

THE POLITICAL ECONOMY OF THE TARIFF:
CANADA IN THE KENNEDY ROUND

by

PATRICIA BARKMAN

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE

in

THE FACULTY OF GRADUATE STUDIES
Department of Agricultural Economics

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA
September 1989

● Patricia Barkman, 1989

152

In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of Agricultural Economics

The University of British Columbia
Vancouver, Canada

Date October 12, 1989

ABSTRACT

Several studies have been conducted on the political economy of the tariff setting process. Although the result of these studies have been individually informative they have been collectively inconclusive. This is attributable both to the difficulty in developing a model which effectively describes real life, and the ensuing problem of attaining the appropriate data once a model is developed.

A new model for explaining the tariff setting process, which is based largely on these earlier works, is developed for this thesis. This model tests three separate hypotheses which influence the tariff setting process. They are:

- 1) industry pressure groups
- 2) the comparative disadvantage of an industry
- 3) the minimization of displacement cost

This model for tariff determination is applied to both nominal and effective rates of protection and changes in tariffs. The goal is to identify a particular hypothesis which explains the tariff structure and changes in tariffs.

This analysis is conducted for pre-Kennedy Round nominal and effective tariffs and changes in tariffs that resulted from these negotiations. The Kennedy Round offers an interesting case for measuring changes in the determination of tariffs as it was in this round of negotiations that Canada was given exemption from

the linear reduction strategy designed out for these talks. This unique role gave Canadian negotiators a certain amount of manouverability with which to streamline their strategy for reductions.

To measure changes in tariffs a unique variable is constructed from tariff item data outlining concessions given by Canada in the Kennedy Round. The constructed variable is the ratio of commodity items in an industry significantly affected by these negotiations and total imports for that industry. As such, it is a measure of the breadth of tariff concessions in an industry. This variables allows for the retesting of previous hypotheses which measure the size of tariff concessions.

This thesis gives a cross sectional analysis of 100 standard industrial classification industries using ordinary least squares regression techniques.

The results support the hypothesis that the structure of tariffs in Canada prior to the Kennedy Round was a function of comparative disadvantage variables. This historical development was likely a function of broad national policy interests. The results for tariff changes, as measured by the breadth of concessions, reveal little change in the motives behind negotiators in the Kennedy Round. Although special interests were inspired by the opportunity to negotiate in these talks the eventual outcome shows an overall maintenance of the pre-round determination of tariffs.

TABLE OF CONTENTS

Chapter 1	Introduction.....	1
1.1	Background.....	2
1.2	Problem Statement.....	5
1.3	Objectives and Procedures.....	6
1.4	Thesis Outline.....	7
Chapter 2	The Political Economy of Tariff Protection.....	9
2.1	Canadian Studies	9
2.1.1	Early Literature.....	9
2.1.2	Caves.....	10
2.1.3	Helleiner.....	19
2.1.4	Saunders.....	21
2.1.5	Baldwin and Gorecki.....	23
2.1.6	Wylie.....	27
2.2	U.S. Studies.....	29
2.2.1	Pincus.....	30
2.2.2	Ray.....	31
2.2.3	Cheh.....	33
2.2.4	Lavergne.....	34
2.2.5	Krueger.....	35
2.2.6	Tullock, Brock and Magee, Findlay and Wellisz.....	36
2.2.7	Feenstra and Bhagwati.....	37
2.3	Synthesis.....	37
Chapter 3	Trade Liberalization.....	41
3.1	The Liberalization Norm.....	42
3.1.1	The GATT.....	42
3.1.2	The Kennedy Round.....	43
3.1.3	Canada and the Kennedy Round.....	45
3.1.4	"At the Talks".....	48
3.1.5	A Summary of the Kennedy Round.....	52
3.2	New Protectionism - A Note on Nontariff Barriers.....	53
Chapter 4	Data and Regression Plan.....	57
4.1	Introduction to the Database.....	57
4.2	The Regression Plan.....	64
4.2.1	The Tariff Structure.....	64
4.2.2	Tariff Changes.....	66
4.2.3	The Explanatory Variables.....	67
4.2.3.1	Interest Group Variables.....	67
4.2.3.2	Competitive Disadvantage.....	72

4.2.3.3 Displacement Cost Variables.....	75
4.3 Descriptive Analysis of Data.....	78
Chapter 5 Testing the Political Economy Model.....	80
5.1 Results for Tariff Levels.....	81
5.2 Results for Tariff Change.....	87
Chapter 6 Summary, Conclusions and Caveats.....	93
Bibliography.....	98
Appendix A - List of Variables and Definitions.....	102
Appendix B - TableB1: Data used to estimate the determinants of the tariff structure and the Kennedy Round changes in the tariff structure..	104
- TableB2: Summary statistics for 100 standard industrial classification industries measured in terms of tariff level and Kennedy Round concessions.....	112

LIST OF TABLES

Table 2.1	Summary of Sign Estimates Determining the Effective Rate of Tariff Protection in Canada.....	28
Table 4.1	Summary of Hypothesized Signs.....	78
Table 5.1	Determinants of the Tariff Structure in 100 4-digit Canadian Manufacturing Industries.....	84
Table 5.2	Determinants of Kennedy Round Tariff Rate Changes in 100 4-digit Canadian Manufacturing Industries.....	89

LIST OF FIGURES

Figure 4.1 Frequency of Tariff Schedule Cuts.....63

**Figure 4.2 Frequency of Tariff of Changes in Average Tariff
 Between 1966 and 1979 for CITC Commodity
 Groupings.....63**

CHAPTER 1

INTRODUCTION

The study of political economy is "an economics that includes an adequate analysis of government action and of the mechanisms and prevailing philosophies of political life" (Schumpeter, p.22). The structure of protection and changes in protection provide a useful case study of the political economic process, as protection represents a very special form of government intervention. Comparing the structure of protection with changes that occur during negotiations also reveals how prevailing philosophies change over time.

This thesis will explain the structure of protection in Canada before the Kennedy Round of the General Agreement of Tariffs and Trade (GATT) and the changes in protection as a result of the Kennedy Round. The aim is to identify the political economic interests which have dominated the decision making process of these negotiations.

This thesis incorporates earlier work on the subject of the Canadian tariff structure by Caves (1976), Helleiner (1977), Saunders (1980), and Baldwin and Gorecki (1985). Along with a re-examination of these studies using a uniform database, this thesis

will expand on earlier works by developing a new variable to measure tariff changes. This variable was constructed as a measure of the breadth of tariff concessions which were given in the Kennedy Round of the GATT negotiations.

The model developed for this thesis outlines three primary hypotheses which describe different principles likely to influence decision makers in the tariff setting process.

- 1) Pressure groups - where governments respond opportunistically to electoral support.
- 2) Comparative disadvantage - where governments respond to the needs of less competitive industries.
- 3) Displacement costs - where governments respond to the needs of declining industries.

These hypotheses are not unambiguously distinct, as national efforts to protect internationally disadvantaged or declining industries may be a function of the interests such industries provoke. They are distinguished, however, because the behaviour that motivates the protection of comparative disadvantage industries may exceed political leverage. As such, even though interest groups are generally endogenous in the decision making process they may still be overruled by some other principles for decision making.

1.1 Background

Under the auspices of the GATT, several negotiating rounds

have taken place, each with the goal of systematically reducing tariffs. The sixth round of these negotiations, the Kennedy Round, conducted between 1962 and 1967, stands out as the most comprehensive move to reduce tariffs world wide since the beginning of the GATT. The Kennedy Round was to achieve its objectives within the GATT tradition that welfare gains from trade were best made in a multilateral environment. At the same time, trade policy was to ensure that there were no significant reductions in income to any significant sector of the community. This meant that trade liberalization, as a means of exploiting comparative advantage, was only limited by the potential harm it can impose on real incomes in a community. Understanding the political motives underlying the decision making process and the subsequent forces affecting trade liberalization are important if major changes in this area are to come about.

An historical view of the Canadian tariff sheds some light on the political process that provoked the present structure of protection. Canadian development, like that of most other industrial nations, has been supported by tariffs. Over the hundred years starting in 1850 the tariff level shows relative stability with only intermittent, extreme increases. Such extremes were generally motivated by economic hard times, and thus reflect certain motives for tariff implementation.

Through the legislative process tariff reductions occurred slowly over time, until the consolidated forum of the GATT. In general, tariff levels were somewhat lower by 1950 than they had

been in the post national policy days of the late nineteenth century.

For the fledgling Canadian economy, tariffs were implemented as a means to enhance development. Without tariffs between Canada and the United States:

the Canadian economy would have developed as a fragment of a larger economy, trade would have moved in response to economic and geographical forces and, lacking a separate economic foundation, the political structure of the country would gradually have become enmeshed with the U.S. (Helleiner, 1980 p.9)

The argument against tariffs is that they have been a "divisive rather than a cohesive force" (Helleiner, p.10) in Canadian development by inhibiting efficient production activities and thereby creating an economic gap between Canada and the U.S. Inefficient production capacity in Canada is viewed as a direct result of trade barriers and as such has become a major concern for trade policy makers.

In summary, the principal elements of the tariff setting process in the early stages of Canadian development included British preference, reciprocity with the U.S., revenue needs, protection for secondary manufacturing, and regional pressures. The motives behind these historical determinants of tariffs and how they have changed over time are what has inspired this research.

1.2 Problem Statement

A problem statement addresses the analytic issue which a thesis proposes to answer. Describing the political economy of protection analytically is the problem to be addressed in this thesis. This description involves an identification of several analytic variables which act as proxies for real life behaviour.

Extensive research has been conducted on the subject, however with very little conclusive evidence on the explanation of the structure of protection. This is largely due to the fact that a political economic interpretation can often be provided for any result. This means that there can be no right or wrong answer, only speculation.

This thesis will, once again, address the problem of explaining the structure of protection in Canada, but with the added feature of a unique variable which defines changes in protection. This new measure of changes in protection is developed as an alternative to more standard measures of change which are often characterized by measurement problems. This thesis is conducted with the objective that a more descriptive measurement of tariff changes will help clarify the decision making process. Understanding this process is integral to finding a solution to the economic problems generated by protection.¹

¹ In this thesis, protection refers primarily to tariff protection, nontariff protection, as part of the analytic framework, is largely neglected. This is due primarily to the fact that nontariff barriers are difficult to measure and thus may not generate any conclusive information to an analysis of the structure

1.3 Objectives and procedures

The analysis of the political economy of the tariff structure in Canada has not been entirely conclusive both as a result of the very complex nature of the field and the restrictions imposed by the available data. This thesis focuses on one aspect of these shortfalls - the data. Through a meticulous analysis of the tariff reduction process, a new variable measuring tariff change is developed in order to re-test the processes behind tariff changes. The determinants of change associated with the Kennedy Round of the GATT are examined by identifying the structural variables associated with these tariff changes.

As well as measuring tariff changes this thesis will analyze the structure of protection prior to the Kennedy Round negotiations. This will establish the initial determinants of protection with which to compare the structure of change.

As noted earlier, this study draws much of its analytical framework from earlier work on the political economy of Canadian tariffs by Caves (1976), Helleiner (1977), Saunders (1980) and Baldwin and Gorecki (1985). An extensive analysis of the political economy of U.S. tariffs by Laverne (1983) is also an important source for this work.

The data used in this research is made up of a combination of Kennedy Round tariff concession data published by the

of protection.

Department of Regional and Industrial Expansion (DRIE) and structural data published by Statistics Canada. The sample includes 100 manufacturing industries from Statistics Canada 4-digit Standard Industrial Classification. The major research technique is ordinary least squares regression analysis.

Each of the aforementioned works is an analysis of the tariff structure. Helleiner, Baldwin and Gorecki, and Lavergne added to their work an analysis of changes in tariffs. As a measure of change these studies use the difference between the average nominal and effective rates of protection between years as a measure of tariff change. This thesis will compare this measure of change with the new variable.

1.4 Thesis outline

This thesis will consist of six chapters including the introduction. Chapter 2 is a review of the literature on the determinants of tariff protection. This includes analysis of both Canadian and U.S. literature on the political economy of tariffs. This chapter will evaluate these findings in terms of each other keeping in mind the variance in political and economic influences between countries.

Chapter 3 looks at trade liberalization, with particular interest in the Kennedy Round of the GATT. This includes a look at the casual journalism of the day to identify any prevailing philosophies which may have influenced the negotiations. This

chapter concludes with a brief description of the new protectionism which was born out of liberalization.

Chapter 4 introduces the data base and the unique measure of changes in tariff protection. The model for analysis is described in this chapter and the performance variables of interest to this research are introduced. The summary section of this chapter gives a descriptive comparison of the performance variables for three distinct industry groups.

Chapter 5 uses the performance variables to explain the structure of tariffs and the changes in tariffs. The results for explaining the tariff structure are outlined in the first section followed by an analysis of results for tariff changes.

Chapter 6 will offer a summary and conclusions to this research including any qualifications and caveats.

CHAPTER 2

THE POLITICAL ECONOMY OF TARIFF PROTECTION

This chapter reviews recent literature on the political economy of tariffs in Canada and the U.S. Each of these studies is characterized by an analysis of the political economy of the tariff setting process.

This chapter is divided into 3 sections. The first section looks at recent studies of the determinants of the Canadian tariff structure. This analysis is followed by a review of studies referring to the determination of tariffs in the U.S. The final section of this chapter summarizes the findings of these studies paying attention to how the determinants of tariffs in Canada differ from those in the U.S.

2.1 Canadian Studies

2.2.1 Early Literature

W.A. MacKintosh (1939) believed that the pattern of protection in Canada was the result of bargaining among regions. He took a normative approach, in which government plays an

exogenous role, to his analysis which traced the role of politics in tariff determination. MacKintosh noted a general conflict in the negotiation process among sectoral interests in the economy. He also recognized the growing interplay between tariff and nontariff barriers and the effect tariffs had on resource allocation and income distribution. Later works on the subject, such as those described below, reflect the pioneering work of MacKintosh, however, these studies treat government as an endogenous factor influencing an economy's structure and performance.

Wilgress (1950) suggested that the structure of tariffs in the early stages of Canadian development reflected a pattern of preferential treatment with the British. He writes that, in the earliest stages of Canadian economic development the motivations of politicians was to ensure the growth of a strong industrial economy. If this required protectionist measures then they were openly granted - domestic development was the key. He also noted an historically protected manufacturing sector while freer trade in natural resources was promoted.

2.1.2 Caves

Richard Caves (1976), in his paper "Economic models of Political Choice: Canada's Tariff Structure", examines the political decision making process that has generated tariffs on Canadian secondary manufactured goods. Throughout his analysis

Caves maintains that the structure of the tariff reflects the structural traits of industries. Caves posits three "economic models of political choice" which he uses to describe the Canadian tariff structure. These models are listed and discussed below along with the results.

(1) The Adding Machine Model

In this model governments act to maximize the probability of re-election. The government's utility function acts as an adding machine totalling votes attained from different policies. Policies are accepted or rejected based on their vote-getting potential.

The primary axiom within which this model operates is that "labour has votes" (Caves p.283). Tariffs affect income distribution and since wage income is more evenly dispersed among individuals than non-wage income we expect labour intensive (wage income) industries to win the highest tariff rates. This is in keeping with the Heckscher-Ohlin theorem which implies that a tariff on a relatively labour intensive good will raise the real wage rate in the economy.

Caves adds that a tariff often harms the general public through higher prices while benefiting income recipients of given industries. The public's loss tends to exceed the income gain (tariff + deadweight loss), and the number of consuming voters tends to exceed the number of benefiting voters. Tariffs will be

high in labour intensive industries as voters in these industries are generally better organized. Consumers on the other hand often fail to perceive their losses or find countering action too costly. With this in mind it seems certain that an industry's access to tariffs is dependent upon what it can offer the government in terms of electoral support.

The adding machine model posits value added per worker (VPW), four firm seller concentration (CR4), transport costs (TRN), minimum efficient scale (MSC), and geographic dispersion (GEG) as the major determining variables in the level of industry tariffs. Caves states that if value added per worker is low then the industry is generally considered labour intensive - lower value added per worker implies more workers benefit by a tariff that insulates a given amount of value from import competition. For his study Caves uses value added per worker (VPW) as a determinant of the size of tariff. If VPW is high he expects the tariff to be low.

Electoral support is measured as a combination of geographic dispersion and diffusion of enterprises. These variables act as a proxy for industry decentralization. Caves sees decentralized economic activity as holding more weight when the votes are tallied than variables such as industry size. Diffusion of enterprises is measured using concentration ratios which are an inverse measure of an industry's dispersion among enterprises. Caves uses CR4, the percentage of an industry's shipments accounted for by the largest four firms in 1968. CR4 is predicted

to be negatively related to tariffs.

Caves uses TRN, the weighted average of rail and truck shipping costs per dollars worth of product between Cleveland and Chicago as an additional measure of dispersion. If transport costs are high a greater dispersion of firms is expected in order that the industry may avoid such costs, this does not include industries whose customers are geographically concentrated. Caves states that high TRN, which means dispersion of industries, implies tariff-getting power.

Caves also relates geographic dispersion and economies of scale. This hypothesis assumes that scale is less than optimal in Canada (partly due to tariffs), and US firms' plant size is correlated to minimum efficient scale. MSC, shipments by the Canadian industry in 1967, expressed in units of average shipments per plant in the corresponding U.S. industry are used as a measurement of diseconomies of scale. The smaller the ratio the greater the diseconomies of scale in Canada. Protection will buy votes "where the Canadian market can sustain a large number of plants that are of efficient scale" thereby increasing profit potential (Caves 1976 p.285).

GEG, the percentage of employees located outside of Quebec and Ontario in 1963 is also used to represent decentralization in the sense that it defines more localized industries which tend to dominate the region. Generally speaking, Ontario and Quebec industries rarely dominate a region and each will compete with the other for political favours. Caves expects a positive

relationship between GEG and tariffs.

In summary, the predicted signs for the adding machine model are summarized, negative for VPW and CR4, and positive for MSC, TRN and GEG.

(2) The interest group model

This model explores the access of interest groups to the tariff-making process in Canada. Caves develops two major aspects of the interest group model. The first incorporates the costs and benefits of seeking and obtaining protection. The big issue here is the free rider problem in which a firm can hold back its contribution to lobbying activities and "free ride" on tariff protection obtained by industry. This problem is expected to increase with the number of sellers who may benefit from protection.

Caves predicts a positive relation between CR4 and tariffs as concentrated industries have less of a free rider problem. Alternatively, he presents the possibility of a negative relationship between CR4 and tariffs. The logic is that entrepreneurs generate broad-based support for protection. MSC measures diseconomies of scale or non concentrated industry. Caves also suggests that opposition to tariff by buyers in the market is dependent upon their own concentration and ability to lobby. This leads to the implication of a negative relationship between BCR, a buyer concentration variable and tariffs. The more

concentrated the buyers of raw materials are the more able they are to lobby against tariffs.

Incentives to lobby are another important issue in the interest group model. These incentives are a function of the net increase in profits derived from tariffs and the responsiveness of the political process to lobbying. Generally speaking the political process is more receptive if the industry in question is, or has been, exposed to economic adversity. Caves predicts a positive structural relation between an industry's propensity toward economic adversity and tariffs.

