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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

ESSAYS ON THE POLITICAL ECONOMY OF THE
DOMINICAN REFORM PROCESS

A dissertation submitted in partial fulfillment of the
requirements for the degree of

DOCTOR OF PHILOSOPHY

in

ECONOMICS

by

Julio Gabriel Andujar

1999

To: Dean Arthur W. Herriott
College of Arts and Sciences

This dissertation, written by Julio Gabriel Andujar, and entitled Essays on the Political Economy of the Dominican Reform Process, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

Nejat Anbarci

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Date of Defense: November 18, 1999

The dissertation of Julio Gabriel Andujar is approved.

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Florida International University, 1999

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DEDICATION

I dedicate this dissertation to the two women I love:

Luisiana, my mother, and Sumaya, my wife.

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I wish to express my sincere gratitude to my Major Professor, Dr. Devashish Mitra, for his helpful comments and guidance and for the role played in my economic formation while lecturing on the political economy of policy reform. I am also grateful to Dr. Nejat Anbarci and Dr. Ali Cem Karayalcin, the other members of my committee, for their support and encouraging comments not only throughout my research, but also as my economic theory professors. My special thanks to Kathryn McCollister, who patiently read and commented a complete draft of this dissertation. Finally, I am specially grateful to my parents whom I love so much that is difficult to put in words.

ABSTRACT OF THE DISSERTATION

ESSAYS ON THE POLITICAL ECONOMY OF THE
DOMINICAN REFORM PROCESS

by

Julio Gabriel Andujar

Florida International University, 1999

Miami, Florida

Professor Devashish Mitra, Major Professor

This dissertation provides an analytical framework to study the political economy of policy reform in the Dominican Republic during the nineties. Based on a country study, I develop two theoretical models that replicate the mechanisms of policy approval in developing countries with weak democracies. The first model considers a pro-reform President who submits a tariff bill to an anti-reform Congress dominated by the opposition party. In between, two opposing lobbies try to get their favored policy approved. Lobbies act as Stackelberg leaders vis a vis a weak President. The behavior of the Congress is determined exogenously while the lobbies act strategically pursuing the approval of the reform bill and indirectly affecting the President's decision. I show that in such a setting external agents like the Press play an important role in the decision-making process of the political actors.

The second model presents a similar framework. However, the President, who is a Stackelberg leader, is allowed only two choices, total reform or status-quo. I show how a

lobby reacts to an increase in its rival's or its own size. These reactions depend on the President's level of commitment to the reform. Finally, I discuss the effect of variations in the size of the lobbies on the President's choice. The model suitably explains real events that took place in the Dominican Republic in the mid-nineties.

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CHAPTER I

INTRODUCTION

The recent wave of economic reforms redefined political relations among different interest groups in Latin America. The implicit alliance between import-substituting industrials, urban workers and populist governments that sustained the old inward-oriented regime deteriorated while publicly discussing trade liberalization and the benefits of international competition. Working policy reform through the proper democratic channels degenerated in real political battles as the region adapted to democratic rule. Particularly interesting is the political economy of reform approval in a small Caribbean island, the Dominican Republic.

In this country, reforms were fueled by an Economic Solidarity Pact (ESP) signed in 1989 by business associations, labor unions and the government. Though the reform package resulting from the ESP was created domestically, it contained the main policies recommended in the Washington Consensus¹. Economic reforms were of two types: short-term policies oriented to restore and maintain macroeconomic stability, and structural or long-term adjustments to create a more market-friendly environment. Short-term policies were fully applied while structural adjustments were either partially attempted or completely delayed to avoid political confrontations.

¹ Williamson (1994) explains that the Washington Consensus offers a description of what is agreed about the set of measures that are typically called for in the first stage of policy reform. The name suggests that these core of policies are supported by the multilateral organizations located in Washington , D.C. A restricted list of the reforms needed during this first stage would include fiscal discipline, trade liberalization, securing of property rights, openness to foreign direct investment, tax reform, privatization, exchange rate unification, financial liberalization, deregulation and public expenditure reorientation.

A new political upheaval caused by an electoral crisis in 1994 opened the door for a second turn of economic reforms². The ratification of a multiparty agreement, “*Pacto por la Democracia*”, accelerated the needed political reform allowing a minority party led by a reformist lawyer, Dr. Leonel Fernandez, to reach power in 1996³. President Fernandez submitted to Congress a comprehensive reform of the tariff and tax system, thus reviving the interrupted first wave of structural adjustments. This motivated opposing interest groups to begin lobbying the Assembly in an attempt to influence the decision of Congress in their favor. Although common in truly democratic nations, this bargaining process constituted the first complete democratic battle for an economic reform in this traditionally authoritarian country⁴. The subject of study in this dissertation is precisely the political economy of Dominican economic reforms. Based on a broad case study on economic adjustments and its antecedents from a political economy standpoint, I develop two models that reflect the country’s framework and are representative of developing

² One can observe that in the Dominican Republic policy reforms have been enacted under either a political or an economic crisis. This correlation between crisis and the viability of reforms is not unknown to economic theory. Drazen and Grilli (1993) suggest that crises and distortions enable societies to enact measures that would be impossible to enact in less distortionary circumstances. Alesina and Drazen (1991) explains the reasons why this phenomenon occurs. Reforms are non neutral and generates redistribution issues, so they are postponed until some social group is willing to cede ending a “war of attrition” and bearing the burden of new policies.

³ The core of the multiparty political agreement was a constitutional reform that modify the *electoral system*, introducing a second round of voting in electoral tournaments. The Inter-American Development Bank (1997, p.126) explains how *electoral systems* are instrumental in shaping political outcomes as degree of fragmentation of the government, number of parties represented in the legislature and the ability of minority to obtain political representation. In the Dominican Republic, the change of the electoral system not only allowed a minority power to obtain political representation but to gained the Presidency, ending a thirty years history of bipartidism.

⁴ The Dominican Republic has had a democratic system since 1966. However, two elements highlight the weaknesses of the incipient democracy. First, one president, Dr. Joaquín Balaguer, has been in power for 22 out of 33 possible years. Second, prior to 1996 an elected president never faced a Congress in which his party represented a Congressional minority. Therefore, previous reform attempts were passed either with unconditional Congress’ support or through decrees that ignored the legislative power. In the new political scenario generated after the 1996 election ignoring Congress or expecting its unconditional support were not viable options anymore.

nations characterized by a history of authoritarianism, weak institutions and presidential regimes⁵.

The importance of the case study should not be understated. Williamson (1994) explains that case studies represent “the only possible practical methodology (that consist) in a careful examination of the specific reform processes in individual countries”⁶. Sturzenegger and Tommasi (1998) explain that three ingredients mold the political economy of a stylized country. First, there are powerful pressure groups. Second, these groups can influence public policies. Third, they can influence governments to redistribute income toward favored groups. While the case study helps us to identify these powerful pressure groups and the mechanisms they use to alter public policy in the Dominican Republic, the political economy modeling leads us to establish their potential behavior in different scenarios. Therefore, it helps to improve the chances of policy approval as one minimizes the source of conflicts.

The models focus on the demand side of the political market, that is, on the political game played between two opposing lobbies and its influence in Executive decisions. I explore two benchmark cases. The first case considers a weak President, who is not committed to reform and who is lead by the lobbies in his policy submission. The second case considers a strong President seriously committed to reform, who behaves as a leader vis a vis the lobbies. It uses a discrete framework in which the President decides between total liberalization and the actual state of things, represented by protection.

⁵ The type of presidential regime that we refer to is that of democratic constitutions that provided the Executive Power with exaggerate power. For instance, article 55 of the Dominican Constitution comprises twenty-seven incises that gives the President extraordinary discretion in his decision-making process. See, *Constitución de la República Dominicana*, 1994.

⁶ See Williamson (1994), p. 4.

While the “strong president case” resembles the Dominican presidential regime, the “weak president case” captures the role played by powerful lobbies in executive decision-making during the import-substitution industrialization era.

Three branches of economic literature provide the cornerstone for this dissertation. The *Public Choice approach* uses economic techniques to analyze political issues. The *Endogenous Policy literature* explains how policymaking is determined within models of self-driven political actors. The third branch is *Contest literature*, where rivals expend effort to affect the probability of winning some particular prize.

Mueller (1993) refers to Public Choice as “the economic study of nonmarket decision-making or simply the application of economics to political science”⁷. He considers Arrow (1951) as the turning point in a literature later transformed by Downs (1957), Buchanan and Tullock (1962) and Olson (1965). Miller (1997) explains how economists study not only voters, but candidates, bureaucrats, party leaders and others. The use of economic techniques to analyze the behavior of such political actors gave birth to a line of interdisciplinary work between economists and political scientists that has expanded since the mid-sixties.

Some political scientists have been hesitant to give credibility to the new body of literature fuelled by the fusion of economics and political sciences. Bates (1991) praises “a form of political analysis that draws upon economic concepts as rational choices and equilibrium analysis, but avoid applying forms of market analysis to nonmarket institutions”⁸. He disregards the idea of studying the interaction of supply and demand in market policies. Dunleavy (1987) criticizes what he called *First Principles of Public*

Choice as “highly abstract and mathematical with a great deal of unconnected issues to political theory”, but praises *Institutional Public Choice* as developed by Olson, Downs and Niskanen among others.

Baldwin (1991) argues that differences between economists and political scientists arise because “they come to study the subject (political economy) with very different perspectives. Economists adopt a microeconomic viewpoint with households, profit-maximizing firms and public officials as the basic building blocks for their model. In contrast, political scientists, usually view the subject in macropolitical terms with the state as the basic decision-making unit”⁹.

Despite the criticisms, it is impossible to deny the revolution generated by Public Choice in political sciences. Some economists have speculated about a possible takeover of political sciences by this innovative approach¹⁰. Mueller (1993) compares the complaints of political scientists to those of economists half a century ago when mathematics and formal modeling were dominating economic theory. He argues that Public Choice is here to stay and that in the best of scenarios the future of this economic branch should be expanded to work not only with political but with other social sciences.

The “economics of politics” expanded during the seventies and eighties under the label of New Political Economy (NPE). Finlay (1991) explain that most of it “has postulated a framework of political institutions and behavior that corresponds to that of advanced industrial countries and even more specifically, to that ruling in contemporary

⁷ See Mueller (1993), p. 395.

⁸ In Meier (1991), p. 261.

⁹ See Hillman (1991), p. 268.

¹⁰ See Mueller (1993), pp. 510-11.

United States”¹¹. This poses the question of the applicability of NPE models to developing countries.

Recently, a more restricted field of NPE that focus on the politics of policy reforms in developing countries has expanded under the name of the new *Political Economy of Policy Reform*¹². In this sub-field, research has taken different roads. Helpman and Persson (1998) divide the research into three groups: electoral, lobbying and legislative models. The models presented in this dissertation belong to the second group as lobbying efforts are determined endogenously by self-interested organizational groups.

Endogenous lobbying is part of endogenous policy theory (EPT), defined by Brock, Magee and Young (1989) as a theory that determines a policy through the use of rational maximizing behavior by participants in the political process¹³. Pant (1997) classified endogenous policy models into three groups: models of public interest, models of self-interest and political market models. The third group is comprised of a combination of the first two. Furthermore, he divides political market models into three sub-groups: demand determined models, supply determined models and models of market approach. Following this classification the models developed in this dissertation can be identified as demand-determined political market models which rely on a lobbying contest and Nash equilibrium issues.

The lobbying model constitutes a contest in the sense that “it is a social interaction where two players (opposing lobbies) expend money or efforts (contributions)

¹¹ See Meier (1991), pp. 13-14.

¹² See Rodrik (1986).

in hopes of winning a prize (the policy)”¹⁴. It represents an interaction of rent-seeking from opposing interest groups. Tullock (1980) used game theory and Cournot-Nash reaction functions to show that the total expenditure in rent-seeking can be greater than, equal to or less than the rent payoff depending on the number of players and the marginal cost of influencing the probability of winning. Corcoran and Karels (1980) extended Tullock’s model to a long-run setting with free entry.

Besides rent-seeking, contests have been used to model other economic and social interactions. Hirschleifer (1989) and Skaperdas (1992) studied the solutions of economic conflicts. International R&D rivalry for a profitable innovation has been modeled as a contest by Loury (1979), Stiglitz and Dasgupta (1980) and more recently, Dinopoulos and Syropoulos (1998). Employment tournaments have been studied by Rosen (1986) while Dixit (1987) and Nitzan (1994) have devoted their efforts to contests on public goods.

A key feature of contest modeling is the choice of a contest success function (CSF) which provides each player’s probability of winning a prize as a function of all players’ efforts¹⁵. The CSF’s choice is frequently described by the logit function, which defines the probability of winning a prize as the ratio between one player’s effort over the total pool of efforts in the contest. In our setting, the probability of winning the lobbying contest is given by the probability of Congress approving reforms. I use a logit function in our second model to define this probability.

¹³ Frequently, the endogenously determined policy is a tariff, so EPT is known as Endogenous Tariff Theory. Nelson (1988) presented a complete critical survey of this literature.

¹⁴ This definition is in Dasgupta and Nti (1998), p. 587.

¹⁵ CSF were axiomatized by Skaperdas (1996).

The plan of the dissertation is the following. Chapter II provides a historical background of the economics of protection in the Dominican Republic since its independence in 1844. Chapter III presents a case study of the political economy of the Dominican reform process. The first model is presented in chapter IV. It represents a political game where a weak president, who is not too committed to reform, is led by powerful lobbies in his policy submission. Lobbies play a reduced-form game within the overall framework where the president submits the reform to an opposition Congress. In this chapter, we explain and justify the general assumptions applied to the models. The second political game develop in chapter V consists in a discrete model where a president, who leads the lobbies, choose between two policy options: total reform or status-quo. Finally, chapter VI presents the conclusions and recommendations for future research .

CHAPTER II

TARIFFS AND PROTECTION IN THE DOMINICAN REPUBLIC: A HISTORICAL BACKGROUND

Since the first half of the twentieth century, most Latin American countries have pursued an inward-oriented development strategy¹⁶. Under the intellectual leadership of the Economic Commission for Latin America (ECLA), policymakers imposed protection to promote industrialization in the region. The import-substitution strategy (ISI) proved to be successful until the mid-sixties¹⁷ when it began to falter as an efficient economic strategy. Despite the problems with the ISI, it remained intact in many countries until the debt crisis of the 1980s¹⁸. With international credit cut-off and existing policies causing severe inflation, a new wave of reforms expanded throughout the Latin American region. Hence, the story of reforms in the region is strictly tied to ISI policies.

The timing of ISI application in the Dominican Republic approximately coincides with that of Latin America but for historical reasons the instruments used to promote it, were radically different. While most countries in the region used tariff and quotas to protect their economies, a U.S. military intervention forbade the use of such policies in the Dominican Republic. Governments relied on contracts and special concessions to provide protection to firms investing in the industrial sector. Direct contracts accelerated the formation of lobbies as industrialists became aware of the advantages of channeling their interests in an organized manner. The evolution of anti-reform groups was tied to the policy of contracts. So any serious attempt to discuss the political economy of

¹⁶ See Meier (1995), Cardoso and Helwege (1997), Bruton (1998) and Rodrik (1996).

¹⁷ Between 1940 and 1968, Latin America grew at an average rate of 4.5%. See Cardoso (1997), p.98.

¹⁸ Some countries turned to liberalization earlier in the mid-seventies. Basically, Argentina, Uruguay and Chile, under military regimes, achieved some economic openness.

reforms in the Dominican Republic should start by exploring the environment in which these groups were formed. I devote the rest of the chapter to study the mechanisms used in the Dominican Republic to substitute imports and impose protection.

Section II.1 describes the origins and evolution of the Dominican external debt from independence in 1844 to the 1916 military intervention. Section II.2 discuss the creation of the tax and tariff system during the occupation. Section II.3 explains the mechanisms used to promote protection in the Dominican Republic during the Trujillo's era (1930-1961). Finally, section II.4 contains the legal framework of the protective system removed with the first wave of reforms in 1990.

II.1. The Early Stages: Independence, Debt and Taxes (1844-1916)

In 1916 the United States performed a military intervention in the Dominican Republic. The intervention was the final outcome of a debt crisis that affected the country in the late nineteenth century¹⁹. The origins of the crisis can be traced to the year 1869 when under the presidency of Buenaventura Baez, the country received a loan from *Harmont & Co* -a private firm owned by English bankers- under onerous conditions²⁰. The length of time for repayment of principal and interest was twenty-five years.

Few years later, a Holland firm, *Westerndorp & Co.*, made two loans to the young nation for the amounts of \$770,000 and \$900,000. The contract signed between the

¹⁹ The Dominican Republic became an independent nation on February 27, 1844. It received from Haiti, a State completely in bankrupt. During its first twenty-five years of republican life, the National Public Debt was totally domestic and it was held in commercial paper by local small businesses. See Peña Batlle (1989), pp.267-97.

²⁰ The loan contract stated that Harmont & Co., were to raise \$420,000 by selling Dominican bonds in the London Stock Exchange (LSE). From that amount \$320,000 were supposed to be given to the Dominican government and \$100,000 to Mr. Edward H. Harmont, President of the company, in commissions. Although the Congress cancelled the contract for ample cause (non-fulfillment of terms), Harmont & Co., got the loan fraudulently listed in the LSE. At the end, the Dominican government only

Dominican government and the company included a clause that established “the creation of a *General Receivership of Custom Collections* managed by Westerdorp & Co. or whomever represents them, in charge of all income generated through import and export taxes in Dominican ports”²¹. The clause was valid through the duration of the loan.

In 1897, a New Jersey Company, *The San Domingo Improvement* acquired Westerdorp’s interests in the Dominican Republic²². Following the stipulation that created the Receivership, Dominican Customs fell under American private administration at the beginning of the XX century. In 1907, a bilateral agreement with the United States known as the *Dominican-American Convention* was signed, establishing the official transfer of Dominican Customs to American authorities. The Convention prohibited the Dominican Republic from incurring additional debt without prior American approval²³. An alleged violation of this prohibition was the cause of a military intervention in 1916²⁴.

The intervention lasted eight years (1916-1924). At the beginning, trade taxes were collected using a new tariff law approved in the post-convention years²⁵. After several studies, the United States administration passed a new tariff legislation in 1919. Tariff policy in the Dominican Republic became a prerogative of the government of the

received US\$ 190,000 and was asked to pay back nearly US\$ 4,000,000. A complete story on the Harmont loan appears in Knight (1928), pp. 14-18.

²¹ Better known as “Le Regie”, this receivership was basically the Customhouse of a country that at the time collected 96% of tax revenues through trade taxes. See Ortiz (1955), pp. 6-7.

²² Before selling its rights in 1897, Westerdorp and Co. bought most of Harmont’s bonds on Dominican debt. Therefore, by acquiring Westerdorp’s interest in the Dominican Republic, the San Domingo Improvement owned most of the external debt of the country. Few bonds were in hands of Belgium, French and English investors. See Knight (1928), p.18.

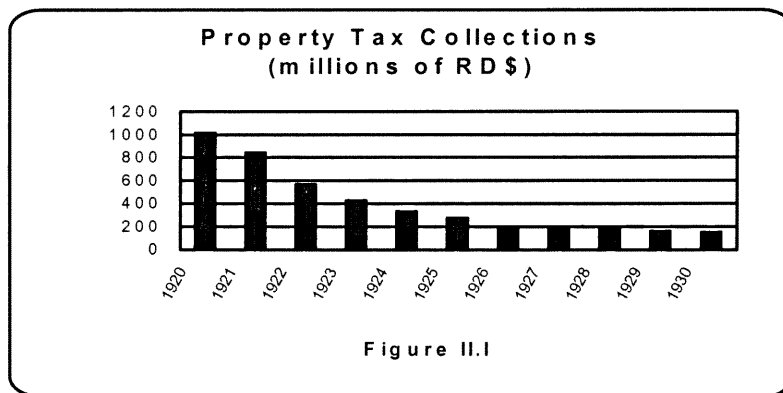
²³ See article 3 of the Convention in Welles (1966), p.652.

²⁴ Goldwert (1962) argues that what happens in the Dominican Republic was a total military intervention since “the whole apparatus of the government was taken over by military administration... The Dominican Congress was suspended and the power of legislation by decree was vested to the military government”.

²⁵ The Law exactly passed on January 1, 1910. See Knight (1928), p.43.

United States, not only throughout the intervention but until mid-century²⁶. The first Dominican tariff law was not passed until 1947 and it was modified six years later by Law 3489. None of the legislation marked substantial difference with the original 1919 Tariff Law. The first significant changes came with the 1970 tariff legislation and disappeared with the economic reforms of the early nineties.

Besides changes in external taxation, the Americans tried to modify the domestic tax structure by improving its administration and creating new taxes. By 1919, the military regime had tripled tax collections without the addition of significant taxes²⁷. New revenue sources were created through four important Laws: a) *The 1918 Internal Revenue Law*; b) *The 1919 New Property Tax on Land*; c) *The 1918 Patent Law*; and d) the creation in 1920 of *The National Lottery*. Tax collections were affected by these innovations in a different way. While National Lottery became the second largest source of revenue behind customhouses, receipts obtained from the property tax decreased every year during the 1920s (see Figure II.1).



Source: Central Bank of the Dominican Republic.

²⁶ Remember the famous clause in the old Westerdorp contract allowing intervention of Customs until complete fulfillment of obligations.

²⁷ Ibid., p.73.

Despite the restructuring of the domestic tax system, total tax revenue was still highly dependent on trade taxes²⁸. This meant the 1919 tariff legislation was the most important fiscal measure approved during the intervention. The creation of this Law and its relation with the method used in the Dominican Republic to develop industrial protection is the subject of our next sub-section.

II.2. The 1919 Tariff Legislation and the Origins of the Protective System

The fiscal reform undertaken by the United States military regime consisted of two types of general measures: to modernize the old fiscal administrative structure²⁹, and to create new taxes or eliminate existing ones. While the former required a huge organizational effort provided by the military, the later needed technical help. To get it, the military hired in 1918 an economic advisor from Yale University, Fred R. Fairchild. In his report, Fairchild proposed a complete reform of the 1910 Tariff Law to promote "freer trade, adequate revenue, economic development and with lower prices, an improvement in the welfare of consumers"³⁰. At the end of 1919, a new tariff bill was approved.

The 1919 tariff legislation lowered rates an average 38% and placed 245 American industrial products on a free list³¹. Though it contributed to the opening of the country to trade, it did so at a very high cost since Dominican exports did not received a similar treatment in the United States³². Despite a removal attempt by the first post-intervention government headed by Horacio Vasquez, the new legislation survived until

²⁸ The traditional theory of Public Finance suggests that at early stages of development countries rely on trade taxes as the main source of tax collections. The reason is due not only to administrative issues but also to the fact that the business base in the country is very small. See Musgrave (1973), pp. 121-132.

²⁹ A memorandum sent to the U.S. Senate Committee by the U.S. Military Government in 1921 states that "the aim of the military government has been to organized the financial administration of the country on an honest and efficient basis, (and) to establish an equitable tax system" as cited by Calder (1984), p.72.

³⁰ Ibid., p.75.

³¹ See Moya Pons, Frank (1992).

the 1940s under the protection of a new *Dominican-American Convention* which stipulated that the Dominican government could not change the 1919 tariff legislation without prior authorization³³.

Given this obstacle, President Vasquez promulgated Law 190 that imposed taxes over the commercialization of most imported goods³⁴. When Dictator Trujillo took power in 1930, he allowed the General Receivership to collect receipts from the new tax imposed by Vasquez. Five years later and once consolidated in power, Trujillo promulgated Law 854, which created an ad-valorem tax of 50% over the consumption of imported goods. In doing so, the Dictator was planning for the future since he already had started negotiations with the United States to abolish *the 1924 Dominican-American Convention*³⁵. The Trujillo-Hull (T-H) Agreement signed on September 24, 1940 terminated the Convention and returned the General Custom Receivership to the Dominican government.

In spite of the return of the Customhouse to Dominicans, a huge proportion of collections was still used to repay the debt. In 1947, after a negotiation process, Trujillo paid the remnants of the external debt. Up to this point it was impossible for the Dominican government to protect its economy through tariff policy. Given the constraints posed by the foreign debt and the inability of having a national tariff policy, Trujillo opted for “the modality of contracts” to provide protection and promote industrialization

³² The United States did not provide reciprocity to Dominican exports in order to protect American colonial and Cuban interests. See Mejia (1976), p.288 and Calder (1984) pp.75-77. The impact of the new tariff over the incipient industrial sector in the Dominican Republic is explained in Moya Pons (1992), pp.6-10.

³³ The new Convention was signed in 1924. See Vega (1990).

³⁴ According to Moya Pons (1992) this new tax increased protection for almost the total Dominican industry by 85%.

³⁵ The details of the negotiations are exposed in Rodriguez Demorizi (1956), pp.15-19.

in the country³⁶. Contracts created an implicit association between the government and an incipient industry, which industrials tried to maintain with the advent of democracy.

When Trujillo decided to implement its contract policy, the industrial sector in the Dominican Republic was minimal. By 1939 a few industries were classified in three groups³⁷: a) big industries that use mechanic force in their production process; b) disperse industries that provide inputs to individuals who work in their respective houses; and c) domestic or family industries that resembled a microenterprise of today's informal sector.

By choosing the big companies of Santo Domingo as his partners for the industrial development of the country, Trujillo planted the roots of the future anti-reform lobby, which eventually played a key role in blocking every policy that intended to reduce protection. In the next sub-section we study the instruments used by Trujillo to provide protection and to strengthen ties with the industrial sector.

II.3. Contracts, Exemptions and ISI Policy: The First Anti-Reform Group

The T-H Agreement and the cancellation of the external debt allowed the Dominican Republic to recuperate its ability to dictate fiscal policy. Two alternative protective policies became possible: "special concessions and contracts" to justify tax exemptions and incentives, or a new protective tariff and the imposition of import licenses and prohibitions. During Trujillo's rule, special contracts and concessions outweighed tariff policy as the preferred means of protection³⁸.

³⁶ One must clarify that the intent of the Dictator was never to achieve economic development for the country through industrialization, but rather to reach his own economic goals. Wiarda (1968) explains how at the end of the dictatorship Trujillo and his family owned 80% of the volume of business in Santo Domingo.

³⁷ Moya Pons (1992), p.17.

³⁸ The right to assign and approve contracts and concessions was given to Congress by article 90 of the 1942 constitution. Ibid., p.24.

The first contract, considered a model for future contracts, contained the classical privileges assigned to ISI firms throughout Latin America³⁹: domestic tax exemptions and zero tariffs for the import of intermediate goods used in the production process. With a high tariff on imported final goods and low or zero tariffs on inputs, the effective rate of protection (ERP) for the Dominican Republic was undoubtedly very high.

