade policy issues, thus allowing separation of firms lobbying for trade policy issues from those lobbying for broad policy issues such as tax policy, environment, etc. This is of high importance in reducing measurement problems that may result from pooling political contributions by all domestic firms.
Information on foreign and domestic lobbying was obtained from the Lobbying Disclosure Act (LDA) from the office of the Secretary of the Senate and Clerk of the House of Representatives. The LDA of 1995 came into play because existing lobbying disclosure statutes were found to be ineffective due to unclear statutory language, weak administrative and enforcement provision as well absence of clear guidance as to who is required to register and what they are expected to disclose. The LDA request lobbyists to either register personally or their employer registers them with the Secretary of the Senate and the Clerk of the House of Representatives. Any organization that has more than one employee who are lobbyists are required to file a single registration on behalf of such employees. This regulation explicitly defines a lobbyist and all other parties involved as well as terminologies related to lobbying activities. It clearly states the requirements of lobbyists to provide the name, address and the objectives of their agency (if they are lobbying on behalf of a client) and also provide the business information of their clients. Business information supplied either by or on behalf of the client(s) include the business name and address of the firm’s headquarters as well as that of its local and international subsidiaries. Other specific information requested by the LDA include the activities of the firm, their lobbying objective(s), the number of people lobbying on their behalf and the amount of money paid for the various activities in which they are engaged in order to achieve the lobbying goals of their clients.
The amount of information required by the LDA and also the penalties attached to non-compliance with the stated LDA regulations makes the data reliable for this kind of study. For example, if a lobbyist fails to comply with any of the stated rules and regulations of the LDA, such a person will be subjected to a civil fine of not more than $50,000 depending on the extent and gravity of the violation. The amount of information required of each lobbyist by the LDA provides enough guide to separate domestic lobbyists from their foreign counterparts as well as allocate each firm to the appropriate industry (NAICS) code used in this study.

4.3.2 Protection measures, market shares and elasticity of substitution

Based on the structure of the model used in this study, the use of tariffs may not appropriately suit the purpose as a result of the influence of the WTO in limiting the tariffs imposed by WTO member countries. Thus, a form of protection that is unilaterally adopted by different countries seems more appropriate to motivate interest groups in seeking protection from import competition. Trefler (1993) found the correlation between coverage ratio for tariffs and average tariffs to be as high as 0.78 which makes cross sectional inferences drawn from average tariffs and tariff coverage ratios to be very similar and thus making coverage ratio a good substitute for this study. Despite the influence of the WTO on tariffs, this study made use of three alternative measures of trade protection: tariffs, non-tariff barriers as well as protection coverage ratio to check the robustness of my results. Data on non-tariff barriers to trade (NTB) was obtained from Trains database maintained by UNCTAD at World
Integrated Trade Solution (WITS). The effective ad-valorem tariff rates on imports, measured as the customs collection rates was compiled from tariff and trade data maintained by the US Department of Commerce and the US International Trade Commission.

Data on production and imports, used in the construction of US market share, was obtained from American Survey of Manufactures database. Elasticity of substitution which is estimated using the approach by Feenstra, (1994) and recently applied by Broda and Weinstein, (2006) was obtained from David Weinstein’s web page (http://www.columbia.edu/~dew35/TradeElasticities/TradeElasticities.html).

4.3.3 Descriptive statistics

Table 4.1 Protection measure and market shares for 1997

<table>
<thead>
<tr>
<th></th>
<th>Tariff</th>
<th>NTB Coverage</th>
<th>Protection Share</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Canada</td>
<td>OTP</td>
<td>Canada</td>
</tr>
<tr>
<td>Mean</td>
<td>0.0808</td>
<td>0.1079</td>
<td>0.6992</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.2654</td>
<td>0.2553</td>
<td>0.3741</td>
</tr>
<tr>
<td>Minimum</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maximum</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>No of observation</td>
<td>248</td>
<td>248</td>
<td>248</td>
</tr>
</tbody>
</table>

Summary statistics of the variables used in the analysis are provided in tables in the appendix. Average tariff, protection share and NTB coverage ratio have a mean value of 0.10, 0.53 and 0.71 respectively. Also of interest are the market shares for US, FTA partner and OTP with means of 0.84, 0.03 and 0.11 respectively. The elasticity of
substitution has a mean of 4.97 while the price elasticity of import demand has a mean of 4.57.