In describing the structural traits of tariffs Caves also includes the growth rate, GRO. The tariff is expected to be negatively related to GRO. NSP, one minus the industry specialization ratio, is also used in this model as a measure of diversification. The relationship between tariffs and NSP is predicted negative. An industry is more vulnerable to import competition when it is not diversified.

Value added per worker and MSC, a measure of economies of scale are repeated in this model. Finally, "an industry is more vulnerable to import competition, the less natural protection it enjoys from transportation costs, TRN" (Caves p.289).

All the signs are predicted negative except for the sign on CR4 which is predicted to be weakly positive.

(3) The national policy model.

This model states that tariff protection for Canadian manufacturing has been incorporated in national policy from the

earliest stages of Canadian economic development. The tariff structure generally reflects a preference for domestic industrialization while promoting Prairie settlement and a national transport system. Caves considers what structural traits of manufacturing industries might make them "attractive or unattractive" to a nationalistic goals. Goals should adhere to the development of a balanced economy with all sectors represented (Young 1957 p.45).

Caves describes tariffs as a policy instrument used to help develop a balanced economy. Adhering to the law-of-one-price domestic prices equal prices of imports plus the tariff. This allows domestic industry to compete in varied markets assuming their goods are equal substitutes. Caves predicts that tariffs are proportional to the productivity advantages that foreign industries enjoy over their protected Canadian counterparts. RPR is used to represent relative U.S. Canada value added per worker and is expected to increase as tariffs increase.

Middle-class jobs might also be significant in terms of nationalistic preferences. This is measured by NPC, the proportion of non-production workers in the labour force multiplied by average wages per non-production worker. Caves also employs VRT, value added in an industry divided by the value of its shipments, 1967. This measures the depth of the industrial process and is expected to be positively related to tariff rates. VPW, GRO, MSC and GEG are also used in this model with the same predicted signs as previously specified.

(4) Statistical Procedures and Results

Caves conducts his analysis of the Canadian tariff structure on a cross sectional basis. He assumes long run equilibrium with the possibility of only random displacement of any independent variable. Despite the fact that the Canadian tariff has undergone changes over the past century Caves assumes that the structure has changed little over time (Young 1957, p.48-54). Even where rates have changed many times as a result of sectoral shifts in political power these shifts are considered only marginal in the long run.

The effective rate of protection (ERP) and the nominal rate of protection (NRP) are used as the dependent variables. Caves considers effective rates to be a better measure of the true cost of resource allocation and the "true proportional inflations of payments to Canadian factors permitted by tariffs" (Caves p.292).

The sign results of the three models are displayed in Table 2.1. The results for the dependent variable ERP give the interest group model the best statistical value based on significant variables and correct signs. CR4 is signed negative in support of the hypothesis that governments are less likely to protect concentrated, powerful industries. The national policy model has more correct signs than the interest group model but lower statistical significance. The adding-machine model has too many wrong signed, significant variables to make it a good model.

Upon examination of the coefficients Caves found MSC to be

the most important explanatory variable for tariff rates. CR4 and TRN are the next most significant. VPW is significant if CR4 is excluded from the model. The explanatory value of VRT and GEG varies with the model specification. With the variable VPW deleted from the model CR4, TRN and MSC are particularly robust.

The equations run with the dependent variable NRP show an overall similarity with those run with ERP as the dependent variable. Coefficients significant for ERP are generally significant for NRP although NRP's regression coefficients are much smaller - Caves associates this with the smaller variance of the nominal tariff series.

In summary, Caves work emphasizes the prevalence of economic goals in the political context. Although his statistical tests yield weak results, subject to many qualifications broad support is given to the interest group model. He attributes the success of the interest groups to:

a more continuous mechanism of adjustment of the tariff structure (which) may have emerged in the last four decades with the rise of administrative tariff-making and negotiated international tariff reductions. By taking tariff changes out of the parliamentary arena this shift may increase the scope for accommodation among pressure groups by making the process less visible to the general public. (p.292)

Of all international tariff negotiations to date the Kennedy Round was by far the most comprehensive in terms of significant tariff cuts. As such it is possible to test Caves view that "the scope for accommodation among pressure groups" has indeed increased over the past four decades as the process becomes less

visible to the general public. This thesis will test whether the Kennedy Round negotiated tariff reductions support Caves interest group model for the political economy of tariffs.

2.1.3 Helleiner

Helleiner (1977) develops an alternative to Caves' interest group model with two primary differences. First Helleiner attempts to incorporate certain international political influences into the other purely Canadian influences of the model, and, secondly, he changes certain domestically influential variables.

Helleiner believes that the exclusion of foreign country influences in Caves' model is a major flaw. He points to the principles of reciprocity and non-discrimination which lead to GATT bargaining via reciprocal granting of concessions among dominant suppliers of particular products. Helleiner states that this has led to an imbalance in the power of negotiators as those most able to make (valuable) concessions are the ones who gain access to foreign markets. A major consequence of this is that tariff cuts in manufactured products in which less developed countries are most competitive are often lowest. Helleiner believes this is because less developed countries have little to bargain with and developed countries have more to fear.

The two variables most frequently used to predict the less developed countries (LDC) share of developed countries' imports are the average wage and the extent to which value added rises

with scale. The hypothesis is that if the weak bargaining strength of the LDC influences the tariff structure in Canada it will manifest itself in high tariff levels for those industries which are unskilled and labour-intensive, and have characteristically small increases in value added per person. Helleiner uses wages (W) as the independent variable used to represent the aforementioned hypothesis as compared with Caves value added per worker variable. He predicts a negative correlation between nominal tariffs and wage rates.

Helleiner also tests value added per worker (T) and a measure for economies of scale (E) (because of the role of low scale industries in LDCs). He proxies the free rider problem by concentration (M) and the proportion of the work force employed in small firms (F). Both variables are positively correlated with tariff levels.

A unique variable in Helleiner's study is a measure for natural resources. In the case of resource-intensive manufactured imports the threat to Canadian processing motivates high tariffs for these resources. At the same time, however, Canada's resource intensive export industries may not need protection. Helleiner states that perhaps the dominating influence of resource exporting industries in Canada may have led to relatively free trade in all resource related products and that this has generated the sector approach in the current GATT negotiations.

Helleiner measures the determinants of tariffs for 1961 and

1970. The sign results are given in table 2.1. These years are used by him as benchmarks for pre and post Kennedy round data. He also estimates equations for the absolute changes in both nominal and effective rates between 1961 and 1970. Unskilled labour intensity is the most significant explanatory variable in Helleiner's models for the determination of tariffs. The model explaining changes in tariff support the hypothesis that CR4, natural resource intensity and the proportion of an industry's labour employed in small firms determine change.

2.1.4 Saunders

Saunders (1980) investigates the political economy of effective tariff protection in Canada's manufacturing sector. He asks what market structure characteristics are consistent with political pressure to maintain high effective tariffs.

In his introduction Saunders supports the view that the combination of small market size and high levels of effective protection in Canada contribute to weak productivity performance in Canadian manufacturing. This occurs because of the tariff's effect on domestic prices and through the encouragement of American subsidiaries in Canada.

Saunders uses effective tariff protection as the dependent variable. He associates it with foreign ownership (FSE), export shares (EXP), unit transportation costs (TRN), relative Canada / U.S. labour productivity (ZQ), the ratio of value added per

employee in Canada with that of the U.S. (RPR) and seller concentration (C468). Other variables in Saunders model are an industry's cost disadvantage ratio (CDRU), an employees to assets ratio (LABC), a measure of scale (MABU), value of shipments (SC), and MABU / SC (MESCD). The seller concentration industries are more likely to be correlated with tariffs if foreign ownership is relatively low.

Saunders' work is largely an extension of that of Caves (1976) and Helleiner (1977). The clear innovation is the use of two-stage-least-squares (2SLS) estimation procedure in order to account for the interactive relationship between the variables FSE, EXP, ZQ and C468 and the effective rate of protection. He sets up a linear specification using effective tariffs as the dependent variable. Saunders finds that relative labour productivity and exports as a share of total output significantly influence tariffs in the ordinary least squares analysis.

Concentration and foreign ownership increase in significance when 2SLS analysis is used, productivity and export shares remain significant. All of Saunders' interest group variables (like those in Caves models) were insignificant and often wrong signed. Labour productivity is signed negative meaning that industries which are relatively inefficient (when compared to their U.S. counterpart) receive effective protection. EXP is negatively signed supporting the view that industries which export a large proportion of their total shipments do not lobby for protection. CR4 supports the narrow based interest group model while the

negative sign on FSE suggests that governments do not protect foreign subsidiaries. Table 2.1 gives a synopsis of Saunder's analysis.

2.1.5 Baldwin and Gorecki

Baldwin and Gorecki (1985) explain the tariff setting process in political economic terms by measuring the benefits of tariffs against the costs. The benefits of a tariff, which they relate to their industry's cost disadvantage, are weighted against the costs of organizing for political support.

Baldwin and Gorecki use Statistics Canada data for the years 1966 and 1970. This is the period which "spans the implementation of the Kennedy Round tariff cuts". They describe their work as an extension of other Canadian studies on the subject using a more extensive data base and a model which combines past work with a more general focus on the specification.

Baldwin and Gorecki model the tariff setting process within the standard demand and supply framework used in economic analysis. Producers or factors of production demand certain rights while the governing political party is the supplier. The tariff level emerges from a process that maximizes the benefits received by rent-seekers minus their lobbying costs. Both costs and benefits are a function of the tariff level.

The benefits curve accruing to an industry is assumed to depend upon two characteristics of an industry's supply curve: its

cost disadvantage and the elasticity of supply. As the cost disadvantage of an industry increases, the maximum quasi-rents from a prohibitive tariff increase.

The position and slope of the cost curve depends upon the government's willingness to grant protection and the rent-seekers ability to organize. Lobbying costs are an increasing function of the tariff, and are dependent upon the ease with which industries can organize (and overcome the free rider problem). Lobbying costs are also assumed to vary inversely with the level of the tariff being sought.

Baldwin and Gorecki divide their list of variables into 3 groups: those that represent benefits of tariffs to producers, those that reflect cost of lobbying activities and those that attempt to catch the government's willingness to grant protection.

Competitive disadvantage variables are used on the understanding that these industries need protection in order to remain in the market. These industries benefit more from protection and are thus associated with a higher tariff level. To capture the concept of comparative advantage Baldwin and Gorecki use factor intensity variables (EVA, RAW, RD). Cost disadvantage is measured by the degree to which economies of scale are utilized (RELSIZ, MES, RELDIV) and trade flows (EXP, TARFD). A measure of productivity (RELWAG) and cost differences (RELPROD) between Canada and the U.S. is also considered as a proxy for competitive disadvantage.

The likelihood of benefits from tariffs is also measured by

elasticity of supply in an industry. That is, the more quickly an industry is able to adjust production in a more competitive environment affects the greater will be the benefits from freer trade. Baldwin and Gorecki measure industry adversity (VAR) and lack of growth (GRO) as a gauge of supply inelasticity. An industry's ability to adapt - its resource mobility - is measured by diversity (DIV) and value added small plant per large plants (CDR).

Baldwin and Gorecki note that the benefits of protection can be dissipated if foreign retaliation results. Multinationals are most likely to appreciate the benefits of free trade so foreign ownership may be negatively related to tariff protection. Contrary to this is the argument that tariffs have led to foreign investment by multinationals and short run adjustments for these firms would be costly. The percentage of imports from U.S. made by foreign controlled firms (PERFOR) and the percentage of domestic sales accounted for by foreign owned firms (FO) are used to separate these opposing influences. Product differentiation or elasticity of demand is incorporated into the model with an advertising to sales ratio (AD).

The cost side of tariff protection - the private costs of organizing - Baldwin and Gorecki measure using MES, RELSIZ, CON4, and a working owners to capital ratio (WKOWN). Public acceptance of the tariff is measured by PRODGOD, a dummy variable for consumer goods producers versus non-consumer goods producers. The extent to which broad-based or narrow-based support affects the

tariff making process is measured using several variables. Broad based support is measured by the number of salary and wage earners in an industry (SIZE), the market share of multiplant establishments (MPLNT), and a regional dummy (REG). Narrow-based support or special interests are measured by EVA, FO, MES, and RCR.

In the instances where the same variable may affect the rent-seeking process for more than one reason Baldwin and Gorecki express the need for caution in the interpretation. They use the effective tariff rate (ERP) as the dependent variable rather than nominal tariffs, since effective rates measure the potential "percentage increase in factor payments created by tariff protection". A summary of their results is given in table 2.1.

In general, their results point to the influence of competitively disadvantaged industries in the structure of protection. This is captured in relative productivity, export intensity, relative wages and the regional variable. Broad-based voter support also appears to be important while variables intending to capture narrow based support show little success.

The determinants of tariff changes in the Kennedy Round show that "cuts were largest where the benefits from existing tariffs were least" (Baldwin and Gorecki 1985 p.47). As in the structure model broad based interests are given further support however, in terms of constituency support as opposed to "size" support. "This suggests a political process that was trading off numbers of votes for greater geographical coverage." (Baldwin and Gorecki p.48)

2.1.6 Wylie

In a paper work entitled "The National Policy Tariffs: 1900 and 1910" P.J. Wylie (1988) conducts an empirical analysis of early Canadian tariffs. He develops two models for tariff determination in Canada in the early 1900's. The first model, which he called the national policy model, stated that tariffs were meant to promote industrial development. As such, they should vary with variables such as economic and population growth maximization, desired trade flow re-direction and optimal retaliation to tariffs on domestic exports, especially the U.S.

The second model is the captured state model in which tariffs should vary with the potential profitability of protection to industry members, the cost of lobby organization and potential for political influence. This model is based on the theory of public choice.

Although the results of Wylie's work were generally inconclusive the analysis did point to high tariffs in capital and skill intensive industries with high value added. His study also points, albeit weakly, to the effectiveness of lobbying when costs of collective action are lowest.

In summary, these tariffs begin to reflect a high level of tariff adaptation to the political and economic environment - the increasing force of interest groups. They also point to a striking difference in the interests of turn of the century

TABLE 2.1: SUMMARY OF SIGN ESTIMATES DETERMINING THE EFFECTIVE RATE OF TARIFF PROTECTION IN CANADA:

Independent Variable	Caves N=29				Helleiner N=87			Saunders N=45			Baldwin and Gorecki N=108		
	Var	A-M	I-G	N-P	Var	1961	1970	Var	OLS	2SLS	Var	1966	1970
Concentration - ability to lobby, no free-rider	CR4	-	- *		M F	+	-	C468	+	-	RCR	- *	- *
Labour intensity - tariff and income distribution	VPW	+	+	- *	W R	- *	- *	LABC	+	-	EVA WAGE	- *	- *
Dispersion of enterprises - vulnerability to imports	TRN	- *	- *					TRN	-	- *	REG INTRA	- *	- *
Decentralization - inability to lobby	GEG	- *		-									
Buyer concentration - offset industry lobby	BCR		+								PRODG	- *	- *
% of sales accounted for by foreign owned firms								FSE	+	- *	FO		+
Middle class jobs - Broad-based national policy	NPC			+							MPLNT SIZE	+	+
Canada/U.S. productivity - comparative advantage	RPR			+				ZQ	-	-	RELPR RELWAG	- *	- *
Natural resource variable - comparative ad.					N	+	-				RAW	+	
Value added/shipments thick industrial process	VRT			+							VAS	+	
Export sales ratio - competitive disadvantage								EXP	- *	- *	EXP CDR	-	-
Cost competitiveness - utilization of scale	MSC	- *	- *	- *	E	+	-	MESCD	-	+	MES	- *	
Specialization - vulnerability to imports	NSP		-								AD		- *
Growth - troubled industry	GRO		-	+				GSI	+	+	GR		- *
nontariff barriers -											TARFD	+	+

* Statistically significant

political economy forces where skill intensive rather than labour intensive industries receive protection.

2.2 U.S. studies

The studies can be distinguished by two distinct approaches to the analysis of U.S. tariffs. The work of Pincus, Ray, Cheh and Levergne, like the studies of Canadian tariffs described in section 2.1, involves developing a simple model for the political economy of tariffs. This is in contrast to Krueger, Tullock, Brock and Magee, Findlay and Wellisz, and Feenstra and Bhagwati who bring into the standard trade model a politically determined variable. In so doing they try to incorporate the cost of rent seeking in order to get a more general equilibrium measure of the costs of protection.

2.2.1 Pincus

Pincus (1975) measures econometrically the effectiveness of pressure groups in determining the structure of tariffs. He analyzes the 1824 U.S. Tariff Act, which raised duties slightly, assuming that different duties passed by congress were influenced by pressure from interested economic groups. Pincus then postulates that it is the characteristics of industry that determine the concomitant costs and benefits of protection. As such, greater group effort will occur with fewer individuals to

reap benefits if benefits are more concentrated. The intensity of the group efforts is dependent upon geographical dispersion of individuals (as information costs increase with distance particularly in pre-1900's).

Pincus develops a model to explain nominal duties where tariffs are a function of the size of the change in value added as a result of the tariff, the number of inputs in the industry and the rates of duty on each, the number of potential pressure groups and their distribution, and congressional variables like senators and representatives.

Pincus's regression results showed the tariff structure was generally reflective of specific economic interests rather than general principles. It appears that the most intense pressure for protection came from industries with lower proportional incomes, higher industrial concentration of output and geographic concentration.

In his concluding remarks Pincus contrasts the structural foundation of tariffs in 1824 with that of the early 1900's. In 1824 the pattern of protection reflected a transformation from early stages of commerce and agriculture to manufacturing and this more faithfully represents pressure group successes. Measures of contemporary protection are complicated by nontariff barriers such as quotas, subsidies and tax credits.

2.2.2 Ray

E.J. Ray (1981) develops a model for the determination of tariff barriers to trade across industries in the U.S. using 1970 trade data. He adds to his analysis the incidence of nontariff barriers, what determines them, and their increasing role in protection. He suggests that tariffs and nontariff barriers are biased towards industries in which the U.S. has a comparative disadvantage in world trade. That is, subject to political constraints, trade restrictions are consistent with profit maximization for those seeking protection. Using estimates of tariff and nontariff restrictions in the U.S., Ray helps to support the hypothesis that nontariff restrictions are replacing recent tariff concessions.

The study also postulates that both tariff and nontariff barriers are biased toward industries in which the U.S. is at a comparative disadvantage and away from comparative advantage industries. Tariffs were found to be biased toward industries which are low-skill intensive and away from capital intensive industries and unrelated to product heterogeneity, concentration and geographic dispersion of domestic production facilities. Nontariff barriers, on the other hand, are found in industries with homogeneous products and relatively capital intensive techniques of production, and less concentrated production. In general these structural traits are found in industries in which production facilities are distributed in relation to population

distribution and thus voting power in Congress.

Ray focuses on the political economy variables that influence trade restriction using the fundamental approach that industries profit maximize subject to political constraints. That is, demand for protection is dependent upon an industry's potential gains from protection. These benefits are then weighted against the costs of obtaining these benefits through the political process. Ray explains that the political process is crucial in determining the industries most successful in obtaining restrictions.

The costs to the general public of tariff protection are artificially high product prices, misallocation of productive resources, and waste in terms of administrative costs of implementing and maintaining protectionist programs (Ray 1987, p.108). In general these costs are broad based. Benefits tend to be associated with industry interest groups which are more responsive to trade policy than consumers.