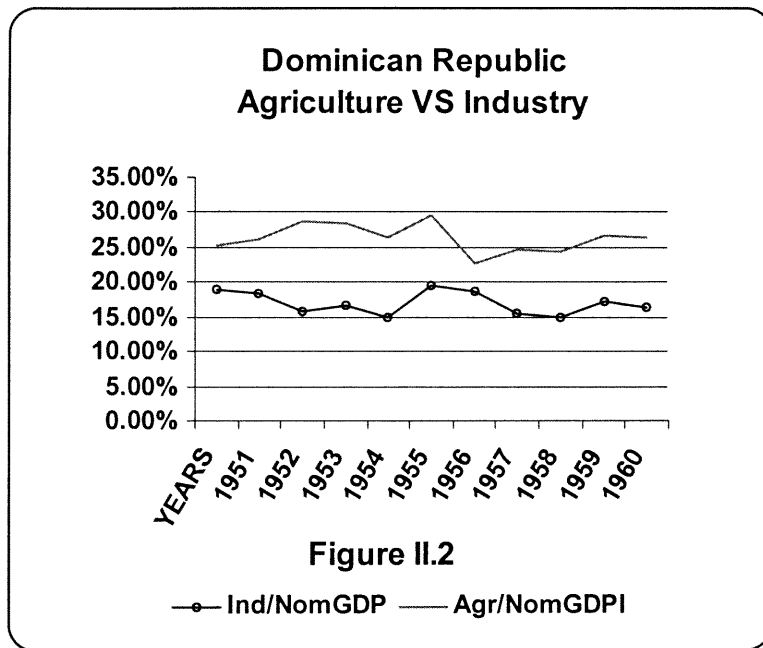
Trujillo provided special concessions to private firms, many of which were either partially or totally owned by himself or members of his family, which created many State-Owned Enterprises (SOEs) or mixed-capital firms. With his disappearance, the Dominican State unexpectedly inherited a stock of public enterprises that produced a variety of private goods: from cement to flour to paint to textiles⁴⁰.

When Trujillo initiated his program to promote industrialization through contracts and concessions, agriculture was the most dynamic sector in the economy. In 1951 there was a 6% gap between the contributions of agriculture and industry to total GDP. The gap increased during the rest of the decade getting close to 10% in 1960. Moreover, industrialization seemed to be following the fluctuations in agriculture (see Figure II.2).

Two arguments can be used to explain this trend: first, incentives and privileges conceded to agriculture were similar to those received by industry; and second, agriculture was the “leader” sector influencing “the follower”, industry. The former argument was valid particularly in sugar production where Trujillo owned most of the cane mills in the country. Sugar was the main Dominican export at the time. The later argument posed market constraints as the main restriction for industrial development in a

³⁹ It was given to *Textilera Dominicana C por A.*, a textile industry. *Ibid.*, pp. 27-28.

small country. Therefore, a boom in agricultural exports increases aggregate demand for manufactures, thus increasing the profitability of industrial investment.



Source: Central Bank of the Dominican Republic.

At the end of the dictatorship in 1961, the nation was affected by widespread political turmoil. People cried for confiscation of Trujillo’s properties. Afraid of losing their firms, industrialists became conscious of the need to organize industrial associations to defend the privileges earned during the Trujillo Era. Everything was happening within a stagnant economy. An economic embargo by the Organization of American States (OAS) had been in effect since 1958. The country was on a verge of a balance of payment crisis. Although its current account was still in surplus, international net reserves were depleted. Furthermore, the rate of growth of the economy was negative and there was no sign of recovery (see table II.1).

⁴⁰ This unexpected inheritance was gathered in CORDE, the abbreviation for Corporation of State-Owned Enterprises. The privatization of CORDE was later on, one of the most controversial issues of reform in the

TABLE II.1
Dominican Republic
Selected Economic Indicators
-1955-1961-
-Millions of US-

Year	Current Account Balance	GDP Growth Rate	Net International Reserves
1955	(6.2)	6.36%	37.5
1956	(9.2)	9.7%	39.8
1957	18.1	6.2%	48.0
1958	(13.7)	5.4%	47.3
1959	(6.1)	1.9%	41.7
1960	78.4	0.5%	29.6
1961	33.0	-1.5%	3.8

Source: Central Bank of the Dominican Republic, Quarterly Bulletin, various issues.

Before overcoming the economic crisis, industrialists made the first serious attempt of organization. In February 1962, they founded the *Industrial Association of the Dominican Republic* (AIRD)⁴¹. The AIRD's lobbying efforts rapidly paid off with the creation of the *Industrial Development Corporation* (CFI) and the approval of Law 4 of Industrial Incentives⁴². Law 4 represented the culmination of a series of efforts by industrialists to legalize the old system of contracts and special concessions. However, an article of the new legislation directly affected the interests of industrialists. It stated that there would be no exemptions for the imported input goods that were domestically produced.

In the mid-1960s, the AIRD started to lobby for new legislation. Law 299 of Industrial Protection was finally approved in 1968. It constituted the most complete and efficient instrument the Dominican Republic ever had for protection. The law remained

mid-1990s.

⁴¹ The association was founded "as an instrument to defend the interest of its associates and protect the industry against those who wanted to eliminate fiscal protection". See Moya Pons (1992), p.81.

⁴² The CFI was founded during the "Consejo de Estado" which was the temporary government in charge of organizing the first democratic election at the end of the dictatorship. Law 4 was approved during "Triunvirato" a de facto government that gained power precisely after a coup to the elected government from the just mentioned elections.

in force until the economic reforms of the early nineties. Along with the approval of a new tariff legislation in 1970, Law 299 represented the core of the legal framework for protection during the pre-reform stage.

II.4.1 The Legal Framework of Protection at the Pre-Reform Stage (1968-1989)

Incentive policies applied after the American intervention took form in several laws, which were eventually consolidated into two instruments. The Law 299 of Industrial Incentives and Protection, and Law 170 or the “new 1970 custom tariff”.

Law 299 represented the legal framework that gathered all facilities, concessions and exemptions provided by Trujillo through his contract policy. It was promulgated on April 23, 1968 according to the government "to promote the most rapid and effective industrial promotion of the country's economy with the purpose of obtaining permanent sources of employment and income for our population"⁴³. The truth is that it was the result of a long process of political bargaining won by the old industrialists under the umbrella of the AIRD⁴⁴.

The industrial incentive legislation established a classification of industries according to type of tax exemption. Table II.2 shows the industrial classification with its respective exemptions. Firms were classified in categories A, B and C. The last two groups represented the ISI industries with one single difference: Firms in section B included those firms that produced goods not available through domestic production

⁴³ Vedovato (1985), p. 116.

⁴⁴ Another important group that played a key role in the approval of Law 299 was “The Consejo Nacional de Hombres de Empresa” (National Council of Businessmen) or CNHE founded in 1962. For details on the role played by these lobby groups regarding the approval of Law 299 see Moya Pons (1992), pp.137-64. The analysis is very interesting from the political economy standpoint since it shows how the AIRD used its lobbying power to delayed several Incentive Laws in Congress until it had the opportunity for "the right one".

while firms in section C included new firms in markets where there was some domestic production, it existed as uninstalled capacity⁴⁵. The third classification, category A, included firms that invested in Free-Trade Industrial Zones. These firms produced for the external market, so offering exemptions here constituted a strategy of export promotion. Law 299 suffered from a repeated error in the Dominican economic legislation: the pursuit of two opposite objectives with a single instrument⁴⁶.

TABLE II.2
Law 299 of 1968
-Industrial Classification
and Tax Exemptions-

Categories	Machinery and Equipment	Combustion (Fuel)	Intermediate Goods	Income Tax	Patent Tax
A	100%	100%	100%	100%	100%
B		90%	95%	50%	
B		90%	95%	50%	

Source: Gonzalez Cano, Hugo and Gómez Sabaini, J (1992).

Although Law 299 was the most important legislation for protection in the history of the Dominican Republic, it was not the only one. Other legal instruments generated protection in different sectors such as tourism, agricultural industry and non-traditional exports⁴⁷.

Table II.3 compares the contribution of different sectors to the overall economy after the promulgation of Law 299. With the exemption of 1975 and 1976, the contribution of industrial output to total GDP was always below 20%⁴⁸. Furthermore,

⁴⁵ Vedovato (1985), p.17.

⁴⁶ Dauhajre (1994), p.8.

⁴⁷ Law 153 of Tourism Development; Law 409 for the Development of Agroindustrial Production; Law 69 of Export Promotion.

⁴⁸ In the mid-seventies there was a boom in the international price of sugar generating a considerable increase of export receipts. Ceara Hatton (1990) argues that this caused an increase in aggregate demand and urban migration. To target that market niche, new industries that produced consumption goods were established.

industry never displaced agriculture as the most dynamic sector of the economy as it did in most Latin American countries that followed the import-substituting strategy.

Eventually the agricultural sector was supplanted as the main engine of the Dominican economy by a service sector lead by free-trade zones and tourism.

TABLE II.3
Dominican Republic
Share of GDP per Economic Sector
-1968-1992-

Years	Agriculture	Mines	Industry	Construction	Commerce	Finance	Government
1968	23.14%	1.56%	16.26%	4.88%	16.31%	9.26%	11.73%
1969	24.24%	1.60%	17.33%	4.57%	15.55%	8.90%	10.98%
1970	23.24%	1.53%	18.54%	4.89%	15.99%	8.56%	10.24%
1971	22.24%	1.42%	18.37%	6.04%	16.38%	8.53%	10.03%
1972	20.58%	2.59%	17.48%	6.44%	16.71%	9.04%	8.82%
1973	22.23%	3.47%	17.01%	6.56%	16.40%	8.98%	7.95%
1974	22.15%	2.67%	18.62%	6.77%	17.27%	8.50%	7.23%
1975	21.47%	3.00%	20.90%	6.90%	16.28%	8.58%	6.35%
1976	19.05%	3.53%	20.62%	6.48%	17.08%	10.16%	6.47%
1977	20.07%	3.14%	18.98%	6.67%	17.16%	11.04%	5.96%
1978	18.72%	2.49%	18.58%	7.37%	15.48%	11.78%	6.89%
1979	18.67%	4.02%	16.89%	7.62%	15.66%	11.77%	8.44%
1980	20.15%	5.30%	15.31%	7.23%	15.80%	11.97%	8.32%
1981	18.57%	3.72%	15.59%	7.39%	16.48%	13.32%	8.37%
1982	17.73%	2.59%	18.27%	6.72%	16.95%	12.92%	8.33%
1983	17.22%	2.66%	17.71%	7.76%	16.82%	12.64%	8.17%
1984	18.50%	2.35%	16.49%	8.51%	17.21%	11.99%	7.84%
1985	17.37%	4.47%	17.44%	6.36%	16.24%	10.47%	11.07%
1986	16.41%	3.85%	17.36%	6.97%	15.75%	10.73%	10.61%
1987	18.71%	5.34%	14.67%	9.07%	15.71%	10.62%	10.02%
1988	18.31%	4.94%	13.73%	9.86%	13.97%	10.60%	9.73%
1989	17.83%	4.71%	13.84%	9.54%	14.27%	16.67%	9.59%
1990	17.20%	4.10%	13.50%	8.00%	13.70%	17.50%	8.80%
1991	17.80%	3.97%	13.50%	7.10%	13.74%	17.74%	8.76%

Source: Central Bank of the Dominican Republic, Quarterly Bulletin, various issues.

The legal framework of Dominican “protectionism” was completed by the 1970 tariff legislation. Law 170 was the creation of a technical group named by President Balaguer

in 1967⁴⁹. It recommended correcting two major problems: the classification system of imported merchandise, obsolete to the extreme that several goods invented after 1919 were not even classified; and the complicated import tax legislation that consisted not only of tariffs, but of special taxes that made administration barely possible.

The tariff reform was expected to be completed in three gradual stages:

- 1) The adoption of “The Brussels Nomenclature” in order to eliminate the administrative disorder caused by the hole in the classification process.
- 2) The consolidation in a single tariff of the taxes created by the 1953 Law and any additional special legislation that affects imports.
- 3) The revision and reduction of the level of tariffs.

Law 170 barely made it to the second stage. Though the system became better organized with the adoption of the new nomenclature, the reduction in protection was negligible.

An important reduction in tariff rates was not achieved until the 1990 tariff amendment, one of the reforms taken during the first wave of structural changes of the early nineties.

The first section of the upcoming chapter deals precisely with the economic and political context of the first wave of reforms.

⁴⁹ The group worked under the orders of Mario Vela B., a custom’s expert, who was a consultant for the United Nations. The opinions, conclusions and recommendations of the group were gathered in Secretariado Técnico de la Presidencia (1970).

CHAPTER III

THE POLITICAL ECONOMY OF STRUCTURAL ADJUSTMENTS IN THE DOMINICAN REPUBLIC

III.1 The First Wave of Reforms (1990-1993)

III.1.1 The Macro Context of Reforms: Economic Policy in the Mid-Eighties

With minimal changes, Laws 299 and 170 constituted the pillars of protectionism during the 1970-1990 period. Any serious attempt at reform should start with the removal of the legal framework provided by these laws, which entailed confronting the powerful interest groups that defended this legislation. The first chance to do so came in the early eighties when the debt crisis illuminated the inefficiency of protectionism. The system fell under scrutiny while the economy entered a deep recession. In 1983, the government of Dr. Salvador Jorge Blanco signed a stand-by agreement with the IMF⁵⁰. By 1985, the depreciation of the peso stopped and inflation was under control. Though real output was falling at a rate of 2.12%, adjustments were made to the economic structure. However, the government refused to negotiate with the World Bank on any structural reform, postponing needed changes indefinitely.

In 1986, a new government lead by Dr. Joaquín Balaguer applied an expansionary economic policy that consisted of an ambitious program of public works financed with monetary expansion⁵¹. Investment in the construction sector grew at an average annual rate of 64.79% during Balaguer's administration. By 1987, the economy had an impressive recovery and real GDP was growing at a rate of 10.12% (see Table III.1).

⁵⁰ An outcome of this agreement was the creation of a 6 % value-added tax known as *Impuesto sobre la Transferencia de Bienes Industrializados* (ITBIS).

⁵¹ Ceara Hatton (1990) called it a program of disordered reactivation.

The rapid expansion of public investment created an unmanageable government deficit that jeopardized economic stability. To finance it, money supply more than tripled rising from RD\$ 2503.3 million in 1986 to RD\$ 8304.8 million in 1990. The monetary expansion not only generated inflation, but it also depreciated the exchange rate by almost 300%. At the end of the decade, the economy completely collapsed, output decreased by 6% and inflation reached a peak of 80 %.

TABLE III.1
Dominican Republic
Selected Economic Indicators
1986-1990
-Millions of RD\$-

Years	Spending in Construction	Real GDP (In percent)	M1	Official Exchange Rate	Inflation Rate
1985	888.6	(2.12)	1639.1	3.12	30.85
1986	1100.04	3.52	2503.3	2.91	4.40
1987	1771.0	10.12	3102.6	3.84	22.67
1988	2786.0	2.16	4694.6	6.15	55.8
1989	4043.8	4.40	5911.7	6.97	34.59
1990	5189.3	(5.45)	8304.8	11.13	79.92

Source: Central Bank of the Dominican Republic, Quarterly Bulletin, various issues.

In addition, external conditions were completely unfavorable. The gulf war caused a rationing of fuel causing long queues at gas stations. The disruption in transportation increased the prices of agricultural goods. The crisis reached a climax in August of 1990 when a general strike left 12 people killed and more than one hundred injured. The uncertainty caused by the crisis obliged opposing interest groups seek a solution in a National agreement known as the Economic Solidarity Pact.

III.1.2 Economic Solidarity Pact: The Politics of the First Reforms

The economic, social and political situation in the Dominican Republic was so critical that at the national level there was a consensus that something must be done. Following

guidelines of the hierarchy of the Catholic Church , PUCMM, a Catholic university started a series of meetings with representative sectors of society to develop a strategy to solve the crisis⁵². The encounters yielded a tripartite dialog between business associations, labor unions and the government.

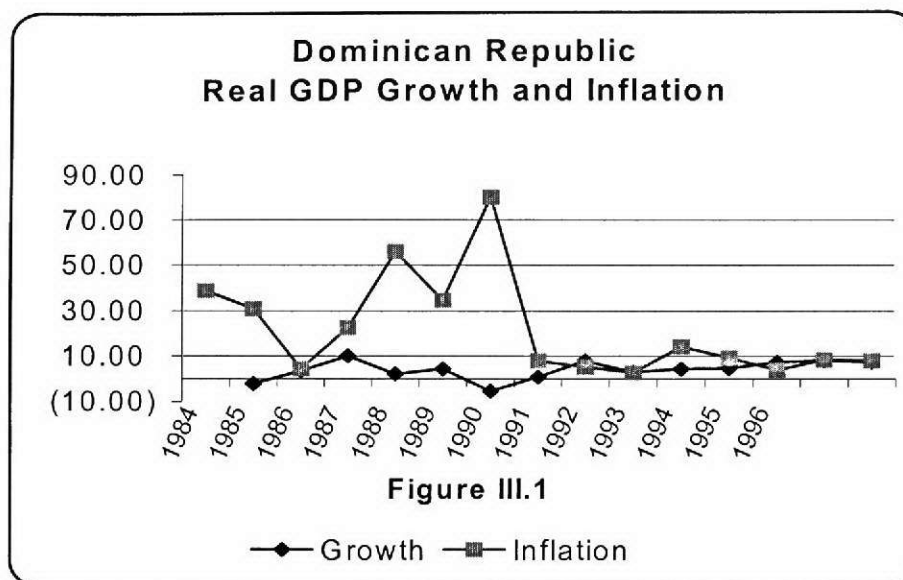
On August 16, 1990, Dr. Joaquín Balaguer gained power for a second consecutive period⁵³. Quickly the government revived the tripartite dialog and proposed the signature of The Economic Solidarity Pact (ESP), a concerted agreement oriented to solve the debt crisis. Curiously, Dr. Balaguer, who was the architect of Law 299 of Industrial Protection, becomes the artisan of the first wave of Dominican reforms, among them, the removal of that legislation (Law 299). His reform impetus was an intelligent way of solving a political crisis and a way to re-affirm his power⁵⁴.

The ESP contained the first group of reforms oriented to liberalize and deregulate many sectors of the Dominican economy. The pact included two types of policies: structural or long-term changes such as tariff, tax, labor, monetary and financial reforms among others; and short-term stabilization policies aimed at reducing inflation, correcting the balance of payments problems and promoting economic growth. Figure III.1 shows the result of the short-run stabilization programs over the relevant variables.

⁵² Its representative Monsieur Agripino Nuñez Collado (1997) explained the role of the Catholic Church in negotiations toward a crisis solution.

⁵³ His reelection in a controversial electoral tournament exacerbated the political crisis. The opposition claimed for his resignation under the allegation of an electoral fraud. Brea et al (1995) did a survey where 68% of Dominicans said to believe that there was a fraud in the 1990 elections (p.225).

⁵⁴ A President not committed to reform in a presidential regime is a guarantee for failure. As soon as the economic crisis was solved, Dr. Balaguer return to the old practice of postponing necessary structural changes. As Vega (1996) put it “the economic reform imposed by “the Washington Consensus” through the World Bank, The IMF and the Inter American Development Bank in Latin America, collides in the Dominican Republic with a political system that does not believe in it”(p.157).



Source: Central Bank of the Dominican Republic

One can observe the dramatic decrease in the inflation rate and the recovery of GDP after 1990. Economic stability was achieved and maintained during the last nine years. While the short-term program proved to be successful, long-term structural changes were never completely realized. Among the long-term reforms undertaken, two deserve further explanation: the 1990 and 1992 tariff and tax reforms. These two instruments became the center of the aborted second wave of reforms in 1996. To be able to grasp the political economy issues that prevented a second wave of reforms, we need to evaluate the core of the previous tax and tariff programs and the politics behind them.

III.1.3. Structural Changes: The 1990 Tariff Reform and the 1992 Tax Reform

So far we have explored the overall crisis experienced by the Dominican Republic during the pre-reform stage and the short run policies used to overcome the crisis. Now we turn to the role played by the different political actors to ratify the ESP for structural reforms. The consensus was reached because no interest group had the power to impose conditions. While the government was trying to consolidate its fragile political power and

reduce popular resentment, business associations and labor unions were facing possible division.

Business associations suffered an important partition. Industrialists and import-substituting producers remained represented by the old *Consejo Nacional de Hombres de Empresas* (CNHE) while importers of final goods and members of the commercial sector gathered in *Unión Nacional de Empresarios* (UNE)⁵⁵. The UNE became a pro-reform lobby that opposed the traditional anti-reform interest group of the AIRD, now represented by the CNHE. Workers, on the other side, were dispersed in different labor unions, some of which aligned with a particular party. The fragmentation of labor interests were even greater than that of businessmen, evidenced by its waning bargaining⁵⁶.

President Balaguer did not want to incur in a new political battle in Congress for a reform that he did not support. However, the tariff reform was non-negotiable. The reopening of international credit depended on the acceptance of a new IMF agreement which will impose a reduction in tariffs as a condition for new capital inflows. Executive decree 339-90 imposed the tariff reform in September 1990⁵⁷. Three years later, in August 1993, and with slight modifications, the new tariff was approved by Congress.

⁵⁵ The English names for the business associations would be National Council of Enterprise Men (CNHE) and National Union of Entrepreneurs (UNE).

⁵⁶ During the tripartite dialogue, while the government and businesses were represented by single delegations, workers' interests were channeled through at least six different unions.

⁵⁷ We already argued that the constitution of the Dominican Republic gives the President extraordinary powers for discretion. For instances incise 13 of article 55 of the Dominican Constitution establish vaguely that the President can "rule whatever he consider convenient to the Custom service". See Constitution of the Dominican Republic, 1994.

The new tariff regime⁵⁸ pointed toward: a) simplification of tax administration; b) a reduction of effective protection; and c) an increase in economic efficiency. The simplification of the administrative system was achieved through the consolidation of more than twenty-five import tax laws into a single legal instrument. Exemptions, concessions and special treatments provided by other laws were also eliminated⁵⁹. The improvement in tax administration and the restructuring of the system used to value imports yielded an unexpected result: at the beginning of the reform collections increased despite the tariff reduction⁶⁰. The new system reduced tariffs gradually and consolidated import rights across eight different levels from 3% to 35%. The maximum amount a tariff was reduced was from 200% to 35%, reducing protection and increasing the efficiency of the economy⁶¹.

Figure III.2 shows the proportion of tax revenue collected through different types of taxes in the Dominican Republic, before and after the tariff reform. Although the share of trade taxes over total tax revenue was reduced after the reform, the Dominican tax system is still highly dependent on trade taxes. In fact, no country in Latin America shows a similar or a higher level of dependence. The debate to “reform the reform”, which reached a climax with the submission of the second wave of reforms to Congress, started with this issue.

⁵⁸ Table A.III.1 in the appendix shows the main changes to the old tariff system after the reform.

⁵⁹ Few exemptions were kept like those that refers to imports realized by the government, international organizations and diplomacy.

⁶⁰ The most important change that affected valuation of imports was the use of a market exchange rate instead of the official system of preferential rates.

⁶¹ The real reduction of effective protection, if any, has been a subject of debate in the Dominican Republic. While The rate of effective protection before the reform was 162.5% in average (Morales, 1985), estimations after the reform range from 94% to 131% (Dauhajre and Escuder, 1996) to an average of 46% (Isa Contreras, 1994). The World Bank (1995) estimated an average effective protection of 152% in 1993.

Figure III.2(a)

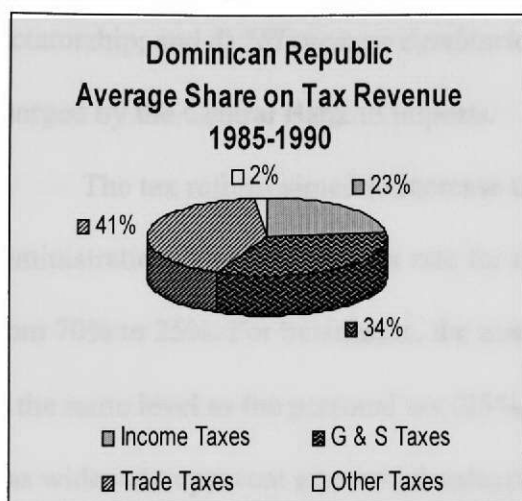
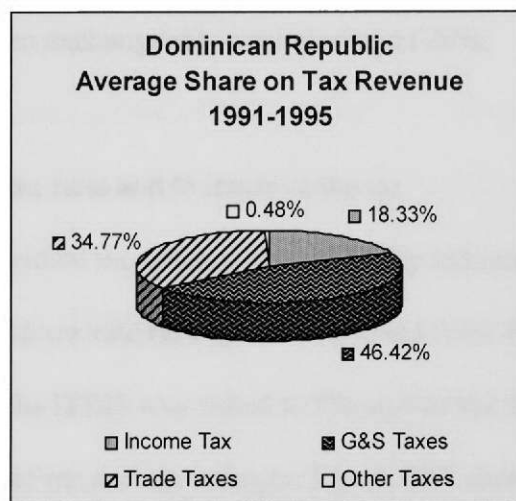


Figure III.2(b)



Source: Central Bank of The Dominican Republic

One can see that the reduction in the share of trade tax collections over total tax revenue was absorbed by the receipts of taxes on goods and services (G&S). This improvement was the result of the new tax code, Law 11-92 of April 1992. The tax bill passed in a Congress now marked with a different political and economic perspective than the one faced by its predecessor reform. The success of the policies applied through the ESP has already generated economic stability, as evidenced by the recovery of output from its 1990 debacle. The code did not represent a controversial item for political debate. However, it became an important point of contention during the second wave of reforms.

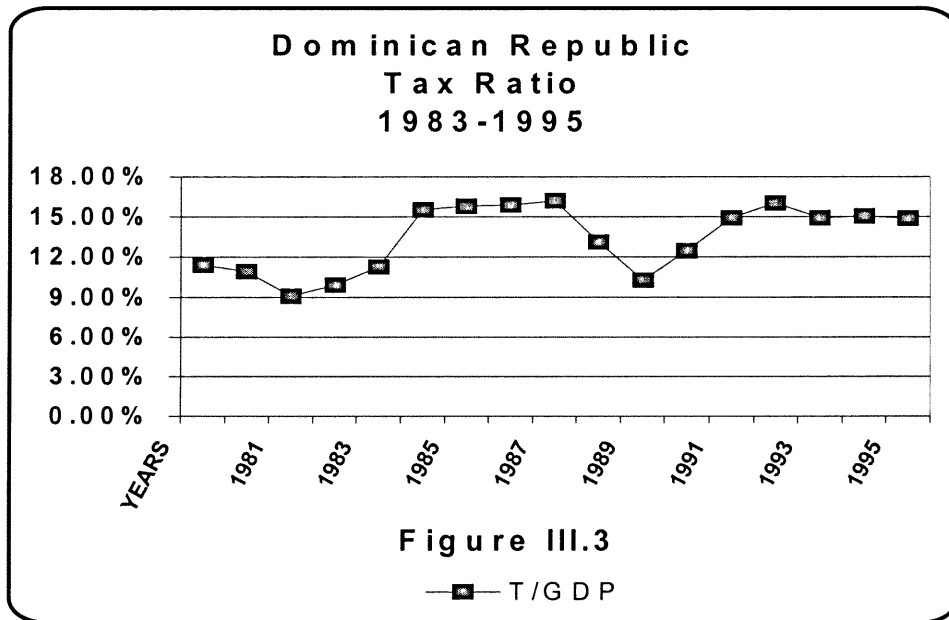
The tax reform targeted four groups of taxes⁶²: a) the income tax -for individuals and businesses- which comes from the Trujillo Era and was modified in 1962 by Law 5911; b) the value-added tax, known in the Dominican Republic as ITBIS and introduced with the IMF agreement of 1983; c) the selective tax on particular goods like alcohol,

Vega (December, 1995) criticized the World Bank study on the grounds that it wrongfully computed the average import tariffs for intermediate goods.