### Table 4.2 Elasticity of substitution and Elasticity of import demand

<table>
<thead>
<tr>
<th></th>
<th>Elasticity of Substitution</th>
<th>Elasticity of Import demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4.9769</td>
<td>4.5702</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>5.9488</td>
<td>5.7300</td>
</tr>
<tr>
<td>Minimum</td>
<td>1.4000</td>
<td>1.3000</td>
</tr>
<tr>
<td>Maximum</td>
<td>70.8000</td>
<td>70.7000</td>
</tr>
</tbody>
</table>

### Table 4.3 Descriptive Statistics for the number of lobbyists

<table>
<thead>
<tr>
<th></th>
<th>US</th>
<th>Canada</th>
<th>OTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of lobbyists per sector</td>
<td>13.1975</td>
<td>0.5202</td>
<td>3.2823</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>24.3060</td>
<td>2.7851</td>
<td>9.1515</td>
</tr>
<tr>
<td>Minimum</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Maximum</td>
<td>130</td>
<td>27</td>
<td>58</td>
</tr>
<tr>
<td>Total number of Lobbyist</td>
<td>3273</td>
<td>129</td>
<td>814</td>
</tr>
<tr>
<td>% Sector with at least one lobbyist</td>
<td>0.63</td>
<td>0.09</td>
<td>0.24</td>
</tr>
<tr>
<td>% Sector with at least two lobbyists</td>
<td>0.61</td>
<td>0.04</td>
<td>0.21</td>
</tr>
<tr>
<td>% Sector with at least three lobbyists</td>
<td>0.59</td>
<td>0.04</td>
<td>0.18</td>
</tr>
</tbody>
</table>

### 4.3.4 Instrumental Variable Estimation

Earlier studies have suggested that market share and the index for whether an industry is organized are likely to be correlated with the error term. As a result, they should be treated as endogenous because of their simultaneous determination with tariff (Goldberg and Maggi, 1999; Gawande and Bandyopadhyay, 2000; and Mitra et al., 2002). In addition to this, Gawande and Bandyopadhyay (2004) also pointed out that the right hand side variables are not only endogenous but are also a sum of non-
linear products of these variables which calls for a two stage least squares in order to consistently estimate the model.

As a result, this study made use of some similar instruments used in Stoyanov’s study for all potentially endogenous variables; namely import penetration (market share) and organization dummies. Instrumental variables for US market share and organization dummies include the capital stock in machinery and construction as well as inventories. These data was obtained from US Census Bureau. List of instruments constructed for Canadian market share and organization dummies in the US include the share of large and medium firms as well as capital stock and cost of fuel. These instruments were obtained from Statistics Canada.

The market share of other trading partners (OTP) in the US market was instrumented using the pair-wise log-distance between the US and the exporting country weighted by the share of this country in the global export of the product. Data on these variables were obtained from UNCTAD (United Nations Conference on Trade and Development) database and Centre d’Etudes Prospectives et D’Informations Internationales. Organizational dummy for the rest of the world was instrumented using the export share of an average exporter into the US relative to the world export of the product.

4.4 Hypothesized Coefficients

The dependent variables employed in the study are alternative measures of trade restrictions: tariffs, protection share and non-tariff barriers in form of coverage
ratio. As predicted by the monopolistic competition framework proposed by Stoyanov, the coefficient of market share for unorganized interest firms in the US ($S_i^D$) is expected to be positive due to the imperfect nature of the market. Similarly the $(I_i^pS_i^D)$, the coefficient of the market share for organized interest firms in the US is also expected to have a positive sign because a politically organized domestic industry receives more protection from the government. More so, in cases where the elasticity of substitution is high and thus favors the redistribution of consumer expenditure towards domestic varieties, the market share is directly proportional to the tariff levied on the OTP.

The coefficient of the market share for organized interest groups for the partner country should also be positive. This is because, similar to the domestic firms, organized interest groups in the partner country are likely to receive more protection most especially in cases where the products are very close substitutes. As a result, the market share of the partner country also increases with increase in tariff of OTP. However, the coefficient of $(I_i^{opp}S_i^{opp})$ is expected to be negative, given the fact that other trading partners without preferential market access would lobby for more protection through a decrease in the tariff of the OTP.
Chapter 5

RESULTS

5.1 Result of the monopolistic competition model

This study tests the monopolistic competition model of endogenous trade policy using the 1997 US data. The model used three alternative measures of trade restriction: tariffs, protection share and non-tariff barrier in form of coverage ratio. The model also account for preferential market access by allowing for two types of foreign lobbying: those within and outside the Free Trade Agreement (FTA). Canada was considered as US FTA partner while US trading partners outside the FTA was aggregated into other trading partners (OTP).