In his analysis Ray found a positive correlation between low skilled labour intensive industry and tariffs while the presence of capital intensive middle-skilled, unionized labour was correlated with nontariff barriers. The low-skilled labour intensity correlation with tariffs Ray loosely attributes to the upper bounds on tariff changes since WWII. In other words low-skilled industries have historically been protected by tariffs and these tariffs have survived several moves toward reductions.

Public support for the "poor struggling industry" along with regional employment concerns may also be a factor in the

maintenance of tariffs in these industries. This is unlike middle-skilled industries who have been forced to lobby for new kinds of protection (nontariff barriers) as a result of losing other measures (tariff) of protection. This study suggests that their lobby efforts have been successful.

2.2.3 Cheh

In a study entitled "A Note on Tariffs, Nontariff Barriers and Labour Protection in U.S. Manufacturing" (1984), J.H. Cheh tests empirically whether all U.S. trade restrictions, both tariff and nontariff, protect labour in manufacturing industries. Cheh's analysis departs from previous works by using nontariff barriers explicitly in the total protection measure.

Cheh's empirical results support the hypothesis that nominal tariff rates for U.S. manufacturing vary positively with labour intensity. This is only true however when nontariff barriers are not included in the measure of protection. Cheh carries the analysis further by taking into account the skill mix of the labour force to find a positive correlation between unskilled labour and nominal tariffs but not with nontariff barriers or effective rates. This supports Ray (1981).

Cheh's study was criticized by J. Stone (1986) on the grounds that his results are sensitive to an extreme observation and that an inappropriate measure of labour is used in the results for effective protection.

2.2.4 Lavergne

Lavergne (1981), in a comprehensive study of the political economy of tariffs in the United States examines the level of tariffs in 1964, 1972 and 1979 and how it has changed over time. One important feature of this work is the incorporation of a regional dimension of tariff protection into a political economy model of tariff protection. Lavergne emphasizes the importance of estimates regarding the changes in tariff level and the use of nominal tariffs simply because of data quality at that level.

Lavergne identifies the variables which seem to have affected the evolution of the U.S. tariff structure during both the Kennedy Round and the Tokyo Round. The general conclusion is that industries with many employees, with increasing threat from foreign competition, and which were rurally located had the least reduction in tariffs.

Already highly protected industries seem also to have been spared considerable reductions in tariffs. Lavergne also found that the specific tariffs are reduced less than ad valorem tariffs. Lavergne emphasizes the historical pull from tariffs for four reasons: 1) the cost associated with change; 2) status quo "privileges"; 3) the desire to avoid displacement costs; 4) the use of tariff cutting formulas (like the Kennedy Round 50% across the board). Lavergne identified variables having a significant impact on the evolution of the U.S tariff structure. Changes in the nominal rate of protection during the Kennedy Round are determined

primarily by total employment in an industry, an industry's import sales ratio, and the tariff level before the concessions were made.

The preceding studies are grouped as analyses about the political economy of protection. The following U.S. studies are distinguished by their attempt to bring a politically determined variable into a standard trade model.

2.2.5 Krueger

Anne Krueger, in "The Political Economy of the Rent-Seeking Society" (1974) argues that rent-seeking activities are often competitive and resources are devoted to competing for rents. The primary focus of her paper is on the costs of competitive rent-seeking (lobbying) as well as the effects of tariffs upon production, trade and welfare. In general the effects of tariffs are well known, but the rent seeking costs are not. Using empirical analysis Krueger analyzes the effects of competition for import licenses under a quantitative restriction of imports and concludes that the rents associated with import licenses can be large.

Rent-seeking activity, as opposed to productive activity, results in welfare costs which are "equal to the tariff equivalent plus the additional cost of rent-seeking activity" (Krueger p.299). This means that many approaches to the measurement of the costs of protection will often underestimate the true cost.

2.2.6 Tullock, Brock and Magee, Findlay and Wellisz

Tullock (1967), pre-dates Kreuger, with the argument that various interest groups in society actively seek to promote rents arising from tariffs while others will seek to prevent them if they see adverse affects. Each of these activities absorbs valuable resources in the attainment of their goal.

Brock and Magee (1978 and 1980) developed the use of game theory to describe the interaction between pro-tariff and anti-tariff forces. The model then predicts the behaviour of lobbies and governments in such a system.

Findlay and Wellisz (1980) incorporate Tullock's literature into their own work adding that tariff seeking does result in a decline in welfare, assuming labour is the only input involved in tariff-seeking (or opposing) activities. They expand on the work of Brock and Magee with the development of a general equilibrium model based on the aforementioned political process. The model determines the welfare losses associated with tariff seeking while incorporating the inefficiency and dead weight losses of standard analysis.

Ultimately, the efficient tariff generates enough income to satisfy the lobby groups while minimizing welfare cost to society.

2.2.7 Feenstra and Bhagwati

Feenstra and Bhagwati (1980) model the lobbying activities

of labour (labour being the intensively used factor in import competing industry) as a game between labour and the government. The actions of the government are determined jointly by its desire to maximize social welfare and its willingness to grant tariffs given existing political pressure.

They add to previous analyses by deriving an efficient tariff where labour lobbies for a tariff and government responds by granting some tariff protection but also by using tariff revenues to compensate labour directly. This acts like a bribe to labour so they will accept a lower tariff in order to save welfare costs of lobbying.

2.3 Synthesis of Canadian and U.S. studies

The key aim of any research on the subject of the political economy of tariffs is to clarify the influence of all variables that potentially contribute to determining the tariff structure. Perhaps the most striking truth to come out of these studies is the difficulty in achieving this goal. Results vary from one study to the other with only marginal reconciliation of the differences. However, some trends emerge.

Caves notes the growing role of interest group variables in the determination of tariffs in Canada. He finds these interests centred in industries competitively disadvantaged by diseconomies of scale or lack of concentration - government supports broad

interests or, the "small guy". Helleiner takes a closer look at the interest group model. He delves into the negotiation process and how the imbalance of power among nations affects the outcome. He states that LDCs lose out in negotiations because they have less to bargain with. This shows up in the positive correlation between low wage labour and tariffs in developed countries. Negotiators protect developed countries comparative disadvantage.

Saunders focuses on an investigation of Canada's weak productivity performance in manufacturing relative to the U.S. His results point to the willingness of governments to support competitively disadvantaged industries (with low relative productivity) and its unwillingness to protect foreign owned subsidiaries. Contrary to Caves, Saunders finds narrow-based interests and tariffs positively correlated.

Baldwin and Gorecki expand on these earlier works with the addition of several explanatory variables and a larger sample size. They incorporate the costs and benefits of acquiring tariff protection into their analysis. The results of this work support the view that governments support competitively disadvantaged industries and broad based interest groups.

Wylie's work reinforces these earlier studies stating that the determinants of modern day protection reflect executive decision making. He adds that this is in contrast with earlier determinants which were a reflection of national political and economic variables; more diversified interest groups were yet to come into their own.

Helleiner and Baldwin and Gorecki also described the determinants of tariff changes during the Kennedy Round. Helleiner measures change between 1961 and 1970, while Baldwin and Gorecki use 1966 and 1970. Helleiner's results point to the success of narrow interests such as the lobbying ability of concentrated industries in escaping tariff cuts. He also found natural resource based industries giving greater concessions in the Kennedy Round. Baldwin and Gorecki state that tariff cuts were largest in cost disadvantaged areas. At the same time, broad-based interests and altruistic considerations helped to maintain existing tariffs .

The U.S. studies reviewed in this thesis, like the Canadian studies, emphasize the role of interest groups in the determination of tariffs. Canadian studies suggest, however, that interest group success in tariff determination has developed from a national political base to a more fragmented system of economic and political needs.

At the same time these pressure groups may be more broadly based in Canada to satisfy wider objectives than those in the U.S. U.S. objectives tend to reflect more diffused "personal" interests (ie. more fragmented pressure groups). For Canada this broader interest was necessary in order to sustain and develop beside an economy as large as the U.S. (Young 1957).

In general these interests focus on industries less able to compete in international markets and with a predominance of low skilled labour. The force of the status quo in tariff

negotiations also presents itself as a strong determinant of both Canadian and U.S. tariff changes. The manufacturing sector as generally the most protected sector in both the Canadian and the U.S. economies. Finished products (labour intensive, high value added) are more protected than semi-finished products.

CHAPTER 3

TRADE LIBERALIZATION

The expected economic benefit from tariff reduction is that it will stimulate efficient production through rationalization of industry. The social drawback of trade liberalization is its impact on employment, at least in the short run. The private drawback of liberalization is its impact on profit margins. How do the drawbacks of liberalization interfere with the political process?

This chapter will address this question by introducing Canada's role in the Kennedy Round of the GATT negotiations and the emerging political process. The first section focuses on the "liberalization norm". It is divided into four subsections. The first subsection describes the GATT, the primary institution of trade liberalization. The second and third subsections follow through with detail on the Kennedy Round of the GATT and Canadian interests in these negotiations. This is followed by a summary of the outcome of the negotiations as described in the journalism of the day. This chapter closes with a look at the "new protectionism" as an offshoot of liberalization.

3.1 The Liberalization Norm

3.1.1 The GATT

The wave of tariff reductions which culminated in the Kennedy Round began in 1934 with an amendment to the Smoot-Hawley Tariff Act. Under this new amendment authority was provided for the reduction of tariffs. Via the Smoot-Hawley Act of 1930, a protectionist wall had been built around the U.S. economy largely in response to the 1929 stock market crash. Most other developed countries of the free world, including Canada, reciprocated U.S. action with similar acts of protectionism.

The institutional network for tariff reductions is the General Agreement on Tariffs and Trade (GATT); an international treaty backed by a secretariat organization affiliated with the United Nations. The primary objective of the GATT is that world trade should be free of restrictions including tariffs, quotas and other types of impediments to trade. Its goal is a "truly open international marketplace based on common, fair rules" (Curtis & Vastine 1971, p.4). The GATT treaty also recognizes the imperfection of actual world commerce and thus acts as an authority for enforcing order and stability by means of its ground rules. These rules offer provisions for negotiating potential and trade conflict (Curtis and Vastine 1971, p.4-5).

The preamble to the GATT treaty outlines goals of trade barrier reductions as a means of achieving economic growth and

increased incomes. At the same time, however, the GATT signatories recognized that full employment and domestic stabilization took precedence over liberalization (Finlayson and Zacher, 1981, p.570). It follows that the success of liberalization was a direct function of the economic well being of its signing members. In other words, the growing tradition of trade liberalization spurred on by the GATT often comes into conflict with national interests. The ensuing conundrum of double-sided objectives resulted the GATT negotiations.

3.1.2 The Kennedy Round of the GATT Negotiations

Under the GATT treaty seven tariff negotiating rounds have been conducted of which the Kennedy Round, conducted between 1962 and 1967, was the sixth. Issues such as trade problems in agricultural products, problems of developing countries and those which arise when market oriented economies attempt to trade with centrally planned economies would be brought into the limelight for the first time since the negotiating rounds began. The four key principles of the Kennedy Round are:

- 1) Universality: all products included, all countries welcome,
- 2) Global Reciprocity: multilateral trade and comparative advantage,
- 3) Provisions of developing nations: commercial policy must reflect development needs,

4) Most favoured nation clause.

(The Canadian Financial Post Sept '65)

Politically, the Kennedy Round attempted to encompass the economic forces of the 1960's. These forces included the "Atlanticists", who encouraged the idea of an Atlantic community which would be drawn together by reduced tariffs. The spectre of Soviet imperialism and the threat of Communism could be kept at bay by a strengthened Atlantic community which would be facilitated by successful Kennedy Round negotiations. The negotiations also offered relief from the growing fear of breach between those European countries within the common market and those outside. Relations between developed and developing economies would also be enhanced by less colonial, more equitable relations.

The Kennedy Round officially opened in 1962 with the Trade Expansion Act which allowed the President of the U.S. unprecedented power to abolish tariffs on all categories of imports. Thus, the U.S. agenda of liberalization was put into action with legislative support.

As a means of fulfilling the goals of the GATT, member nations in the Kennedy Round took a new approach to negotiations. Rather than maintain the previous negotiating strategy of reciprocity on an item by item basis the Kennedy Round would take on a new linear negotiating strategy. The U.S. strategy was for 50% across-the-board reductions in tariffs. The aim was that via

this process negotiations would be move along more quickly and be more concise and effective. This is in contrast with the tedious, item-by-item techniques of earlier stages of the GATT. Beyond being time consuming, that procedure had placed smaller countries at a special disadvantage in negotiations as they generally had less to offer and thus less leverage in bargaining.

Despite early public support, however, the comprehensive nature of the Kennedy Round, combined with recurring conflicts of interests, made a simple and rapid solution to the talks nearly impossible. The U.S. congress had granted the president five years within which he had the power to negotiate U.S. tariffs. The Kennedy Round ended almost to the minute at the end of this five year period with the results, at least on the surface, only approaching their original objectives. The original goal of the Kennedy Round for 50% across the board, was reduced, especially by exceptions in agriculture motivated largely by the EEC, to approximately 35%, on average.

3.1.3 Canada and the Kennedy Round

In 1964, 69% of Canada's imports and 54% of its exports were from the U.S. (1/5 of U.S. total trade).² The structure of trade between Canada and the U.S. is characterized by a U.S. export surplus while Canadian exports to the U.S. constitute largely

² This has increased, largely due to the Autopact Agreement between Canada and the U.S.

primary and semi-processed goods (Preeg p.187).

Detailed, pre-Kennedy Round Canadian exports to the U.S. included iron ore, unfinished lumber, wood pulp, petroleum, natural gas, newsprint and basic papers, primary aluminum and nickel and copper. Seventy-five percent of total Canadian imports from the U.S. included chemicals, textiles, iron and steel, machinery, transport equipment, precision instruments and miscellaneous manufacturing. This structure emphasizes the imbalance in duty payments from high Canadian tariffs (mostly on manufactured goods) to low U.S. payments (mainly on primary goods). The average duty paid on U.S. exports to Canada was 17-25% while the average duty on Canadian exports to U.S. was only 3.4% (Preeg p.187).

This structure of trade with the U.S. inspired the Canadian stance in the negotiations and their unwillingness to accept linear reductions. Negotiators feared severe losses by Canada if it was forced to comply to the general reduction rule. At the same time they felt that countries which export a wide range of manufactured goods would benefit considerably from the negotiations and this would be unfair.

Canada fought for, and was subsequently given, exemption from the 50% linear reduction strategy of the Kennedy Round with the explanation that:

"its (Canada's) heavy dependence on agricultural exports required its exclusion from the linear negotiations. It added (without any reasoned public explanation) that its proximity to, and extensive trade relations with the United States precluded its cutting tariffs as deeply as

the United States cut U.S. tariffs" (Dam, 1970, p.72 as cited in Blais p.14).

The proximity to the U.S. argument must have been convincing as the small share of agricultural exports in Canadian farm based exports (near 10%) almost invalidates the former argument.

Ultimately, Canada went to the negotiations with the intent of finding a balance of advantages based on trade concessions of equivalent value, not excluding appropriate, equal linear reductions. The costs and benefits of trade would be equal while simultaneously improving the relative position of the Canadian economy through an overall expansion in trade.³

As a smaller trading partner among the GATT countries, Canada took on a less active role than most in the trade talks. One major position taken by Canada was that tariff and nontariff barriers on agricultural products should be reduced. Canada's role as a GATT signatory enabled it to take a free ride on many of the concessions given throughout the talks. This was allowed via the most favoured nation principle of the GATT which meant that a tariff reduction made to one country must apply to all. Conversely, Canada was expected to give concessions which were considered equivalent to the value of free rides which they received.⁴ Was Canada able to use its role in trade negotiations to develop its own unique pattern of protection?

³ "Wake up Canada it's time to trade"; editorial, Canadian Business 37:23 Jan 1964.

⁴ Slater, D.W., "Canada and the Kennedy Round", Canadian Banker, 1967.

Evidence of greater benefits to Canada in these talks has been attributed to utilization of their special status. By value, 29% of non agricultural dutiable imports from Canada received cuts of over 50% as against 1.5% for Western Europe and Japan (Laverenge p.123). At the same time general concessions made between Canada and the U.S. were almost equal. (Preeg p. 239)

3.1.4 "At the Talks"

The zeal of the U.S. initiative in the Kennedy Round was only marred by the lack of enthusiasm of other participants in the process. This was a function of the political conflicts that entered the free trade arena. Reactions from the European Economic Community (EEC) were lukewarm, Britain was still negotiating to enter EEC -the Kennedy Round was not a priority to them and Canada was not happy with the way things are heading.

In October of 1962, Canada entered the Kennedy Round on the defensive partially due to unsuccessful attempts at a pre-round meeting with the U.S. This attitude developed despite early concessions made by the U.S. which were important to Canada's trade position. Concessions included some agricultural products (bread, hay, grapefruit juice, pecan nuts, and a variety of field seeds, edible offal of beef and veal), wood and paper products and base metals. On the defensive, Canada fought for special consideration in the negotiations.

At the same time Britain did not get into EEC thus stirring

up more conflict. This was crucial as the U.S. and the EEC held 80% of world trade in the mid sixties - good relations between the two were important for the success of the talks.

In early 1963, the U.S. was still fighting vehemently for massive reductions in world trade barriers; however the EEC was refusing to budge on the common external tariff which tied it together economically. Canada's enthusiasm was beginning to wane with the defeat of Diefenbaker and an ensuing election call. It seemed the U.S. was growing lonely in its push for freer trade.

The talks continued, however, and while Canada was committed to the liberalization of trade, "across-the-board" was not a suitable possibility for concessions. The desire to access cereal, meat and dairy product markets, while protecting a vulnerable manufacturing sector, inspired this position.

The fear that major concessions in manufacturing would be detrimental to the Canadian economy was a big issue for Canadian negotiators. The thinking was that major reductions would open doors to tough competition from south of the border. The "made in Canada" initiative could not be threatened. (At the time of the Kennedy Round negotiations manufactured goods made up a small percentage, in comparison with other countries, of Canadian exports.)

Canadian clothing manufacturers were a particularly favoured industry for protection during the Kennedy Round. In fact, Canada wanted liberalization in trade of textiles and clothing among other GATT countries but felt it was too open in the past to make

major concessions itself. Negotiators felt that Canada was more like a special category country like Australia and New Zealand. By the summer of 1964, Canada was granted exemption from the 50% across-the-board linear strategy.

In October of 1964, each country submitted a list of items which they intended to exclude from bargaining. Subsequently, the negotiations became overwhelmed with discussions of exceptional items. Canada was concerned about the inclusion of lead, zinc, ground fish fillets and some glass products on the U.S. exceptions list. The European exceptions of ferro-alloys, aluminium and some paper products were also disappointing to Canadians. The Kennedy Round seemed to be growing into a potential flop for Canada as many of the "exceptions" were major Canadian raw materials exports.

Rather than submit an exceptions list, Canada submitted a list of items which it was willing to negotiate with. To a large extent this list included agricultural products with which it was eager to deal. Unfortunately, talks in this area were very slow, the end result being a consensus to approach agricultural products from the sector level.