⁶² The main modifications of Law 11-92 are summarized in table A.III.2 in the appendix.

tobacco or some luxuries created through different laws since the beginning of the dictatorship; and d) "*El recargo cambiario*", an exchange rate commission of 20%, charged by the Central Bank to imports.

The tax reform aimed to increase the tax ratio and to improve the tax administration. The marginal tax rate for individual income tax was gradually reduced from 70% to 25%. For businesses, the marginal tax rate on benefits decreased from 49% to the same level as the personal tax (25%). The ITBIS was raised to 8% and its tax base was widened to prevent a potential reduction of income tax receipts. Figure III.3 shows how the tax ratio of the Dominican Republic evolved before and after the reform.



Source: Central Bank of the Dominican Republic, Quarterly Bulletin, various issues.

Though the reform increased the tax ratio, it was just enough to return to its 1983 level. Furthermore, it is still well below the Latin American average of 20%. This posed a challenge for the tariff reform. A reduction in custom duties will reduce the tax ratio of a country whose income is highly dependent on external taxes. Therefore, to avoid

unwanted deficits that can threaten economic stability, a complementary tax reform is mandatory with increasing liberalization. The controversial second wave of reform attempted precisely to achieve the goal of preserving stability while in the process of reform. In the next section we turn to the political economy of the Dominican reform process of 1996.

III.2. Toward a Second Wave of Reforms (1993-1996)

Despite the recovery of the Dominican economy after the first wave of reforms, economic stability was far from permanent. The delay in structural adjustments kept the old institutional framework intact, which allowed the relaxation of short-term policies. In 1993, the official party was on the verge of initiating a political campaign where its leader, Dr. Joaquín Balaguer was a presidential candidate for a third consecutive term. The economy was about to encounter a temporary boom of the political cycle. Government spending was increased while funds destined for debt repayments were deviated to finance political goals. The public deficit for the central government reached 4.5% of GDP in 1994, putting pressure on the level of prices and the exchange rate. A dependent Central Bank monetized the deficit and international reserves were depleted to avoid further depreciation.

The incipient economic crisis was exacerbated by two elements: 1) a corruption scandal in Customhouses, which led to the arrest of several public officials. Some of them made serious accusations against high ranking members of the government; 2) a new political crisis was in gestation. *Junta Central Electoral* (JCE, the Electoral Board) was unable to declare a winner in the 1994 election. The main opposition party, *Partido*

Revolucionario Dominicano (PRD) alleged fraud from the *official Partido Reformista Social Cristiano* (PRSC)⁶³.

In August, a new multiparty agreement, *Pacto Nacional por la Democracia* (National Pact for Democracy) was signed not only by PRD and PRSC, but by a third political force, Partido de la Liberación Dominicana (PLD)⁶⁴. The new pact centered around a constitutional reform that proved to be fundamental for the future political battles that developed with the second wave of reforms in 1996. Table III.2 presents the main constitutional changes agreed to in the pact.

TABLE III.2
Dominican Republic
Important Issues from
The 1994 Constitutional Reform

1. The prohibition of Presidential reelection.
2. The separation of Presidential and Congressional election.
3. The introduction of financial support to political campaigns through the budget.
4. The inclusion of a second round in Presidential electoral tournaments.
5. The call for a new election in 1996.

Source: Dominican Republic Constitution, 1994.

Regardless of the abrupt way in which it was approved, the content of this reform had been discussed for years in the Dominican Republic⁶⁵. Its connection with the second turn

⁶³ The English translation of parties' names would be Dominican Revolutionary Party and Reformist Social-Christian Party.

⁶⁴ PLD stand for Dominican Liberation Party.

⁶⁵ Such political reform was the aim of civil society for years. García Michel (1997, No.54) explains the importance of the constitutional changes of the 1994 political reform and the bargaining process behind it.

of reforms is that it changed the face of the traditional political spectrum. By calling for a new election in 1996, prohibiting presidential reelection and establishing a second round of voting should a first round majority not be obtained, the constitutional reform allowed a minority party, PLD, to reach the presidency. The elected candidate, a reformist lawyer, Dr. Leonel Fernández took power on August 16, 1996⁶⁶.

The new political panorama included a reformist President constrained by the new constitution to a non-renewable four year period, who will rule the country with a Congress dominated by the opposition. If submitted, the new set of reforms would have to pass the obstacle of an opposition Congress. The implications of this system were unknown for a country, which had passed through either dictatorial governments or democratic regimes where a single party controlled both the executive and legislative power.

The first test of relations between President Fernandez and Congress came with the 1997 budget. He submitted the budget on December 21, 1996 and with it the main components of the second wave of reforms: new tariff reductions and a tax amendment. The President explained that the bill represented an attempt to change the actual economic model to a more market and trade oriented framework⁶⁷. The political economy behind the discussion of the budget bill is explained in the rest of the chapter. I start

Vega (1996) describes how the authoritarian tradition in the Dominican Republic subordinated the political reform to the economic one. See pp.94-98.

⁶⁶ Dr. José Francisco Peña Gómez, presidential candidate of PRD, was the winner of the first round of the election followed by Fernández. The later received the support of PRSC and its candidate in the second turn of voting.

⁶⁷ Though Fernández explained that the tax amendment was a necessary measure to compensate the revenue lost caused by the tariff reduction, the opposition alleged he was seeking for greater income for the upcoming congressional election.

describing the proposed reforms and explaining the mechanism for budget approval in the Dominican Republic.

III.3. The Political Economy of the Second Wave of Reforms

III.3.1 Government Budget and Economic Reforms

To understand the setting in which economic reforms were discussed, we must describe the mechanism of fiscal decisions and budget approval in the Dominican Republic. The 1969 Budget Law established that the President should submit the budget to Congress at the beginning of the second legislative session in August of every year. Congress can either accept or reject the proposal. If rejected, the previous year's budget remains in place (Table III.3). The law also allows the Assembly to modify the project and it permits the president to veto any modification.

TABLE III.3
Dominican Republic
About the Budget Process

About the Budget Process	Dominican Republic	Latin America*
<ul style="list-style-type: none"> ▪ Constitutional Constraints on Fiscal Deficits. 	<ul style="list-style-type: none"> ▪ Constitution stipulates a "proper" financing of the deficit. 	16/20
<ul style="list-style-type: none"> ▪ Macroeconomic Program Constraints. 	<ul style="list-style-type: none"> ▪ Not important. 	5/20
<ul style="list-style-type: none"> ▪ Debt Ceiling Constraints. 	<ul style="list-style-type: none"> ▪ Congress approves each operation. 	8/20
<ul style="list-style-type: none"> ▪ Authority of the Finance Minister in the Drafting Stage. 	<ul style="list-style-type: none"> ▪ Equal to other ministers. 	1/20
<ul style="list-style-type: none"> ▪ Revisions to the Budget in the Implementation Process 	<ul style="list-style-type: none"> ▪ On government's initiative with congressional approval. 	16/20
<ul style="list-style-type: none"> ▪ Relationship of Government and Congress in the Approval Stage. 	<ul style="list-style-type: none"> ▪ If Congress rejects the budget, previous year's budget is enacted. 	8/20

Source: Inter-American Development Bank: Latin America after a Decade of Reforms: Economic and Social Progress Report, 1997.

*the fraction indicates how many out of 20 Latin countries follow similar guides in their process of budget approval.

As in most Latin American countries, if implemented, the budget can only be revised by the government with Congress' approval. Table III.4 compares the Dominican Legislative and Executive powers with the rest of Latin America. The Legislative Power is divided into two chambers: the Senate and the Chamber of Deputies. In December 1996, 29 out of 30 seats at the higher house were dominated by the opposition. The official party, PLD, had 13 seats in the Chamber of Deputies equivalent to only 10.8% of available seats. Though the Executive Power exhibit a presidential regime -as most Latin countries do- President Fernández faced an impressive minority in Congress when his reforms were submitted.

TABLE III.4
Dominican Republic
Fiscal Decisions and Democracy
-A Comparison with Latin America-

	Dominican Republic	Latin America
1. LEGISLATIVE POWER		
• Legislative Electoral Formulas	PR	15/26
• Number of Legislative Chambers.	2	7/15
• Single House District Magnitude	4.0	4/15 (between 1 and 5)
• Higher House District Magnitude	1	1/15
2.EXECUTIVE POWER		
• Type of System	Presidential	14/15
• Number of Rounds in Elections	2	7/15
3.ELECTORAL OUTCOME		
• Absolute number of parties in the lower house.	PRD: 58 seats PRSC: 48 seats PLD: 13 seats	4/15 (three parties or less)
• Absolute number of parties in the higher house.	PRD: 14 seats PRSC: 15 seats PLD: 1 seat	

Source: Inter-American Development Bank: Latin America after a Decade of Reforms: Economic and Social Progress Report, 1997.

PR = Proportional Representation. PL = Plurality System.

Between December 18 and 20, in three televised speeches, President Fernandez explained the importance of reforms for the socio-economic development strategy the government intended to implement. He described the goals of the program: to reach "a sustained growth of GDP of approximately 7 or 8% a year; an economy based on the private sector and oriented towards foreign trade; an inflation level below 10% per year; the equilibrium of the consolidated public sector; doubling the investment of government in the social sector; and a government principally dedicated to facilitating the operation of an export economy, to ensure investment in infrastructure and to embrace an integral strategy to improve equity and eliminate poverty⁶⁸.

The main economic adjustments presented with the 1997 budget are explain in table A.III.3 in the appendix. Conveniently, we divide policies into four groups: 1) those intended to restore *economic stabilization*; 2) those oriented *to liberalize* the economy; 3) those applied to *reform the tax system*; and 4) the *social compensation* to reduce the shock on low-income groups.

To reinforce stabilization the government increased fuel prices and liberalized the petroleum market. These measures attempted to smooth the effect of the periodic changes in petroleum prices over macroeconomic stability⁶⁹. The government also unified the exchange rate to a level of RD\$14- per US\$ causing an official devaluation of 8.8%. Furthermore, it promised a floating exchange rate system to reduce the anti-export bias

⁶⁸ President's speech on December 20, 1996. Reproduce on line in Santo Domingo News at the address: <http://www.drl.com/news/government/GN/EcoPlan97.html>.

⁶⁹ The Dominican Republic has an implicit tax calls "diferencial del petróleo" (petroleum differential), which consists in the revenue generated by the difference between the fixed price of gasoline and the equivalent international price. At the end of 1996, the price of oil was rising what considerably reduced the petroleum differential contributing to a potential government deficit.

that traditionally affected the country's economy⁷⁰. These new policies along with a greater fiscal discipline and a low degree of Executive intervention in Central Bank operations, allowed to keep inflation low while achieving economic growth (Figure III.1).

Though effective in economic terms, stabilization measures were highly unpopular. To avoid widespread discontents, the government undertook a set of compensation measures. The minimum wage for public servants was increased by 37%. Salaries for professionals, judges, legislators and others were increased by 40 to 150%. Additionally, it created a transport subsidy to avoid an increase in the cost of public transportation. The government made it clear that compensation was only possible provided the approval of the new tax reform.

Stabilization and compensation were part of the short-term government program. Structural adjustments were achieved via liberalization and the tax reform. They represented the real source of conflict in the 1996 reforms. The tariff reform proposed a reduction of the application of tariffs from eight to only four categories in 1997. Two years later, most tariff rates were to be unified at a level of 10%. To provide incentive to the agricultural producers, few farming materials and equipment would pay a preferential tariff of 1.5%. In addition, the tax reform attempted to compensate the loss of fiscal resources through the liberalization process. The government aimed to reach a 20% tax ratio similar to the overall average for Latin America.

Practically all economic agents agreed that tariffs should be reduced. The source of conflict in the tariff reduction was "by how much and how rapidly". Two modifications included in the tax reform were the core of controversy: the increase in

⁷⁰ Dauhajre (1994) explains with details how the economic legislation and the traditional policies applied in

ITBIS from 8 to 12% in 1997 and up to 19% in 1999; and the treatment of the tax on corporate profits⁷¹. The political debate centered on these two fiscal measures and the gradualism of tariff reform. In the next sub-section we present the political actors of the 1997 budget drama and their position on the reforms.

III.3.2 Actors in the Political Drama

The political economy of the reform approval was characterized by confrontations in three different arenas. First, the political collision between the President and his party, PLD, against Congress and its PRD majority. Second, businesses battled *between Consejo Nacional de la Empresa Privada (CONEP) and Unión Nacional de Empresarios (UNE)*. Finally, the economic debate between opposing private consulting firms, *Fundación Economía y Desarrollo (FEyD)*, a neo-liberal oriented institution and *Ecocaribe-Siglo XXI*, a more moderate advising group⁷². The confrontation was initially indirect through different means of communication. Later, it became direct confrontation when the different interest groups collided in Congress during the budget bill public sprints.

A very popular President Fernández⁷³ and several functionaries made contact with businessmen, union leaders, the press, politicians and other groups in search of political

the Dominican Republic had created a bias against the export sector.

⁷¹ The conflictive points in the reform of the tax on Corporate profits were the elimination of depreciation and interest payments as deductible expenses to calculate profits and the inclusion of a 1% tax on firm's gross assets.

⁷² Table A.III.4 in the appendix presents an internal radiography of the six political actors. It explains their origins, their composition and the connections among each other.

⁷³ According to the Rumbo-Gallup poll, in August 1996, 65% of the population approved government management at the time. See, "News media grades first 100 days of the Fernández Presidency", Santo Domingo News, December 6-12, 1996.

support⁷⁴. Moreover, the President met personally with the leaders of the two main opposition parties. Dr. Balaguer, leader of PRSC, initially offered him support while Dr. Peña Gómez, leader of PRD said he would present a report of the meeting to the political committee of his party in order to assume a position regarding the reforms⁷⁵.

The budget submitted to Congress on December 21, 1996 was RD\$ 33, 626 million. According to Dauhajre (1997) it had already been amended by businesses influence in their previous meeting with the President. The budget was submitted along with the reforms described in the previous section. All political actors started to assume their positions for the upcoming political battle in Congress.

In the business arena, while UNE called the economic package "coherent and efficient"⁷⁶ and endorsed it completely, CONEP disagreed⁷⁷ and recommended a proposal elaborated by the private consulting firm, Ecocaribe⁷⁸. FEyD opposed Ecocaribe's proposal and firmly defended the government reforms.

Finally, in the political ring, Dr. Peña Gómez carried out his promise to discuss reform support with the political committee of PRD. The party rejected the budget since "a law that has an application over a year cannot modify a group of fundamental (economic) laws"⁷⁹. PRD also favored a more gradual reduction in import tariffs, arguing that as established, "the new reform would result in a massive invasion of imported

⁷⁴ The steps taken by the government searching support for its reforms are widely described by the written press. See Listin Diario, Hoy, El Siglo, several newspaper issues between December 1 and 20, 1996.

⁷⁵ See "Peña Gómez says days of confrontation are over", Santo Domingo News, Dec 27-Jan. 7, 1997.

⁷⁶ See Santo Domingo News, "Business spokesman favors the measures", Santo Domingo News, January 3-9, 1997.

⁷⁷ CONEP disagree with the proposal even before its submission. After a meeting in National Palace in early December, its President, Celso Marranzini, said that "the business sector agrees with a gradual reduction in import taxes, but rejects any increase in ITBIS because it will be fatal for private business". See "ITBIS must be increased", Santo Domingo News, November 29-December 5, 1996.

⁷⁸ See appendix table A.III.4

products that will affect domestic industries”⁸⁰. Even, Dr. Balaguer and PRSC, which offered support for the policies earlier, were willing "to reject the budget if it contains measures to raise fuel prices or increase ITBIS"⁸¹.

In summary, when political negotiations were transferred to Congress, the actors of the political drama were divided in two blocks: a) a pro-reform block formed by UNE, FEyD and the government; and b) an anti-reform block led by CONEP in the business sector, Ecocaribe/SigloXXI in the economic area and PRD in Congress. In the next subsection we explain the evolution of events in the political game.

III.3.3 The Political Game: A Summary of Events

On December 24 1996, a weekend after the budget bill submission, CONEP announced its position in a press statement⁸². It called for support of all stabilization measures, but to reject the tariff reform on the grounds that it would not allow a restructure of the productive sector⁸³. Two days later, the government started to cut on its proposed reform. It left suspended the abolishment of firm's deductions for depreciation and interest payments⁸⁴. It also kept the old tax rate on corporate profits deciding against the reduction to 10%⁸⁵.

⁷⁹ See “Secretary of Presidency says its all or nothing”, Santo Domingo News, January 10-16, 1997.

⁸⁰ Ibid.

⁸¹ See Santo Domingo News, “Balaguer opposed to ITBIS and fuel price increase”, November 29-December 5, 1996.

⁸² See Linares (1997), pp.57-59.

⁸³ See table A.III.4 in the appendix.

⁸⁴ See “Government amends budget bill”, Santo Domingo News, January 24-30, 1997.

⁸⁵ Though a reduction in the marginal tax rate on Corporate profits from 25 to 10% was a measure designed to favor the business sector, CONEP protested against it. The problem was that this reduction was accompanied by the elimination of depreciation and interest payments as deductible business expenses. The truth is that these deductions have been used in the Dominican Republic to declare annual losses and evade the payment of the correspondent tax.

Political negotiations had an explicit deadline. The legislative section was to end on January 12 and every bill not approved by that date would have to wait for the second legislative section, which would start on February 27. For anti-reform groups, a good strategy was to delay any decision on the reform proposal. CONEP kept pressuring and in less than 15 days it reached an agreement with the government to resubmit the budget with certain modifications⁸⁶. The modified reform package was set to be discussed in Congress on January 17, 1997. The role of different groups during these Congress public sights constitutes the most important episode of the political game.

During the whole process, the government maintained its position of not separating the budget bill from the reforms. Isidoro Santana, an economist from Ecocaribe/SigloXXI presented the position of the anti-reform block at the public sights when "it urges legislators to split the budget discussion from that of the reforms, not to file the latter or to arbitrarily reject them, but to be study and discuss with the seriousness that it merit"⁸⁷. Both opposition parties in Congress agreed to follow this line, which practically forced the presidential veto.

The debate to split the reforms from the budget bill centered on the government's ability to satisfy its expenses with the existing tax system. While Ecocaribe/Siglo XXI declared that the new budget underestimated government revenues, FEyD argued, that on the contrary, if approved without the tax reform, the new budget deficit would jeopardize economic stability. For the former consulting group, the government proposal was made by FEyD and "it lacked transparency, consensus spirit and teamwork"⁸⁸. FEyD replied

⁸⁶ See table A.III.5 appendix.

⁸⁷ Linares (1997), p.62.

⁸⁸ See García Michel (1997, 56).

that though not its own plan, they did contribute to it by submitting to the government a macroeconomic medium-term program⁸⁹. They also accused economists from Ecocaribe/SigloXXI of lobbying on behalf of CONEP⁹⁰.

Regardless of the truthfulness of this statement, the position of Ecocaribe/Siglo XXI constantly coincided with CONEP. Both entities argued that possible alternatives to halted tax increases were a reduction in government's capital expenses and an improvement in collections through a reduction of tax evasion⁹¹. On the other hand, UNE and FEyD held similar positions as they believed CONEP was disturbing the reform process. UNE said that for CONEP "the only good reforms are those which allow them to keep absorbing the greatest proportion of the economic pie"⁹². FEyD, through its president, stated that "Congress is in the hands of the economic powers of the country (CONEP) and the Executive branch has always been under their influence"⁹³.

On January 24, 1997, a modified budget-reform package that contained the modifications made through the CONEP-Government agreement was sent to Congress. Table A.3.5 in the appendix compares the original government package of reforms to the amended proposal after negotiations with CONEP. The balance of negotiations shows the "respect" the government had for the most powerful interest group in the country. The government practically ignored other political actors and a disillusioned Senate said

⁸⁹ The program at which FE y D refers is Dauhajre and Aristy Escuder (1996).

⁹⁰ See Dauhajre (1997, 505) and Dauhajre and Aristy Escuder (1997, 541).

⁹¹ See Linares (1997), pp.31-51 and 60-64.

⁹² Ibid., p.74.

⁹³ See "Andy talks frankly", The Santo Domingo News, January 7-14, 1997.

through its president, Dr. Ramón Alburquerque that differences with the government were increasing rapidly⁹⁴.

For the new submission, the government had to propose a special legislative section since the former expired on January 12. In this new section, Senators from the two opposition parties agreed to split the National Budget from the reform package. Furthermore, they modified the budget and approved keeping the compensation expenses while ruling out the new proposed sources of income. They even increased salaries further. The president vetoed the approved budget and relied on the 1996 budget for the new fiscal year ending the battle to approve a second wave of reform.

The battle for the 1996 economic reforms had winners and losers. Undoubtedly, the anti-reform block led by CONEP displayed its power and demonstrated its capacity of success once again. Though fast and intense, the politics behind the reform approval process in the Dominican Republic, gives the observer an opportunity to draw important conclusions. The experience, the organization level and the relative size of the lobby among other factors, determine the destine of reforms in young democracies with weak institutions.

In the next two chapters we develop the political economy models and compare their results to some of the issues discussed in the case study. The first model considers a weak President, who submits a tariff bill to an anti-reform Congress. The President is weak in the sense that is led by two opposing lobbies, which play a reduced-form political game. The second model presents a similar game, but considers a strong

⁹⁴ See “Budget informally sent to Congress”, The Santo Domingo News, January 31-February 6, 1997.

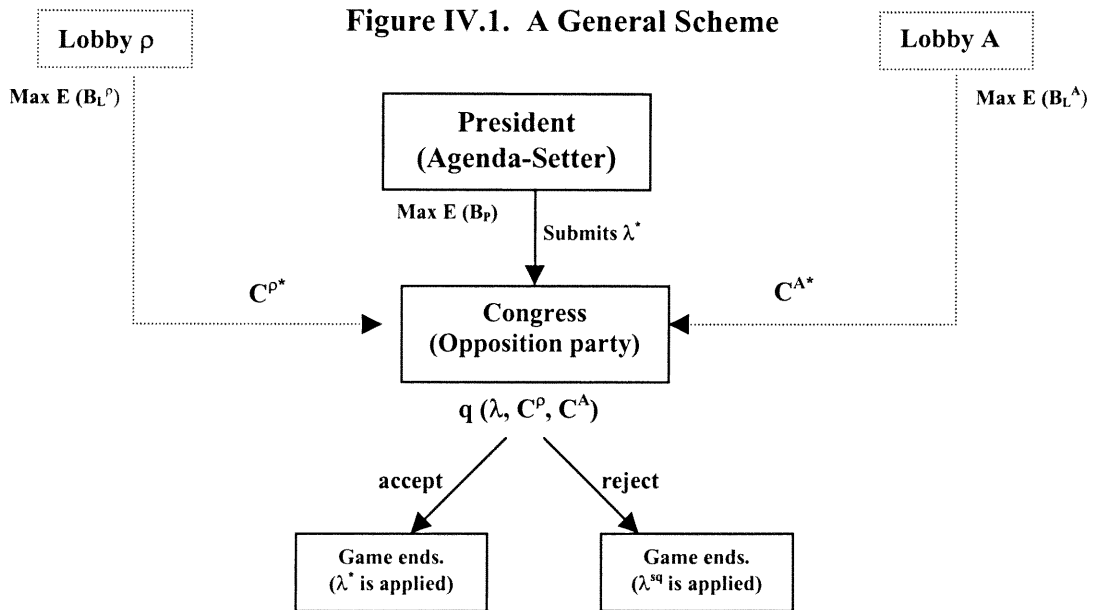
President, who is allowed only two choices, total reform or status-quo. The President leads the lobbies in his reform attempt.

CHAPTER IV

MODEL I: THE CASE OF A WEAK PRESIDENT

IV.1 A General Scheme

The simplest version of the model is represented by the following figure:



The core of the game is defined by the solid line scheme. It starts with a pro-reformer president, P, who is the Agenda-Setter. He submits a proposal to an anti-reform Congress regarding the share of tariff revenue in total tax revenue. λ represents this proportion. An opposition Congress has no intention of approving the tariff bill unless some benefits can be drawn from the process. The bill will pass with some probability q determined by λ , and the amount of lobbying contributions, C^i . That is, $q(\lambda, C^i)$ where $i = \{\rho, A\}$ (pro and anti-reform contributions) with the correspondent assumption of concavity in all arguments. If the policy is approved, the game ends and λ^* , the optimal

share of tariff revenue is enforced. If the bill is rejected, the game ends and the status quo share of tariff revenue λ^{sq} , characterized by a high level of protectionism, is maintained.

I concentrate on the reduced game played by the lobbies L^i , who act as leaders vis a vis a welfare-maximizing President. Before any policy submission, the lobbies play a simultaneous game with no information asymmetries. The game entails deciding the amount to contribute to Congress so as to influence (indirectly) policy acceptance or rejection. Lobbies maximize their own expected net benefit, $E(B_L^i)$. For ρ , the pro-reform lobby, $E(B_L^{\rho})$ increases when λ is reduced and decreases when contributions have to be paid. For A, the anti-reform lobby, $E(B_L^A)$ decreases when λ is reduced and when contributions have to be paid. Both functions are assumed to be concave with respect to λ and C^i .

For simplicity, it is also assume that total contributions are equal to total lobby costs. In other words, a dollar increase in contributions raises total lobbying costs by one dollar. Therefore, L^i 's total cost is an increasing linear function of contributions that can be easily depicted as a 45-degree line¹. Figure IV.2 shows the total cost and total benefit curves for a representative lobby given a share of tariff revenue over total tax revenue. C^* is the level of endogenous contributions chosen by the politically rational lobby. At C^* the net expected benefit for the lobby, $E(B_L^i)^*$, is given by the vertical distance AB, which is equal to the difference between total benefit (TB_L^i) and total cost (TC_L^i). For any other C^i , this vertical distance is smaller than AB.

¹ We are ignoring organizational costs at this stage. A full diagrammatic approach to endogenous lobbying theory with the same sort of assumptions can be found in Brock, Magee and Young (1989). Feenstra and Bhagwati (1982) show also a diagrammatic approach to endogenous lobbying theory where the cost of contribution is not a linear function as lobbies have extra costs cause by changes in factor prices due to a tariff reform or changes in relative price obtained before and after liberalization.