This section discusses the results for the political economy model of trade with monopolistic competition. The results of the estimated equation 6 appear in tables 5.1, 5.2 and 5.3. Each table consists of the results obtained by using a particular measure of trade protection and each column of the table represents different threshold levels for the construction of the political organization variable.

5.1.1 Results of tariff as a measure of trade restriction

Table 5.1 presents the result of the model when tariff is used as a measure of trade protection. Coefficients of unorganized domestic firms, organized FTA and organized OTP firms are not significantly different from zero across the three thresholds of political organization that was used. This implies that these variables are not significant determinants of US trade policies. The model presents the coefficient of
organized domestic firms as the sole determinant of US trade policy. This result is also consistent with the predictions of the benchmark G-H model that organized domestic industries vie for more protection on the average, the higher their market share. Hence, the findings support the model’s prediction that relationship between trade protection and market share depends on whether or not the domestic industry is organized; the positive sign and statistical significance of the coefficient of market share for organized domestic lobby indicate that there are differences in the pattern of protection between the organized and unorganized industries.

**Table 5.1  Tariff as a measure of trade restriction**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>US_unorg(β₁)</td>
<td>22.2673</td>
<td>22.2709</td>
<td>22.1861</td>
</tr>
<tr>
<td></td>
<td>(15.9924)</td>
<td>(15.9943)</td>
<td>(15.9737)</td>
</tr>
<tr>
<td>US_org (β₂)</td>
<td>723.3165</td>
<td>* 40,063.9900</td>
<td>* 2,598,382.0000</td>
</tr>
<tr>
<td></td>
<td>(394.8622)</td>
<td>(21900.7200)</td>
<td>(1,408,500.0000)</td>
</tr>
<tr>
<td>CAN_org (β₃)</td>
<td>-6.5187</td>
<td>-6.4686</td>
<td>-14.5119</td>
</tr>
<tr>
<td></td>
<td>(9.8537)</td>
<td>(9.6673)</td>
<td>(22.3383)</td>
</tr>
<tr>
<td>OTP_org(β₄)</td>
<td>-2.7395</td>
<td>45.7842</td>
<td>4872.2730</td>
</tr>
<tr>
<td></td>
<td>(32.2922)</td>
<td>(844.1864)</td>
<td>(46433.0300)</td>
</tr>
<tr>
<td>Constant (β₀)</td>
<td>-283.6212</td>
<td>* -12366.4300</td>
<td>* -630,091.0000</td>
</tr>
<tr>
<td></td>
<td>(156.2431)</td>
<td>(6797.3860)</td>
<td>(342150.6000)</td>
</tr>
<tr>
<td>RMSE</td>
<td>2.5951</td>
<td>2.5950</td>
<td>2.5958</td>
</tr>
<tr>
<td>a</td>
<td>-0.0294</td>
<td>-0.0005</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(0.0204)</td>
<td>(0.0004)</td>
<td>-</td>
</tr>
<tr>
<td>a</td>
<td>0.0308</td>
<td>0.0006</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(0.0207)</td>
<td>(0.0004)</td>
<td>-</td>
</tr>
<tr>
<td>b</td>
<td>-0.0091</td>
<td>-0.0002</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(0.0143)</td>
<td>(0.0003)</td>
<td>-</td>
</tr>
<tr>
<td>c</td>
<td>-0.0038</td>
<td>0.0011</td>
<td>0.0019</td>
</tr>
<tr>
<td></td>
<td>(0.0456)</td>
<td>(0.0208)</td>
<td>(0.0174)</td>
</tr>
</tbody>
</table>

Note: “*”, “**” and “***” denote significance at 10, 5 and 1 percent respectively
Columns 1, 2 and 3 reports results when an industry is assumed to be organized when it has a minimum of 1, 2 or 3 lobbyists respectively. $\alpha$ is share of the home country population represented by a lobby group, $a$ is a weight that the government assigns to national welfare relative to political contributions, $b$ and $c$ shows government preferences for contributions from Canada and OTP over domestic contributions.