At the same time, the EEC was holding on to protectionist measures in agriculture. Canada was concerned as farm trade liberalization was a major feature of its approach in the talks. Also, if the EEC backed out of the talks because the U.S. would not "lighten up" about agriculture issues, Canadian trade potential in industrial products would be threatened.

The grain trade, a vital issue to Canada, was also confronted with problems. Basically, negotiators wanted to establish a base price for grain and a new method of import levies for financing development aid. The EEC however, was in favour of low prices (while maintaining high internal prices) - Canada had its hopes set on a higher base price than the EEC price.

By June 1965, even U.S. interest was waning (largely due to reduced enthusiasm on the part of the President). Protectionist influences too, were being felt in Washington while negotiators were growing tired of conflicts of interest.

Near the end of the negotiations Canada-U.S. talks were difficult. The problem was mainly due to interpretation of reciprocity. Canada did, however, agree to a 9% incidence binding on machinery, an anti-dumping agreement - important to U.S. exporters to Canada, and a balance of concessions in agricultural exports. Canadian tariff cuts were made on \$1.4 billion of imports from the U.S. while U.S. concessions were given on \$1.25 billion of Canadian imports (Preeg p.188).

In the final analysis, Canada, admittedly, did not fare too badly in the talks. Sticking to its guns, and negotiating only in areas in which it enjoyed a comparative advantage, Canada made few costly concessions. Areas of advantage included lumber, wood products, pulp and paper, nickel, aluminium, lead, zinc and a variety of chemicals. (Financial Post Nov, 66).

The major headlines at the close of the talks reported:

"Ottawa prepares to support industry with direct assistance

plan and loans"

"Farmers won't be any richer"

"Tariff changes wrinkle brows in pulp and paper industry"

"Efficient steelmakers poised for new export opportunities"

"Rich markets open for chemical firms"

3.1.5 A Summary of the Kennedy Round

Canada's involvement in the Kennedy Round of the GATT negotiations was part of a multilateral commitment to freer trade. At the same time it was an opportunity for special interests to gather and do battle with trading partners (the U.S. being the most significant). During these negotiations Canada fought for, and received, exemption from the linear, across-the-board concession rule agreed upon by other leading signatories of the GATT. This meant that although their concessions must reflect, in value, those concessions which they were given they need not necessarily be homogeneous across all industries or all commodities. In fact none of the signatories gave equal linear concessions on all commodities (as the exception clause allowed) but this was even more so for Canada given its granted status.

Canadian negotiators fought for protection in manufacturing industries, particularly in clothing and footwear, and multilateral concessions in areas where a comparative advantage was enjoyed. This included some agriculture products, wood and paper products, base metals, and some chemicals.

In the end, the vulnerable textiles, clothing and footwear industries maintained some protection, areas that didn't would be poised for assistance from Ottawa. The agriculture sector was not entirely successful in its bid for a more open market and a base price on grain. Negotiators were successful in obtaining access to cereals, feed, field seeds and some meats however prices in grain were kept low much to the disappointment of Prairie farmers.

The pulp and paper industry, an area of advantage for Canada, was granted partial concessions except for some paper products which were presented as part of the EEC's exceptions list. Steelmakers and chemical industries were successful in their bid for freer trade although some chemicals feared the future impact. Areas that did not receive major concessions that Canada wanted, aside from agriculture, were aluminum, nickel, lead, some glass products and salmon - generally semi-processed goods which Canada was efficient in producing.

3.2 New protectionism - A Note on Nontariff Barriers (NTB's)

Nontariff barriers have grown into an important feature of protection largely out of the growth of tariff liberalization. NTBs have grown more rapidly since the Kennedy Round and as such were only a secondary issue in these negotiations. This section outlines these post-Kennedy Round trade restrictions as they impede the "liberalization norm".

Tariffs have survived as a means of protection due to their

overall scope and still remain a substantial form of aid to ailing industry. Other forms of protection, however, have grown out of the tariff reduction era in order to replace the subsequent losses of protection.

Special measures of protection which have grown in recent years include retaliatory measures and quantitative restraint programs. Retaliatory measures protect domestic production against unfair competition. This includes anti-dumping duties and offset duties to neutralize foreign subsidies. During the Kennedy Round a new anti-dumping code was adopted to strengthen the requirements of Article 6.

Quantitative restraints such as quotas have indeed increased over the period 1965-1975. GATT Article 10 calls for the abolition of quotas however this norm does not apply to agricultural products.

Beyond protection as a means of supporting domestic industry internal aid has also played a role. Internal aid includes direct financial aid, tax advantages, public contracts and technical aid.

Direct financial aid such as operating grants which grew substantially between 1960 and mid-1970. Operating grants were targeted primarily at agriculture and some manufacturing industries. (Approximately 3% of GDP in Canada).

Tax advantages cost 1-2% of Canadian GDP and have been relatively stable at this mark for the 1960-1975 period. This type of aid has been directed primarily toward investment, research and development, and agriculture. Public contracts and

technical aid make up about .5% of GDP and, as such play a marginal role in aid to industry.

In summary, the 20 years after the mid-1960's the average tariff dropped from 9% to 4%. In the meantime quantitative restrictions increased in number and direct financial aid grew from 1.8% to 3.1% of GDP while tax breaks and public contracts have maintained stability. The "new protectionist" school of thought (Balassa, Nelson, World Bank) proposes that tariffs are replaced by nontariff barriers thereby limiting the impact of trade liberalization.

Andre Blais agrees to a certain extent, maintaining that, although NTB's are growing, they still do not outstrip the reductions in protection brought on by decreased tariff levels. The trend has, on the contrary, been increased trade. Between 1965 and 1970 and between 1970 and 1975 the total GDP share of imports and exports increased on an average of 5.5%.

The structure of nontariff protection resembles tariff protection with the exception of agriculture which has historically low tariffs but currently high NTB's. Beneficiaries of government programs include agriculture, textiles and clothing as the most favoured industries. Mining, shipbuilding, aeronautics, the steel industry and the computer industry are also given substantial assistance. In general, the tertiary sector of the economy is neglected.

Declining industries are also major beneficiaries of government aid. The state appears to favour domestic capital

somewhat, particularly in areas related to national security (Blais 1985, p.64). Regional development was also favoured during the 1960's.

In summary it must be stated that nontariff barriers can no longer be considered,

insignificant in their impact, or directed at the attainment of some special national goal which should be accepted by the international community. They are now used precisely for the same purposes as were the tariffs and other trade restrictive devices for which GATT was established to reduce. (Robert Baldwin 1975 as cited in Biggs p.73)

CHAPTER 4

DATA AND REGRESSION PLAN

This chapter describes the data used in this thesis and the plan for analyzing the results of liberalization. It is divided into 3 sections. The first section introduces the variable used to describe the breadth of tariff changes resulting from the Kennedy Round trade negotiations. The procedure used to construct this variable is described in detail.

The following section introduces the regression plan, it is divided into 3 subsections. The first two sections introduce the model for the determination of the 1966 Canadian tariff structure and the model for Kennedy Round changes in it. The final subsection outlines the explanatory variables. These variables are distinguished by three separate categories.

The final section of this chapter gives a descriptive analysis of data used in this study. The industries are divided into three groups based on their anticipated approach to Kennedy Round negotiations. The mean values of each variable in each grouping are compared.

4.1 Introduction to the Database

The Kennedy Round of the GATT negotiations, (1962-1967), was perhaps the most comprehensive move toward free trade in the history of the GATT. A goal of 50% across-the-board concessions was to be met during this round of talks. After five years of negotiations, which ended no sooner than the eleventh hour, overall reductions approximated 35% with a long list of exceptions. The reductions were expected to be fully in force by 1972.⁵

Recall that the primary objectives of this thesis are to determine the 1966, pre-Kennedy Round, structure of protection and the Kennedy Round concessions in it. An examination of these objectives will help establish whether interests in the negotiations reinforced, left untouched or undermined the existing structure of protection. This section describes the construction of a new variable which defines tariff changes.

In order to test the breadth, or coverage, of tariff changes a variable is constructed which measures the proportion of an industry significantly affected by Kennedy Round tariff concessions. That is, once it has been established that a commodity grouping within an industry has given concessions, the proportion of these commodities that make up all the commodities in an industry is calculated. This establishes the extent to

⁵ H.G. Johnson, "The Kennedy Round", The Journal of World Trade Law, 1967., p.477-478.

which an industry was significantly affected by the Kennedy Round negotiations. The industries are identified by the Statistics Canada 4-digit "Standard Industrial Classification" (SIC).

This measure of the breadth of tariff changes is compared with that used by other studies, which is a measure of the size of change in tariffs. The size of tariff changes is calculated as the difference between the average tariff between two years, the average tariff being calculated as the proportion of duties collected to value dutiable.

As noted earlier, tariff changes are often measured at the industry level alone using summary statistics on dutiable values and duties collected. The average duty is calculated as a ratio of duty collected over dutiable for each industry. The problem with this measure is that it may encompass changes in the average tariff level that are attributable to forces other than changes in tariffs. Referring to table B1 in appendix B it is noted that the average nominal tariff increased from 1966 to 1978, thus taking credibility away from this measure. Perhaps other forces such as changes in market shares among high tariff and low tariff commodities within an industry are being picked up in the measurement. In this work, average duty, as the ratio of duty collected over dutiable, is also calculated but at the less aggregated commodity level where it is expected to be more accurate primarily because it does not encompass this aforementioned problem.

The Department of Regional Industrial Expansion (DRIE)

published a complete listing of concessions given under the Most Favoured Nation tariff in the Kennedy Round. The concessions are described by commodities and classified by a tariff item number. Tariff items with a 5 or greater percentage point reduction in ad valorem tariffs are identified. Non ad valorem tariffs are simply identified as having been subject to change. Figure 4.1 gives a distribution of tariff items among changes ranging from 2.5% to 17.5% with increments of 2.5 between the margins.

Tariff items subject to change (5% or greater for ad valorem tariffs) are then matched to the Canadian Industrial Trade Classification (CITC). This is done using a Statistics Canada concordance of tariff items and commodity codes. This transition is complicated by the lack of a simple one-to-one transition from tariff item to CITC. In the case where more than one tariff item is associated with only one CITC that CITC item is identified as being affected by the Kennedy Round concessions. If one tariff item is related to more than one CITC each associated CITC is referenced as subject to change.

Trade data on the CITC commodities identified as subject to tariff cuts was then collected in order to calculate the ratio of dutiable to duty collected in 1966 and 1979. Tariff and other industry data for 1966 are used to describe the tariff structure before the implementation of Kennedy Round concessions. Although the talks were nearing their end by 1966 changes were not put into place before this year. Data for 1979 describes both the tariff and the structural nature of industry after the full

implementation of Kennedy Round concessions. The change between 1966 and 1979 is the result of Kennedy Round concessions. The end mark may include more than just Kennedy round changes but the changes, though not insignificant, were small in comparison.

This data was then used to assess whether the entire commodity classification saw a greater than 4% change as a result of the reductions in the Kennedy Round.⁶ Four percent was chosen as a natural break between insignificant and significant concessions. Figure 4.2 shows the frequency of commodity items at different levels of average tariff change among commodities.

All commodities with a 4% or greater decrease in average tariff between 1966 and 1979 are then classified to one industry using 1970 4-digit Standard Industrial Classification, (SIC) and then aggregated into SIC. The aggregated import data is then used to measure the proportion of total industry imports that received tariff reductions. That is, trade data, aggregated by SIC, for CITC item imports associated with Kennedy Round concession are measured against total industry imports for a measure of the extend to which an industry's imports are affected by change. This ratio is used as a dependent variable in the determination of the structure of Kennedy round tariff change.

Construction of the variable is summarized step by step:

⁶ Trade data for each CITC item (numbering approximately 600) includes data on total imports, dutiable imports, and duty collected for both the U.S. and the world for 1966 and 1979.

- 1) tariff items are identified as having given a 5% or greater concession in the Kennedy Round
- 2) Using DRIE concordance each tariff item is identified by CITC
- 3) Collect CITC trade data to calculate duty collected / dutiable values
- 4) compare duty collected / dutiable values between 1966 and 1979 (ie. Kennedy Round concessions) for each commodity
- 5) if this ratio is 4% or greater the CITC is considered significantly affected by the concessions - this is now a binary proposition, if duty collected / dutiable is less than 4% the ratio is given the status of insignificant, significant if the ratio is 4% or greater
- 6) Statistics Canada concordance is used to group CITC commodities by SIC industry
- 7) grouped by industry all significant CITC commodity import data is aggregated to determine what proportion they make up of the total industry imports

The end result is a continuous variable over all 102 SIC industries which describes the extent to which an industry was significantly affected by changes in the Kennedy Round. This variable is used as the dependent variable in a model for the determination of tariff changes. The following section outlines the model.

Figure 4.1: Frequency of Tariff Schedule Cuts.

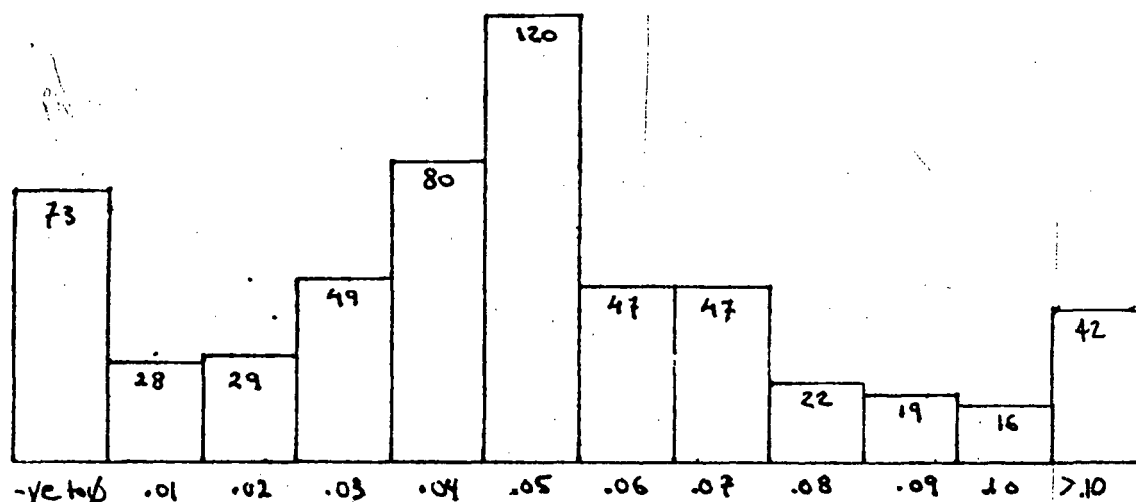
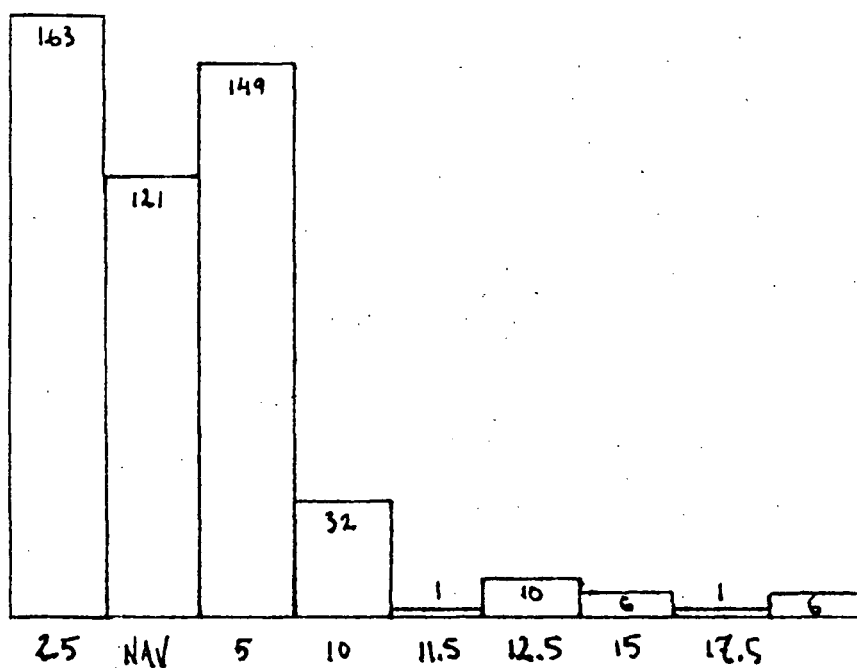


Figure 4.2: Frequency of Changes in Average Tariff Between 1966 and 1979 for CITC Commodity Groupings.



*NAV Non ad valorem

4.2 The Regression Plan

This model for explaining the structure of tariffs and tariff changes will consolidate the works of Caves (1976), Helleiner (1977), Saunders (1980) and Baldwin and Gorecki (1985). It will focus on the possible changes in the structural determinants of tariffs. The data base builds on work done by Baldwin and Gorecki. This section will outline the model used to analyze both the determinants of the tariff structure and the Kennedy Round changes in it.

4.2.1 The tariff structure

What determined the pre-Kennedy Round (1966) structure of protection? The pre-Kennedy Round tariff structure was largely a reflection of the national policy tariffs designed to protect manufacturing and exploit comparative advantage, as discussed in section 2.3. After the national policy tariffs and before the Kennedy Round the only comprehensive move toward tariff change came with the opening round of the GATT in 1947.

The pre-Kennedy Round nominal rates of protection (NRP) and effective rates of protection (ERP) are described using 1966 measures. Although these negotiations began in 1963 and ended in 1966 none of the negotiated reductions were made until after the talks were completed so that 1966 tariff levels are a valid measure of pre-Kennedy Round reductions.

This thesis uses a measure of nominal tariffs especially constructed for this work. To construct this measure data on the total imports per SIC industry was required. This data was not available at the aggregate SIC level so it was collected for the less aggregated, commodity level. This trade data was then matched to the SIC and totalled for industry aggregates. The ratio of duty collected over dutiable imports (a common measure of average tariffs) is used as our measure of nominal protection. This variable resembles that used by Baldwin and Gorecki but does not replicate exactly. The variations probably lie with differences in concordances. This measure of nominal protection is identified as BPNRP and will be compared with that available from Statistics Canada and used by Baldwin and Gorecki, BGNRP.

Tariff protection varies among industries in terms of nominal rates (legislated rates) and effective rates. ERP implies total protection accorded to an industry, that is, including tariffs on purchased inputs and final output. For this reason it is considered a superior measure to NRP. The problem with ERP is that it may be measured badly since the law-of-one-price must be used to infer the net protection on inputs. For the sample of industries used in this paper the coefficient of correlation between ERP for 1970 and BPNRP for 1966 is .69 for BGNRP, 1966, it is .78.

4.2.2 Tariff Changes

What determined the Kennedy Round concessions? This question is particularly interesting for the Kennedy Round as it was in this round of negotiations that Canada was allowed special negotiating status. With this status, it must be asked whether the variables which explained the pre-Kennedy Round structure of protection in Canada were replaced by a new set of underlying principles for tariff determination. The alternative is that the principles which motivated decision makers in the early days of Canadian development were those that determined the Kennedy Round tariff changes.