TB_L^i, TC_L^i

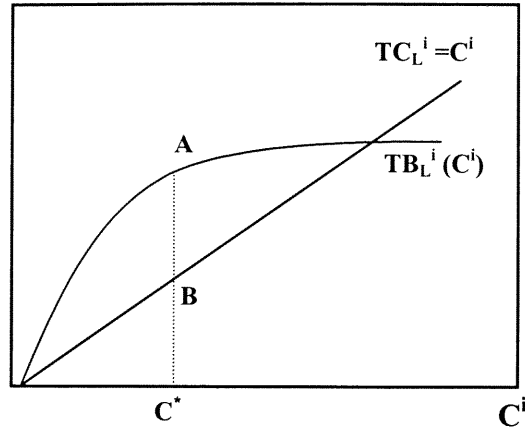


Figure IV.2

Be aware that the curves depicted in figure IV.2 represent one case of many possible.

There are as many graphs as shares of tariff revenue over total government revenue, λ , exists. In the next section I describe the submitted economic reform and then proceed to discuss the motivations behind lobbying behavior.

IV.2 Description of the Policy

I assume the President faces a balanced budget where total government expenditure, G , is exactly equal to total tax revenue, T . Tax receipts can be collected from two sources: foreign, R_F and domestic, R_D . Specifically:

$$G = T = R_F + R_D \quad (1)$$

Let λ be the share of tariff revenue over total tax revenue ($R_F = \lambda T$) and let α be the proportion of tax revenue collected domestically ($R_D = \alpha T = [1-\lambda]T$), then $\alpha T + \lambda T$ represents the total tax revenue collected by the government. Assuming a very protected

economy in the status quo ($\lambda > \alpha$)², and abstracting from administrative issues, a reduction in λ represents the reform the President is pursuing.

In terms of the policy itself, a final point must be stressed. Any reduction in the share of tariff revenue is welfare improving for society since we are assuming a small open economy. Furthermore, a reduction in the share of tariff revenue in total government revenue to a level $\lambda=0$ must be a society's welfare maximizer³.

IV.3 Lobbying Behavior and its Sources of Motivation

Brock, Magee and Young (1989) argue that three motivations drive lobbying behavior. First, a *policy effect* that captures the economic benefit obtained by the lobby through the application of its favored policy. Second, an *access effect* that captures the expected economic value of having greater access to party decisions in the future, and third, a *retribution effect* that captures the expected cost imposed on the lobby by the winning party of an election due to lobby contributions to the loser party. So far, the model does not include an electoral setting so a *retribution effect* is not an issue of discussion. We focus on the *policy effect* and unless it is explicitly specified in the model, the access effect is also excluded.

Based on these general assumptions about lobby behavior, I study the interactions between a pro-reform lobby mainly formed by importers of final goods (commercial

² This is not a strong assumption since Musgrave (1959) showed that in early stages of development, most of the tax revenue of countries is collected through custom duties due to administrative constraints and a shrunk tax-base. More recently, Burgess and Stern (1993), using a sample of eighty-two countries confirmed Musgrave findings. In the Dominican Republic before the first wave of liberalization in the early nineties, a proportion of total tax revenue close to 50 %, was collected through customhouses.

³ This presents a puzzle since we might think of liberalization as a measure that add an extra distortion to the economy, that is, the rise in domestic taxes. To avoid having ambiguous effects over welfare, we assume non-distortionary domestic taxes, i.e. production taxes and think of tariff as a more distortionary policy than domestic taxation.

sector) and an anti-reform lobby formed by import-substituting producers⁴. In funding the Congress, the lobbies face a trade-off: the greater the funds, the greater the probability that their favored policy will pass, but also, the greater total cost. The former increases their expected net benefits, whereas the latter reduces their expected net benefits. In section IV.4, I describe the political game, its players, strategies and payoffs.

IV.4. THE POLITICAL GAME

IV.4.1. The Main Rules: Players, Strategies and Payoffs

Magee (1997) argues that government policies are interest group based and act in political markets like prices do in economic markets. Policies constitute a system of signals that determined the behavior of political actors. Of course, part of the gains for these actors arise from political predation, which is the result of a non-cooperative effort. Such a setting requires a non-cooperative game where the political players (P and L^j) interact strategically in the decision-making process.

Any political structure with only a few participants dominating the political scenario can be related to an oligopolistic framework in an economic market, and model itself with non-cooperative games⁵. A solution for this type of game is a Nash Equilibrium where none of the players have an incentive to deviate from that particular position. The game in this version is a static game where players have the same amount of information despite the probabilistic Congress equation.

⁴ The idea of a pro-reform lobby is drawn from observations of the liberalization process in the Dominican Republic. In the early nineties, a new powerful lobby formed by importers of final goods and members of the commercial sector under the name of UNE appeared. UNE stands for the translation to Spanish of *National Union of Entrepreneurs*. See chapter III for the details of the battle of the lobbies in the Dominican Republic.

⁵ Non-cooperative game theory is covered in Funderberg and Tirole (1989). The article is collected in Schmalensee, R and Willig, R.D. (editors), Handbook of Industrial Organization, Vol. I, 1989. In the same volume, Carl Shapiro presented a comprehensive study on oligopoly theory.

Players in the model are assumed to be expected net benefit maximizers. The President, P, maximizes his expected net benefit by choosing λ , and the lobbies maximize their expected net benefit by choosing C^i . Each player's strategy is given by $\lambda \in [0, \lambda^{sq}]$ and $C^i \in [0, C^{i \max}]$. A typical strategy for P is a choice of $0 \leq \lambda^* < \lambda^{sq}$ ⁶. A typical strategy for any lobby L^i is a choice of $0 \leq C^{i*} \leq C^{i \max}$. Payoffs are obtained through optimization problems of the political agents. For the President the expected benefit, $E(B^P)$, is equal to:

$$E(B_p) = q(\lambda, C^i)W(\lambda) + [1 - q(\lambda, C^i)]W(\lambda^{sq}) \quad (2)$$

Where: λ = Proportion of total tax revenue collected through tariffs.
 C^i = Lobby contributions to Congress and $i = \{\rho, A\}$.
 W = Society's welfare and $W_\lambda < 0$ and $W_{\lambda\lambda} < 0$.
 q = The probability that the Congress will approve the reform and $q_\lambda > 0$, $q_C^\rho > 0$, $q_C^A < 0$, $q_C^\rho C^\rho < 0$, $q_C^A C^A < 0$, $q_{\lambda\lambda} < 0$.
 $1 - q$ = The probability that the Congress will reject the reform.
 λ^{sq} = Proportion of tax revenue collected through tariffs in the status quo.

The payoff for a typical lobby is obtained from the maximization of its expected net benefit $E(B_L^i)$, in which:

$$E(B_L^i) = q(\lambda, C^i)U^i(\lambda) + [1 - q(\lambda, C^i)]U^i(\lambda^{sq}) - C^i \quad (3)$$

Where: $U^i(\lambda)$ = Expected utility received by the respective lobbies if the policy is approved.
 $U^i(\lambda^{sq})$ = Expected utility received by the respective lobbies in the status quo when the policy is rejected.
 $U_\lambda^\rho < 0$, $U_{\lambda\lambda}^\rho < 0$, $U_\lambda^A > 0$, $U_{\lambda\lambda}^A < 0$

At this stage the game is fully defined with players, strategies and payoffs. The game theoretic equilibrium concept is Nash equilibrium similar to the Cournot game in economics where two firms (lobbies) choose production quantities (contributions). In the

⁶ Observe the President chooses his typical strategy from a continuum of policies. In the second model,

next sub-section, I focus on the reduced-form game played by the two lobbies before the agenda is undertaken.

IV.4.2. Playing The Reduced Lobbying Game

In the reduced-form game, lobbies endogenize the solution of a weak President⁷, who maximizes his expected net benefit in the following manner:

$$\text{Max}_{\lambda} \quad E(B_p) = q(\lambda, C^p, C^A)W(\lambda) + [1 - q(\lambda, C^p, C^A)]W(\lambda^{sq}) \quad (2)$$

$$\frac{\delta^{(+)} q}{\delta \lambda}(\lambda, C^p, C^A) [\psi^{(+)}(\lambda)] + [\psi'^{(-)}(\lambda)] q(\lambda, C^p, C^A) = 0 \quad (4)$$

WELFARE - EFFECT BRAKE - EFFECT

The President's expected net benefit is affected by two forces: a positive *welfare effect* given by $\psi = [W(\lambda) - W(\lambda^{sq})]$, which is the extra benefit provided to society with the new policy, and a negative *distortion effect* that acts as a *liberalization brake* given the trade-off the President faces. That is, the lower the tariff the greater W, but also the lower the probability that the bill will pass. Lets now turn to the lobbies problem.

The pro-reform lobby maximizes its expected net benefit given by equation 5:

$$\text{Max}_{C^p} \quad E(B_L^p) = q(\lambda, C^p, C^A)U^p(\lambda) + [1 - q(\lambda, C^p, C^A)]U^p(\lambda^{sq}) - C^p \quad (5)$$

$$\left[\frac{\delta^{(+)} q}{\delta \lambda}(\lambda, C^p, C^A) \phi^{(+)}(\lambda) + \phi'^{(-)}(\lambda) q(\lambda, C^p, C^A) \right] \frac{d\lambda}{dC^p} + \frac{\delta^{(+)} q}{\delta C^p}(\lambda, C^p, C^A) [\phi^{(+)}(\lambda)] = \frac{1}{MPC} \quad (6)$$

MPB

Where: $\phi(\lambda) = U^p(\lambda) - U^p(\lambda^{sq}) > 0$, $\phi'(\lambda) < 0$ and $\phi''(\lambda) < 0$.

developed in chapter V, P faces a discrete choice between total reform and status-quo protectionism.

⁷ The reader must think of the weakness of the President as "not being too committed to reform". A strong President, therefore, would be that "committed to reform".

Equation 6 presents the optimal solution of the pro-reform lobby. The lobby chooses how much to contribute (C^*) by equating its marginal political benefit (MPB^p) to its marginal political cost (MPC^p). Figure IV.3 illustrates this process.

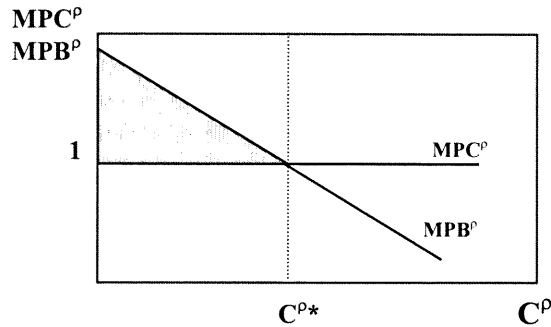


Figure IV.3

The marginal political cost is equal to one so it is represented by a horizontal line. The marginal political benefit curve is downward sloping as total benefit increases at a decreasing rate. For levels of C^p below C^{p*} , $MPB^p > MPC^p$, implying that the lobby is under-contributing. The opposite happens for values of C^p above C^{p*} . The expected net benefit of engaging in political activities for members of lobby p is represented by the shaded area.

The expected net benefit of the anti-reform lobby is written as:

$$\text{Max}_{C^A} \quad E(B_L^A) = q(\lambda, C^p, C^A)U^A(\lambda) + [1 - q(\lambda, C^p, C^A)]U^A(\lambda^{sq}) - C^A \quad (7)$$

Where: $E(B_L^A)$ = the expected net benefit of the anti-reform lobby.
 $U^A(\lambda)$ = the expected utility received by the anti-reform lobby if the policy is approved.
 $U^A(\lambda^{sq})$ = the expected utility received by the anti-reform lobby if the policy is rejected.
 C^A = the level of anti-reform contributions to Congress.

Lobby A, the first order condition obtained from equation 7 yields:

$$\theta^{(-)}(\lambda) \left[\frac{\partial q}{\partial \lambda}(\lambda, C^p, C^A) \frac{d\lambda}{dC^A} + \frac{\partial q}{\partial C^A}(\lambda, C^p, C^A) \right] + \theta^{(+)}(\lambda) q(\lambda, C^p, C^A) \frac{d\lambda}{dC^A} = 1_{MPC} \quad (8)$$

Where: $\theta[\lambda] = U^A(\lambda) - U^A(\lambda^{sq}) < 0$, $\theta'[\lambda] > 0$ and $\theta''[\lambda] < 0$.

As its rival the pro-reformer, Lobby A chooses its optimal contribution level by comparing marginal political benefits and costs. While MPC^A is equal to one, MPB^A has two components: a positive element defined by the influence of anti-reform contributions over q and λ , and a negative welfare effect given by the element $\theta'[\lambda]$, which decreases whenever the share of tariff revenue declines due to anti-reform contributions.

The next step is to study strategic interactions between the lobbies. To understand how a lobby responds to changes in its rival's behavior, I must get its reaction function. The pro-reform lobby best response function, $C^{\rho*}(C^A)$, is obtained implicitly from equation 6 and similarly, the reaction function $C^{A*}(C^{\rho})$ of the anti-reform lobby, is found in equation 8. A diagrammatic representation of such functions requires the estimation of their slopes.

Let $E(B_L^{\rho}) = F(\lambda, C^{\rho}, C^A)$ to ease the notation of the pro-reform lobby problem.

Rewriting and totally differentiating the first order condition in equation 6, I get dC^{ρ}/dC^A , the slope of the pro-reform lobby reaction function.

$$F_{C^{\rho}}(\lambda, C^{\rho}, C^A) + F_{\lambda}(\lambda, C^{\rho}, C^A) \frac{d\lambda}{dC^{\rho}} = 0 \quad (9)$$

$$[F_{C^{\rho}\lambda} + F_{\lambda\lambda} \frac{d\lambda}{dC^{\rho}}]d\lambda + [F_{C^{\rho}C^A} + F_{\lambda C^A} \frac{d\lambda}{dC^{\rho}}]dC^A + [F_{C^{\rho}C^{\rho}} + F_{\lambda C^{\rho}} \frac{d\lambda}{dC^{\rho}} + F_{\lambda} \frac{d^2\lambda}{dC^{\rho 2}}]dC^{\rho} = 0 \quad (10)$$

$$\frac{dC^{\rho}}{dC^A} = \frac{\overbrace{-[F_{C^{\rho}\lambda} + F_{\lambda\lambda} \frac{d\lambda}{dC^{\rho}}] \frac{d\lambda}{dC^A}}^{(+)} - \overbrace{[F_{C^{\rho}C^A} + F_{\lambda C^A} \frac{d\lambda}{dC^{\rho}}]}^{(-)}}{\underbrace{F_{C^{\rho}C^{\rho}} + F_{\lambda C^{\rho}} \frac{d\lambda}{dC^{\rho}} + F_{\lambda} \frac{d^2\lambda}{dC^{\rho 2}}}_{(-)}} \underset{<}{\overset{\geq}{>}} 0 \quad (11)$$

Equation 11 shows an ambiguous sign for the slope of the pro-reform lobby's best response function⁸. I must stress two important issues. First, observe $d\lambda/dC^i$ and $d^2\lambda/dC^{i2}$ are outcomes from the endogeneization of the President maximization problem. Second, notice $F_{C^p\lambda}$ is the only element with an ambiguous sign⁹. Regardless of its sign, $[F_{C^p\lambda} + F_{\lambda\lambda}d\lambda/dC^p]$, the first element in bracket in the numerator, is positive¹⁰.

To obtain the slope of the anti-reformer's reaction function, I follow the same procedure applied for the pro-reform lobby. Let $E(B_L^A) = G(\lambda, C^p, C^A)$ to ease the notation of the anti-reform lobby problem. Rewriting and totally differentiating the first order condition in equation 8, I get dC^A/dC^p , the slope of the anti-reform lobby reaction function.

$$G_{C^A}(\lambda, C^p, C^A) + G_{\lambda}(\lambda, C^p, C^A) \frac{d\lambda}{dC^A} = 0 \quad (12)$$

$$[G_{C^A\lambda} + G_{\lambda\lambda} \frac{d\lambda}{dC^A}]d\lambda + [G_{C^A C^p} + G_{\lambda C^p} \frac{d\lambda}{dC^A}]dC^p + [G_{C^A C^A} + G_{\lambda C^A} \frac{d\lambda}{dC^A} + G_{\lambda} \frac{d^2\lambda}{dC^{A2}}]dC^A = 0 \quad (13)$$

$$\frac{dC^A}{dC^p} = \frac{\overbrace{[G_{\lambda\lambda} \frac{d\lambda}{dC^A} \frac{d\lambda}{dC^p}]}^{(+)} - \overbrace{(G_{C^A C^p} + G_{\lambda C^p} \frac{d\lambda}{dC^A})}^{(+)} - \overbrace{G_{C^A\lambda} \frac{d\lambda}{dC^p}}^{(-)}}{\underbrace{G_{C^A C^A} + G_{\lambda C^A} \frac{d\lambda}{dC^A} + G_{\lambda} \frac{d^2\lambda}{dC^{A2}}}_{(-)}} > 0 \quad (14)$$

⁸ The computation of the different partials in equation 11 is developed in section A.4.1 of the appendix. The signs of these partials and others in the anti-reformer best response function require some extra assumptions. I further assume that $q_{\lambda C^p} < 0$, $q_{C^p\lambda} < 0$, $q_{\lambda C^A} > 0$, $q_{C^A\lambda} < 0$ and $q_{C^p C^A} < 0$ and justify these assumptions where is pertinent with a diagrammatic approach.

⁹ All elements in equation 11 are computed in section A.4.1 of the appendix.

¹⁰ The proof is in section A.4.1 of the appendix and require the use of equations a.4.6 and a.4.7.

The reaction function for the anti-reform lobby is upward sloping provided the element $d^2\lambda/dC^{A2}$, obtained from the President's problem, is insignificantly small¹¹.

Proposition I

In the linear case,

(a) *the element $d^2\lambda/dC^{A2}$ is zero and the anti-reform lobby's reaction curve is upward sloping.*

(b) *the element $d^2\lambda/dC^{p2}$ is zero and the shape of the pro-reform lobby's reaction curve depends on the following condition:*

$$i) \quad \frac{dC^p}{dC^A} \begin{matrix} > \\ < \end{matrix} 0 \quad \text{iff} \quad \underbrace{[F_{C^p\lambda} + F_{\lambda\lambda} \frac{d\lambda}{dC^p}]}_{(+)} \underbrace{\frac{d\lambda}{dC^A}}_{(+)} \begin{matrix} > \\ < \end{matrix} \underbrace{[F_{C^pC^A} + F_{\lambda C^A} \frac{d\lambda}{dC^p}]}_{(-)}$$

Proposition I states two possible graphical cases: either both curves are upward sloping and lobbies regard each other contributions as strategic complements, or only the pro-reform lobby's curve is downward sloping¹². The first case is more likely to occur either when the president is not too committed to reform ($d\lambda/dC^A$ is large) or when the pro-reform lobby cares more about the policy than about the adverse effect of anti-reform contributions on its expected net benefit ($F_{C^p\lambda} > F_{C^pC^A}$ and/or $F_{\lambda\lambda} > F_{\lambda C^A}$).

The diagrammatic expressions presented in figure IV.4 provide our two possible equilibrium solutions for the linear case. We should observe that although we have talked

¹¹ The signs of the different partial derivatives that are components of equation 14 are found in section A.4.2 of the appendix.

¹² The first case assume complementarity among levels of contributions. That is, when a pro-reform lobby group decides to provide more funds, its rival, an anti-reform self-interested group reacts by providing also more funding. The second case suggests that the anti-reform lobby regards contributions as complements while the pro-reformer regards them as substitutes. Bulow, Geanakoplos and Klemperer (1985) argue that this is possible in oligopoly theory, only if we assume that the former is large compared to the latter. One might think of the anti-reform lobby as having some sort of advantage since the opposition Congress is also an anti-reformer.

about two best response functions, in real terms, such functions are not. Best response functions require some sort of dynamic setting and this framework is strictly static. In our model, lobbies do not react to an opponent's strategy, rather they move simultaneously.

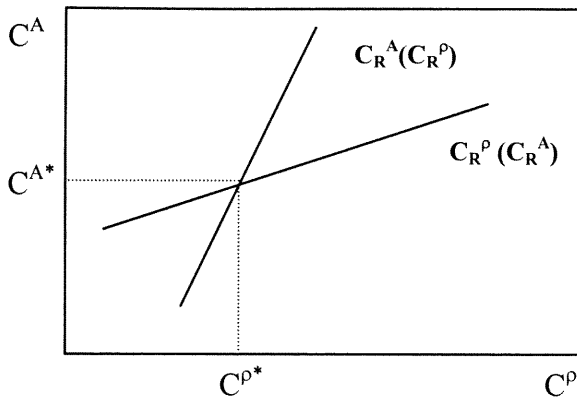


Figure IV.4(a)

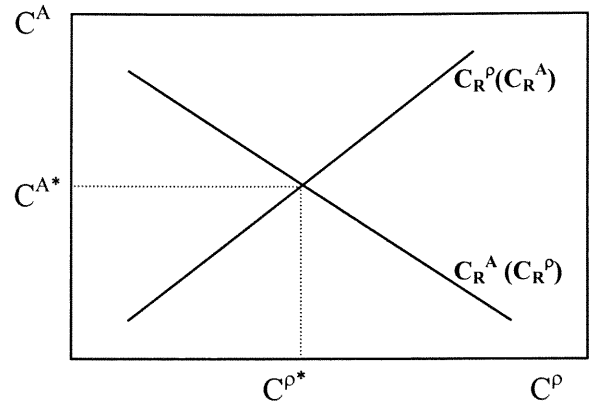


Figure IV.4(b)

Figure IV.4(a) depicts a typical graph for the linear case with strategic complement contributions and perfect symmetry¹³. Figure IV.4(b) shows the case where the pro-reform lobby sees anti-reform contributions as a substitute good. In other words, pro-reform's reaction to more anti-reform funding is to be less aggressive as its profitability from funding Congress decreases.

I should point that with different functional forms, there is no guarantee that the curves cross at some point in the plane. It is perfectly possible to have a graph like the one depicted in figure IV.5, where R_L^A and R_L^P represent the respective reaction functions of the anti-reform and the pro-reform lobby.

¹³ Dixit (1987) in a paper on contests presents different asymmetric cases where the favorite best response function in the neighborhood of N.E. is upward sloping whilst the underdog best response curve is downward sloping in the same vicinity.

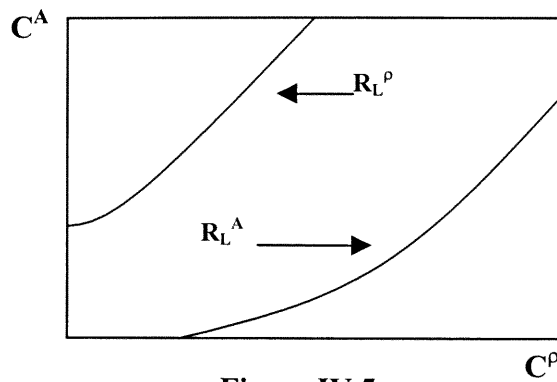


Figure IV.5

Tirole (1989) discusses two sets of assumptions under which is possible to get existence of a pure strategy equilibrium in a Cournot framework between two firms. The first group assumes each firm's profit function has to be concave in its own choice. The second approach follows Novshek (1985) and shows that if a firm's marginal revenue increases with the competitor's output, a pure strategy equilibrium exists. I already assume concavity of the expected net benefit functions, so existence is drawn from our previous assumptions¹⁴. However, even if it exists, equilibrium need not to be unique. With a nonlinear functional form, it is possible to obtain multiple equilibria as depicted in figure IV.6. The case is irrelevant for our purposes, but it still exists.

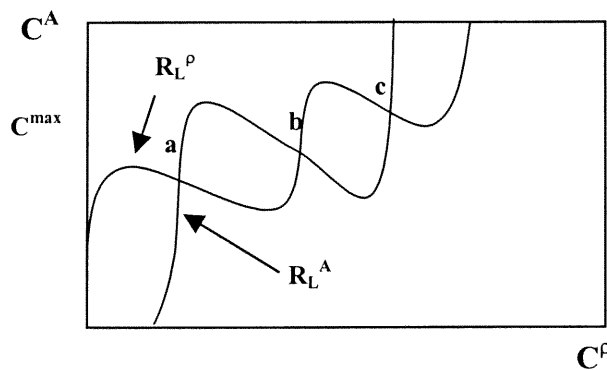


Figure IV.6

¹⁴ The analysis of existence and uniqueness of equilibrium in this section is based on Tirole (1988, pp. 224-228), Friedman (1977, 69-83 and 1986, 34-47), Gibbons (1992, pp. 29-48) and Biermann and Fernandez (1998, pp. 38-41).

In searching for uniqueness, a sufficient condition for reaction curves to intersect only once is that wherever they intercept, the reaction function of ρ should be greater than the reaction function of A ¹⁵. For our model, this condition will hold if the reaction functions are less than 1 in absolute value over the relevant ranges¹⁶. Therefore, a sufficient condition for uniqueness is:

$$ii) \quad F_{C^{\rho}C^{\rho}} > F_{C^{\rho}C^A} \quad \text{and} \quad G_{C^AC^A} > G_{C^AC^{\rho}}$$

The solution to these derivatives is included in appendix A.4.3. The expressions are fairly complicated to be conclusive. The fact is that assuming a unique, stable and interior Nash equilibrium in these models have been more the rule than the exception. In lobbying economies, Findlay and Wellisz (1982), Wellisz and Wilson (1986), Hall and Nelson (1992), Brock, Magee and Young (1989) and others, either assumed or did not address the question of the existence of an equilibrium in their respective games¹⁷.

In the next section I turn to the President problem and study how is affected by the lobbying game. Then I proceed to do some comparative static exercises in the reduced-form lobbying game. Departing from the strategic complements setting, that is, from an equilibrium like the one depicted in figure IV.4(a), I explore the effects of a change that makes public opinion less supportive of the reform, over the contributions of the lobbies.

¹⁵ See Tirole (1989).

¹⁶ Friedmand (1977) shows that this is a sufficient and necessary condition for a contraction.

¹⁷ Pant (1997) analyzes this issue in a chapter strictly dedicated to review the endogenous tariff literature.

IV.5 The Real Game: The President Submits the Policy

Recall the structure of our model depicted in the general scheme in figure IV.1. The reduced-form political game between the lobbies that we just solved preceded the submission of the policy to Congress. The result of the lobbying game affect P's decision indirectly through its pervasive influence over Congress behavior.