### 5.1.2 Results of protection share as a measure of trade restriction

Table 5.2 presents the result obtained when protection share was used as a measure of trade protection. As evident from the results, coefficients of unorganized domestic firms, organized FTA and organized OTP firms are not significantly different from zero across the three thresholds used for the index of industry organization. This signifies that these variables do not have any significant impact on US trade policies. Similar to the previous results in which tariff was used as a measure of trade restriction; the model presents the coefficient of organized domestic firms as the sole determinant of US trade policy. Thus, the cross sectional pattern of protection in the US is based on whether or not the domestic industries are organized. This finding implies that holding all else constant, industries with high market share on the average, lobby for more protection in order to capture all the rent from tariff.

This result is consistent with the prediction of the monopolistic competition and the benchmark G-H model that on the average, governments tend to offer protection to industries that are organized and this level of protection increases with their market share. Also, organized industries in the US tend to vie for more protection
from the government in order to capture all the rent from tariff and this might have some welfare reducing effect on US consumers due to reduction in the consumer surplus resulting from increase in the price consumers pay for the products.

Table 5.2  Protection share as a measure of trade restriction

<table>
<thead>
<tr>
<th>Protection Share</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>US_unorg(β₁)</td>
<td>4.1048</td>
<td>4.1105</td>
<td>3.9951</td>
</tr>
<tr>
<td></td>
<td>(30.0874)</td>
<td>(30.0865)</td>
<td>(30.0741)</td>
</tr>
<tr>
<td>US_org (β₂)</td>
<td>1432.5230 *</td>
<td>79745.4000 *</td>
<td>526712.0000 *</td>
</tr>
<tr>
<td></td>
<td>(772.5671)</td>
<td>(43237.4100)</td>
<td>(2839923.0000)</td>
</tr>
<tr>
<td>CAN_org (β₃)</td>
<td>32.5837</td>
<td>31.8320</td>
<td>74.3714</td>
</tr>
<tr>
<td></td>
<td>(26.9857)</td>
<td>(26.5018)</td>
<td>(61.1069)</td>
</tr>
<tr>
<td>OTP_org(β₄)</td>
<td>-6.3773</td>
<td>-42.5771</td>
<td>405.1948</td>
</tr>
<tr>
<td></td>
<td>(45.5926)</td>
<td>(1215.4960)</td>
<td>(67377.5300)</td>
</tr>
<tr>
<td>Constant (β₀)</td>
<td>-540.6973 *</td>
<td>-24562.1100 *</td>
<td>-1276620.0000 *</td>
</tr>
<tr>
<td></td>
<td>(299.4234)</td>
<td>(13365.4200)</td>
<td>(691897.8)</td>
</tr>
<tr>
<td>RMSE</td>
<td>3.634</td>
<td>3.634</td>
<td>3.6346</td>
</tr>
<tr>
<td>α</td>
<td>-0.0022</td>
<td>-0.0001</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(0.0207)</td>
<td>(0.0004)</td>
<td>-</td>
</tr>
<tr>
<td>a</td>
<td>0.0029</td>
<td>0.0001</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(0.0206)</td>
<td>(0.0004)</td>
<td>-</td>
</tr>
<tr>
<td>b</td>
<td>0.0228</td>
<td>0.0004</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(0.0232)</td>
<td>(0.0004)</td>
<td>-</td>
</tr>
<tr>
<td>c</td>
<td>-0.0045</td>
<td>-0.0005</td>
<td>0.0001</td>
</tr>
<tr>
<td></td>
<td>(0.0328)</td>
<td>(0.0154)</td>
<td>(0.0128)</td>
</tr>
</tbody>
</table>

Note: “*”, “***” and “****” denote significance at 10, 5 and 1 percent respectively

Columns 1, 2 and 3 reports results when an industry is assumed to be organized when it has a minimum of 1, 2 or 3 lobbyists respectively. α is share of the home country population represented by a lobby group, a is a weight that the government assigns to national welfare relative to political contributions, b and c shows government preferences for contributions from Canada and OTP over domestic contributions.
5.1.3 Results of NTB coverage ratio as a measure of trade restriction

Table 5.3 shows the results of the monopolistic competition model when coverage ratio, a measure of non-tariff barrier was used a measure of trade restriction. The result of this part is taken as the most preferred specification, given the earlier discussions of the emergence of veiled form of trade restrictions (non-tariff barriers) in place of tariff which is regulated under the WTO. In addition, this measure of protection is very suitable for this estimation given that the US data for 1997 consisted of price measures of non-tariff barriers which are unilaterally set by the domestic government.