To describe the concessions made by Canada during the Kennedy Round three measures will be used. Firstly changes in nominal protection will be explained as the difference between 1966 and 1978 nominal tariffs. Secondly changes in effective protection will be explained as the difference between 1966 and 1978 effective protection levels. These years should encompass the Kennedy Round concessions without overlapping with Tokyo Round concessions (which were not being implemented until 1982). The third measure of concessions is the ratio of total imports (per industry) influenced by Kennedy Round reductions (as determined by observing actual tariff items) to the total number of imports for that industry. This measure was described in section 4.1. The greater the coverage of the Kennedy Round cuts on an industry, the greater will be the ratio of Kennedy Round imports to total

imports.

This thesis will also incorporate nontariff barriers into the model for tariff determination. As noted in section 3.4, NTBs may not have been as large a factor in the Kennedy Round negotiations as they were in the Tokyo Round however they were present and deserve note. As an independent variable in the model NTB's are measured using a dummy variable equal to 1 if an industry has measurable NTBs accorded to it, 0 if otherwise.

4.2.3 The Explanatory Variables

This section will outline the variables used to explain the structure of tariffs and tariff changes in Canada. The variables are categorized into groups representing different influences on the tariff structure.

4.2.3.1 Interest Group Variables

Interest groups can be differentiated by their capacity to command electoral support (which no doubt varies over time) and their capacity to furnish sophisticated technical information. Interest groups in Canada play a role not only in initiating trade issues but also in providing an important information flow for politicians. They also link the government with the electorate, however, "some interests intervene in the policy process with far greater resources than others" (Protheroe p.35).

The following variables represent an industry's ability to lobby for, or against, tariff protection for both broad and narrow interests. This is done by considering the costs, as well as the benefits, of organization. Where available, 1966 data is used, otherwise 1970 data is used to approximate 1966.

The four firm seller concentration ratio (CR4) for 1970 is used as a proxy for 1966 concentration levels. This variable is a proxy for the costs of seeking protection. More concentrated industries may find it easier to organize themselves into a cohesive lobby force as they are a small group with common interests. They are more able to overcome the "free rider" problem and thus more likely to lobby for protection (Caves, Helleiner, Saunders, B&G, & Lavergne). The potential for "free riders" discourages others from investing both time and money into the pursuit of rents. If this is so CR4 should have a positive sign on the coefficient. An alternative hypothesis is that more dispersed enterprises hold more weight when protection votes are tallied (Caves 1976). In this case tariffs would be negatively correlated with CR4. A variable for regional location may actually capture this effect more directly.

Canadian census value added over the number of production workers for 1966, VPW, represents value added in an industry. Low value added per worker in an industry is often associated with labour intensity. If we assume, as did Caves (1976), that labour has votes, then it is expected that labour intensive industries will win the highest rates of protection. At the same time, a

positive strategy of tariff protection in a country has often been to protect high value added industries from competition. This helps to sustain the "thick" productive process. In this case the hypothesized sign will be negative.

LP70, the average wage in each industry in 1970 is also a proxy for labour intensity. Lower wages are associated with labour intensive industries and these industries are expected to lobby for protection. The sign prediction for both VPW and LP70 is negative.

Broad based interests are approximated using a dummy variable, REG, which has a value of 1 if an industry is regional and 0 if otherwise. It is compared with Caves' and Saunders' transportation variable (TRN). TRN measures an industry's transport costs. If transport costs are high they act as a natural barrier to trade. These industries will not need to invest energy into achieving other protection measures thus a negative relationship is predicted between tariffs and REG.

A ratio of research and development personnel to all wage and salary earners for 1970, RD70, is also used as an interest group variable. A positive relationship between RD70 and tariffs is predicted on the grounds that it is in the interests of the government to protect fast growing, high technology industries. The possibility of a negative relationship implies that industries investing in a lot of research and development will develop a comparative advantage. This is noted with the competitive disadvantage variables.

Labour's share of total variable costs in 1970, LSHARE, is used to represent the importance of labour in production and its subsequent ability to lobby for protection. A greater share of labour in the production process is expected to lead to greater industry protection.

EMPL, is the total number of employees in each industry for 1966. It represents the size of an industry in terms of the number of people it employs. The more people an industry employs the more influence they may have at the polls. The predicted sign in this case is positive.

A dummy variable for consumer (0) versus nonconsumer goods (1) measure the extent to which an industry's output is sold to other industries or final consumers. If there is a collective preference among the electorate for manufactured consumer goods governments may feel encouraged to support these industries, thus a negative relationship between PRODG00D and tariffs is expected.

The extent of foreign ownership in an industry is measured by F070. On the one hand, governments do not protect foreign owned firms, on the other, foreign controlled subsidiaries may lobby for higher tariffs in order to protect their subsidiary status. As such, the expected relationship between foreign ownership and protection could be either negative or positive. This variable was very successful in Saunder's study.

Nominal tariffs for 1966, T66, are measured against the change in tariffs. This is to evaluate how much the pre-Kennedy Round pattern of protection is correlated with the changes in

protection. High initial rates of duty are expected to be associated with smaller cuts. Negotiators want to reduce the impact of change on an industry and maintain the status quo. This variable is expected to be significantly positive.⁷ An alternative hypothesis is that when percentage cuts are given the cut is greater on the larger initial tariff - in this case the sign on T66 will be positive.

One interesting variable used by both Baldwin and Gorecki, and Lavergne, is a union variable used to represent labour lobbying strength. This unionization variable is not available for this study. It was insignificant in B&G's Canadian study while Lavergne's U.S. study found this variable significant at a 90% level.

4.2.3.2 Competitive Disadvantage Variables

These variables represent the extent to which firms are unable to compete with foreign competition and thus require protection. For example, if an industry is characterized by a high ratio of imports to total sales, and high tariffs, it is

⁷ Young (1957) suggests that when tariff revisions are on the table there seems to be an overriding tendency for the law of inertia to take over. This means that industries that have been given a substantial degree of protection are likely to maintain it on the grounds that elimination of the tariff may cause undue pain to the industry. (p.125)

Wilgress (1963) dated the 1960 Canadian tariff structure back to 1907. This structure was engineered by the then Minister of Finance, Mr. W.S. Fielding in response to infant industry pressure and a twist of liberalization sentiment.

expected to suffer greatly from a reduction in tariffs and the threat of further import competition.

As noted in the introduction this group of variables reflects government's predisposition to protect these areas. This predisposition often goes beyond interest group pressure to reflect some seasoned principles. These principles are likely to reflect different levels of education and information and as such fall under a much broader scope of interests.

EXP70, measures the ratio of exports to domestic output for 1970. This variable is used as a measure of an industry's competitiveness on the world market. EXP70 is expected to be negatively related to protection as exporting firms do not require protection. This variable was used by Saunders, Baldwin and Gorecki, and Lavergne with marginal success.

EXP70 could also overlap as an interest group variable as historically exporters tend to represent liberalization interests with strong effective lobbies.

Imports over domestic output for 1970 is a proxy for an industry's competitiveness in world markets. Industries with a relatively high import ratio are presumably less competitive and thus in greater need of protection. The expected sign is positive as government will support these vulnerable industries.

As an interest group importers are expected to lobby for tariffs.

Average wage per industry for 1970, LP70, is a proxy for competitive disadvantage in an industry. Lower average wage is associated with greater labour intensity which is in turn

associated with cost disadvantaged industry. As such, labour intensive industries are expected to receive protection. The sign on the coefficient is predicted negative.

The ratio of the value of outputs over the value of inputs, TFPT70, is used as a proxy for industry profitability. It is expected to be negatively related to tariffs as profitable industries are not in need of protection.

RELSIZ, a ratio of average Canadian plant size in an industry to U.S. minimum efficient scale is used as a measure of the utilization of economies of scale in Canada as compared with the U.S. Both Helleiner and Saunders use a similar variable but find it insignificant, this variable was, however, successful in Caves interest group model. Baldwin and Gorecki use a similar variable but for a different sample of industries. Some of the RELSIZ measures used in this study are from their work, others are calculated for this study. Caution is required with this variable because of problems in matching U.S. and Canadian industry data.

As an approximation for the elasticity of demand, the ratio of advertising to sales for 1977, ADV77, is used. This is a structural variable not expected to change rapidly over time and, as such, is used to describe advertising over sales for 1966. The more inelastic the demand curve, the greater will be the potential quasi-rents from tariff protection. Advertising can act as a natural protector from import competition relieving the need for other forms of protection. The sign on the coefficient for ADV77 is predicted negative. Baldwin and Gorecki suggest an alternative

hypothesis which states that a more elastic demand curve is associated with incentive to lobby for tariffs. Thus there is a positive relationship predicted between tariffs and advertising.

An industry's utilization of product economies of scale is also a proxy for comparative disadvantage. RELDIV, a measure of plant diversity relative to the number of industry products is a reverse measure of scale economies. Efficient firms, which utilize economies of scale, are less in need of protection. Caves and Baldwin and Gorecki use this variable; however, both find it insignificant. The relationship between diversity and tariff protection is expected to be positive.

The ratio of research and development to total sales is also used as a reverse proxy for disadvantage in industry. Where the proportion of research and development is high, industries are expected to be successful and not in need of protection. The predicted sign on the coefficient for RD70 is negative.

VPW, value-added-per-worker, is also used in this model as it defines quantities of low wage labour. The prediction is that industries employing large amounts of low-skill, low-wage labour have a stronger claim to protection. VASH, value added in an industry divided by the value of its shipments, 1966. This measures the depth of the industrial process and is positively related to tariff rates.

4.2.3.3 Displacement Cost Variables

These variables model where and when suffering will occur if tariffs are reduced. That is, governments may avoid reducing tariffs in these industries because the cost of adjustment for factors of production is high. This is distinguished from the comparative disadvantage model for protection about which industries are most likely to suffer from tariff reductions.

Industries with a slow output growth rate are not well able to absorb the shock of losing protection. The variable GROWTH, measures growth of employment between 1970 and 1979. This variable measures growth after the Kennedy Round. A more ideal measure would be growth before the negotiations, however, this data is not available. Perhaps consideration for anticipated growth by negotiators may influence tariff levels and tariff changes and thus legitimize the variable. High growth industries are better able to absorb increases in competition and thus reductions in tariffs. In short, productivity growth in Canadian industries between 1970 and 1979 is also an interesting measure of our negotiators shrewdness in picking "winners".

Tariff cuts would be more serious if they affected industries in depressed areas such as the Prairies and the Maritimes. Limited job opportunities in these regions make plant closures much more painful. The sign on the REG coefficient is predicted to be positive in this case. Low wage labour may have difficulty adjusting to job loss as they have less transferable skills. If

this is so tariffs should be positively correlated with LP70.

A summary of predicted signs for these models of the tariff structure and tariff change are displayed in table 4.1. All the signs predicted for tariff structure are expected to be reversed for tariff changes. The scope of tariff changes is expected to be inversely related to the tariff levels. If the change in tariffs in an industry is high it is expected to be characterized by comparative advantage, with strong lobbies for freer trade. Conversely, if the change is small characteristics associated with comparative disadvantage should be observed.

4.3 Descriptive Analysis of the Data

This section takes a closer look at some of the performance variables in order to observe their relationship with tariffs and tariff changes. The performance variables are grouped into 3 categories based on the nominal tariff rate and the Kennedy Round ratio described in section 4.1. A division is made between industries considered significantly impacted by the concessions and those not significantly affected by the cuts. Industries with a ratio of 38% or greater Kennedy round imports to total imports are grouped with the former. This group makes up 34% of the total sample of industries. They are the "conceded" industries. This data is displayed in table B2 of the appendix.

The remaining portion of the sample - industries not significantly affected by the concessions - is divided again into

low tariff and high tariff industries. A ten percent average tariff was picked as a feasible division point. Low tariff, low concession industries are classified as "not on the table" industries. High tariff, low concession industries are the "protected" group. Variables of each of these groups are compared with each other and with sample mean.

Statistics for the "not on the table" group should reveal characteristics associated with highly competitive, successful industries. They are not on the table because they have never needed protection. Change in total factor productivity between 1970 and 1979 is by far the lowest for this group implying that this group has not gone through "rationalization" over the period.

The group conceding the most protection shows the greatest change in productivity between the two years while the protected group falls in the middle just above the mean value. Perhaps pressure to rationalize falls on "protected" industries despite continued protection. Concentration is about equal for each group, possibly discounting the hypothesis that big industry pressure groups lobby for, and receive protection. Conversely, dispersed industry has not distinguished itself as a favourite for protection.

"Not on the table" industries share the largest proportion of import competition - a good motivation to maintain competitiveness. They also export a greater share of their total production, have the highest wages on average, and by far the largest firms. The lowest average wage and the lowest average

Table 4.1 Summary of hypothesized signs

Variable	NMT66 (EFT66)	TARIFF CONCESSIONS
Interest Group:		
CR4	+(-)	-(+)
VPW	-(+)	+(-)
LP70	-	+
REG	-	+
RD70	+	-
LSHARE	+	-
PRODGOOD	-	+
FO	+(-)	-(+)
EMPL	+	-
T66		-(+)
Comparative Disadvantage:		
EXP70	-	+
IMP70	-	+
LP70*	-	+
TFPT70	+	-
RELSIZE	-	+
ADV	-	+
RELDIV	-	+
VPW*	-	+
RD70*	-	+
VASH	-	+
Displacement costs:		
GROWTH	-	+
REG*	+	-
NTBD		+

* Also appear in interest group model

value added falls on the "protected" industries. Lower wage labour and low value added per employee are characteristics often associated with industries that are less productive industries in need of protection.

The "protected" industries employed, on average, the lowest number of workers which does not support the "power of numbers" theory of protection. The "not on the table" industries shipped the greatest value of goods for both 1966 and 1979 however the value shipments for the "conceded" group relative to this group grows over the period. The "conceded" group also showed the highest grow rate. This could imply that the Kennedy Round concessions were successful in forcing otherwise less successful industries to "rationalize" in order to become more competitive.

CHAPTER 5

TESTING THE POLITICAL ECONOMY MODEL

This chapter analyzes the results of the model for the political economy of tariff determination outlined in Chapter 4. The first section gives the results for tariff levels. The following section analyzes the results for the changes in tariffs.

The estimates for this study are derived using ordinary least squares (OLS). OLS estimators measure the influence of a given independent variable on the dependent variable. There exists, however, the possibility of a reciprocal effect between the dependent and an independent variable. This will have the effect of favourably biasing that independent variable. No attempt is made to correct for this effect in the regression analysis; however, notice is given to the potential problems.

Tariffs affect value added per worker in an industry by reducing that industry's efficiency. Low efficiency gives incentive to lobby for further protection in order to avoid competition. A similar argument should explain the simultaneous relationship between tariffs and factor productivity. The profitability variable is likely to increase as a result of tariffs which protect economic rents and, as such, be correlated

with tariffs. Tariffs may also affect foreign ownership by encouraging firms to jump tariff walls. Low tariffs also have the impact of eliminating small inefficient producers from the market and thereby increasing concentration levels. The consistency of the OLS estimators over continuous testing, however, lends support to the robustness of the OLS estimates.

The problem of collinearity between two or more independent variables is considered in this thesis using a correlation matrix of the variables. If the correlation between variables was greater than .5, the variables are considered correlated. The only relationship noted to have a potential problem is that between value added per worker, VPW, and wages, LP70. This will be considered in analyzing the results.

Given that this is a cross sectional analysis, the problem of heteroscedasticity is also considered. Heteroscedasticity occurs when the conditional variance of the dependent variable increases as the independent variable increases. This has the effect of reducing the efficiency of the OLS estimates. In order to correct for the possibility of heteroscedasticity, the HETCOV option on the OLS command in Shazam is used. Little change was noted on the regressions tested so it is considered not a great problem.

5.1 Results for the Tariff Level Regressions

The results for 1966 tariff levels are reported in table 5.1

with the estimated coefficients and one-tailed t statistics for each model. The t statistics indicate the level of significance for each estimate. The estimates are described mildly significant if the t statistic is greater than 1. (In a one-tailed t test, the calculated t value for a 90% level of significance is 1.289.) The estimate is significant if the t statistic is between 1.289 and 2 and highly significant if it is 2 or greater.

Equations numbered 1 to 6 in table 3 partially reflect models tested by Caves, Helleiner, Saunders, and Baldwin and Gorecki. The models are tested using both NRP and ERP measures as the dependent variable in equations 1 to 4, and ERP in equations 5 and 6. Equations numbered 7 and 8 resulted from testing the models outlined in chapter 4. The results reported for 7 and 8 are those which resulted after insignificant variables were removed from the model.

The results show the variables to be fairly consistent in terms of predicted signs with the exception of value added per worker, VPW, for each model. Equations 1 through 4 give greater success, in terms of the regression coefficients, to the nominal rate of protection. This is only slightly contrary to the work of Caves and Helleiner whose measures both show ERP and NRP fluctuating among models for top position.

The interest group variables were at least partially successful in describing tariffs. For all the models, CR4 is successful only in Caves' "interest group" model; with a negative relationship to tariffs, as in Caves' results. This implies that

governments are reluctant to support big business. They favour the interests of more broadly based pressure groups. Another interpretation is that concentrated industries tend not to be those in need of protection.

The variable representing value added per worker fluctuates from negative to positive depending on the model specification. This could be due to its collinear relationship with wages. As long as wages are in the model, VPW is strongly significant and positively signed. This is inconsistent with the hypothesized sign for VPW. It does, however, support Caves' "National Policy" model hypothesis that governments protect industries that reinforce the nation's self esteem. That is, industries that are intensive in physical and human capital.

Average wage is consistently successful in explaining tariff levels, that is, the higher the wage, the lower the level of protection. This reinforces Helleiner's hypothesis that industries of advantage in developing countries lose out at the bargaining table. The comparative advantage of developing countries is primarily in low wage labour. It is also possible that the national preference toward equity and adaptability maintains tariffs in low wage industries. The variable measuring levels of research and development (RD70) in an industry is significant and properly signed for nominal protection levels to support the comparative disadvantage model.