As before, the agenda-setter submits the policy, λ^* , by maximizing his expected benefit function. The difference with his previous objective function is that the chosen level of contributions in the reduced-form game, C^{ρ^*} and C^{A^*} , are now part of the arguments of function q , the probability of obtaining Congress approval. P's problem could be posed as:

$$\text{Max}_{\lambda} \quad E(B_p) = q(\lambda, C^{\rho^*}, C^{A^*})W(\lambda) + [1 - q(\lambda, C^{\rho^*}, C^{A^*})]W(\lambda^{sq}) \quad (15)$$

$$\frac{dE(B_p)}{d\lambda} = \underbrace{\frac{\delta^{(+)} q}{\delta \lambda}(\lambda, C^{\rho^*}, C^{A^*})}_{\text{WELFARE-EFFECT}} [\psi^{(+)}(\lambda)] + \underbrace{[\psi^{(-)}(\lambda)]}_{\text{BRAKE-EFFECT}} q(\lambda, C^{\rho^*}, C^{A^*}) = 0 \quad (16)$$

Equation 16 presents the correspondent solution or first order condition for P's problem. As we explained before, the President balances a welfare and a liberalization-brake effect in his decision-making process. The chosen share of tariff revenue over total tax revenue, λ , depends on which effect dominates. A decrease in λ increases society's welfare, but serve also as a brake for Congress approval. The President is aware the lobbies are playing an important role in shaping Congress' behavior. Although he is not a self-interested politician, he is indirectly affected by this negative influence.

Let's turn back to the reduced-form lobbying game to study how an external shock, a change in public opinion against the reform, alters the lobbies' decision of how much to contribute to advance their favored policy.

IV.6 Comparative Statics: A Change in Public Opinion

Assume q is affected inversely by a parameter β , that collects any event that decreases the probability of the Congress passing the bill. That is, $q_\beta < 0$ ¹⁸. Specifically, we are thinking in terms of a change in public opinion favoring protectionism¹⁹. Departing from the interior equilibrium shown in figure IV.5(a), I study the effect of changes in the parameter β over the two opposing level of contributions, C^P and C^A . Recall the first order conditions of the lobbies' problem represented by equations 6 and 8 to include parameter β :

$$\left[\frac{\delta q}{\delta \lambda}(\lambda, C^P, C^A; \beta) \phi(\lambda) + \phi'(\lambda) q(\lambda, C^P, C^A; \beta) \right] \frac{d\lambda}{dC^P} + \frac{\delta q}{\delta C^P}(\lambda, C^P, C^A; \beta) [\phi(\lambda)] = 1 \quad (16)$$

MPB

$$\left[\frac{\delta q}{\delta \lambda}(\lambda, C^P, C^A; \beta) \theta(\lambda) + \theta'(\lambda) q(\lambda, C^P, C^A; \beta) \right] \frac{d\lambda}{dC^A} + \frac{\delta q}{\delta C^A}(\lambda, C^P, C^A; \beta) [\theta(\lambda)] = 1 \quad (17)$$

MPB

In general form, we can rewrite equations 16 and 17 as:

$$F_{C^P}(\lambda, C^P, C^A; \beta) + F_\lambda(\lambda, C^P, C^A; \beta) \frac{d\lambda}{dC^P} = 0 \quad (18)$$

$$G_{C^A}(\lambda, C^P, C^A; \beta) + G_\lambda(\lambda, C^P, C^A; \beta) \frac{d\lambda}{dC^A} = 0 \quad (19)$$

¹⁸ Remember we previously assumed that q is concave with respect to all its arguments. We hold that assumption for parameter β .

¹⁹ A change in public opinion that favors protectionism logically represents less support for the reform. In the events that affected the Dominican Republic in 1996, the Press played an important role turning public opinion against the reform. We want to think about parameter β as collecting this pervasive effect.

These two equations represent the same first order conditions from the lobbies maximization problem with a single addition. Now, the first partials are also influenced by parameter β , so the decision-making process of the lobbies is affected not only by the policy and the level of contributions, but also by an external negative shock provided by the change in public opinion against the reform. The total differentiation of equations 18 and 19 yields:

$$[F_{C^{\rho}\lambda} + F_{\lambda\lambda} \frac{d\lambda}{dC^{\rho}}]d\lambda + [F_{\lambda\beta} \frac{d\lambda}{dC^{\rho}} + F_{C^{\rho}\beta}]d\beta + [F_{C^{\rho}C^{\rho}} + F_{\lambda C^{\rho}} \frac{d\lambda}{dC^{\rho}} + F_{\lambda} \frac{d^2\lambda}{dC^{\rho 2}}]dC^{\rho} = 0 \quad (20)$$

$$[G_{C^A\lambda} + G_{\lambda\lambda} \frac{d\lambda}{dC^A}]d\lambda + [G_{C^A\beta} + G_{\lambda\beta} \frac{d\lambda}{dC^A}]d\beta + [G_{C^AC^A} + G_{\lambda C^A} \frac{d\lambda}{dC^A} + G_{\lambda} \frac{d^2\lambda}{dC^{A2}}]dC^A = 0 \quad (21)$$

Observe that equations 20 and 21 include the mixed partials with respect to parameter β , keeping other lobby behavior fixed. Manipulating these equations algebraically, we obtain equations 22 and 23, which tell us how a change in public opinion affects each lobby's level of contribution.

$$\frac{dC^{\rho}}{d\beta} \Big|_{dC^A=0} = \frac{\overbrace{-[F_{\lambda\lambda} \frac{d\lambda}{dC^{\rho}} + F_{C^{\rho}\lambda}]}^{(+)} \frac{d\lambda}{d\beta} - \overbrace{[F_{\lambda\beta} \frac{d\lambda}{dC^{\rho}} - F_{C^{\rho}\beta}]}^{(-)}}{\underbrace{F_{C^{\rho}C^{\rho}} + F_{\lambda C^{\rho}} \frac{d\lambda}{dC^{\rho}} + F_{\lambda} \frac{d^2\lambda}{dC^{\rho 2}}}_{(-)}} > 0 \quad (22)$$

$$\frac{dC^A}{d\beta} \Big|_{dC^{\rho}=0} = \frac{\overbrace{-G_{\lambda\lambda} \frac{d\lambda}{dC^A} \frac{d\lambda}{d\beta}}^{(-)} - \overbrace{G_{C^A\lambda} \frac{d\lambda}{d\beta}}^{(-)} - \overbrace{[G_{\lambda\beta} \frac{d\lambda}{dC^A} + G_{C^A\beta}]}^{(-)}}{\underbrace{G_{C^AC^A} + G_{\lambda C^A} \frac{d\lambda}{dC^A} + G_{\lambda} \frac{d^2\lambda}{dC^{A2}}}_{(-)}} < 0 \quad (23)$$

The denominators of both expressions are exactly the same of equations 11 and 14. The numerators include all the partial derivatives with respect to parameter β ²⁰.

Proposition II

An increase in β (a change in public opinion against the reform) leads to:

(a) a decrease in anti-reform contributions, C^A .

(b) an increase or decrease in pro-reform contributions, C^P , depending on

b.1. how committed is the President to reform (the magnitude of $d\lambda/d\beta$).

b.2. how the sensitivity of the pro-reform lobby's expected net benefit with respect to the policy and its own contributions (F_λ and F_{C^P}) is affected by the change in public opinion and the policy itself.

The effect of a change in public opinion on pro-reform contributions can be summarized in condition i:

$$iii) \quad \frac{dC^P}{d\beta} \begin{matrix} > \\ < \end{matrix} 0 \quad \text{iff} \quad \overbrace{[F_{C^P\lambda} + F_{\lambda\lambda} \frac{d\lambda}{dC^P}]}^{(+)} \frac{d\lambda}{d\beta} \begin{matrix} > \\ < \end{matrix} \overbrace{[F_{C^P\beta} + F_{\lambda\beta} \frac{d\lambda}{dC^P}]}^{(-)}$$

Observe that if F_λ and F_{C^P} are more sensitive to changes in λ than to changes in parameter β , for a given level of $d\lambda/d\beta$, it is more likely $dC^P/d\beta$ would be positive.

Assuming this is the case an increase in parameter β (a change in public opinion against the reform) causes a more aggressive behavior of the pro-reform lobby. Figure IV.7 illustrates this hypothetical case. It might be plausible to hold this assumption since β affects the expected utility of Lobby ρ only indirectly while the policy exerts a direct influence on it.

²⁰ The signs of these partials are found in section A.4.4. of the appendix.

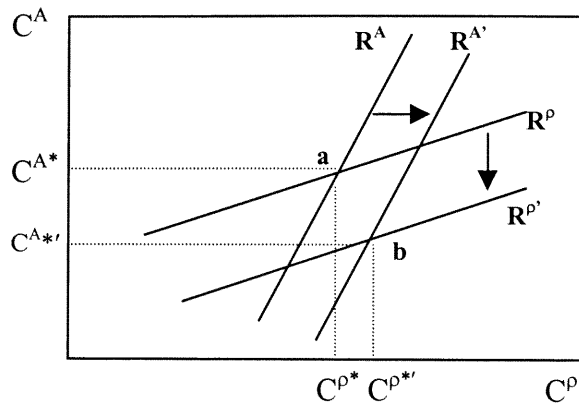


Figure IV.7

A change in public opinion that favors protectionism shifts both reaction curves outward. Equilibrium move from point a to b yielding a higher level of contributions by Lobby ρ and a lower level of funding by Lobby A. The country study on the Dominican reform process presented in chapter III provides some empirical support for the behavior of the pro-reform lobby in this model.

One might argue that during the Dominican affair, Lobby ρ cares more about the policy than about any other influence on the reform contest. On the contrary, the behavior of the anti-reform lobby is not well explained by this framework. However, the second model developed in chapter V, where the President is strongly committed to reform, suitably explained Lobby A's reaction to the change in public opinion.

IV.7. Conclusions

This paper presented the case of a weak President, not too committed to reform, who is led by opposing lobbies in his policy submission. Lobbies endogenize the President's solution as they choose the optimal level of funding to be provided to an opposition Congress. The reduced-form lobbying game yields two possible linear equilibrium. In the first equilibrium, lobbies regard each other contributions as strategic complements. An

increase in the contributions of Lobby A makes Lobby ρ to compete and increase its provision of funds. In the second equilibrium, while Lobby A perceives its rival's contributions as strategic complements, Lobby ρ sees A's contributions as strategic substitutes.

Two factors determine the final equilibrium. First, how committed the President is to reform (the size of $d\lambda/dC^{\rho}$ and $d\lambda/dC^A$) and second, how changes in λ and C^A affect the sensitivity of the pro-reformer's expected benefit to changes in the policy and its own contributions (the magnitude of $F_{\lambda\lambda}$, $F_{C^{\rho}\lambda}$, $F_{\lambda C^{\rho}}$ and $F_{C^{\rho}C^A}$).

A turn in public opinion toward protectionism (an increase in β) causes Lobby A to decrease contributions since an opposition Congress needs less bribery to reject the reform. The reaction of the pro-reform lobby depends on two forces. First, how committed the President is to reform. Second, how the pro-reform lobby weighs the influence of policy vis a vis other variables on its expected net benefit. If Lobby ρ cares more about the policy than about any other variable, it will increase its contributions while tries to smooth the effect of public opinion on the Congress' willingness of approval. This seems to be the case in the Dominican Republic in 1996, where the pro-reform lobby behaved more aggressively as public opinion turned against the reform.

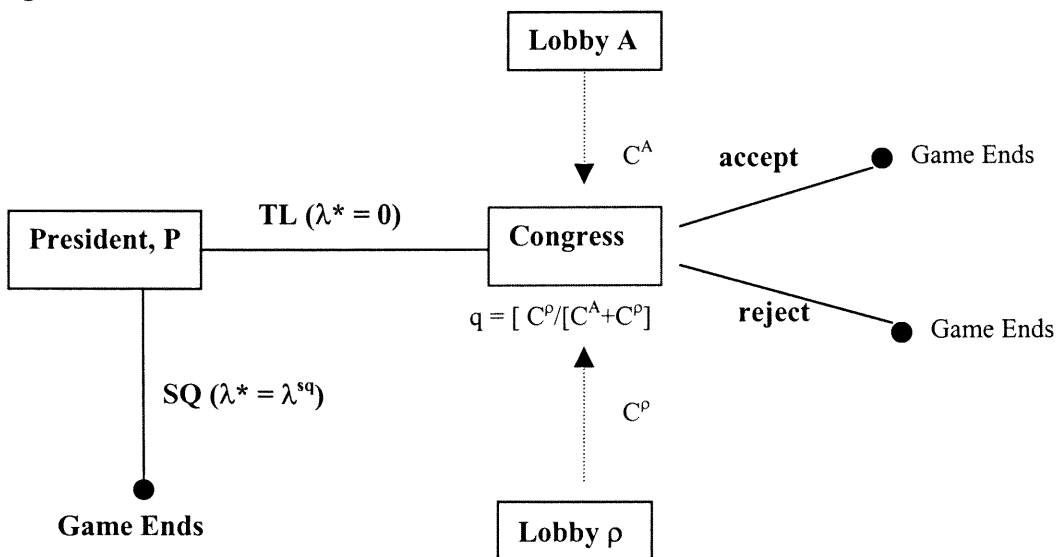
CHAPTER V

MODEL II: THE DISCRETE CASE OF A COMMITTED PRESIDENT

The second model considers a strong president, who faces a discrete choice between total reform and a protectionist status quo. The President acts as a leader vis a vis the lobbies, incorporating the solution of the reduced-form lobbying game in his decision-making process. The lobbying game is set as a tariff contest where two contenders (lobbies) exert effort (contributions) to increase the probability of winning a prize (the policy). The chances of winning the prize are determined by the probability of policy approval in Congress.

V.1 Schematic Representation of the Game

A President, P, faces a discrete choice between total liberalization (TL) and the status quo (SQ) in a small open developing economy. To achieve TL he has to set the share of tariff revenue over total government revenue, λ , equal to zero. The status quo represents the actual state of the world where $\lambda = \lambda^{sq21}$. The following extensive form game tree serves as a general scheme for the model:



The President is the agenda-setter and moves first in the overall sequential game. An opposition Congress moves second and either accepts or rejects the proposal with some probability q . The overall game is drawn in solid lines. The game ends if P chooses the status quo or, once Congress chooses to accept or reject if P chooses to liberalize. Congress' behavior is determined exogenously and it acts like a black-box where the final policy decision is taken.

I must stress two important issues of the game. First, unless we impose a fixed cost for the President when proposing, SQ is a weakly dominated strategy since the worst payoff the President could get by pursuing TL is exactly equal to the best payoff he could achieved with the alternative strategy. Second, having an anti-reformer Congress implies an automatic rejection of the policy unless the Assembly is motivated otherwise. We assume that Congressmen are self-interested politicians whose decision depends on lobbies' funding. Consequently, there is a reduced-form lobbying contest preceding the overall game.

The lobbying game is defined in the general scheme with dashed lines. Two opposing lobbies play a simultaneous move game in which they choose the level of contribution that will be provided to Congress. An anti-reform lobby, A , contributes to decrease q or the probability of policy approval while a pro-reform lobby, ρ , contributes to increase it. A Nash equilibrium for such setting is represented by a common point where every lobby maximizes its own expected net benefit given the other lobby's choice. The President incorporates the equilibrium outcome to his expected net benefit

²¹ For the description of the policy and the relevant assumptions on the different variables in this model, we refer the reader to chapter IV.

function, before deciding whether to propose or not. In the next section I estimate the equilibrium of the lobbying game and then move toward the general setting.

V.2. The Lobbying Game: Estimating the Reaction Process

The lobbying game is a contest where opposing special interest groups expend effort in the form of contributions to win a prize. The prize for each lobby is represented by their respective expected net benefit $E(B_L^i)$ obtained from the policy, where $i = \{A, \rho\}$. Dixit (1987) define any bribery to receive a lucrative license or a contract from a government as a contest²². He uses two types of function to define the probability of winning such prize: the probit and the logit functions. I use the latter to define q or the probability of Congress approval (winning a prize). Let's start by looking at the pro-reform lobby maximization problem.

The pro-reform lobby supports TL, so it tries to influence q in such a way that a new level of λ equal to zero is approved. Let $q = \{C^\rho / (C^A + C^\rho)\}$ and $1-q$, the probability of Congress rejection be $1 - \{C^\rho / (C^A + C^\rho)\} = \{C^A / (C^A + C^\rho)\}$ ²³. Applying these definitions to our traditional pro-reform lobby maximization problem, we get:

$$\text{Max}_{C^\rho} \quad E(B_L^\rho) = \frac{C^\rho}{C^\rho + C^A} U^\rho(\lambda = 0) + \left[1 - \frac{C^\rho}{C^\rho + C^A}\right] U^\rho(\lambda = \lambda^{sq}) - C^\rho \quad (1)$$

F.O.C

²² Other political and economic interactions have been studied as contests. See chapter I for a brief review of the contest literature.

²³ We are aware of the limitations of choosing this type of function. In axiomatizing the logit function, Skaperdas (1994) assume that the winning probability of each player in a contest depend on the difference in efforts. In our model that is the same of saying that q depends only on the size of the difference between

$$\left[\frac{C^A}{(C^p + C^A)^2}\right]U^p(\lambda = 0) - \left[\frac{C^A}{(C^p + C^A)^2}\right]U^p(\lambda = \lambda^{sq}) = 1 \quad (2)$$

$$\underbrace{\frac{C^A}{(C^p + C^A)^2} [U^p(\lambda = 0) - U^p(\lambda = \lambda^{sq})]}_{MPB} = \underbrace{1}_{MPC} \quad (3)$$

Where: $\phi > 0$, $\phi' < 0$, $\phi'' < 0$ and $C^a \geq 0$.

Observe ϕ is the utility differential for the pro-reform lobby between the two policy options in our discrete game. I relate this utility differential to the size of the lobbies and use the alternative interpretation indistinctly. The larger the lobby, the more it has to gain from pursuing its favored policy.

Equation 3 states that Lobby ρ optimally chooses the level of contributions that equates marginal political benefits (MPB) to marginal political costs (MPC). The MPC is constant and equal to one given our assumption of zero lobby organizational cost²⁴. The MPB depends on two elements: lobbies' contributions and the expected utility differential, ϕ . Total liberalization increases ρ 's welfare through the expected utility differential, so as long as MPB exceeds 1 the pro-reform lobby would be willing to increase contributions. One can manipulate equation 3 and solve for C^p as an explicit function of C^A . The outcome, equation 4, yields the reaction function for the pro-reform lobby to the level of contributions chosen by the anti-reformer.

$$C^p = [C^A \phi]^{\frac{1}{2}} - C^A \quad (4)$$

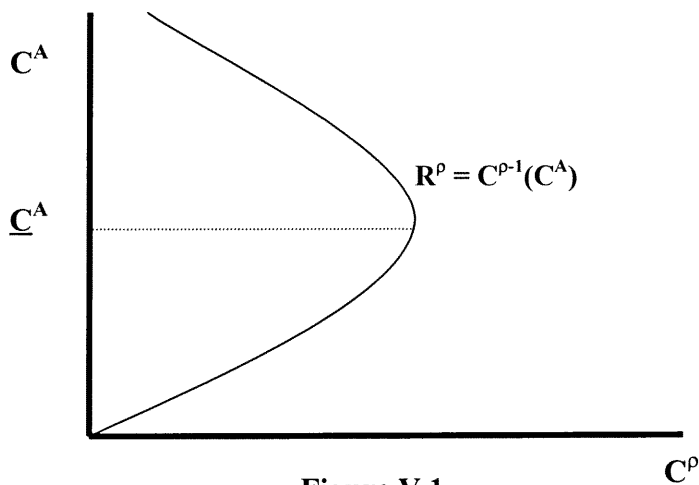
opposing contributions. This strong assumption suggests that q should be equal for a case where $C^a = 10$ and $C^p = 100$ and a case where $C^a = 1,000,000$ and $C^p = 1,000,090$.

²⁴ Specifically, total lobbying costs equate the total amount of contributions as explained in the previous chapter.

The origin is definitely a point on the reaction curve. If A decides not to contribute, ρ 's best response will also be not to contribute. To figure out the shape of the best response curve, I totally differentiate equation 4 and solve for the element dC^ρ/dC^A , the slope of the reaction function:

$$\frac{dC^\rho}{dC^A} = \frac{1}{2} \left[\frac{\phi}{C^A} \right]^{\frac{1}{2}} - 1 \quad (5)$$

The shape of the reaction curve for the pro-reform lobby, R^ρ , depends on the level of anti-reform contributions, C^A . It will be different for low and high levels of C^A . Let \underline{C}^A be the level of anti-reform contributions that makes $1/2 [\phi/C^A]^{1/2}$ equal to 1. Then, for levels of C^A below \underline{C}^A , the element $1/2 [\phi/C^A]^{1/2}$ is large enough to offset 1 and the best response curve is upward sloping. For levels of C^A above \underline{C}^A , the element $1/2 [\phi/C^A]^{1/2}$ is smaller than 1 and the best response curve is downward sloping.



Notice in figure V.1 that for values of C^A below \underline{C}^A , the pro-reform lobby responds to more aggressive behavior of its rival (an increase in C^A) with a greater effort in searching for the contest prize (an increase in C^ρ). Following the industrial organization literature, the pro-reform lobby perceives anti-reform contributions as strategic

complements²⁵. On the contrary, for levels of C^A above \underline{C}^A , the pro-reform lobby's best response to more aggressive anti-reformer's behavior is to reduce its general effort, so it perceives anti-reform contributions as strategic substitutes.

Using the same logit form for the probabilistic function, I turn to the anti-reform lobby maximization problem. The expected net benefit is given by:

$$\text{Max}_{C^A} \quad E(B_L^A) = \frac{C^\rho}{C^\rho + C^A} U^A(\lambda = 0) + \left[1 - \frac{C^\rho}{C^\rho + C^A}\right] U^A(\lambda = \lambda^{sq}) - C^A \quad (6)$$

F.O.C.

$$-\frac{C^\rho}{(C^\rho + C^A)^2} \underbrace{[U^A(\lambda = 0) - U^A(\lambda = \lambda^{sq})]}_{\theta} = 1 \quad (7)$$

$$-\underbrace{\frac{C^\rho}{(C^\rho + C^A)^2} [\theta]}_{MPB} = \underbrace{1}_{MPC} \quad (8)$$

Where: $\theta = [U(\lambda=0) - U(\lambda=\lambda^{sq})] < 0$, $\theta'(\lambda) > 0$ and $\theta''(\lambda) < 0$.

Equation 8 represents implicitly how the anti-reform lobby makes contribution decisions.

As expected, it chooses contributions by comparing marginal political benefits to marginal political costs. Solving C^A as a function of C^ρ gives us the explicit reaction or best response function for the anti-reform lobby.

$$C^A = -\left[C^\rho \frac{1}{2} \theta^{\frac{1}{2}}\right] - C^\rho \quad (9)$$

By totally differentiating equation 9 and solving algebraically for dC^A/dC^ρ , I obtain the slope of the reaction curve:

$$\frac{dC^A}{dC^\rho} = -\frac{1}{2} \left[\frac{\theta}{C^\rho}\right]^{\frac{1}{2}} - 1 \quad (10)$$

²⁵ See Tirole (1989), and Bulow et al (1985).

Again, the slope depends on the size of the other lobby's contributions. Let \underline{C}^p be the level of pro-reform contributions that equates $-1/2[\theta/C^p]^{1/2}$ to 1. For levels of C^p below \underline{C}^p , $-1/2[\theta/C^p]^{1/2}$ is greater than 1, so the slope is positive and the anti-reformer sees p 's contributions as a strategic complement. On the other hand, for levels of C^p that exceeds \underline{C}^p , the element $-1/2[\theta/C^p]^{1/2}$ is smaller than 1, the slope is negative and the anti-reformer sees p 's contributions as a strategic substitute. The reaction curve of the anti-reform lobby, R^A , is represented by the inverse U-shaped curve depicted in figure V.2.

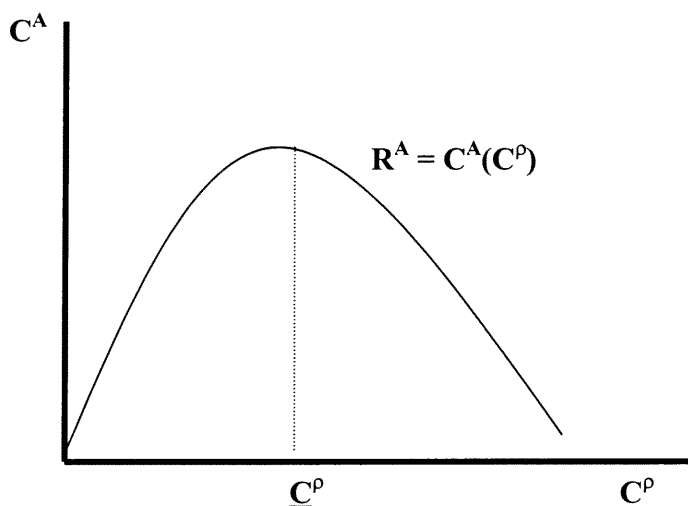


Figure V.2

V.3. Equilibrium in the Lobbying Game

The next step is to establish the equilibrium of the lobbying game or the point at which no lobby has an incentive to switch its position given its rival's location. Such point is found at the intersection of the two reaction curves. Recall equations 4 and 9, the best response functions of the lobbies, plugging one into the other I get the Nash equilibrium levels of contributions, C^{p*} and C^{A*} , as functions of ϕ and θ . Keep in mind these parameters stand for the expected utility differentials or the size of the lobbies.

$$C^{A*} = \left[\frac{\phi^{\frac{1}{2}} \theta}{\theta - \phi} \right]^2 \quad (11)$$

$$C^{P*} = \left[\frac{\phi^{\frac{1}{2}} \theta}{\theta - \phi} \right] \phi^{\frac{1}{2}} - \left[\frac{\phi^{\frac{1}{2}} \theta}{\theta - \phi} \right]^2 \quad (12)$$

The Nash equilibrium is given by equation 13:

$$(C^{P*}, C^{A*}) = \left(\left[\frac{\phi^{\frac{1}{2}} \theta}{\theta - \phi} \right] \phi^{\frac{1}{2}} - \left[\frac{\phi^{\frac{1}{2}} \theta}{\theta - \phi} \right]^2, \left[\frac{\phi^{\frac{1}{2}} \theta}{\theta - \phi} \right]^2 \right) \quad (13)$$

C^{P*} , the contributions of the pro-reform lobby could be greater, equal or less at equilibrium than C^{A*} , the contributions of the anti-reform lobby. Overall, we have three possible diagrammatic representations. First, if both levels of contributions were exactly equal at equilibrium, we would have perfect symmetry and equilibrium would lie on a 45 degree line that represents the locus of points that satisfy $C^{P*} = C^{A*}$. Figure V.3. shows the perfect symmetric case.