Given the previous discussions about the use of non-tariff barriers (in this case coverage ratio) as the most suitable measure of protection for this kind of analysis, one may safely conclude that cross sectional pattern of protection in the US trade industry is explained by the activities of the domestic industries. The positive coefficient of the unorganized domestic industries is consistent with the prediction of the imperfect structure of the market. Thus, unorganized domestic industries do enjoy some level of protection from the government. This positive level of protection found for unorganized sectors is inconsistent with the assumptions of the benchmark G-H model and it finds some level of support in the data. The coefficient of market share for organized domestic lobby has a positive sign and has a higher level of significance when compared with that of unorganized domestic industries; this supports the
prediction that there is a distinct pattern of protection between organized and nonorganized domestic industries.

The results imply that US firms do capture a significant portion of the tariff rent and this has implications on the US consumers. The protection enjoyed by domestic firms leads to increase in the price consumers pay for the products; this in turn reduces the consumer surplus and thus, have an overall welfare reducing effect on the US citizens. Thus, the monopolistic competition political economy model suggests the US trade policy as welfare reducing due to the presentation of domestic firms as the sole determinants of the trade policy making process.

In addition, from the definition of the structural parameters, $a$, $b$ and $c$ may be recovered as the ratio of $\beta_1$ to $\beta_2$, $\beta_3$ to $\beta_2$ and $\beta_4$ to $\beta_2$ respectively. This calculation would suggest that the value of $a$, $b$ and $c$ are not significantly different from zero.
Table 5.3  NTB coverage ratio as a measure of trade restriction

<table>
<thead>
<tr>
<th>Non-tariff Barriers</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>US_unorg($\beta_1$)</td>
<td>40.4694</td>
<td>40.4741</td>
<td>40.4209</td>
</tr>
<tr>
<td>US_org ($\beta_2$)</td>
<td>734.7726</td>
<td>40771.6500</td>
<td>2704558.0000</td>
</tr>
<tr>
<td></td>
<td>(363.0190)</td>
<td>(20180.0800)</td>
<td>(1332371.0000)</td>
</tr>
<tr>
<td>CAN_org ($\beta_3$)</td>
<td>37.5033</td>
<td>36.7868</td>
<td>85.1651</td>
</tr>
<tr>
<td></td>
<td>(25.7683)</td>
<td>(25.3046)</td>
<td>(58.37)</td>
</tr>
<tr>
<td>OTP_org ($\beta_4$)</td>
<td>-64.5951</td>
<td>-1529.0610</td>
<td>-80720.0500</td>
</tr>
<tr>
<td></td>
<td>(49.8192)</td>
<td>(1267.8920)</td>
<td>(69047.5200)</td>
</tr>
<tr>
<td>Constant ($\beta_0$)</td>
<td>-284.7354</td>
<td>-12421.3700</td>
<td>-648987.6000</td>
</tr>
<tr>
<td></td>
<td>(143.7697)</td>
<td>(6277.5810)</td>
<td>(323891.0000)</td>
</tr>
<tr>
<td>RMSE</td>
<td>2.6662</td>
<td>2.6661</td>
<td>2.6661</td>
</tr>
<tr>
<td>$\alpha$</td>
<td>-0.0537</td>
<td>-0.0009</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(0.0362)</td>
<td>(0.0007)</td>
<td>-</td>
</tr>
<tr>
<td>$a$</td>
<td>0.0551</td>
<td>0.0009</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(0.0366)</td>
<td>(0.0007)</td>
<td>-</td>
</tr>
<tr>
<td>$b$</td>
<td>0.0511</td>
<td>0.0009</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(0.0428)</td>
<td>(0.0008)</td>
<td>-</td>
</tr>
<tr>
<td>$c$</td>
<td>-0.0879</td>
<td>-0.0375</td>
<td>-0.0298</td>
</tr>
<tr>
<td></td>
<td>(0.0941)</td>
<td>(0.0422)</td>
<td>(0.0341)</td>
</tr>
</tbody>
</table>

Note: "**", "***" and "****" denote significance at 10, 5 and 1 percent respectively.

Columns 1, 2 and 3 reports results when an industry is assumed to be organized when it has a minimum of 1, 2 or 3 lobbyists respectively. $\alpha$ is share of the home country population represented by a lobby group, $a$ is a weight that the government assigns to national welfare relative to political contributions, $b$ and $c$ shows government preferences for contributions from Canada and OTP over domestic contributions.
Chapter 6

CONCLUSION

6.1 Summary of findings

This study has applied the monopolistic competition model of endogenous to US post NAFTA data in order to examine how well the model fits the US data. An advantage of this approach over existing literature on endogenous policy that have made use of US data is that it accounts for the imperfect market structure and allows two types of foreign lobbying: those within and outside the FTA. The framework explains cross sectional pattern of trade protection via market share, price elasticity and whether or not an industry is organized. Three alternative measures: tariff, protection share and NTB coverage ratio were employed in this study and three different thresholds were used in assigning the index of whether or not an industry is organized.