TABLE 5.1: Determinants of the Tariff Structure in 100 4-digit Canadian Manufacturing Industries: 1966

Equation number	1	2	3	4	5	6	7	8
Dependent variable	NRP	ERP	NRP	ERP	ERP	ERP	NRP	ERP
Constant	0.19	0.24	0.32	0.36	0.95	0.47		
CR4	-0.0006 (1.704)	-0.0006 (1.125)	-0.0002 (0.745)	-0.0001 (0.199)	-0.0003 (0.488)			
VPW	-0.0053 (2.19)	-0.0009 (0.250)			0.0037 (0.9763)	0.0148 (3.148)		0.1519 (4.135)
LP70			-0.0235 (4.043)	-0.0296 (3.212)		-0.0566 (4.754)	-0.0201 (3.710)	-0.4467 (4.253)
RD70							-0.0004 (3.456)	
REG			-0.235 (2.040)	-0.0263 (1.087)	-0.0443 (1.767)	-0.0403 (1.714)	-0.0402 (2.882)	-0.5393 (2.407)
PRODG	0.0153 (0.934)	-0.0394 (0.912)				-0.0170 (0.693)	0.0192 (1.400)	
FO70					-0.0009 (2.020)			-0.7731 (1.761)
EMPL						0.0003 (0.405)		
XSH70					-0.1026 (2.667)		-0.0758 (3.456)	-0.5439 (1.161)
MSH70							-0.0681 (2.323)	-0.7725 (1.169)
TFPT70					0.0808 (0.701)	-0.0226 (0.189)	0.1205 (2.271)	
RELS12	-0.0097 (1.695)	-0.0079 (0.912)	-0.0067 (1.290)	-0.0084 (1.010)	-0.0150 (1.876)	-0.0026 (0.328)	-0.0129 (2.646)	-0.7280 (0.929)
ADV77	1.355 (2.614)	1.081 (1.362)						
RELDIV	-0.0119 (0.293)	-0.0608 (0.973)						-0.8310 (1.571)
GROWTH	0.0008 (0.553)	0.0005 (0.238)			-0.0008 (0.380)			
VASH						-0.0834 (1.393)		-0.1124 (1.981)
R2	0.1761	0.1340	0.2521	0.1565	0.2109	0.3122	0.4528	0.3929
R2(adj)	0.1134	0.0691	0.2207	0.1210	0.1461	0.2434	0.4041	0.3239

Note: Numbers in brackets are t statistics
The dependent variable NRP is BPNRP

The variable defining the degree of natural protection (REG) is negatively signed, and significant for all the structure models in which it appears. Industries that are naturally protected are less in need of tariff protection. Groups not in this position will lobby for "unnatural" protection. This result compares favourably with Caves, Saunders, and Baldwin and Gorecki but discredits the displacement cost argument for REG.

The variable identifying producer good industries is positively correlated with tariffs and significant in equation 7. This contradicts the hypothesis that there is a collective preference of governments to protect manufactured consumer goods. The variable representing foreign ownership is significantly negatively related to tariffs in equations 5 and 8. This contrasts with Saunder's results. The negative relationship means that governments do not protect foreign industries. Also, as an interest group, they may lobby for lower tariffs to invite intra firm trade.

The competitive disadvantage variables were also only partially successful in explaining tariffs. Exports and imports are both negatively and significantly correlated with tariffs in equations 7 and 8. As predicted, exporting firms are generally more successful and less protected. This is supported by both Saunders and Baldwin and Gorecki. The negative relationship between imports and tariffs in equations 7 and 8 does not support the comparative disadvantage argument.

The variable RELSIZ is negative and significant in

determining nominal tariff levels. This variable is assumed to capture relative efficiency and, as such, supports the hypothesis that small relative size industries are more likely to be protected. The variable TFPT70, measuring profitability, is significantly positive in equation 7 for nominal rates of protection. This implies that economic rents enhance an industry's ability to lobby for tariffs. This is contrary to the comparative disadvantage argument.

Relative diversity is a reverse measure of scale economies in Canada. This ratio is negatively signed and significant in equation 8 implying that industries that are not scale advantaged will tend to be favoured for protection. ADV77 is significant in equations 1 and 2 but has the wrong sign. GROWTH and EMPL are both insignificant.

Equation number 7 is the most successful at explaining the variation in nominal tariffs. This model broadly supports other descriptions of the tariff structure in Canada. In general, tariffs in Canada support industries which are competitively disadvantaged. This is indicated by RELSIZ, TFPT70, REG and EXP70, and LP70. Broadly based interests such as consumers and labour also appear to be more successful than narrowly based interests in influencing tariffs.

The model which best explains effective protection is displayed in equation 8. This is different from the model explaining NRP. VPW, LP70, REG, and F070 are significant supporting the interest group model for protection. VPW and LP70

also overlap as representing the competitively disadvantaged; however, the distinction is somewhat subtle in the end. The relative success of EXP70, RELDIV and VASH also reinforces the comparative disadvantage model.

5.2 Results for models of tariff change

As a signatory member of the GATT, Canada receives concessions under the most favoured nation principle. Exempt from the linear formula of reductions set out for the Kennedy Round Canadian negotiators gave concessions they considered "fair and equitable". At the same time, negotiators were confined by their multilateral commitment for freer trade and the restrictions of the existing tariff structure. This section will establish which political economic variables were favoured within the setting.

This model analyzes changes using the Kennedy Round dutiable imports/total imports (KRD/MW66) as a measure of the impact of change. This is compared with the standard measure of tariff change; which subtracts protection in year t from protection in year $t-x$, where x is the time span of change. This is calculated for both ERP and BGNRP. The resulting variables are defined as DERP and DNRP respectively. A summary of this analysis is given in table 5.2.

In terms of explaining the total variation in change, the results between the three variables for change are very similar. The stronger performance by DERP and DNRP must be largely

attributed to the strength of ERP and NRP in explaining their respective models. This correlation is not surprising, given that ERP and NRP are used to calculate DERP and DNRP. In terms of signs of coefficients this analysis did reveal considerable variation, this will be discussed later.

Analysis of equation 3 alone does offer some interesting results. Value added per worker, VPW is negatively signed and significant. This supports the hypothesis that countries are more likely to protect industries which they consider important to the well being of the economy, in that they embody an intensive industrial process. At the same time, Canadian tariff policy is protecting the countries comparative disadvantage with the capital rich U.S. economy.

The negative relationship could also indicate that as an interest group variable labour has not been a successful lobby. This is supported by Baldwin and Gorecki (1985), whose variable representing labour intensity, EVA (which is a reciprocal measure to VPW), was positively correlated with tariff changes. The negative sign on the coefficient for RELSIZ also suggests that inefficient, low scale industries would expect to see an increase in import competition as a result of negotiations.

These concessions may have fulfilled an agenda of reducing tariffs in inefficient industries. By the 1960's, "the conscious use of commercial policy to effect rationalization for the problem ridden Canadian manufacturing industry" (Protheroe p.17) had

TABLE 5.2: Determinants of Kennedy Round Tariff Rate Changes in 100 4-digit Canadian Manufacturing Industries

Equation number	1	2	3
Dependent variable	DERP	DNRP	KRD/MW66
VPW	0.0015 (1.474)		-0.0226 (2.205)
LP70	0.0035 (0.555)	-0.0002 (0.054)	0.0399 (1.216)
REG	0.0204 (1.278)		
PRODG00D	-0.0133 (0.931)	-0.0140 (2.290)	
RELSIZ	0.0192 (3.623)	0.0060 (2.855)	-0.0418 (1.725)
FO70	0.0004 (1.563)	0.0000 (0.678)	0.0036 (2.912)
XSH70	0.0378 (1.230)	0.0225 (1.888)	0.0638 (0.438)
MSH70	0.0661 (1.514)		-0.4335 (2.226)
GROWTH			0.0146 (2.572)
BGNRP66		0.4760 (7.647)	
BPNRP66			2.5620 (5.032)
ERP66	0.7156 (10.534)		
NTBD	-0.0738 (3.510)	-0.0139 (3.614)	-0.2580 (2.753)
R2	0.5894	0.4895	0.4105
R2(adj)	0.5427	0.4379	0.3509

Note: Numbers in brackets are t statistics
The dependent variables DERP and DNRP measure change between 1966 and 1978 for effective and nominal protection respectively

inspired an advocacy for freer trade. It appears that this may have been a factor in the Kennedy Round.

At the same time that high value added industries were maintaining protection, the sign on the coefficient for labour indicates that low wage industries were spared from major concessions. LP70 is positively signed, however weakly significant. Low wage industries may also have been favoured for equity and adaptability reasons. Baldwin and Gorecki support this with their results which point to some altruism in the negotiation agenda despite the tenancy to favour high value added industries.

The variable F070 is positively correlated with tariffs concessions. This implies that governments were unwilling to support foreign subsidiaries, preferring national interests and the "made in Canada" objective. It is also possible that the interest groups representing foreign owned firms successfully lobbied for freer borders to facilitate trade between subsidiaries and head office.

The negative relationship between imports and Kennedy Round concessions indicates that negotiators were trying to protect import competing firms. If the threat of foreign competition via imports is large, it is likely a comparatively disadvantaged industry in need of protection and, in turn, threatened by major concessions. This is particularly true of the clothing and footwear industries, where the threat of competition is omnipresent.

The coefficient on GROWTH is positively signed, indicating that negotiators picked winners in the concessions. That is, slow growth industries may have suffered more from reductions in tariffs than other industries. If growth patterns endure over time, then the variable on future growth (i.e., 1970-1979) indicates that negotiators maintained protection in slow growth industries. This is also supported by Baldwin and Gorecki.

There is a strong positive correlation between tariff concessions and the existing tariff structure. This indicates that the higher the tariff in an industry, the greater the concession given in the Kennedy Round. This is different from the earlier hypothesis that existing tariffs make a strong case for the maintenance of tariffs. It is, however, consistent with the explanation that concessions made in high tariff industries should be relatively high compared with those made in low tariff industries. In short, the positive relationship between the Kennedy Round concessions and 1966 nominal tariff levels indicates that, despite its manouverability in the negotiations Canada could not escape its multilateral commitment to reduce tariffs. This included some high tariff industries.

The negative sign on the coefficient for NTB's appears to imply that NTB industries escaped lightly in the Kennedy Round; that is, NTB's and tariffs went together rather than being substitutes. This result is contrary to the hypothesized relationship. NTB's are difficult to measure and their incidence may vary significantly among industries. This may account for the

apparent contradiction as it is more likely that an industry may accept NTBs as a more subtle form of protection in order to avoid public objection to high nominal tariffs.

Comparison of the results for KRD/MW66 and DERP shows interesting differences. The significant variables common to equations 1 and 3 are VPW, RELSIZ, FO70 and MSH70. Of the 4 variables the signs for VPW, RELSIZ and MSH are opposing. As such, equation 1 reveals few concessions given in competitively disadvantaged industries, which contradicts, to a certain degree, the results using KRD/MW66.

The contrast between the results could be the result of the fact that the two variables measure slightly different things. As explained in section 4.1, they may show different results, whereas KRD/MW66 measures the breadth of change in protection DERP and DNRP measure the size of the change. The simple correlation coefficient for KRD/MW66 and DERP is .07 while that for KRD/MW66 and DNRP is .14. A closer observation of the data pointed to a few anomalies, however the results changed very little when these anomalies were removed from the sample.

The choice of which variable is most appropriate measure of tariff changes is left to the discretion of the reader.

CHAPTER 6

SUMMARY, CONCLUSIONS AND CAVEATS

This chapter provides a summary of this thesis along with conclusions and caveats.

The purpose of this thesis has been to study the political economy of the tariff setting process. The focus has been to explain the determinants of the tariff structure in Canada prior to the Kennedy Round of the GATT negotiations and to explain the determinants of changes in tariffs that occurred as a result of the Kennedy Round of the GATT negotiations.

Considerable work has been conducted on the subject with varied results. This study focused primarily on earlier studies of the political economy of Canadian tariffs, however, note is also given to several U.S. studies. A brief summary of the Canadian surveys points to a number of explanations for the determination of tariffs.

Caves (1976) notes the growing role of interest group variables in explaining tariffs. Helleiner (1977) takes a closer look at the interest group model emphasizing the unfortunate role of less developed countries in the negotiation process. Saunders (1980) ignores the interest group hypothesis and investigates

Canada's weak productivity performance relative to the U.S. He concludes that this is a major determinant of tariffs. Baldwin and Gorecki (1985) support Saunders work with an analysis which incorporates an extensive list of variables used to measure the real world.

Comparing the results for Canadian tariffs and U.S. tariffs suggests that although tariffs in both countries are a function of pressure group interest these interests are often more broadly placed in Canada. This broader interest was needed to sustain and develop a strong east-west economy.

This thesis has extended previous work on the subject with particular focus on the Kennedy Round of the GATT negotiations. This was the sixth round of the GATT negotiations conducted between 1962 and 1967. In this round Canada was allowed exemption from the linear rule of tariff concessions which most other countries excepted. This gave them a little manouverability in the negotiations. According to the journalism of the day, textile manufacturers used this manouverability to lobby for protection, while wood, paper products, steel industries, and agriculture interests lobbied for liberalization.

The headlines at the close of the talks revealed that in the end these interests were only partially met. The vulnerable clothing and textile industry gave some concessions while other areas such as some agriculture industries were unsuccessful in their bid for open markets.

Analysis of Kennedy Round was conducted using nominal and

effective rates of protection to determine the tariff structure and a unique measure of the breadth of concessions to determine change. This unique variable, which measures the impact of Kennedy Round concessions on Canadian industry, was constructed from data for different tariff items which were subject to concessions in these negotiations. This variable was used to re-test previous hypotheses on the magnitude of tariff concessions.

Chapter 4 has given a review of three primary considerations which might influence the determination of tariffs. They have been developed as follows:

- 1) pressure group influence
- 2) the comparative advantage of an industry
- 3) the minimization of displacement costs

As such these models were not mutually exclusive, which made it difficult to pin down the results, however they do hold some individual merit.

The variables testing each group of hypotheses were listed in table 4.1 with a summary of hypothesized signs. These hypotheses were tested simultaneously to find out if one particular hypothesis would stand out in the results. This did not occur and the results point primarily to comparative disadvantage variables as influencing tariff levels and tariff changes. Little direct evidence was given to the strength of pressure groups in tariff determination. The pressure group variables that were statistically significant were, for the most part, variables also hypothesized to reflect the more general

motives of a concerned government.

Displacement cost avoidance variables showed weak results systematically undermining the social welfare hypothesis and the associated interest groups.

The importance of comparative disadvantage variables in the determination of tariffs and changes in tariffs reveals little new knowledge of the tariff setting process. This is largely due to the fact that many of these variables are subject to a number of interpretations, each with its own validity and merit. Perhaps a more fruitful analysis would control very carefully for comparative disadvantage.

One very strong result in this thesis points to the importance of existing tariff levels in describing changes in tariffs. Greater relative cuts given by high tariff industries implies that despite its manouverability in the negotiations Canadian concessions were given in high tariff areas, maybe even following an equal linear formula.

This reveals a general move in the direction of tariff liberalization despite the conservatism revealed in the political economy of tariff changes, as they largely reflect the political economy of the tariff structure. This move toward liberalization may have been countered, however, by the growth of nontariff barriers in the early 1970 s.

Table 5.2 points to some interesting results for the measure of the breadth of concessions compared to the size of concession (measured as the difference in average tariff - calculated at the

industry level - between two years). Three of the variables significant for both changes in effective protection and the breadth variable show opposing signs. These variables measure value added per worker, scale utilization and industry imports. The implications of these result provide an interesting base for further research.

The results of this thesis could also be complimented with the incorporation of the principles of international negotiations into the model for the political economy of the tariff setting process.

In summary, it appears as though the casual journalism on the Kennedy Round negotiations emphasized the need for Canada to defend its position as a small economy beside the large, diversified U.S. economy. This view was part of a National Policy tradition which denied the more economic, effects of tariffs (eg. misallocation of resources). The results of the Kennedy Round concessions reveal that in general this view was maintained.

The concessions made in the Kennedy Round were made in order to minimize the "domestic political disruption" as a result of trade liberalization. In the end, industries threatened by import competition were the most likely to maintain tariff protection in the face of general liberalization.

BIBLIOGRAPHY

- Baldwin, John R. and Gorecki, Paul K., "The Determinants of the Canadian Tariff Structure Before and After the Kennedy Round: 1966, 1970", Economic Council of Canada, Discussion Paper No.280, 1985.
- Balassa, Bela, "Tariff Protection in Industrial Countries: An Evaluation", Journal of Political Economy, p.573-94, 1973.
- Bhagwati, Jagdish N., (editor), Import Competition and Response, Chicago: University of Chicago Press, 1982.
- Biggs, Margaret, The Challenge: Adjust or Protect?, Ottawa: The North-South Institute, 1980.
- Blais, Andre, A Political Sociology of Public Aid to Industry, Toronto: University of Toronto Press, 1985.
- Brock, William, and Stephen Magee, "The Economics of Special Interest Politics: The Case of Tariffs", American Economic Review, 68:246-250, 1978.
- Caves, Richard E., "Economic Models of Political Choice: Canada's Tariff Structure", Canadian Journal of Economics, 1976.
- Cheh, John H., A Note on Tariffs, and Nontariff Barriers and Labour Protection in U.S. Manufacturing Industries," Journal of Political Economy, April 1976, 84, 389-94.
- Copeland, Brian, "Strategic Interaction Among Nations: Negotiable and Non-negotiable Trade Barriers", Dept. of Economics, University of British Columbia, Discussion Paper No. 86-22, 1986.
- Corden, W.M., Trade Policy and Economic Welfare, Oxford: Clarendon Press, 1974.
- Curtis T.B., and J.R. Vastine, The Kennedy Round and the Future of American Trade, New York: Preager, 1971.
- Dauphin, Roma, Impact of Free Trade in Canada, Ottawa: Economic Council of Canada, 1978.
- Editor, "Wake up Canada it's time to trade", Canadian Business 37:23, Jan., 1964.

- Evans, John W., The Kennedy Round in American Trade Policy, Cambridge MA: Harvard University Press, Cambridge, Mass., 1971.
- Feenstra, Robert C. and Jagdish N. Bhagwati, "Tariff Seeking and the Efficient Tariff", in Bhagwati, Jagdish N., (ed.), Import Competition and Response, Chicago: University of Chicago, 1982.
- Findlay, R. and S. Wellisz, "Endogenous Tariffs, the Political Economy of Trade Restrictions and Welfare", in Bhagwati, Jagdish N., (ed.), Import Competition and Response, University of Chicago, 1982.
- Finlayson, Jock A., Zacher, Mark W., "The GATT and the regulation of trade barriers: regime dynamics and functions", International Organization, 35,4, Autumn 1981.
- Gujarati, Damodar, Basic Econometrics, New York: McGraw-Hill Book Company, 1978.
- Hazledine, Tim, "Why the Free-trade Gain Numbers Differ So Much: Analysis of an encompassing general equilibrium model", Dept, of Agricultural Economics, University of British Columbia, 1989.
- Helleiner, G.K., "The Political Economy of Canada's Tariff Structure: an alternative model", Canadian Journal of Economics, May 1977, 10, 318-26.
- Helleiner, G.K. et al., Protectionism or Industrial Adjustment?, Paris: Atlantic Institute for International Affairs, April 1980.
- Johnson, Harry G., "The Kennedy Round", The Journal of World Trade Law, 477-478. Sept., 1967.
- Krueger, A.O., "The Political Economy of the Rent Seeking Society", American Economic Review LXIV, 291-303, 1974.
- Lavergne, Real P., The Political Economy of U.S. Tariffs: An Empirical Analysis, Don Mills Ontario: Academic Press Canada, 1983.
- Marvel, Howard P. and Ray, Edward J., "The Kennedy Round: Evidence on the Regulation of International Trade in the United States", American Economic Review, Vol.73, No. 1, March 1983.
- Nelson, Douglas R., The Political Economy of the New Protection, Washington: The World Bank, 1981.
- Pearson, Charles and Salembier, Trade, Employment and Adjustment, Montreal: The Institute for Research on Public Policy, 1983.

Pestieau, C., The Canadian Textile Policy: A Sectoral Trade Adjustment Strategy?, Ottawa: Canadian Economic Policy Committee, 1976.

Pincus, J.J., "Pressure groups and the Pattern of Tariffs", Journal of Political Economy, LXXXIII -4, 757-78, 1975.

Preeg, Ernest, Traders and Diplomats, Washington D.C.: The Brookings Institution, 1970.