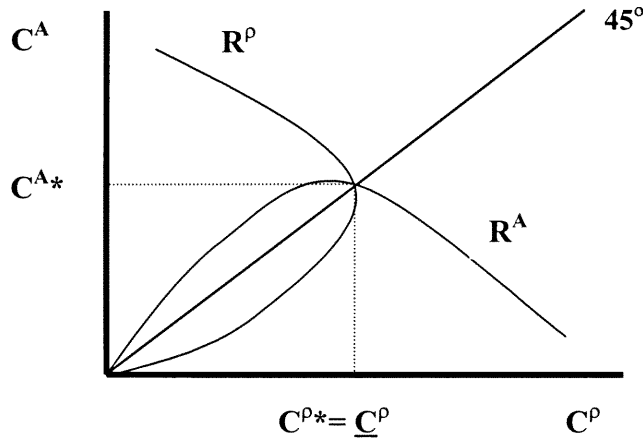


Figure 5.3

Second, if C^{P*} exceeds C^{A*} the equilibrium will lie to the right of the 45 degree line, like in the picture depicted in figure V.4. Drawing from Dixit (1987) we could argue that in this particular case the pro-reform lobby is considered to be a favorite. By the same

token, its rival would be considered the underdog of this tariff contest²⁶. Baik and Shogren (1992) showed that for such a case the favorite's (the pro-reformer) expected net benefit $E(B_L^P)$ is decreasing when one moves up along its reaction curve. So, as contributions by lobby A increase the expected benefit of the pro-reformer decreases for every level of his own contribution C^P ²⁷.

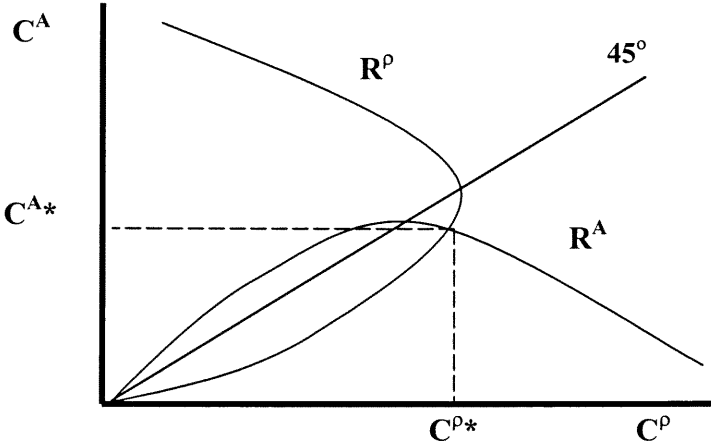


Figure V.4

The third possible case occurs when C^{P*} is less than C^{A*} and the equilibrium lies to the left of the 45 degree line. In such case, shown in figure V.5., the anti-reformer becomes the favorite and the pro-reformer, the underdog.

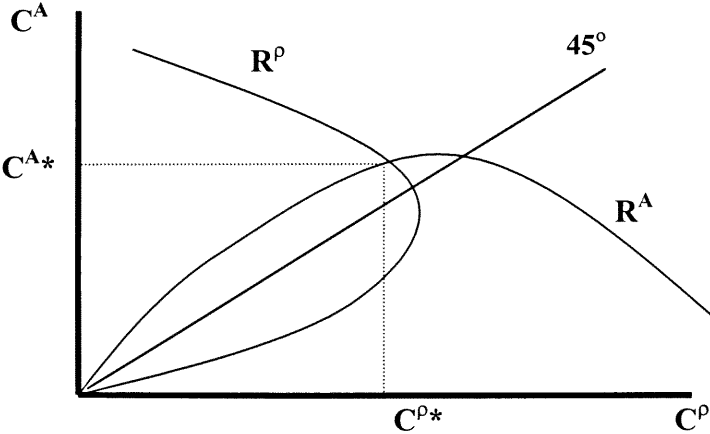


Figure V.5

²⁶ Being a "favorite" in the lobbying contest implies having a probability of winning the prize that exceeds 50% in the Nash Equilibrium.

Proposition III

*When a strong President faces a discrete choice between total reform and status-quo and the probability of Congress approval assumes a logit form of function, the reduced-form lobbying game equilibrium depends on the size of the lobbies in such a way that*²⁸

$$(a) \text{ if } \phi \begin{matrix} \geq \\ < \end{matrix} |\theta| \Rightarrow C^{\rho*} \begin{matrix} \geq \\ < \end{matrix} C^{A*}$$

When $|\theta|$ exceeds ϕ initially, the model yields an equilibrium similar to the one depicted in figure V.5. In other words, when the membership of Lobby A exceeds that of Lobby ρ , the anti-reform lobby has more to lose than what its rival has to gain. Provided the historical background of protectionism in the Dominican Republic described in chapter II, one can argue that losing the privilege of high tariffs was tougher for those who enjoyed it for years, than what gaining liberalization was, for a pro-reformer sector who never enjoyed it before.

The other asymmetric case illustrated in figure V.4 arises when ϕ exceeds $|\theta|$ at the original equilibrium. That is, the pro-reform lobby is larger than the anti-reformer and receives a greater level of extra utility than what the anti-reform lobby loses from total liberalization. Examples of such case are difficult to find in developing countries that applied an inward-oriented development strategy.

Dixit (1987) explains that in any contest with a logit functional form, the player favored to win has a strategic incentive to overcommit effort. In the case depicted in figure V.5, where A's membership is larger than ρ 's membership, the favorite anti-

²⁷ Whenever the anti-reform lobby increases C^a or its level of effort, the probability of Congress approval q decreases, therefore reducing the pro-reformer's expected payoff.

²⁸ The algebraic manipulation to obtain condition (a) is included in the appendix, section A.5.1.

reformer would overexert if one allows precommitment in the model²⁹. This outcome can be related to what happened in the Dominican Republic in 1996, where the anti-reform block started to overexert way before the trade reform was submitted to Congress. At the an opposition Congress, rejected the proposal since the pro-reform could not motivate it otherwise. Let analyze the effect of changes in the size of the lobbies over the Nash equilibrium level of contributions.

V.4 Comparative Statics: Changes in Utility Differentials

Equation 13 defines the Nash Equilibrium levels of contributions in terms of the size of the lobbies, ϕ and θ . The aim in this section is to study how such equilibrium is affected by changes in the membership of a lobby, holding constant the membership of its rival. I start with parameter ϕ , which could be interpreted as the size of the pro-reform lobby or alternatively, as its expected utility differential. Recall the first order conditions found in the maximization problem of the lobbies.

$$C^p = [C^A \phi]^{\frac{1}{2}} - C^A \quad (4)$$

$$C^A = -[C^{p2} \theta^2]^{\frac{1}{2}} - C^p \quad (9)$$

The total differentiation of equations 4 and 9 yields:

$$dC^p + dC^A \left(1 - \frac{1}{2} \left(\frac{\phi}{C^A}\right)^{\frac{1}{2}}\right) = \frac{1}{2} \left(\frac{C^A}{\phi}\right)^{\frac{1}{2}} d\phi \quad (14)$$

²⁹ Overexerting is a plausible outcome as long as we do not endogenized the order of moves between the two players. Baik and Shogren (1992) found that by endogenizing the order of moves between a favorite and an underdog, the latter will always move first and the former, second. With this order of moves instead of overexerting both players will under exert with respect to the Nash equilibrium.

$$\left(1 + \frac{1}{2} \left(\frac{\theta}{C^\rho}\right)^{\frac{1}{2}}\right) dC^\rho + dC^A = - \frac{1}{2} \left(\frac{C^\rho}{\theta}\right)^{\frac{1}{2}} d\theta \quad (15)$$

I can write equations 14 and 15 in matrix form:

$$\begin{bmatrix} 1 & 1 - \frac{1}{2} \left(\frac{\phi}{C^A}\right)^{\frac{1}{2}} \\ 1 + \frac{1}{2} \left(\frac{\theta}{C^\rho}\right)^{\frac{1}{2}} & 1 \end{bmatrix} \begin{bmatrix} dC^\rho \\ dC^A \end{bmatrix} = \begin{bmatrix} \frac{1}{2} \left(\frac{C^A}{\phi}\right)^{\frac{1}{2}} d\phi \\ -\frac{1}{2} \left(\frac{C^\rho}{\theta}\right)^{\frac{1}{2}} d\theta \end{bmatrix} \quad (16)$$

A sufficient condition for stability of the system of equations is that the determinant of the first left-hand side matrix is positive. This occurs only if $(C^\rho/\theta) > (C^A/\phi)$, so I assume this condition exists³⁰. The determinant is given by equation 17.

$$\Delta = 1 - \left[\left(1 - \frac{1}{2} \left(\frac{\phi}{C^A}\right)^{\frac{1}{2}}\right) \left(1 + \frac{1}{2} \left(\frac{\theta}{C^\rho}\right)^{\frac{1}{2}}\right) \right] > 0$$

$$\Delta = \underbrace{\frac{1}{2} \left(\frac{\phi}{C^A}\right)^{\frac{1}{2}}}_{(+)} - \frac{1}{2} \left(\frac{\theta}{C^\rho}\right)^{\frac{1}{2}} + \underbrace{\frac{1}{2} \left(\frac{\theta}{C^\rho}\right)^{\frac{1}{2}} \frac{1}{2} \left(\frac{\phi}{C^A}\right)^{\frac{1}{2}}}_{(-)} > 0 \quad (17)$$

Letting $d\theta = 0$ and applying Cramer's rule, we get the effect of changes in parameter ϕ over the different levels of contributions:

$$\frac{dC^\rho}{d\phi} = \frac{\Delta_1}{\Delta} = \frac{\overbrace{\frac{1}{2} \left[\frac{C^A}{\phi}\right]^{\frac{1}{2}}}_{(+)}}{\underbrace{\Delta}_{(+)}} > 0 \quad (18)$$

$$\frac{dC^A}{d\phi} = \frac{\Delta_2}{\Delta} = - \frac{\overbrace{\left(1 + \frac{1}{2} \left[\frac{\theta}{C^\rho}\right]^{\frac{1}{2}}\right)}^{(-)} \overbrace{\left(\frac{1}{2} \left[\frac{C^A}{\phi}\right]^{\frac{1}{2}}\right)}^{(+)}}{\underbrace{\Delta}_{(+)}} = \frac{>}{<} 0 \quad (19)$$

³⁰ See section A.5.2 in the appendix.

Proposition IV

An increase in the size (utility differential) of the pro-reform lobby, ϕ , holding constant the size of the anti-reform lobby, θ , leads to

- (a) an increase in pro-reform contributions, C^p .*
- (b) an increase or decrease in the anti-reform level of contributions, C^A , depending*
 - b.1. on the original size of the anti-reform lobby, θ .*
 - b.2. on the initial level of pro-reform contributions C^p .*

Intuitively, when the membership of the pro-reform lobby increases, there are more individuals demanding liberalization what makes the lobby increase contributions. For the anti-reform group, its willingness to compete (increase contributions) depends on its relative size when equilibrium is reached. The smaller C^p or the greater θ , the more likely an increase in ϕ , will make the anti-reformer to contribute more. From equation 19, it is straightforward to obtain condition (iv), which states how anti-reform lobby's contributions changes when the size of its rival, ϕ , changes.

$$iv) \quad \text{if } \frac{1}{2} \left(\frac{\theta}{C^p} \right)^{\frac{1}{2}} > 1 \Rightarrow \frac{dC^A}{d\phi} > 0$$

Suppose the original equilibrium of the game is similar to the one depicted in figure V.5, an increase in parameter ϕ will shift the reaction curve of the pro-reform lobby outward in such a way that C^p rises unambiguously, but the final effect on C^A is unknown. Figure V.6 shows these changes. Depending on the magnitude of the shift of Lobby ρ 's reaction curve, anti-reform contributions will end up at a point like b, where they increase, or at a point like c, where they decrease.

The equilibrium in point b explains a situation where the size of lobby A, θ , was large enough in equilibrium to make it compete with the increase in pro-reform contributions. Point c, on the contrary, represents an equilibrium where θ was relatively small, initially, reducing the anti-reform lobby's willingness to compete against a stronger adversary.

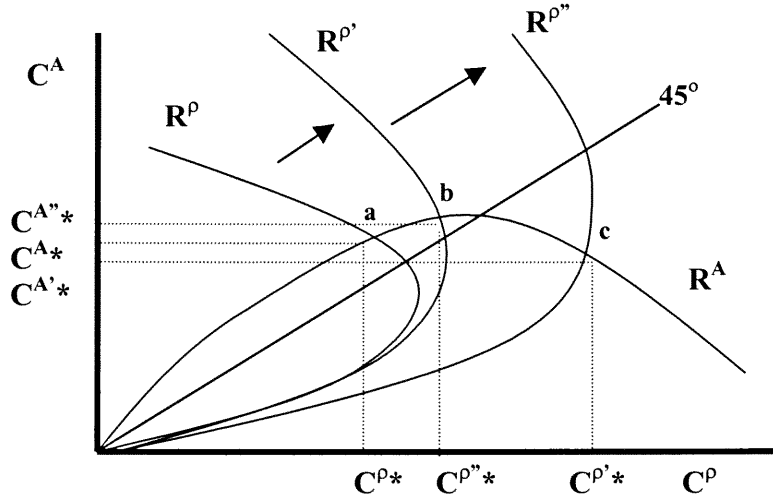


Figure V.6

Setting $d\phi = 0$ and applying Cramer's rule, I get equations 20 and 21, which represent how the level of contributions of the lobbies is affected by changes in the expected utility differential of Lobby A.

$$\frac{dC^P}{d\theta} = \frac{\Delta_1}{\Delta} = - \frac{\overbrace{\left(-\frac{1}{2} \left(\frac{C^P}{\theta}\right)^{\frac{1}{2}}\right)}^{(-)} \overbrace{\left(1 - \frac{1}{2} \left[\frac{\phi}{C^A}\right]^{\frac{1}{2}}\right)}^{(+)}}{\underbrace{\Delta}_{(+)}} > 0 \quad (20) \quad \frac{dC^A}{d\theta} = \frac{\Delta_2}{\Delta} = \frac{-\frac{1}{2} \left[\frac{C^P}{\theta}\right]^{\frac{1}{2}}}{\underbrace{\Delta}_{(+)}} > 0 \quad (21)$$

Proposition V

An increase in the size (utility differential) of the anti-reform lobby, θ , holding constant the size of the pro-reform lobby, ϕ , leads to

- (a) *an increase in anti-reform contributions, C^A .*

(b) an increase or decrease in the pro-reform level of contributions, C^p , depending

b.1. on the original size of the pro-reform lobby, ϕ .

b.2. on the initial level of anti-reform contributions C^A .

Intuitively, if the membership of lobby A increases, its affiliates exert a greater demand for rejection. The anti-reform lobby end up contributing more to keep the status quo. The reaction of its rival would depend on its ability to compete determine by the size of its membership and the level of contributions of his opponent. For very high levels of ϕ and/or low levels of C^A , the pro-reform lobby is relatively large and reacts to the increase in the size of its rival, providing more contributions. The opposite happens for low levels of ϕ and/or high levels C^A . These results are summarized in condition v:

$$v) \text{ if } \frac{1}{2} \left(\frac{\phi}{C^A} \right)^{\frac{1}{2}} > 1 \Rightarrow \frac{dC^p}{d\theta} > 0$$

Figure V.7 shows the effect of an increase in θ when the original equilibrium is such that C^{A*} exceeds C^{p*} . If originally, lobby ρ is not large enough (either ϕ is very low or C^A is very high), an increase in the size of the anti-reform lobby, θ , would increase C^A and reduce C^p . The final equilibrium is given by point b and $C^{A*'}$ and $C^{p*'}$ represent the new levels of contributions.

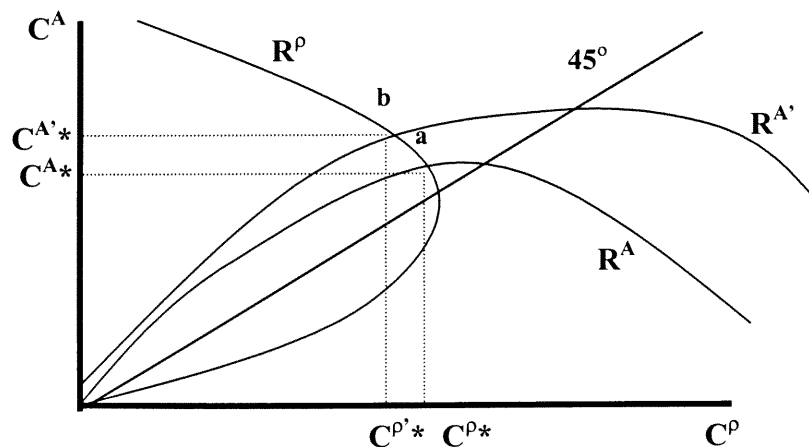


Figure V.7

During the Dominican reform process, the anti-reform lobby reacted in similar fashion when public opinion began to turn against the reform. One can conveniently argue that as public opinion turn to favor the status-quo, the membership of the anti-reform block enhanced, exerting pressure to increase contributions³¹. However, the reaction of the pro-reform lobby was not to decrease contributions as the model predicts, but to increase them. This may suggest that when public opinion turned against the reform, the pro-reform block considered the President to be weak (not too committed to reform) while its rival considered him to be strong. Let's move to the overall game and the choice of the President.

V.5. The Overall Game: The Final Solution

The lobbying-contest is a reduced-form contest within the overall game. In the general framework, the President leads the lobbies and incorporates to his expected net benefit function, the equilibrium levels of contribution, $C^{\rho*}$ and C^{A*} . Equation 32 shows the expected net benefit for the President, $E(B_P)$:

$$E(B_P) = \underbrace{q^*(C^{A*}, C^{\rho*})U^P(\lambda = 0) + [1 - q^*(C^{A*}, C^{\rho*})]U^P(\lambda = \lambda^{sq})}_{\text{expected gains from liberalization}} - \underbrace{U^{\rho}(\lambda = \lambda^{sq})}_{\text{expected gains from status quo}} - F \quad (32)$$

F represents a fixed cost incurred by the President when making a proposal. One can think of F as an opportunity cost that arises when P is distracted from other activities. Alternatively, F can be interpreted as the cost of elaborating and organizing a proposal. Hence, submitting a policy is not free of sacrifice. There will be cases in which the President will opt for keeping the status quo. Moreover his decision will depend on a

³¹ In the Dominican Republic, the anti-reform block was originally formed by CONEP, the National Council of Enterprises Men. As public opinion turn against the reform, several organized groups jumped

comparison between the expected gains under the two policy alternatives. Let's rewrite equation 32 to establish the conditions in which a proposal will be made:

$$E(B_p) = q^* \psi - F \quad (33)$$

Where: $q^* = C^{p*}/(C^{p*} + C^{a*})$ and $\psi = [U^P(0) - U^P(\lambda^{sq})]$.

Proposition VI

If $q^ \psi$ is greater (lower) than F , the President's expected net benefit is positive (negative), so he will make a proposal (not make a proposal).*

Given that F and ψ are constants, the President's proposal depends directly on q^* , which is determined in the lobbying game. Therefore, the reduced-form contest indirectly influence the overall game. In the next section, I present the effect of changes in the size of the lobbies the decision-making process of the President.

V.6. The President's Choice and the Utility Differential of the Lobbies

Equation 13 contains the Nash Equilibrium of the model in terms of the size of the lobbies, ϕ and θ . Plugging 13 into 32 allow us to rewrite the expected net benefit of the President in terms of the relevant parameters³²:

$$E(B_p) = -\left(\frac{\phi \psi}{\theta - \phi}\right) - F \quad (34)$$

The effect of a change in ϕ over the expected net benefit of the President is given by:

$$\frac{dE(B_p)}{d\phi} = -\frac{\overbrace{\theta \psi}^{(-)}}{\underbrace{(\theta - \phi)^2}_{(+)}} > 0 \quad (35)$$

into the anti-reform wagon increasing the size of the lobby.

³² See section A.5.3 in the appendix.

To obtain the effect of a change in the anti-reform lobby utility differential, θ , over the expected net benefit of the President, I get $dE(B_P)/d\theta$ from the total differentiation of equation 34.

$$\frac{dE(B_P)}{d\theta} = \frac{\overbrace{\phi\psi}^{(+)}}{\underbrace{(\theta - \phi)^2}_{(+)}} > 0 \quad (36)$$

Proposition VII

An increase in the size of the pro-reform lobby, ϕ , increases the expected net benefit of the President and his willingness to propose. An increase in the absolute value of the utility differential (increase in its size) of the anti-reform lobby decreases the President's expected net benefit and his willingness to propose.

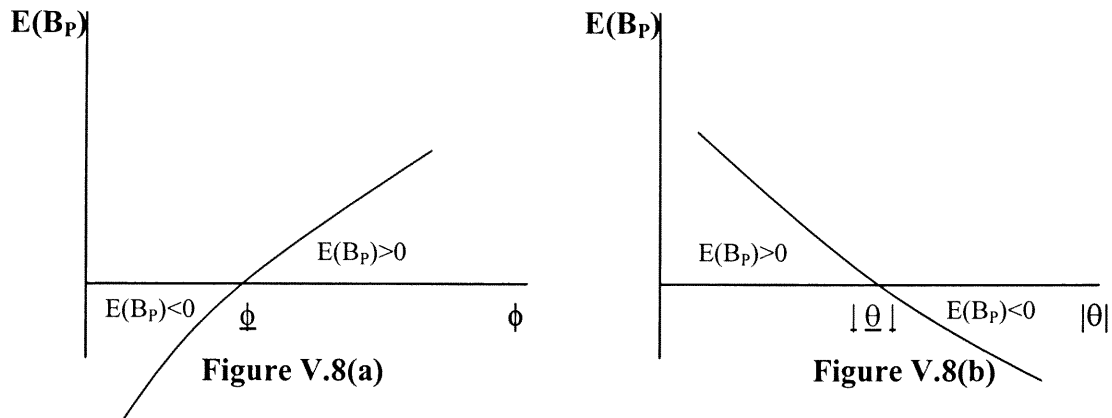
Intuitively, the larger the pro-reform lobby the more it contribute, increasing the probability of Congress' approval. Provided it is more likely the reform will pass, the President's willingness to propose, increases. On the contrary, the larger the size of the anti-reform lobby, the more it contribute against the policy, reducing the probability of Congress approval. Hence the President's willingness to propose, decreases.

Proposition VIII

Let ϕ and θ be the levels of ϕ and θ that makes the expected net benefit of the President, $E(B^P)$, equal to zero. Then, for a given fixed cost F and utility differential, ψ ,

- (a) values of ϕ below $\underline{\phi}$ or $|\theta|$ above $|\underline{\theta}|$ makes $q^*\psi < F$, so the expected net benefit for the President becomes negative and there is no proposal.*
- (b) values of ϕ above $\underline{\phi}$ or $|\theta|$ below $|\underline{\theta}|$ makes $q^*\psi > F$, so the expected net benefit for the President becomes positive and he proposes to Congress.*

Figures V.8 (a) and V.8 (b) summarize the findings presented in proposition VIII. The shapes of the curves are given by the slopes found in equations 35 and 36.



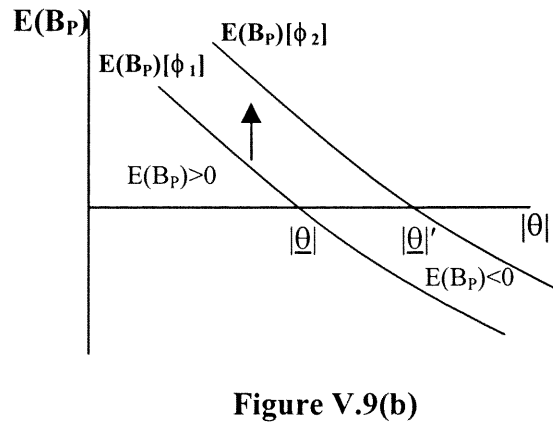
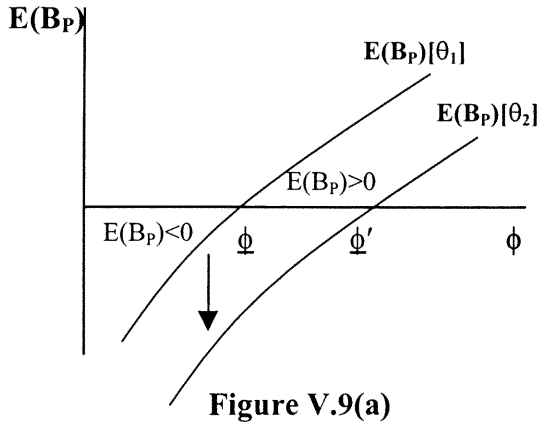
Notice $\underline{\phi}$ and $\underline{\theta}$ constitute minimum sizes of lobbies after which the President will make a proposal. These minimum sizes are affected by changes in the actual size of the lobbies. For instance an increase in the size of Lobby A, $|\theta|$, decreases the expected net benefit of the President and his willingness to propose. Thus the minimum size of the pro-reform lobby required to make the President propose, $\underline{\phi}$, becomes larger. Parameter $\underline{\phi}$ is affected by changes in the actual size of the anti-reform lobby, $|\theta|$. Using a similar reasoning, one can argue that $|\underline{\theta}|$ is affected by changes in the actual size of the pro-reform lobby, ϕ .

Proposition IX

Let $\underline{\phi} = H(|\theta|)$ and $|\underline{\theta}| = J(\phi)$, then $H'(|\theta|) > 0$ and $J'(\phi) > 0$. An increase in the size of the anti-reform (pro-reform) lobby leads to an increase in the minimum pro-reform (minimum anti-reform) lobby size, needed for the President to make a proposal.

Figure V.9 (a) illustrates the effect of an increase in $|\theta|$ on the President's expected net benefit. The shift to the right of the $E(B_p)$ curve makes P receives a lower expected net

benefit per size of the pro-reform lobby, ϕ . Intuitively, as Lobby A has more to lose if the reform is enacted, it contributes more, reducing the probability of Congress approval. The President is aware it is less likely the reform will pass. Thus the minimum size of the pro-reform lobby after which the President propose, increases.



Graph V.9 (b) shows the effects of an increase in the actual size of the pro-reform lobby, ϕ , on the minimum anti-reform lobby's size required for a proposal. Notice the shift of the expected net benefit curve increases $|\underline{\theta}|$ to $|\underline{\theta}'|$. The President receives a higher expected net benefit per level of anti-reform lobby's size, so he will propose in a wider range of cases than before.

V.7. The Actual Probability of Reform and the Utility Differential of the Lobbies

Recall a proposal is not viable for values of ϕ below $\underline{\phi}$ and $|\theta|$ above $|\underline{\theta}|$ since the President's expected net benefit is negative. For such values, the actual probability of reform, q , is equal to zero. For the same reasons, values of ϕ above $\underline{\phi}$ and $|\theta|$ below $|\underline{\theta}|$ generate a positive expected net benefit for the President thus the actual probability of reform, q , becomes positive. Moreover, for such lobbies' sizes, q should be exactly equal

to the probability of Congress approval, q . Be aware that \underline{q} is different from q , the probability of Congress approval.