The estimation was guided by the theoretical model; however the estimation that was used is different from that of Stoyanov (2009) who proposed the monopolistic competition model of endogenous trade policy. Stoyanov made use of LIML with Bekker standard error correction while this study carried out its estimation using the two stage least square with robust standard errors. Despite this difference in estimation there is still some level of confidence in the type of estimation we used. For example, Kelejian (1971) shows that if nonlinear expressions are regressed on linear, and nonlinear products of exogenous variables in the system, then the two-stage least square
estimator may be directly used and has desirable properties of consistency and asymptotic efficiency.

The aim of this research is to test how well the monopolistic competition fits the US data using various measures of trade protection. Across the three specifications and thresholds used in this study, consistency was only found with respect to the qualitative predictions of the monopolistic competition model when NTB coverage ratio was used as the dependent variable. The use of tariffs and protection share seem not to be appropriate because there is some level of cooperation in setting these measures which violates the assumptions of the model used in this study.

In spite of the appropriateness of the NTB coverage ratio for this study, we cannot claim full empirical support for the model when fit to the US data since some of its predictions have weak support. The coefficients of the market shares for the FTA partner country and OTP were insignificant, indicating domestic firms as sole determinants of US trade policy. These results do not seem implausible for two reasons: the US is a large country case as opposed to the assumption of a small country proposed by the model. Secondly, the US firms on the average accounts for 0.84 of the US market. Based on the assumptions of the model the lobbying intensity increases on the part of the domestic firms with increase in their market share. This is reflected in data with an average of 13, 0.5 and 3 lobbyists for US, FTA partner and OTP firms.

As evident from the results of this study, there is some empirical support for the monopolistic competition model of endogenous trade policy; it presents domestic
firms as sole determinants of US trade policy. This result slightly deviates from that of previous study which made use of the G-H model to fit US data on endogenous trade policy as they did not account for the imperfect market structure which makes unorganized domestic industry enjoy some level of protection from the US government. Thus, contrary to the results of Goldberg and Maggi, 1999, and Gawande and Bandyopadhyay, 2000 US unorganized firms do enjoy some level of protection when the imperfect market structure is taken into consideration, using the kind of model adopted in this study.

From a policy perspective, the result of this study presents a warning to policy makers. Previous studies that made use of the benchmark G-H model with the assumption of perfect competition presents unorganized domestic industries as less privileged because they enjoy less protection from the government. However, accounting for the imperfect nature of the market in this study suggests that the unorganized domestic industry do enjoy some positive level of protection. Thus, previous studies that did not account for market imperfection in their analysis might sway policy makers and lead to more protectionist trade policies in a situation where the government has the intention of providing some level of protection for all its industries.

The results from this study do not provide full empirical support for the monopolistic competition model when fitted to the US data. It however indicates that domestic industries do enjoy some level of protection from the government. Thus, a
study on endogenous trade protection without accounting for the imperfect market structure that exists in the real market setting might be underestimating the impact of protection on unorganized domestic industry.

6.2 Limitations of the study and way forward

This study examines the impact of interest group on US trade policy using the monopolistic competition political economy model which allows for two types of foreign lobbies: those within and outside the FTA. Canada was however the only country treated as US FTA partner due to data issues with Mexico who is also in the NAFTA agreement. A suitable way forward in this area of research will be to look for good instruments for Mexican industry organization and also their market share (due to potential endogeneity of these variables) in order to be able to carry out the model estimation. Since Mexico is one of the largest US trading partners, inclusion of Mexico in future studies could weaken the domestic lobbying power and further provide good insight into this kind of study.

Also, the explosion of some of the estimates in the results calls for further analysis. A good starting point will be to make use of the Limited Information Maximum Likelihood (LIML) with Bekker (1994) Standard error correction which was used by Stoyanov who proposed the monopolistic competition model. This could give better estimates of the coefficients and structural parameters and also provide better insight as regards cross sectional pattern of protection in the US when heterogeneity of foreign lobbying is taken into account.
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