Protheroe, David R., Imports and Politics: Trade Decision Making in Canada, Montreal: The Institute for Research on Public Policy, 1964.

Ray, Edward J., The Impact of Special Interests of Preferential Tariff Concession by the U.S., Review of Economics and Statistics, 1987.

Ray, Edward J., and Marvel, Edward, "The Pattern of Protection in the Industrialized World", Review of Economics and Statistics, LXVII, 1985.

Saunders, Ronald S., "The Political Economy of Effective Tariff Protection in Canada's Manufacturing Sector", Canadian Journal of Economics, X111-2, p.340-48.

Schumpeter, J.A., History of Economic Analysis, New York: Oxford University Press, 1954.

Shutt, H., The Myth of Free Trade, London: Basil Blackwell Ltd., 1985.

Slater, D.W., "Canada and the Kennedy Round", Canadian Banker, 43-50, Oct., 1966.

Spero, Joan E., The Politics of International Economic Relations, New York: St. Martins Press, 1985.

Stone, Frank, Canada, the GATT and the International Trade Systems, Ottawa: The Institute of Research and Public Policy, 1984.

Stone, Joe A., "A Comment on Tariffs, Nontariff Barriers, and Labour Protection in U.S. Manufacturing Industries," Journal of Political Economy, LXXXVI, 959-62, Oct. 1978.

Tullock, Gordon, "the Welfare Cost of Tariffs, Monopolies, and Theft", Western Economic Journal, 5: 224-232, 1967.

Whalley, John, Research Coordinator, Canada United-States Free Trade, Toronto University of Toronto Press, 1985.

Wilgress, L.D., Canada's Approach to Trade Negotiations, The Canadian Trade Committee, 1963.

Wylie, P.J., "The Political Economy of the National Policy Tariffs: 1900 & 1910", Dept. of Economics, Trent University, Working Paper, April, 1988.

Young, J.H., Canadian Commercial Policy, Ottawa: Royal Commission on Canada's Economic Prospects, 1957.

Appendix A

List of Variables and Definitions

ADV*	is the advertising/sales ratio for the industry for 1977.
CR4*	is the four-firm seller concentration index: the proportion of industry shipments accounted for by the four largest firms.
ERP*	is effective rate of protection in an industry. It is calculated to take into account exports, indirect taxes and subsidies.
EMPL	is the number of wage and salary earners employed in an industry, 1966.
EXP70*	is the proportion of domestic shipments that is exported, 1970.
FO70*	is the proportion of industry shipments accounted for by foreign-owned firms. An enterprise is defined as foreign controlled if there is effective foreign control, 1970.
GROWTH	is the rate of growth of industry shipments, 1970-1979.
KRDMW	is the ratio of dutiable imports in an industry affected by the Kennedy Round concessions divided by the total number of imports in 1966. See section 4.1.
LP70*	is the average wage in an industry, 1970.
LSHARE*	is labour share of total variable cost, average 1979-1970.
NRP	is the nominal rate of protection; defined as the duties collected in an industry divided by the value of dutiable imports.
PRODG*	is a dummy variable that takes on a value of one for industries that sell primarily to other industries, 0 otherwise
REG*	is a dummy variable that takes on a value of one for regional industries, 0 otherwise.
RELDIV*	is a measure of plant diversity relative to the number of industry products.
RELSIZ*	is a measure of Canadian relative size disadvantage: the

ratio of average plant size in Canada to the estimate of U.S. minimum efficient scale for the same industry. Minimum efficient scale is the average size in shipments of the largest U.S. plants which account for the top 50 per cent of industry shipments.

RD70* is the percentage of research and development personnel to all wage and salary personnel, 1970.

TFP470* is a measure of relative total factor productivity in an industry. See Baldwin and Borecki (1979).

TFPT70* is the input/output ratio in an industry, 1970.

VASH is the ratio of value added to sales, 1966.

VPW is the ratio of value added in an industry to the number of wage earners in an industry, 1966.

* variables from the Baldwin and Gorecki data base

TABLE B1: Data used to estimate the determinants of the tariff structure and the Kennedy Round changes in the tariff structure.

SIC	KRDMW66	ERP66	ERP70	ERP78	BPNRP66	BGNRP66	BGNRP70	BGNRP78	CR4	RELSIZ	RELDIV
1011	0.07	0.11	0.09	0.03	0.05	0.05	0.05	0.02	54.8	0.56747	0.38
1012	0.17	0.3	0.21	0.24	0.12	0.12	0.09	0.1	37.1	0.69827	0.63
1020	0.38	0.09	0.06	0.02	0.09	0.12	0.08	0.04	39.9	0.28028	0.57
1031	0.09	0.09	0.07	0.01	0.09	0.09	0.08	0.05	41.6	0.59199	0.37
1032	0.1	0.09	0.07	0.01	0.12	0.09	0.08	0.05	60.2	0.63864	0.433
1040	0.03	0.56	0.27	-0.01	0.19	0.17	0.07	0.04	29.8	0.62393	0.51
1050	0.68	0.27	0.27	0.16	0.08	0.09	0.09	0.07	70.1	0.50685	0.65
1060	0.23	0.18	0.18	0.12	0.07	0.06	0.04	0.03	29.5	0.36594	0.41
1071	0.1	0.07	0.02	0.04	0.05	0.08	0.05	0.05	68.1	0.2685	0.743
1072	0.89	0.17	0.08	0.11	0.17	0.11	0.07	0.08	32.6	0.68693	0.79
1081	0.11	0.07	0.05	0.1	0.08	0.07	0.06	0.07	52.7	0.53291	0.46
1083	0.11	0.07	0.05	0.1	0.05	0.05	0.07	0.02	78.5	0.58474	0.885
1091	0	0.06	-0.04	0.03	0.08	0.09	0.04	0.06	45.9	0.61264	0.88
1093	0	0.44	0.31	0.19	0.31	0.22	0.25	0.06	94.2	0.46152	0.78
1620	0.26	0.21	0.21	0.24	0.17	0.16	0.13	0.18	61.7	1.00775	0.34
1720	0.01	0.18	0.14	0.2	0.08	0.07	0.07	0.07	77.6	1.13555	0.59
1740	0	0.38	0.34	0.28	0.25	0.24	0.23	0.21	24.6	0.49279	0.687
1810	0.12	0.27	0.2	0.27	0.19	0.18	0.16	0.17	93.4	0.95911	0.45
1820	0.68	0.31	0.27	0.18	0.19	0.17	0.18	0.12	38.1	0.52085	0.574
1831	0.51	0.23	0.18	0.24	0.17	0.18	0.16	0.15	82.7	0.32658	0.39
1832	0.85	0.23	0.18	0.24	0.33	0.18	0.16	0.15	42.8	0.51685	0.51
1852	0	0.23	0.2	0.24	0.22	0.22	0.17	0.17	78.2	0.27387	0.55
1860	0.7	0.41	0.41	0.32	0.26	0.25	0.23	0.18	42.5	0.38714	0.76
1872	0	0	0.01	0.17	0.23	0.06	0.07	0.16	34.3	0.59362	0.44
1880	0	0.08	-0.1	-0.08	0.11	0.11	0.04	0.04	83.9	8.63592	0.59
1891	0.28	0.28	0.19	0.13	0.17	0.19	0.14	0.12	82	0.35241	0.54
1894	0	0.22	0.26	0.31	0.17	0.17	0.21	0.22	47.1	0.12395	0
2310	0	0.31	0.29	0.29	0.24	0.24	0.22	0.2	24.9	0.51243	0.69
2391	0.21	0.39	0.47	0.36	0.31	0.27	0.3	0.24	35	0.3197	0.61
2431	0	0.28	0.23	0.24	0.26	0.23	0.22	0.2	12	0.30768	0.54
2441	0.16	0.28	0.23	0.24	0.26	0.23	0.22	0.2	8	0.88091	0.65
2450	0	0.28	0.23	0.24	0.25	0.23	0.22	0.2	13.1	0.62283	0.41
2511	0	0	0	0	0.01	0.01	0.01	0.01	56.1	3.46395	0.78
2513	0	0	0	0	0.01	0.01	0.01	0.01	21.6	1.98664	0.5
2520	0.69	0.19	0.17	0.14	0.15	0.14	0.12	0.12	50.1	1.01137	0.64
2543	0.99	0.23	0.16	0.17	0.21	0.14	0.1	0.11	44.3	1.28399	0.86
2560	0.45	0	0.15	0.18	0.09	0.01	0.1	0.09	42.3	1.38183	0.74
2593	1	0.07	0.09	0.05	0.2	0.07	0.08	0.08	88	0.62871	0.86
2640	0.99	0.26	0.18	0.14	0.22	0.21	0.16	0.16	43.2	0.25244	0.51
2660	0.98	0.2	0.16	0.17	0.21	0.17	0.14	0.14	15.7	0.61627	0.52
2680	0	0.22	0.14	0.1	0.17	0.2	0.17	0.11	28.6	0.22986	0.84
2710	0.55	0.04	0.03	0.02	0.12	0.11	0.08	0.07	36.1	0.90845	0.64
2720	0.87	0.15	0.18	0.13	0.17	0.11	0.14	0.12	99.6	0.67641	0.82
2731	0.55	0.03	0.19	0.16	0.2	0.1	0.13	0.11	44.2	1.13989	0.8
2732	0	0.03	0.19	0.16	0.1	0.1	0.13	0.11	56.7	1.69491	0.87
2733	0.91	0.03	0.19	0.16	0.18	0.1	0.13	0.11	41	0.74621	0.65

List of variable names and descriptions in appendix A.

SIC	KRDMW66	ERP66	ERP70	ERP78	BPNRP66	BGNRP66	BGNRP70	BGNRP78	CR4	RELSIZ	RELDIV
2870	0	0.01	0.02	0.05	0.13	0.05	0.04	0.05	22.7	0.84883	0.84
2910	0.03	0.07	0.1	0.11	0.06	0.06	0.07	0.05	76.2	1.57609	0.29
2920	0	0.1	-0.07	0	0.1	0.08	0.06	0.06	76.6	1.42927	0.65
2940	0	0.11	0.08	0.13	0.06	0.09	0.06	0.1	51	0.23682	0.65
2960	0.21	0.01	0.03	0.07	0.05	0.05	0.03	0.04	89.7	0.63185	0.55
2970	0.86	0.31	0.1	0.17	0.12	0.1	0.03	0.05	84.2	1.05168	0.72
3010	0.19	0.1	0.07	0.05	0.13	0.1	0.08	0.07	55.3	2.38836	0.51
3020	0.79	0.11	0.07	0.08	0.19	0.1	0.08	0.07	43.7	2.39428	0.56
3041	0	0.09	0.09	0.12	0.17	0.1	0.1	0.09	17.6	0.64372	0.81
3042	0.54	0.09	0.09	0.12	0.17	0.1	0.1	0.09	39	0.74166	0.65
3050	0.07	0.12	0.09	0.07	0.09	0.09	0.08	0.07	43	3.97303	0.5
3060	0.53	0.16	0.12	0.08	0.17	0.14	0.11	0.09	16.4	0.10229	0.71
3070	0.2	0.18	0.15	0.17	0.23	0.14	0.13	0.13	28.6	0.43216	0.39
3080	0	0.06	0.03	0.02	0.07	0.07	0.05	0.03	7.3	0.9218	0.76
3110	0	0	-0.12	-0.06	0	0	0.01	0	70.6	0.33238	0.38
3160	0.48	0.08	0.11	0.09	0.15	0.09	0.12	0.09	54.2	0.05704	0.7
3180	0.02	0.08	0.06	-0.07	0.11	0.1	0.09	0.08	82.7	2.36278	0.45
3210	0.01	0	-0.03	-0.02	0	0.02	0.01	0	72.1	0.36702	0.54
3230	0	0	-0.08	-0.11	0.02	0.02	0.02	0.02	93.4	1.61149	0.35
3241	0.19	0.12	0.11	0.09	0.04	0.13	0.12	0.1	36.9	0.47589	0.65
3242	1	0.12	0.11	0.09	0.23	0.13	0.12	0.1	47.1	0.61068	0.79
3243	1	0.12	0.11	0.09	0.22	0.13	0.12	0.1	69.9	0.60642	0.46
3250	0.07	0	-0.05	-0.04	0.02	0.02	0.01	0.01	46.2	0.25801	0.73
3260	0.76	0.11	0.05	0.05	0.17	0.11	0.09	0.08	79.3	0.51424	0.45
3270	0.56	0.12	0.03	0.07	0.12	0.1	0.04	0.06	61.7	0.1594	0.53
3310	0.62	0.21	0.14	0.13	0.19	0.16	0.13	0.12	44.5	0.32148	0.37
3320	0.12	0.17	0.11	0.12	0.19	0.15	0.11	0.12	62.7	0.25991	0.4
3330	0.83	0.22	0.15	0.09	0.22	0.17	0.13	0.09	43.5	0.63508	0.66
3340	0.24	0.18	0.1	0.03	0.2	0.17	0.12	0.08	62.3	0.1765	0.65
3350	0.43	0.1	0.04	0.05	0.13	0.13	0.1	0.08	55.9	0.48482	0.69
3360	0.72	0.13	0.11	0.11	0.19	0.13	0.11	0.1	55.5	0.55535	0.35
3380	0	0.18	0.18	0.22	0.17	0.13	0.1	0.11	83.9	1.93939	0.42
3391	0.18	0.17	0.1	0.14	0.14	0.13	0.08	0.1	77.3	0.73972	0.51
3511	0.21	0.12	0.1	0.12	0.17	0.1	0.09	0.1	40.9	0.81304	0.75
3512	0.06	0.12	0.1	0.12	0.07	0.1	0.09	0.1	67.4	0.36709	0.74
3520	0	0.03	0.03	0.01	0.04	0.03	0.03	0.02	79.5	4.11485	0.91
3541	0	0.12	0.06	0.11	0.09	0.09	0.06	0.08	41	1.22022	0.86
3542	0	0.12	0.06	0.11	0.09	0.09	0.06	0.08	41.3	2.80278	0.84
3550	0	0.08	-0.03	-0.04	0.05	0.05	0.03	0.01	44.8	8.46153	0.88
3570	0	0.05	0.04	0.06	0.09	0.08	0.08	0.08	87.7	0.3563	0.54
3591	0.22	0.04	0.01	0.01	0.07	0.05	0.03	0.03	77.4	1.43776	0.63
3730	0	0.05	0.07	0.11	0.05	0.05	0.06	0.06	57.8	0.46747	0.67
3740	0.67	0.17	0.08	0.05	0.12	0.13	0.08	0.06	29.6	0.1319	0.35
3750	0	0.23	0.2	0.19	0.17	0.13	0.12	0.12	39.7	0.58889	0.68
3760	0.7	0.23	0.06	0.12	0.15	0.13	0.11	0.09	75.7	1.36697	0.29
3770	0.82	0.3	0.2	0.15	0.23	0.18	0.15	0.12	45.3	0.16452	0.22
3781	0	0.06	0.07	0.07	0.05	0.07	0.06	0.05	70.5	0.3082	0.92
3782	0	0.06	0.07	0.07	0.06	0.07	0.06	0.05	49.4	0.91905	0.5
3783	0	0.06	0.07	0.07	0.05	0.07	0.06	0.05	60.5	0.85949	0.32
3791	0	0.04	0.03	0.06	0.13	0.05	0.05	0.06	55.2	0.66052	0.89
3911	0.1	0.03	0.03	0.03	0.07	0.07	0.06	0.06	54.5	0.28089	0.56
3912	0.66	0.03	0.03	0.03	0.16	0.07	0.06	0.06	76.7	0.16327	0.72
3914	0	0.03	0.03	0.03	0.16	0.07	0.06	0.06	79.1	0.12313	0.89

Data used to estimate the determinants of the tariff structure (cont')

SIC	TFPT70	TFP470	LC66	CVAC66	LP70	MSH70	XSH70	LSHARE	MSHARE	SIZE70	ADV77
1011	1.061	1.024	41433	255243	7.347	0.058	0.072	0.09	0.91	5527.863	0
1012	1.067	1.042	12012	38793	4.78	0.008	0.01	0.136	0.864	3626.509	0
1020	1.137	1.064	32504	98427	3.992	0.189	0.528	0.198	0.802	1869.515	0
1031	1.196	1.112	32383	193796	5.536	0.167	0.037	0.179	0.821	3067.83	0.03
1032	1.238	1.125	6522	30000	4.124	0.275	0.074	0.184	0.816	2354.233	0.03
1040	1.11	1.046	30175	263418	6.424	0.016	0.043	0.117	0.883	2640.449	0.01
1050	1.145	1.039	7552	85176	7.508	0.032	0.303	0.113	0.887	9969.184	0.04
1060	1.115	1.073	11378	94075	6.076	0.011	0.035	0.076	0.924	1158.838	0.01
1071	1.258	1.058	9918	57984	5.497	0.05	0.073	0.277	0.723	4670.699	0.02
1072	1.18	1.076	40226	237726	5.596	0.009	0.008	0.365	0.635	308.751	0.01
1081	1.305	1.173	17731	98668	5.259	0.146	0.052	0.253	0.747	1953.418	0.04
1083	1.108	0	5036	50579	6.866	0.362	0.245	0.032	0.968	14164.25	0
1091	1.259	1.143	12126	156851	6.498	0.006	0.002	0.255	0.745	1256.772	0.05
1093	1.759	1.325	10627	230569	9.188	0.005	0.011	0.413	0.587	47656.73	0.06
1620	1.268	1.169	41712	284848	7.279	0.204	0.042	0.288	0.712	8302.113	0.01
1720	1.163	1.098	6194	23912	6.044	0.354	0.137	0.19	0.81	2549.521	0
1740	1.18	1.136	35633	110606	4.463	0.231	0.038	0.337	0.663	1574.114	0.01
1810	1.094	1.066	29451	114212	5.279	0.254	0.053	0.248	0.752	28977.01	0
1820	1.215	1.104	16609	61829	5.338	0.176	0.011	0.365	0.635	2485.541	0
1831	1.209	0.931	12600	91000	7.348	0.283	0.073	0.254	0.746	27348.09	0.01
1832	1.104	1.061	23000	90000	5.375	0.289	0.073	0.261	0.739	4545.469	0.01
1852	1.169	1.011	863	3852	5.842	0.355	0.871	0.31	0.69	935.328	0
1860	1.2	1.134	6385	36132	5.545	0.127	0.018	0.209	0.791	5887.113	0.01
1872	1.125	1.037	3166	11897	4.745	0.023	0	0.328	0.672	254.408	0.01
1880	1.252	1.182	4563	20906	7.249	0	0	0.288	0.712	5946.402	0.01
1891	1.201	1.176	1501	7748	5.783	0.124	0	0.239	0.761	1790.526	0.01
1894	1.217	1.042	4898	20582	5.427	0	0	0.384	0.616	920.635	0
2310	1.181	1.093	14139	43726	4.359	0.028	0.006	0.36	0.64	1312.569	0.02
2391	1.161	1.112	5700	32000	5.486	0.378	0.035	0.187	0.813	2856.565	0.01
2431	1.179	1.118	60043	184989	4.552	0.092	0.029	0.327	0.673	1180.067	0.01
2441	1.197	1.126	51826	190354	4.515	0.055	0.057	0.311	0.689	869.966	0.01
2450	1.164	1.105	14331	42425	4.092	0.07	0.037	0.302	0.698	830.292	0.01
2511	1.06	1.026	2745	11702	7.952	0	1.37	0.316	0.684	433.409	0
2513	1.07	0.995	92983	390390	6.433	0.131	0.711	0.278	0.722	718.004	0
2520	1.059	0.957	27611	105843	6.544	0.184	0.252	0.293	0.707	4193.441	0
2543	1.2	1.072	509	2900	6.342	0.019	0.031	0.234	0.766	1854.785	0.01
2560	1.215	1.134	6549	22150	5.54	0.027	0.035	0.326	0.674	356.029	0
2593	1.112	1.107	1350	7000	6.788	0	0	0.296	0.704	2313.647	0.01
2640	1.247	1.215	7620	41833	6.387	0.054	0.098	0.384	0.616	1705.445	0.01
2660	1.217	1.142	22073	94362	5.969	0.038	0.032	0.346	0.654	651.421	0.01
2680	1.265	1.156	2326	9245	4.6	0.067	0	0.364	0.636	377.304	0
2710	1.131	1.082	135053	1100261	8.727	0.083	0.676	0.272	0.728	50842.27	0
2720	1.16	1.228	2770	24036	8.135	0.018	0.136	0.128	0.872	11043.25	0.02
2731	1.164	1.115	14064	66422	6.456	0.051	0.017	0.295	0.705	1921.145	0
2732	1.124	1.071	12994	29449	7.284	0	0	0.266	0.734	7944.727	0
2733	1.161	1.103	8908	52136	6.555	0.012	0.002	0.218	0.782	3757.506	0