Figure V.10 illustrates the relationship between the actual probability of reform, q , and the parameters that define the size of the lobbies, ϕ and θ . The shape and curvature of the graphs for levels of ϕ above $\underline{\phi}$ and $|\theta|$ below $|\underline{\theta}|$ is given by the signs found in equations 37 to 40.

$$\frac{dq}{d\phi} = -\frac{\theta}{(\theta - \phi)^2} > 0 \quad (37)$$

$$\frac{dq}{d\theta} = \frac{\phi}{(\theta - \phi)^2} > 0 \quad (39)$$

$$\frac{d^2q}{d\phi^2} = -\frac{\overbrace{2\theta}^{(-)}}{\underbrace{(\theta - \phi)^3}_{(-)}} < 0 \quad (38)$$

$$\frac{d^2q}{d\theta^2} = -\frac{\overbrace{2\phi}^{(+)}}{\underbrace{(\theta - \phi)^3}_{(-)}} > 0 \quad (40)$$

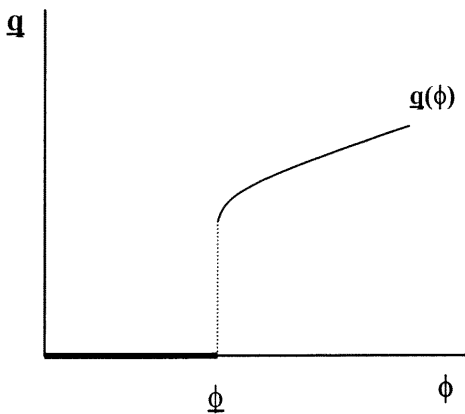


Figure V.10(a)

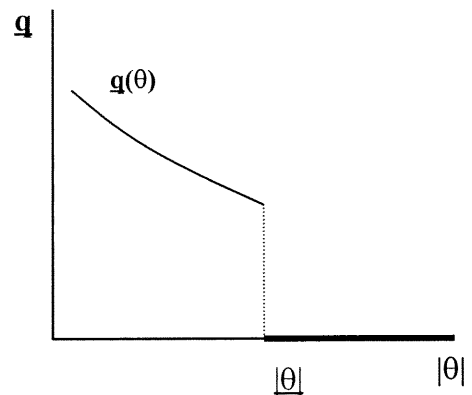


Figure V.10(b)

Something that deserves additional explanation is the effect of small changes in the size of the lobbies over q , when $|\theta|$ is close to $|\underline{\theta}|$ and ϕ is close to $\underline{\phi}$. It must be explained why there is a jump in q like those observed in figures V.10(a) and V.10(b). While the President is playing status-quo, the dominant strategy, the lobbies are continuously contributing to Congress amounts that corresponds to lobbies' sizes below $\underline{\phi}$ and/or above

$|\theta|$. Congress is more willing to approve the reform than otherwise would be. The probability of Congress approval is already positive and becoming larger as $|\theta|$ and ϕ move toward $|\theta|$ and ϕ . As soon as the game reaches these values, the President proposes. At this stage, the actual probability of reform, q , becomes equal to the probability of Congress approval, q , which is already very high.

V.8. Conclusion

This paper presented the case of a President, committed to reform, who is allowed to choose between total liberalization and status-quo. Unless the opportunity cost of reforming is very high, the President will opt for liberalization. In his reform attempt, the President leads two opposing lobbies, which play a simultaneous move lobbying game. The reduced-form lobbying game yields three possible unique equilibrium depending on the relative size of the lobbies. A Nash equilibrium where the membership of Lobby A exceeds the number of affiliates to lobby ρ is more representative of the Dominican reform process. Despite the equilibrium chosen, an increase in the size of the membership of a lobby, increases its own contributions. It also increase or decrease the contributions of its rival depending on the relative size of its membership and the initial level of contribution of the lobbies. The model shows a strong President will be more (less) willing to propose the greater the size of the pro-reform (anti-reform) lobby .

Finally, I was able to show there exist minimum lobbies' sizes, ϕ and $|\theta|$, after which the President is willing to propose. A proposition implies a cost for the President when he is distracted from other important issues. Therefore, the President will propose only if his allied, the pro-reform lobby, is large enough to compete with his adversary, the

anti-reform lobby. The next chapter contains the main conclusions of this dissertation and recommend direction for further research.

CHAPTER VI

CONCLUSIONS AND POSSIBLE EXTENSIONS

The main objective of this dissertation was to provide an analytical framework to study the politics behind structural adjustments in the Dominican Republic. Based on a country study presented in chapters II and III, I developed two theoretical models that analyze bargaining over economic reform under very specific conditions. A welfare maximizer president submits a tariff bill to a Congress dominated by the opposition. His decision is indirectly affected by a previously played lobbying game.

Chapter IV presented the first model where a weak President chose a policy reform from a continuum of alternatives. Prior to the policy submission to the National Assembly, two opposing lobbies played a reduced-form game in which they acted as Stackelberg leaders vis a vis the President. The lobbying game yielded two possible cases of linear equilibrium. The first is an equilibrium where lobbies regard each other's contributions as strategic complements. Thus, the optimal response of a lobby to an aggressive move (increase contributions) by its rival, was to also act more aggressively (increase contributions). The second possible equilibrium is one where only the pro-reform lobby ρ views the contributions of its adversary as strategic substitutes. Hence, the optimal response of the pro-reformer to more aggressive play by the anti-reformer is to be less aggressive. Following Bulow, Geanakoplos and Klemperer (1985), the existence of such an equilibrium is only possible if the anti-reform lobby, the player who regards its opponent's contributions as strategic complements, is larger than the pro-reform lobby, the player who views the contributions of its rival as strategic substitutes. Chapter II discusses the historical background of protectionism in the Dominican

Republic and provides ample evidence of the benefits of protectionism for this particular country.

The second model presented in chapter V considered a strong President, who is allowed a discrete choice between total liberalization and a protectionist status-quo. In this case, the President leads the lobbies when attempting reform and incorporates the reduced-form game solution into his decision-making process. The lobbying game was modeled as a tariff contest where two contenders, the pro-reform lobby and the anti-reform lobby, simultaneously chose a level of effort (contributions) to pursue a prize (their favored policy). The chances of winning such a prize were given by the probability of obtaining Congress approval. The lobbying game yielded three possible cases of unique equilibrium, dependent on the size of the lobbies. A larger lobby provided a larger amount of contributions in equilibrium. An asymmetric equilibrium where the larger, more experience and powerful anti-reform lobby contributes more, is more representative of the Dominican reform process. Following Dixit (1987), Lobby A would become “a favorite” in the tariff contest since the probability of Congress passing the tariff bill is below 50 % in the Nash equilibrium.

The most important findings of the models can be summarized as follows:

- A strong president will always pursue total liberalization unless the cost incurred when distracted from other important issues exceeds the benefit drawn from liberalizing. In the second model, this is obvious since the expected net benefit of the Executive is negative only if F , the fixed cost of distraction, is greater than $q\psi$, the benefit of the President represented by his utility differential times the probability of Congress approval.

- There exists optimal minimum sizes of lobbies, ϕ and $|\theta|$, after which a President's proposal is viable. In countries where either the pro-reform lobby is relatively small or the anti-reform lobby is considerably large, a reform will not be submitted to Congress, regardless of the level of commitment of the President. This constitutes a plausible explanation for delayed reforms in developing countries, particularly in Latin America, where the application of an inward-oriented development strategy allowed protectionist groups to become extremely powerful. Moreover, it is possible to present an argument to explain why in these countries necessary adjustments are postponed until a period of crisis. Under an extreme situation, the number of individuals questioning the status-quo grows rapidly, so does the number of affiliates to the lobby that support the modification of the status quo.
- When the President is weak and Congress is formed by self-driven politicians, a change in public opinion against the reform (an increase in β) causes a decrease in anti-reform contributions. The anti-reform lobby knows Congress needs less of a bribe to reject the policy and it is also aware the President is not deeply committed to reform. The pro-reform lobby's reaction, on the other hand, depends on two factors: the level of commitment of the President and how the effect of the change in public opinion compares to the effect of a policy change over the marginal profitability of the pro-reformer. The less committed to reform the President is, the more likely Lobby ρ will increase contributions. The more sensitive the profitability of the pro-reform lobby to policy changes, and the less sensitive it is to public opinion, the more likely it is that Lobby ρ will increase contributions.

- When the President is strong and committed to reform, an increase in the size of the pro-reform lobby, ϕ , leads to an increase in pro-reform contributions. The increase in the membership of the lobby that supports reform implies a greater effort to get the policy approved. Hence, it increases the probability of obtaining Congress approval, motivating the President to propose the reform policy. The effect of an increase in the size of the pro-reform lobby on the contributions of Lobby A depends on how able to compete the anti-reform lobby is. The larger the size of the anti-reform lobby, θ , and/or its contributions, C^A , the more likely Lobby A will be competitive and contribute more.
- An alternative interpretation of the increase in θ allows a comparison between the comparative static results of the two models. Suppose the increase in the membership of the anti-reform lobby, θ , occurs as a response to the change in public opinion against the reform. Model II explains that with more affiliates, Lobby A has more to lose from the enactment of the tariff bill, so it decides to contribute more to block it. This outcome contradicts the one found in model I. Notice that the anti-reform lobby is more willing to compete (increase contributions) when it considers the President to be committed to reform. On the contrary if the lobby considers P to be weak it relaxes and lets the new viewpoint of public opinion affect the decision of the President. Regarding lobby ρ , an increase in the size of the membership of lobby A ($\uparrow |\theta|$) generates an uncertain reaction that depends on its initial size, ϕ , and the level of contributions of lobby A, C^A . For relatively low levels of pro-reform contributions,

C^p , and size, ϕ , one should expect a disillusioned Lobby ρ to decrease its contributions. Again, this outcome contradicts the one found in model I.

One can conclude that the reaction of the lobbies to a shift in public opinion in favor of protectionism depends on how committed to reform the President is. During the Dominican affair in 1996, both lobbies reacted with a more aggressive behavior to the change in public opinion. It should be the case that while the anti-reform lobby led by CONEP (National Council of Enterprises Men) considered President Fernández to be strongly committed to reform, the pro-reform block led by UNE (National Union of Entrepreneurs) was not convinced of the President's willingness to support reform.

The theoretical models supported not only events that affected the adjustment process in the Dominican Republic, but also political negotiations in several Latin American countries characterized by a lack of institutionalism and periodic economic and political crises. For the last 15 years, these countries have been immersed in reform processes, most of which were submitted through a Presidential initiative but blocked by an opposition Congress. Frequently, anti-reform lobbies contributed to make the liberalization process more gradual, whereas pro-reform lobbies have been generally supportive of the natural adjustment process. In extreme cases, such as Peru, a President dissolved Congress and used executive decrees to enforce the measures. It is undeniable that this course of action is typical of a dictatorial government, but we must understand why sometimes in the region, governors are willing to reach such extremes. Weak institutions and authoritarianism make it practically impossible to get reforms approved through the proper democratic channels.

The models presented in this dissertation constitute an initial stage in a broader agenda of research. A straightforward extension of the first model is to rule out the weakness of the President, letting him become a Stackelberg leader vis a vis the lobbies. Notice this case differs from the second framework presented in this dissertation since the latter comprised a discrete choice model. Another possible extension of the second model is to convert the follower lobbies into Stackelberg leaders and let them endogenize the decision-making process of the President. This setting will differ from the first model in the elimination of the continuum of choices.

Other possible extensions arise from the endogenization of the behavior of Congress. It is possible to develop a game between the President and the Congress, where the behavior of the lobbies is determined exogenously. Such a game can be played either using a continuum of choices or within a discrete framework. A future line of work will be to incorporate a probabilistic voting setting to the models and convert the President into a self-interested politician. This would transform the game into a general equilibrium political model where all political actors behave rationally and follow their own self-interests.

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APPENDIX

TABLE A.3.1
Dominican Republic
The 1990 Tariff Reform
-Important Changes-

Pre-Reform	After-Reform
<ul style="list-style-type: none"> ▪ Import Tariffs are determined by 26 special and fiscal Laws and one tariff legislation, Law 170 of 1970. ▪ Though 99% of export tax revenue comes from two taxes, there are 15 different export taxes. ▪ There are four types of rates applied to imports: ad-valorem, specific, composed and mixed. ▪ Tariff exemptions and concessions are provided by different laws: 299 of Industrial Protection; 153 for the Development of Tourism; 409 for Agroindustrial Development; and 69 of Export Promotion. ▪ There are multiple prohibitions, licenses, quotas and special authorizations. ▪ Tariffs are applied under value F.O.B. ▪ Valuation of many imports is made through a preferential exchange rate. 	<ul style="list-style-type: none"> ▪ Import taxes are consolidated in a single instrument, the new tariff law. ▪ Eight different level of tariffs: 3%, 5%, 10%, 15%, 20%, 25%, 30% and 35%. ▪ The majority of export taxes were eliminated. ▪ All taxes are collected through an ad-valorem rate. ▪ More than 50 exemptions and concessions were eliminated. ▪ Prohibitions, quotas and licenses were considerably reduced. ▪ Tariffs are applied under a C.I.F. value. ▪ Valuation of all imports is made through a unified exchange rate.

Source: New Tariff Law of September 1993; Schenone and Guilliany Cury (1991).

TABLE A.3.2
Dominican Republic
The 1992 Tax Reform
-Important Changes-

Tax	Pre-Reform Stage	Post-Reform Stage
Personal and Business Income Tax (ISR)	Law 5911 of National Income of 1962.	Law 11-92 of Universal Rent
	No inflation adjustments	Inflation adjustments
	Deductible marginal benefits	Taxable marginal benefits
	Deductible interests	Only individuals have deductible interests
	Exemptions and concessions	Elimination of exemptions and concessions
	16 different tax rates for individuals from 3% to 70%	3 tax rates for individuals from 15 to 30%
	10 tax rates for businesses from 10 to 46%	A single tax rate of 30% for businesses gradually reduced to 25%
Value Added Tax (ITBIS)	Law 74	Law 11-92
	Tax rate of 6%	Tax rate of 8%
	No inflation adjustments	Inflation adjustments
Selective Taxes to Domestic Consumption	More than 30 laws and 100 goods	Law 11-92 and around 20 goods
	Specific taxes to alcohol and tobacco	Ad-valorem of 10% to alcohol and tobacco
	Specific taxes for imported goods	Ad-valorem from 5% to 80% for imports of goods
	Some specific taxes for services	Ad- valorem of 5%, 10% and 20% for services
Trade Taxes	Exchange commission (recargo cambiario) of 20% for exports and imports	Gradual elimination of exchange commission (recargo cambiario) in four years

Source: Law 11-92, New Tax Code of the Dominican Republic.

TABLA A.3.3
Dominican Republic
The 1996 Economic Reforms
Most Important Measures

Stabilization	Compensation	Liberalization	Tax Reform
<ul style="list-style-type: none"> • Unification of the exchange rate at a level of RD\$ 14/US\$. The rate will be adjusted to maintain the same level as in the free market.* • Increase and fluctuation of fuel prices depending on the behavior of the exchange rate and the international price of petroleum.* 	<ul style="list-style-type: none"> • The minimum wage in the government is increased from RD\$ 1014-monthly to RD\$ 1400-.* • Teachers, physicians, nurses, agronomists, judges, legislators and others will receive increases in salaries between 40 and 150%.* • A subsidy for public transportation to avoid an increase in the cost of public transport.* 	<ul style="list-style-type: none"> • Items that are taxed at rates of 35, 30 and 25% will be subject to a tariff of 20%. Items that are actually taxed at 20 and 15% will be taxed at 10%. Items that are taxed at 10% will pay 5% and those at 5% will pay 3%. • Imports of material, equipment and machinery for farming will be taxed at 1.5%. 	<ul style="list-style-type: none"> • Rate of personal income tax is reduced from 25% to 10% and the tax-free band is raised from RD\$ 60,000 to RD\$ 80,000 a year. • A tax of 1% on gross assets. • Two partials fiscal amnesties. • All exemptions included in special contracts of the Dominican state with companies will be left without effect. • ITBIS is increase to 12% in 1997 and its base is enhanced. • An increase in the selective tax on consumption of alcoholic beverages and cigarettes to 50% and beer to 40%. • The petroleum differential is substituted by a selective tax of constant value express in pesos per gallon of gasoline.

Source: President Speech, December 20, 1996.

* were applied through Executive decrees.

TABLE A.3.4
Dominican Republic
Radiography of Political Actors
-Their Role in the 1997 Budget Process-

Interest Group	Anti-Reform	Pro-reform
Political Parties	<p><i>Revolutionary Dominican Party (PRD)</i> A party founded in 1936 by members of the exile during the Trujillo era. It is associated to The International Socialist. PRD has been in power three times. The first time with Professor Juan Bosch in 1963 in a government deposed by a coup in seven months. It also ruled the nation in consecutive period between 1978 and 1986. Its leader and presidential candidate in 1996 was Dr. José Francisco Peña Gómez.</p>	<p><i>Dominican Liberation Party (PLD)</i> Founded in 1973 by Juan Bosch after a PRD's division. It took power for the first time in 1996 with Dr. Leonel Fernández. Though it was founded as a lefty party it moved toward center in the mid-nineties. Being born from PRD's quitters, it considers that party its most hated rival.</p>
Business Associations	<p><i>National Council of Private Enterprises (CONEP)</i> It is a renovation of the old National Council of Businessmen (CNHE) founded in 1962 to fight for the old incentive legislation. It is the most powerful and organized lobbying group in the country and mainly industrialists form it. At the moment of the 1996 affair, his president was Celso Marranzini.</p>	<p><i>National Union of Entrepreneurs (UNE)</i> Formed by a group of final goods importers and members of the commercial sector that defected from the old CNHE. His president during the submission of the second wave of reforms was Dr. Andrés Dauhajre, an importer, and father of the economist with the same name, leader of the pro-reform private consulting group. UNE does not posses near the power to match forces with CONEP.</p>
Private Economic Consultants	<p><i>Ecocaribe-SigloXXI</i> Though in the anti-reform group during the budget conflict, economists in these two firms are not really opposed to structural reforms. They were in opposition of some of the measures and the way in which was implemented the second wave. Economists such as Eduardo García Michel, Isidoro Santana, Manuel Cocco and Angeles Calzada Have been studying the Dominican economy for several years. Some of them have occupied important public positions. Their position since the beginning was to separate the budget from the other economic reforms. Ecocaribe also made a tariff proposal for AIRD that was the one assumed by CONEP in July 1997.</p>	<p><i>Foundation Economics and Development (FeyD)</i> Lead by Andrés Dauhajre, hijo, it defended the reforms since a great proportion of it was elaborated at the institution. Dr. Dauhajre and his economists were more vocal defending the reform that most public officials. The center was founded in the late-eighties and it is pro-market and trade-oriented. The group has been really determined to bring down the status quo and it has been confronted really powerful groups.</p>

Table A.3.5
Dominican Republic
Comparison of Original Government Package
and Amendments after Negotiations with CONEP

Before	After
<ul style="list-style-type: none"> ▪ Value-added tax rate rise to 12% in 1997. ▪ VAT rises to 14% in 1998 and ___% in 1999. ▪ It enhances ITBIS tax base. ▪ Alcohol and tobacco taxes rises to 40 and 50%. ▪ Corporate income tax reduced from 25% to 10% while abolishing deductions from depreciation and interest payments. ▪ Maximum tariff is reduced from 35 to 20% in 1997 and then gradually until 10% in 1999. ▪ It introduces a 1% tax on firm's gross assets. ▪ Minimum wage is increased up to RD\$ 1400 monthly. 	<ul style="list-style-type: none"> ▪ Value-added tax rate rise to 11% in 1997. ▪ Only rises in 1997. ▪ It abandons plan to extend the tax base for ITBIS. ▪ Selective taxes on tobacco and alcohol are scale down. ▪ Corporate income tax states at the same level allowing for deductions in depreciation and interest payments. ▪ Maximum tariff rate is reduced from 35% to 20% and not anymore. ▪ 1% tax on gross assets is eliminated. ▪ Minimum wage is increased to RD\$ 1500 monthly.

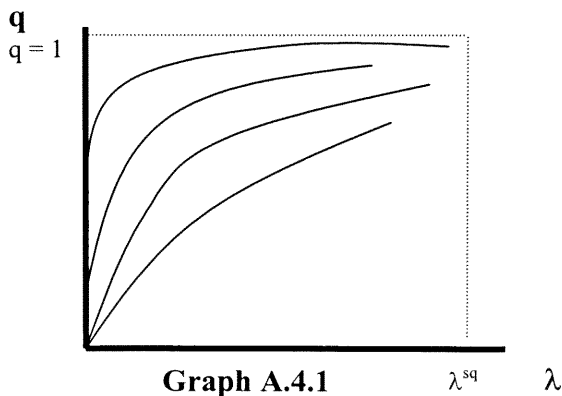
A.4.1. Signs of the Elements in the Pro-reform Lobby Reaction Function Slope

Let's start by analyzing elements in the denominator of equation 11. $F_{C^p C^p}$ and F_λ are negative given our assumptions about the function $E(B_L^p) = F(\lambda, C^p)$. The solution for these partials yield:

$$a.4.1. F_{C^p C^p} = \overbrace{\left[\frac{\delta^2 q}{\delta \lambda \delta C^p} \phi^{(+)}(\lambda) + \phi^{(-)}(\lambda) \frac{\delta q}{\delta C^p} \right]}^{(+)} \overbrace{\frac{d\lambda}{dC^p}}^{(-)} + \overbrace{\frac{\delta^2 q}{\delta C^{p2}} \phi^{(+)}(\lambda)}^{(-)} + \frac{d^2 \lambda}{dC^{p2}} \left[\phi^{(+)}(\lambda) \frac{\delta q}{\delta \lambda} + \phi^{(-)}(\lambda) q \right] < 0$$

$$a.4.2 F_\lambda = \left[\phi^{(+)}(\lambda) \frac{\delta q}{\delta \lambda} + \phi^{(-)}(\lambda) q \right] < 0 \quad (\text{By assumption})$$

All but two of the elements in a.4.1 have their signs defined: $\delta^2 q / \delta \lambda \delta C^p$, which is assumed negative and $d\lambda / dC^p$ which is endogenously obtained from the President's problem. The former assumption determines how changes in pro-reform contributions affect the slope of q with respect to λ . We assume an increase in C^p makes q less sensitive to increases in the share of tariff revenue λ . That is, $\delta^2 q / \delta \lambda \delta C^p < 0$. Graph A.4.1 shows how the slope $\delta q / \delta \lambda$ becomes flatter as C^p increases.



To find the second missed element $d\lambda/dC^P$, we use P's maximization problem represented by equation 2. Furthermore, we get an expression for $d\lambda/dC^A$ which is also an element in the numerator.

$$\text{Max}_{\lambda} \quad E(B_p) = q(\lambda, C^P, C^A)W(\lambda) + [1 - q(\lambda, C^P, C^A)]W(\lambda^{sq}) \quad (2)$$

Then:

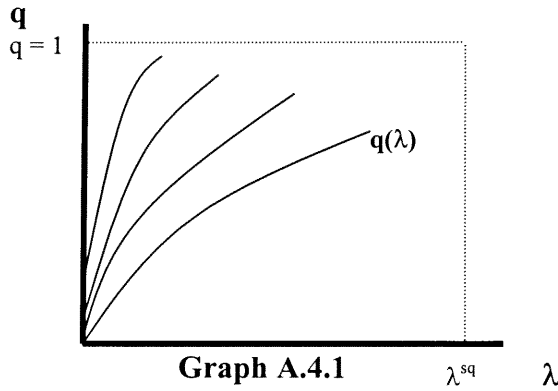
$$a.4.3 \quad \frac{d\lambda}{dC^P} \Big|_{dC^A=0} = - \frac{\overbrace{\left[\frac{\overbrace{\delta^2 q}^{(-)}}{\delta\lambda\delta C^P} \overbrace{\psi(\lambda)}^{(+)} + [\psi'(\lambda)] \frac{\overbrace{\delta q}^{(-)}}{\delta C^P} \right]}^{(-)}}{\underbrace{[\mu]}_{(-)}} < 0$$

$$a.4.4 \quad \frac{d\lambda}{dC^A} \Big|_{dC^P=0} = - \frac{\overbrace{\left[\frac{\overbrace{\delta^2 q}^{(+)}}{\delta\lambda\delta C^A} \overbrace{\psi(\lambda)}^{(+)} + [\psi'(\lambda)] \frac{\overbrace{\delta q}^{(-)}}{\delta C^A} \right]}^{(+)}}{\underbrace{[\mu]}_{(-)}} > 0$$

$$\text{where } \mu = \left[\frac{\overbrace{\delta^2 q}^{(-)}}{\delta\lambda^2} \overbrace{\psi(\lambda)}^{(+)} + 2 \left[\underbrace{\psi'(\lambda)}_{(-)} \underbrace{\frac{\delta q}{\delta\lambda}}_{(+)} + \underbrace{\psi''(\lambda)}_{(-)} \underbrace{q}_{(+)} \right] \right] < 0$$

Equation a.4.4 presents one new element with undefined sign, the cross partial $\delta^2 q / \delta\lambda\delta C^A$. This term states how a change in the level of anti-reform lobby contributions affect the sensitivity of q to changes in λ . That is, how an increase in C^A affects the slope $\delta q / \delta\lambda$. A graphical representation would imply that the slope becomes steeper or q

becomes more sensitive to λ given an increase in anti-reform contributions. Our interpretation makes $\delta^2 q / \delta \lambda \delta C^A$ positive, so will be the numerator in a.4.4.



The last unknown term in the *denominator* of equation 11 is $F_{\lambda C^P}$, which is negative under our assumption that $\delta^2 q / \delta \lambda \delta C^P$ is negative. $F_{\lambda C^P}$ is equal to:

$$a.4.5. \quad F_{\lambda C^P} = \left[\frac{\delta^{(-)2} q}{\delta \lambda \delta C^P} \phi^{(+)}(\lambda) + \phi^{(-)}(\lambda) \frac{dq^{(+)}}{dC^P} \right] < 0$$

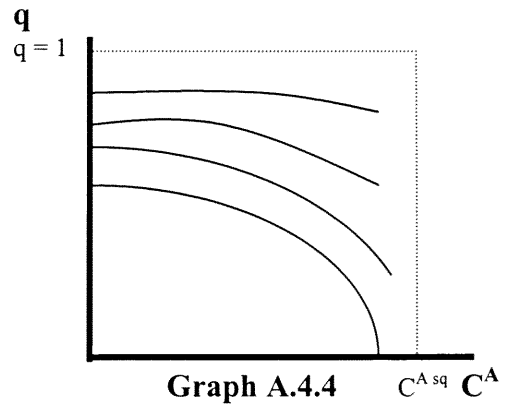
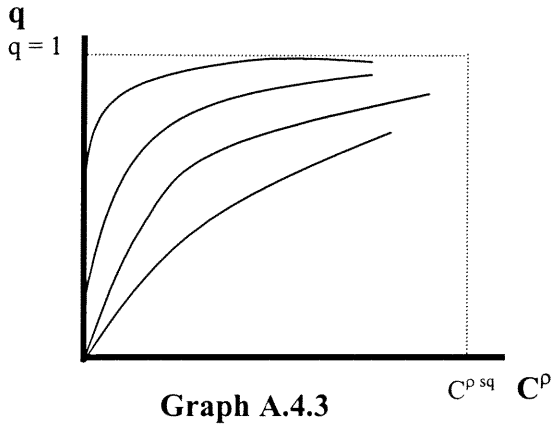
Now let's focus on *the numerator*. Given our assumptions and previous demonstrations, $F_{\lambda \lambda} < 0$, $d\lambda / dC^P < 0$ and $d\lambda / dC^A > 0$. The partials $F_{C^P \lambda}$, $F_{\lambda \lambda}$ and $F_{\lambda C^A}$ are given by the following expression:

$$a.4.6 \quad F_{\lambda \lambda} = \left[2\phi^{(-)}(\lambda) \frac{\delta q^{(+)}}{\delta \lambda} + \frac{\delta^{(-)2} q}{\delta \lambda^2} \phi^{(+)}(\lambda) + \phi^{(-)}(\lambda) \phi^{(+)}(\lambda) \right] < 0$$

$$a.4.7. \quad F_{C^P \lambda} = \underbrace{\left[2\phi^{(-)}(\lambda) \frac{\delta q^{(+)}}{\delta \lambda} + \frac{\delta^{(-)2} q}{\delta \lambda^2} \phi^{(+)}(\lambda) + \phi^{(-)}(\lambda) \phi^{(+)}(\lambda) \right]}_{(-)} \frac{d\lambda}{dC^P} + \underbrace{\left[\frac{\delta^{(-)2} q}{\delta C^P \delta \lambda} \phi^{(+)}(\lambda) + \phi^{(-)}(\lambda) \frac{dq^{(+)}}{dC^P} \right]}_{(-)} > 0$$

$$a.4.8. \quad F_{\lambda C^A} = \left[\frac{\delta^{(+)} q}{\delta \lambda \delta C^A} \phi^{(+)}(\lambda) + \phi^{(-)}(\lambda) \frac{dq^{(-)}}{dC^A} \right] > 0$$

As we can see $F_{C^{\rho}\lambda}$ has an ambiguous sign provided $\delta^2q/\delta C^{\rho}\delta\lambda < 0$. That means as λ increases toward λ^{sq} , a dollar of contribution from the pro-reform lobby is less effective affecting Congress behavior. Furthermore, for the other lobby, in the neighborhood of the status quo (when $q \rightarrow 1$), the slope $\delta q/\delta C^A$ becomes flatter, so $\delta |\delta q/\delta C^A|/\delta\lambda$ is negative, what means $\delta^2q/\delta C^A\delta\lambda$ is positive. Graphs A.4.3 and A.4.4 illustrate how as λ tends to λ^{sq} , the slope given by $\delta q/\delta C^i$, where $i = \{A, \rho\}$ is affected.



Plugging equation a.4.6 in a.4.7, we can rewrite it as a.4.9 and show that regardless of the sign assumed by $F_{C^{\rho}\lambda}$, the element in bracket $[F_{\lambda\lambda} d\lambda/dC^{\rho} + F_{C^{\rho}\lambda}]$ is positive:

$$a.4.9. \quad F_{C^{\rho}\lambda} = \underbrace{F_{\lambda\lambda} \frac{d\lambda}{dC^{\rho}}}_{\substack{(+)} \\ \substack{(-)} \\ \substack{(-)}} + \underbrace{\left[\frac{\delta^2 q}{\delta C^{\rho} \delta \lambda} \phi(\lambda) + \phi'(\lambda) \frac{dq}{dC^{\rho}} \right]}_{\substack{(-)} \\ \substack{(+)} \\ \substack{(-)}} \underset{<}{\overset{>}{0}}$$

$$then: \quad F_{C^{\rho}\lambda} - \left(\underbrace{F_{\lambda\lambda} \frac{d\lambda}{dC^{\rho}}}_{\substack{(-)} \\ \substack{(-)}} \right) < 0 \quad \Rightarrow \quad F_{C^{\rho}\lambda} < \underbrace{F_{\lambda\lambda} \frac{d\lambda}{dC^{\rho}}}_{\substack{(-)} \\ \substack{(-)}}$$

Finally, equation a.4.8 contains the element $F_{C^{\rho}C^A}$, which sign depends on the cross partial $\delta^2q/\delta C^{\rho}C^A$. This term explains how the sensitivity of q with respect to pro-reform contributions is affected through an increase in anti-reform funding.

$$a.4.10 \quad F_{C^{\rho}C^A} = \overbrace{\left[\phi^{(-)}(\lambda) \frac{\delta q^{(-)}}{\delta C^A} \frac{d\lambda^{(-)}}{dC^{\rho}} \right]}^{(-)} + \overbrace{\left[\frac{\delta^2 q^{(-)}}{\delta C^{\rho} \delta C^A} \phi^{(+)}(\lambda) \right]}^{(-)} + \overbrace{\left[\frac{\delta^2 q^{(+)}}{\delta \lambda \delta C^A} \phi^{(+)}(\lambda) \frac{d\lambda^{(-)}}{dC^{\rho}} \right]}^{(-)} < 0$$

It we assume $\delta^2 q / \delta C^{\rho} C^A$ is negative, then $F_{C^{\rho}C^A}$ is also negative what means the pro-reformer perceives the other lobby contributions as a strategic substitute. In the next subsection A.4.2, we compute the partial derivatives that are components of the slope of the anti-reform lobby reaction function.

A.4.2. Signs of the Elements in the Slope of the Anti-reform Reaction Function

Given our assumptions and the signs obtained in section A.1., we already know that $G_{C^A C^A} < 0$, $G_{\lambda} > 0$, $d\lambda/dC^A > 0$, $d\lambda/dC^{\rho} < 0$ and $G_{\lambda\lambda} < 0$. The computation of G_{λ} allow us to obtain the second partials $G_{\lambda C^{\rho}}$, $G_{\lambda C^A}$ and $G_{\lambda\lambda}$. We get:

$$a.4.11 \quad G_{\lambda} = \left[\theta^{(-)}(\lambda) \frac{\delta q^{(+)}}{\delta \lambda} + \theta^{(+)}(\lambda) q \right] > 0 \quad (\text{By Assumption})$$

$$a.4.12 \quad \theta^{(-)}(\lambda) \frac{\delta q^{(+)}}{\delta \lambda} < \theta^{(+)}(\lambda) q \quad (\text{From } a.4.11)$$

$$a.4.13 \quad G_{\lambda C^{\rho}} = \left[-\frac{\delta^2 q^{(-)}}{\delta \lambda \delta C^{\rho}} \theta^{(-)}(\lambda) + \theta^{(+)}(\lambda) \frac{dq^{(+)}}{dC^{\rho}} \right] > 0$$

$$a.4.14 \quad G_{\lambda C^A} = \left[-\frac{\delta^2 q^{(+)}}{\delta \lambda \delta C^A} \theta^{(-)}(\lambda) + \theta^{(+)}(\lambda) \frac{dq^{(-)}}{dC^A} \right] < 0$$

$$a.4.15 \quad G_{\lambda\lambda} = \left[\frac{\delta^2 q^{(-)}}{\delta \lambda^2} \theta^{(-)}(\lambda) + 2 \theta^{(+)}(\lambda) \frac{dq^{(+)}}{d\lambda} + \theta^{(-)}(\lambda) q \right] < 0 \quad (\text{By Assumption})$$

As expected, the sign of the denominator of the anti-reform lobby reaction function is unambiguously negative, a necessary condition for an interior solution. The other

expressions we must estimate in equation 14 are $G_C^A C^A$, $G_C^A \lambda$ and $G_C^A C^P$. The

computation of these components yield:

$$a.4.16. G_{C^A C^A} = \overbrace{\frac{\delta^2 q}{\delta \lambda \delta C^A} \theta(\lambda) \frac{d\lambda}{dC^A}}^{(-)} + \theta(\lambda) \frac{\delta q}{\delta \lambda} \frac{d^2 \lambda}{dC^A} + \overbrace{\frac{\delta^2 q}{\delta C^A} \theta(\lambda)}^{(+)} + \frac{d^2 \lambda}{dC^A} \theta'(\lambda) q + \overbrace{\frac{\delta q}{\delta C^A} \theta'(\lambda) \frac{d\lambda}{dC^A}}^{(-)} < 0$$

Using a.4.11 and a.4.12 we are able to rewrite $G_C^A C^A$ as:

$$a.4.17. G_{C^A C^A} = G_{\lambda} \frac{d^2 \lambda}{dC^A} + \overbrace{\frac{\delta^2 q}{\delta C^A} \theta(\lambda)}^{(-)} + G_{\lambda C^A} \frac{d\lambda}{dC^A} < 0$$

$$a.4.18. G_{C^A \lambda} = \overbrace{\left[\frac{\delta^2 q}{\delta \lambda^2} \theta(\lambda) + 2 \theta'(\lambda) \frac{\delta q}{\delta \lambda} + \theta''(\lambda) q \right] \frac{d\lambda}{dC^A}}^{(G_{\mu} < 0)} + \overbrace{\frac{\delta^2 q}{\delta C^A \delta \lambda} \theta(\lambda)}^{(-)} + \overbrace{\frac{\delta q}{\delta C^A} \theta'(\lambda)}^{(-)} < 0$$

$$a.4.19. G_{C^A C^P} = \overbrace{\left[\frac{\delta^2 q}{\delta \lambda \delta C^P} \theta(\lambda) + \theta'(\lambda) \frac{\delta q}{\delta C^P} \right] \frac{d\lambda}{dC^A}}^{(+)} + \overbrace{\frac{\delta^2 q}{\delta C^A \delta C^P} \theta(\lambda)}^{(-)} > 0$$

Under our assumptions the sign of $G_C^A \lambda$ is unambiguously negative and the sign of $G_C^A C^P$ depends on $\delta^2 q / \delta C^A \delta C^P$ or how the slope $\delta q / \delta C^A$ changes when C^P changes. We assume $\delta^2 q / \delta C^A \delta C^P$ is negative what makes $G_C^A C^P$ positive. The third section of this appendix compute some mixed partials needed to show uniqueness in the model.

A.4.3. Computation of the Mixed Partial to Show Uniqueness

The four relevant mixed partial equations presented in condition ii) of the paper are computed in this section of the appendix. The results are:

$$a.4.20. F_{C^{\rho}C^{\rho}} = \left[\overbrace{\frac{\delta^2 q}{\delta \lambda \delta C^{\rho}} \phi^{(+)}(\lambda) + \phi^{(-)}(\lambda) \frac{\delta q}{\delta C^{\rho}}}^{(-)} \right] \frac{d\lambda}{dC^{\rho}} + \overbrace{\frac{\delta^2 q}{\delta C^{\rho 2}} \phi^{(+)}(\lambda) + \frac{d^2 \lambda}{dC^{\rho 2}} \left[\phi^{(+)}(\lambda) \frac{\delta q}{\delta \lambda} + \phi^{(-)}(\lambda) q \right]}^{(-)} < 0$$

$$a.4.21. F_{C^{\rho}C^A} = \left[\phi^{(-)}(\lambda) \frac{\delta q}{\delta C^A} \frac{d\lambda}{dC^{\rho}} + \frac{\delta^2 q}{\delta C^{\rho} \delta C^A} \phi^{(+)}(\lambda) \right] + \overbrace{\frac{\delta^2 q}{\delta \lambda \delta C^A} \phi^{(+)}(\lambda) \frac{d\lambda}{dC^{\rho}}}_{(-)} < 0$$

$$a.4.22. G_{C^A C^A} = \frac{\delta^2 q}{\delta \lambda \delta C^A} \theta^{(+)}(\lambda) \frac{d\lambda}{dC^A} + \theta^{(-)}(\lambda) \frac{\delta q}{\delta \lambda} \frac{d^2 \lambda}{dC^{A2}} + \frac{\delta^2 q}{\delta C^{A2}} \theta^{(-)}(\lambda) + \frac{d^2 \lambda}{dC^{A2}} \theta^{(+)}(\lambda) q + \frac{\delta q}{\delta C^A} \theta^{(+)}(\lambda) \frac{d\lambda}{dC^A} < 0$$

$$a.4.23. G_{C^A C^{\rho}} = \left[\frac{\delta^2 q}{\delta \lambda \delta C^{\rho}} \theta^{(-)}(\lambda) + \theta^{(+)}(\lambda) \frac{\delta q}{\delta C^{\rho}} \right] \frac{d\lambda}{dC^A} + \overbrace{\frac{\delta^2 q}{\delta C^A \delta C^{\rho}} \theta^{(-)}(\lambda)}^{(+)} > 0$$

As we can see there is no much we can say about a.4.20 being greater than a.4.21 or equation a.4.22 being greater than a.4.23, without making any extra assumptions.

Showing uniqueness with this method is not a straightforward procedure.

A.4.4. Signs of the Mixed Partial with respect to Parameter β

Let start by getting $F_{\lambda\beta}$ and $F_{C^{\rho}\beta}$ (the partials of F_{λ} and C^{ρ} with respect to β). I also obtain from the President's problem the element $d\lambda/d\beta$. The results are presented in equations a.4.24 to a.4.26:

$$a.4.24. \quad F_{\lambda\beta} = [\phi^{(+)}(\lambda) \frac{\delta^2 q}{\delta\lambda\delta\beta} + \phi^{(-)}(\lambda) \frac{\delta q}{\delta\beta}] > 0 \quad \text{given} \quad \frac{\delta^2 q}{\delta\lambda\delta\beta} > 0$$

$$a.4.25. \quad F_{C^p\beta} = \overbrace{[\phi^{(+)}(\lambda) \frac{\delta^2 q}{\delta\lambda\delta\beta} + \phi^{(-)}(\lambda) \frac{\delta q}{\delta\beta}]}^{(-)} \frac{d\lambda}{dC^p} + \overbrace{\frac{\delta^2 q}{\delta C^p \delta\beta} \phi^{(+)}(\lambda)}^{(-)} < 0 \quad \text{given} \quad \frac{\delta^2 q}{\delta C^p \delta\beta} < 0$$

$$a.4.26. \quad \frac{d\lambda}{d\beta} = - \frac{\overbrace{[\psi^{(-)}(\lambda) \frac{\delta q}{\delta\beta} + \frac{\delta^2 q}{\delta\lambda\delta\beta} \psi(\lambda)]}^{(+)}}{\underbrace{[\mu]}^{(-)}} > 0$$

Observe the signs of equations a.4.24 to a.4.26 require some extra assumptions. I assume $\delta^2 q / \delta\lambda\delta\beta > 0$ and $\delta^2 q / \delta C^p \delta\beta < 0$ and justify these assumptions in the next section A.4.5, with a diagrammatic approach.

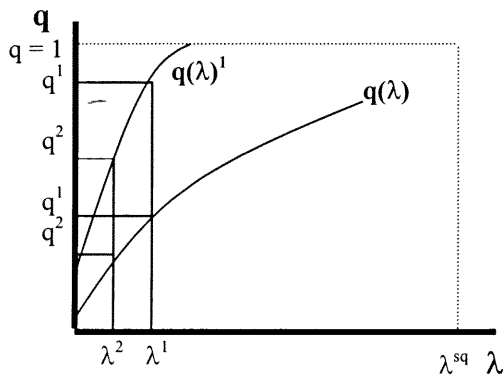
For the anti-reform lobby, the missed elements in equation 23 are $G_{\lambda\beta}$ and $G_{C^A\beta}$. Equations a.4.27 and a.4.28 show the estimation of these mixed partials with their respective signs. One extra assumption is required to obtain an unambiguous sign for these partials. That is, $\delta^2 q / \delta C^A \delta\beta > 0$. This assumption is also justified in the next section of the appendix. Please notice that as public opinion turn against the reform, Congress behavior becomes more sensitive to anti-reform funding and less influenced by pro-reform contributions

$$a.4.27. \quad G_{\lambda\beta} = [\theta^{(-)}(\lambda) \frac{\delta^2 q}{\delta\lambda\delta\beta} + \theta^{(+)}(\lambda) \frac{\delta q}{\delta\beta}] < 0 \quad \text{given} \quad \frac{\delta^2 q}{\delta\lambda\delta\beta} > 0$$

$$a.4.28. \quad G_{C^A\beta} = \overbrace{[\theta^{(-)}(\lambda) \frac{\delta^2 q}{\delta\lambda\delta\beta} + \theta^{(+)}(\lambda) \frac{\delta q}{\delta\beta}]}^{(-)} \frac{d\lambda}{dC^A} + \overbrace{\frac{\delta^2 q}{\delta C^A \delta\beta} \theta^{(-)}(\lambda)}^{(-)} < 0 \quad \text{given} \quad \frac{\delta^2 q}{\delta C^A \delta\beta} > 0$$

A.4.5. Justification of Assumptions About Mixed Partial with respect to β

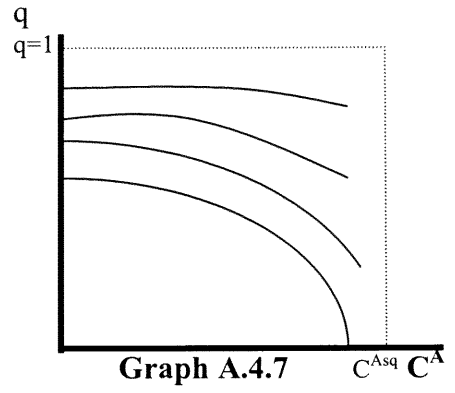
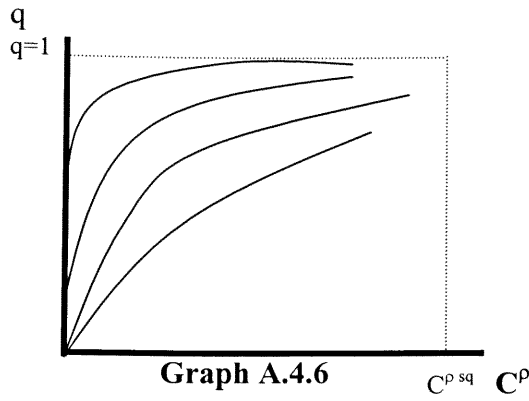
Equations a.4.24 to a.4.26 contain new elements represented by the mixed partials with respect to parameter β . Some extra assumptions are required to be able to reach some conclusions in our comparative static section. The elements with undefined signs are $\delta^2 q / \delta \lambda \delta \beta$, $\delta^2 q / \delta C^P \delta \beta$ and $\delta^2 q / \delta C^A \delta \beta$. The first element explains how the sensitivity of q with respect to λ changes, when parameter β increases. In other words, how, as public opinion turns against the reform, the slope $\delta q / \delta \lambda$ changes. Graph A.4.5 helps us to explain such movements.



Graph A.4.5

Let's say the reform consists on a share of tariff revenue reduction from λ^1 to λ^2 . The original function $q(\lambda)$ show us how the policy decreases the probability of Congress approval from q^1 to q^2 . Now, as public opinion turns against the reform, that is as β increases, the slope $\delta q / \delta \lambda$ becomes steeper and the new function is say, $q(\lambda)^1$. With this new function, the effect of the policy over q is greater. Therefore $\delta^2 q / \delta \lambda \delta \beta$ should be positive.

The other two elements $\delta^2 q / \delta C^P \delta \beta$ and $\delta^2 q / \delta C^A \delta \beta$ explains how a change in public opinion that favors protectionism affects the slope of q with respect to lobbies' contributions. Graph A.4.6 and A.4.7 show how these slopes responds to an increase in parameter β . As public opinion turns against the reform, the probability of Congress approval, q , becomes more sensitive to anti-reform contributions and less sensitive to pro-reform funding. That is $\delta^2 q / \delta C^P \delta \beta$ should be negative whilst $\delta^2 q / \delta C^A \delta \beta$ should be positive.



A.5.1 Estimating Conditions for Different Equilibrium Levels.

Recall our equilibrium equation represented by equation 13:

$$(C^{p*}, C^{A*}) = \left(\left[\frac{\frac{1}{\phi^2 \theta}}{\theta - \phi} \right]^{\frac{1}{2}} - \left[\frac{\frac{1}{\phi^2 \theta}}{\theta - \phi} \right]^2, \left[\frac{\frac{1}{\phi^2 \theta}}{\theta - \phi} \right]^2 \right) \quad (13)$$

We use equation 13 to figure out the conditions under which C^p exceeds, equates or is below C^A .

$$\left[\frac{\frac{1}{\phi^2 \theta}}{\theta - \phi} \right]^{\frac{1}{2}} - \left[\frac{\frac{1}{\phi^2 \theta}}{\theta - \phi} \right]^2 \begin{matrix} > \\ < \end{matrix} \left[\frac{\frac{1}{\phi^2 \theta}}{\theta - \phi} \right]^2$$

$$\left[\frac{\frac{1}{\phi^2 \theta}}{\theta - \phi} \right]^{\frac{1}{2}} \begin{matrix} > \\ < \end{matrix} 2 \left[\frac{\frac{1}{\phi^2 \theta}}{\theta - \phi} \right]^2 \quad \rightarrow \quad \left[\frac{\frac{1}{\phi^2 \theta}}{\theta - \phi} \right]^{\frac{1}{2}} - 2 \left[\frac{\frac{1}{\phi^2 \theta}}{\theta - \phi} \right]^2 \begin{matrix} > \\ < \end{matrix} 0$$

$$\underbrace{\frac{\phi \theta}{\theta - \phi}}_{(+)} \left[1 - 2 \frac{\theta}{\theta - \phi} \right] \begin{matrix} > \\ < \end{matrix} 0 \quad \rightarrow \quad \underbrace{\frac{\phi \theta}{\theta - \phi}}_{(+)} \left[\frac{\theta - \phi - 2\theta}{\theta - \phi} \right] \begin{matrix} > \\ < \end{matrix} 0$$

$$\underbrace{\frac{\phi \theta}{\theta - \phi}}_{(+)} \left[- \frac{(\phi + \theta)}{\theta - \phi} \right] \begin{matrix} > \\ < \end{matrix} 0$$

From the last expression, we can summarize the three possible cases as follow:

$$\begin{aligned}
 a) \text{ If } \phi > |\theta| &\Rightarrow \left[-\frac{\phi + \theta}{\theta - \phi} \right] > 0 \Rightarrow C^{\rho*} > C^A * \\
 b) \text{ If } \phi < |\theta| &\Rightarrow \left[-\frac{\phi + \theta}{\theta - \phi} \right] < 0 \Rightarrow C^{\rho*} < C^A * \\
 c) \text{ If } \phi = |\theta| &\Rightarrow \left[-\frac{\phi + \theta}{\theta - \phi} \right] = 0 \Rightarrow C^{\rho*} = C^A
 \end{aligned}$$

A.5.2. Conditions for a Positive Determinant

Let do some algebraic manipulation to obtain the conditions under which the determinant presented in equation 17 yields a positive sign.

$$\Delta = \underbrace{\frac{1}{2} \left(\frac{\phi}{C^A} \right)^{\frac{1}{2}} - \frac{1}{2} \left(\frac{\theta}{C^{\rho}} \right)^{\frac{1}{2}}}_{(+)} + \underbrace{\frac{1}{2} \left(\frac{\theta}{C^{\rho}} \right)^{\frac{1}{2}} \frac{1}{2} \left(\frac{\phi}{C^A} \right)^{\frac{1}{2}}}_{(-)} > 0 \quad (17)$$

For such equation to be positive it should be true that:

$$\frac{1}{2} \left(\frac{\phi}{C^A} \right)^{\frac{1}{2}} - \frac{1}{2} \left(\frac{\theta}{C^{\rho}} \right)^{\frac{1}{2}} > \frac{1}{2} \left(\frac{\theta}{C^{\rho}} \right)^{\frac{1}{2}} \frac{1}{2} \left(\frac{\phi}{C^A} \right)^{\frac{1}{2}}$$

We can reduce this expression as follows:

$$\begin{aligned}
 \left(\frac{\phi}{C^A} \right)^{\frac{1}{2}} - \left(\frac{\theta}{C^{\rho}} \right)^{\frac{1}{2}} > \frac{1}{2} \left(\frac{\theta}{C^{\rho}} \right)^{\frac{1}{2}} \left(\frac{\phi}{C^A} \right)^{\frac{1}{2}} &\rightarrow \left(\frac{C^A}{\phi} \right)^{\frac{1}{2}} \left[\left(\frac{\phi}{C^A} \right)^{\frac{1}{2}} - \left(\frac{\theta}{C^{\rho}} \right)^{\frac{1}{2}} \right] > \frac{1}{2} \left(\frac{\theta}{C^{\rho}} \right)^{\frac{1}{2}} \\
 \left[1 - \left(\frac{C^A}{\phi} \right)^{\frac{1}{2}} \left(\frac{\theta}{C^{\rho}} \right)^{\frac{1}{2}} \right] > \frac{1}{2} \left(\frac{\theta}{C^{\rho}} \right)^{\frac{1}{2}} &\rightarrow 2 \left(\frac{C^{\rho}}{\theta} \right)^{\frac{1}{2}} \left[1 - \left(\frac{C^A}{\phi} \right)^{\frac{1}{2}} \left(\frac{\theta}{C^{\rho}} \right)^{\frac{1}{2}} \right] > 0 \\
 \left[2 \left(\frac{C^{\rho}}{\theta} \right)^{\frac{1}{2}} - 2 \left(\frac{C^A}{\phi} \right)^{\frac{1}{2}} \right] > 0 &\rightarrow \left(\frac{C^{\rho}}{\theta} \right) > \left(\frac{C^A}{\phi} \right)
 \end{aligned}$$

A.5.3. The President's Expected Net Benefit as a function of the Parameters

We plug the equilibrium values found in equation 13 in the President's expected net benefit problem represented by $E(B^P) = q\psi - F$ and obtain:

$$E(B^P) = \left(\frac{\left[\frac{\frac{1}{\phi^2}\theta}{\theta - \phi} \right] \phi^{\frac{1}{2}} - \left[\frac{\frac{1}{\phi^2}\theta}{\theta - \phi} \right]^2}{\left[\frac{\frac{1}{\phi^2}\theta}{\theta - \phi} \right] \phi^{\frac{1}{2}} - \left[\frac{\frac{1}{\phi^2}\theta}{\theta - \phi} \right]^2 * + \left[\frac{\frac{1}{\phi^2}\theta}{\theta - \phi} \right]^2} \right) \psi - F$$

$$E(B^P) = \left(\frac{\left[\frac{\frac{1}{\phi^2}\theta}{\theta - \phi} \right] \phi^{\frac{1}{2}} - \left[\frac{\frac{1}{\phi^2}\theta}{\theta - \phi} \right]^2}{\left[\frac{\frac{1}{\phi^2}\theta}{\theta - \phi} \right] \phi^{\frac{1}{2}}} \right) \psi - F$$

$$E(B^P) = \left(1 - \frac{\left[\frac{\frac{1}{\phi^2}\theta}{\theta - \phi} \right]^2}{\left[\frac{\frac{1}{\phi^2}\theta}{\theta - \phi} \right] \phi^{\frac{1}{2}}} \right) \psi - F = \left(1 - \frac{\theta}{\theta - \phi} \right) \psi - F = - \left(\frac{\phi\psi}{\theta - \phi} \right) - F \quad (34)$$

Equation 34 is the one used for the final solution of the overall game.

VITA

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