SIC	TFPT70	TFP470	LC66	CVAC66	LP70	MSH70	XSH70	LSHARE	MSHARE	SIZE70	ADV77
2870	1.227	1.113	9700	58803	7.76	0.115	0.008	0.643	0.357	259.602	0.01
2910	1.203	1.058	80205	648228	8.623	0.193	0.174	0.261	0.739	54980.06	0
2920	1.078	0	7966	60996	8.476	0.231	0.154	0.175	0.825	15870.7	0
2940	1.181	1.115	24205	117780	7.439	0.261	0.148	0.384	0.616	2272.752	0
2960	1.108	0	8175	41499	7.716	-0.787	1.839	0.152	0.848	4889.098	0
2970	1.061	1.027	7665	59903	7.887	0.078	0.227	0.114	0.886	6060.617	0
3010	1.184	1.098	11861	72471	8.22	0.106	0.097	0.362	0.638	2859.388	0
3020	1.258	1.103	33189	229188	8.417	0.012	0	0.343	0.657	4722.93	0
3041	1.242	1.131	7100	30000	6.2	0.059	0	0.409	0.591	392.426	0
3042	1.217	1.118	46000	308000	7.35	0.063	0.006	0.2	0.8	1673.26	0
3050	1.177	1.088	26921	158614	7.203	0.203	0.101	0.267	0.733	2424.245	0
3060	1.294	1.165	25000	144000	7.005	0.324	0.16	0.442	0.558	589.786	0.03
3070	1.222	1.135	7432	50312	6.824	0.089	0.027	0.283	0.717	1701.429	0.01
3080	1.235	1.131	23011	111508	6.998	0	0	0.496	0.504	222.199	0
3110	1.123	1.041	24248	140615	7.624	0.832	0.688	0.277	0.723	2103.544	0.02
3160	1.216	1.1	3879	25977	7.038	0.437	0.174	0.259	0.741	2792.615	0
3180	1.697	1.087	6600	84000	9.446	0.551	0.306	0.303	0.697	16771.57	0
3210	1.061	1.035	48015	291725	8.466	0.54	0.575	0.451	0.549	6802.328	0
3230	1.129	1.1	65953	613021	9.747	0.572	0.597	0.069	0.931	255005	0.01
3241	1.13	1.018	3960	19409	6.232	0.023	0.021	0.306	0.694	697.91	0
3242	1.19	1.117	4700	22181	5.234	0.171	0.006	0.214	0.786	1176.539	0
3243	1.147	1.084	2040	13863	7.223	0.1	0.005	0.257	0.743	2135.344	0
3250	1.166	1.072	59730	377273	7.965	1.05	1.089	0.286	0.714	9020	0
3260	1.179	1.098	10298	65366	7.785	0.151	0.116	0.193	0.807	26033.45	0
3270	1.1	0.831	35246	165842	7.657	0.025	0.024	0.451	0.549	4217.391	0
3310	1.295	1.141	8842	62138	6.334	0.301	0.043	0.233	0.767	2936.944	0.02
3320	1.197	1.087	20497	123821	6.692	0.199	0.037	0.283	0.717	12945.63	0.02
3330	1.237	1.11	4000	25500	6.118	0.361	0.088	0.257	0.743	1509.166	0.01
3340	1.107	0	9615	60581	6.344	0.366	0.101	0.16	0.84	16150.19	0.03
3350	1.149	1.02	55500	330000	7.219	0.298	0.18	0.41	0.59	5718.945	0
3360	1.177	1.004	34428	257121	7.451	0.283	0.076	0.351	0.649	4938.68	0.01
3380	1.226	1.093	14317	117147	7.767	0.034	0.073	0.178	0.822	29855.82	0
3391	1.187	1.007	3570	29529	6.496	0.202	0.075	0.224	0.776	6122.152	0.01
3511	1.224	1.2	6390	30494	6.478	0.145	0.02	0.477	0.523	804.732	0.01
3512	1.329	1.147	4092	23814	5.975	0.507	0.018	0.455	0.545	933.991	0.01
3520	1.422	1.317	1343	14895	8.769	0.016	0.105	0.261	0.739	19214.59	0
3541	1.288	1.208	4300	47419	6.513	0	0.035	0.353	0.647	531.366	0
3542	1.135	0.61	4800	71129	7.326	0	0.036	0.434	0.566	1354.169	0
3550	1.269	1.122	12798	107035	7.499	0	0	0.237	0.763	1267.626	0
3570	1.144	1.029	4838	31020	7.489	0.402	0.547	0.274	0.726	4665.66	0.01
3591	1.346	1.069	1343	14895	7.568	0.491	0.174	0.217	0.783	3167.094	0
3730	1.183	1.085	5503	71744	8.938	0.53	0.362	0.128	0.872	8569.539	0.01
3740	1.602	1.328	10075	181136	7.571	0.162	0.054	0.331	0.669	3571.75	0.06
3750	1.29	1.183	7167	95744	7.165	0.062	0.005	0.215	0.785	2142.193	0.03
3760	1.427	1.224	5349	112105	8.613	0.003	0.003	0.214	0.786	2779.044	0.09
3770	1.604	1.288	4809	73205	6.603	0.091	0.012	0.335	0.665	3082.523	0.1
3781	1.325	1.249	2070	29000	8.615	0.428	0.033	0.179	0.821	5246.938	0.01
3782	1.191	1.029	12200	174000	8.58	0.563	0.768	0.217	0.783	10146.5	0.01
3783	1.096	1.021	15300	230000	9.711	0.273	0.099	0.152	0.848	25513.02	0.01
3791	1.232	1.151	1592	12736	7.816	0.036	0.07	0.216	0.784	2033.808	0.02
3911	1.29	1.173	11900	105200	7.727	0.654	0.356	0.337	0.663	2572.442	0.03
3912	1.289	1.185	2041	13434	6.26	0.452	0.041	0.213	0.787	1788.552	0.03
3914	1.136	1.07	4692	15095	5.296	0.255	0.035	0.295	0.705	1362.905	0.03

Data used to estimate the determinants of the tariff structure (cont')

SIC	RD70	F070	PROG	REG	GROWTH	EMPL	LOWDUM	NTBD	KRSVS66	MWVS66	KRDVS66
1011	3.37	13.8	0	1	5.07	27	1	0	0.017	0.057	0.004
1012	3.37	12.8	0	1	4.98	6.7	0	0	0.005	0.011	0.002
1020	1.21	35	0	1	5.88	18.3	0	0	0.023	0.112	0.042
1031	5.99	63.7	0	1	3.73	16.5	1	0	0.009	0.214	0.019
1032	5.99	30.1	0	1	5.82	4	0	0	0	0.073	0.008
1040	1.14	30.8	0	1	4.49	31.8	0	0	0.039	0.015	0
1050	12.76	48.8	0	1	3.66	5.6	0	0	0	0.011	0.007
1060	0.76	19.5	0	0	4.51	8.9	1	0	0.206	0.008	0.002
1071	1.58	71.8	0	0	3.98	6.6	1	0	0.001	0.094	0.01
1072	1.58	21.9	0	1	3.39	34	0	0	0.001	0.007	0.007
1081	7.99	79.5	0	1	4.53	11.2	1	0	0.034	0.079	0.009
1083	7.99	33	0	0	8.85	0.7	1	0	0.533	0.488	0.053
1091	2.22	52.5	0	1	5.37	14.3	1	0	0	0.009	0
1093	2.22	30.9	0	1	4.28	9.4	0	0	0	0.003	0
1620	10.4	88.5	1	0	4.36	27.8	0	0	0.432	0.112	0.029
1720	0	0.8	0	0	4.36	3.3	1	0	0.007	0.293	0.004
1740	0.62	25.4	1	0	3.93	20.5	0	1	0	0.102	0
1810	0.43	0	1	0	2.98	16.4	0	1	0.427	0.352	0.044
1820	4.01	27.9	1	0	2.6	8.6	0	1	0.507	0.301	0.205
1831	3.5	100	1	0	4.56	2.4	0	1	0.93	0.216	0.111
1832	3.5	53.2	1	0	4.09	3.6	0	1	0.439	0.279	0.237
1852	3.5	33	0	0	4.07	0.5	0	1	0	0.048	0
1860	0	64.1	1	0	6.67	3.7	0	1	0.793	0.202	0.141
1872	0	3.4	1	1	4.21	2	0	1	0	0.022	0
1880	0	96.4	1	0	7.28	2.7	0	1	0	0	0
1891	3.86	66.9	1	0	4.01	1	0	1	0.05	0.212	0.059
1894	3.86	19.9	0	0	5.01	2.6	0	1	0	0	0
2310	0	20.6	0	0	2.93	7.3	0	1	0	0.026	0
2391	0	22.7	0	0	3.93	3.2	0	1	0.746	0.076	0.016
2431	0	13.9	0	0	4.48	34.8	0	1	0.257	0.057	0
2441	0	4.8	0	0	4.21	30.7	0	1	0	0.042	0.007
2450	0	3.6	1	0	3.6	8.4	0	1	0	0.01	0
2511	0.1	18.3	1	0	7.08	1.5	1	0	0	0	0
2513	0.1	30.5	1	1	6.99	49	1	0	0	0.041	0
2520	1.32	39.7	1	1	4.64	14.8	0	0	0.121	0.097	0.067
2543	0.04	13.6	1	0	51.39	0.3	0	0	0	0.071	0.07
2560	0	3.1	1	1	5.61	3.5	0	0	1.259	0.065	0.03
2593	0.27	20.6	1	0	14.51	0.6	0	0	0	0.033	0.033
2640	1.37	53.4	0	0	5.33	4.7	0	0	0.901	0.06	0.059
2660	0.08	15.9	0	0	3.82	12.9	0	0	0.673	0.03	0.03
2680	0	19.1	1	0	3.91	1.4	0	0	0	0.074	0
2710	12.74	47.5	1	0	5.07	73.5	0	0	0.56	0.018	0.01
2720	7.48	54.7	1	0	6.59	1.9	0	0	0	0.02	0.017
2731	1.02	42.3	1	0	3.68	8.3	0	0	0.062	0.051	0.028
2732	1.02	36.3	1	0	4.74	8.2	0	0	0	0	0
2733	1.02	55.1	0	1	4.46	5.4	0	0	0.363	0.01	0.009

SIC	RD70	F070	PRODG	REG	GROWTH	EMPL	LOWDOM	NTBO	KRSVS66	MWVS66	KRDVS66
2870	0.26	1.7	1	1	4.68	6.3	0	0	0	0.06	0
2910	5.95	15.6	1	0	5.65	46	1	0	0.063	0.202	0.006
2920	0	26.5	1	0	5.04	4.8	0	0	0	0.261	0
2940	0.95	38.1	1	1	3.67	13	1	0	0	0.114	0
2960	3.12	91.8	1	0	6.82	4.9	1	0	0.785	0.362	0.078
2970	38.89	50.6	1	0	3.14	4.2	0	0	0.38	0.047	0.041
3010	1.79	58.5	1	0	5.27	7.2	0	0	0.449	0.095	0.018
3020	1.18	15.7	1	1	3.66	21	0	0	0	0.021	0.016
3041	2.62	1.4	1	0	6.49	4.3	0	0	0	0.071	0
3042	2.62	59.3	1	0	5.42	25.3	0	0	0.229	0.061	0.033
3050	0.96	39.1	1	0	4.68	16.4	0	0	0.231	0.18	0.012
3060	1.47	46.7	1	0	4.96	14.3	0	0	1.55	0.351	0.187
3070	7.73	44	1	0	3.87	5.4	0	0	0.217	0.058	0.012
3080	2.22	6.1	0	1	4.03	13.2	1	0	0	0	0
3110	43.49	37.2	1	0	4.66	14.5	1	0	0.008	0.818	0
3160	5.04	60.7	1	0	6.49	2.7	0	0	0.204	0.81	0.392
3180	61.49	93.7	1	0	3.74	10.1	0	0	0	0.575	0.01
3210	77.28	87.5	0	0	3.69	33.9	1	0	0.377	0.389	0.005
3230	5.7	99.6	1	0	6.86	42.5	1	0	0	0.176	0
3241	1.39	39.6	1	1	9.44	2.5	1	0	0.526	0.139	0.026
3242	1.39	40.1	1	1	7.83	3	0	0	0.049	0.152	0.152
3243	1.39	59.7	1	1	12.54	0.5	0	0	1.412	0.052	0.052
3250	3.4	91	1	0	6.24	34.8	1	0	0.157	1.239	0.092
3260	0.1	78.2	1	0	5.73	6.1	0	0	0.652	0.134	0.101
3270	0	25.4	0	0	3.76	19.4	0	1	0.395	0.118	0.066
3310	6.2	70.4	0	1	3.72	6	0	0	0.442	0.341	0.21
3320	10.01	62.1	1	0	3.7	13.7	0	0	0.064	0.202	0.024
3330	0	57.2	0	0	5.23	2.6	0	0	1.121	0.247	0.205
3340	26.48	74.2	1	0	2.47	7.1	0	0	0.008	0.214	0.051
3350	132.48	50.9	1	0	4.21	38.5	0	0	1.014	0.352	0.152
3360	16.64	87.5	1	0	4.34	24.3	0	0	0.549	0.26	0.186
3380	3.52	44.3	1	0	4.08	9.1	0	0	0	0.037	0
3391	8.83	98.4	1	0	5.3	2.5	0	0	0.238	0.119	0.022
3511	1.62	15.5	1	1	4.13	3.5	0	0	0.594	0.142	0.03
3512	1.62	79.8	1	0	2.94	2.4	1	0	0.328	0.69	0.044
3520	3.94	76.4	1	0	5.62	4	1	0	0	0.009	0
3541	0.51	25.4	1	1	3.8	2.7	1	0	1	0	0
3542	0.51	27.8	1	1	4.54	2.4	1	0	1	0	0
3550	0	44.2	1	1	4.31	7.3	1	0	0	0	0
3570	7.14	96.7	1	0	3.92	3	1	0	0	0.233	0
3591	10.13	97.6	1	0	5.98	0.9	1	0	0.457	1.05	0.229
3730	24.44	91.3	0	0	7.8	4	1	0	0	0.561	0
3740	52.58	86.8	0	0	5.2	11.6	0	0	0.193	0.135	0.091
3750	21.29	76.5	0	1	4.24	7.9	0	0	0	0.054	0
3760	18.42	87.5	0	0	4.6	5.6	0	0	0.566	0.027	0.019
3770	4.09	91.3	1	0	5.15	4.7	0	0	1.153	0.05	0.041
3781	25.76	93.3	1	0	4.86	1.5	1	0	0	0.582	0
3782	25.76	85.3	1	0	5.84	8.7	1	0	0	0.33	0
3783	25.76	79.6	1	0	6.27	9.3	1	0	0	0.262	0
3791	26.92	78.5	1	0	5.76	1.3	0	0	0	0.046	0
3911	11.72	88.2	1	0	5.03	11	1	0	0.208	1.175	0.123
3912	11.72	90.7	1	0	5.53	1.4	0	0	0.315	0.675	0.449
3914	11.72	30.4	1	0	3.93	3.1	0	0	0	0.163	0

SIC	MW66	VS66
1011	100606.0	1749900
1012	2781.26	255100
1020	38284.86	342800
1031	99927.09	466000
1032	4880.067	67000
1040	19135.02	1249400
1050	3589	333700
1060	4672.503	609200
1071	10539.37	112500
1072	3841	516800
1081	16230.88	205800
1083	50389.89	103200
1091	2521.12	277800
1093	1116.536	336100
1620	67315.33	603300
1720	20024.33	68300
1740	22203.26	217900
1810	104887.3	297700
1820	42673.56	141900
1831	37203.01	172000
1832	64705.18	232000
1852	518	10700
1860	19641.38	97100
1872	648	29100
1880	0	67700
1891	4284.957	20200
1894	0	33200
2310	2236.656	85300
2391	7897.262	104000
2431	24085.21	423100
2441	18174.29	433200
2450	1013.395	102100
2511	0	26300
2513	39051	962100
2520	25351.00	261400
2543	539	7600
2560	2741	42100
2593	461	14000
2640	4425	74300
2660	6275	207100
2680	1490.5	20200
2710	42689.22	2337800
2720	918	47000
2731	8187	161400
2732	0	216400
2733	1519	151600

SIC	MW66	VS66
2870	4497	74900
2910	257941.1	1277700
2920	55812.60	214000
2940	24928.7	217900
2960	64528.4	178300
2970	13496	284300
3010	14218.84	149500
3020	9969.349	482700
3041	3466	49000
3042	42365.50	700000
3050	72233	400400
3060	91168.61	260000
3070	7135.843	122100
3080	0	186100
3110	303568.4	371100
3160	53312.6	65800
3180	178215.2	310000
3210	227229	584200
3230	485103.6	2753500
3241	5270	38000
3242	10171	67000
3243	1614	31000
3250	1102117.	889600
3260	30772.75	230000
3270	35502	302000
3310	44958.02	132000
3320	66254.79	328000
3330	14313	58000
3340	51183.62	239400
3350	224207.4	637000
3360	120775.8	465100
3380	13102.6	353000
3391	8114	68000
3511	6448.892	45300
3512	26925.16	39000
3520	1396.125	158000
3541	0	48000
3542	0	44000
3550	0	273800
3570	16742.60	72000
3591	34447.69	32800
3730	110223.4	196600
3740	41459.8	306000
3750	11685.52	218000
3760	6577.002	243000
3770	6149.727	122400
3781	33164.49	57000
3782	119477.3	362000
3783	123017.6	470000
3791	1723.7	37600
3911	274906.5	234000
3912	19431.28	28800
3914	7271.932	44500

