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WHY DO COUNTRIES RESTRICT USED GOOD IMPORTS? AN INQUIRY INTO THE INTERNATIONAL POLITICAL ECONOMY OF USED AUTOMOBILES

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at George Mason University

By

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Master of Arts
George Mason University, 1997

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Spring Semester 2003
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Fairfax, VA

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Committee:

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DEDICATION

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ABSTRACT

WHY DO COUNTRIES RESTRICT USED GOOD IMPORTS? AN INQUIRY INTO THE INTERNATIONAL POLITICAL ECONOMY OF USED AUTOMOBILES

Danilo Pelletiere, PhD.

George Mason University, 2003

Thesis Chair: Dr. Kenneth A. Reinert

Why in the rush to free trade of the 1980s and 1990s did used automobiles get left behind? Trade theorists are in almost unanimous agreement that the free trade in used machines is desirable and would primarily benefit developing countries. Yet today, a wide variety of mostly developing countries have some sort of additional trade restriction on the import of a used automobile. Despite a sizable literature on the theoretical benefits of this trade, there has been little empirical analysis of it or any explicit consideration of used automobile protection's political economy. This dissertation is arranged around three specific research questions:

1. How does the regulation of used automobile imports vary across countries?
2. What is the impact of used automobile protection on trade (is its impact nontrivial)? And most importantly,

3. What factors explain the variation and persistence of these policies today?

A first-of-its-kind database of used automobile protection was compiled in answer to the first question. In answer to the second question, a categorical used automobile protection score was developed from the data and included as an independent variable in a gravity model of US used automobile exports to 119 countries. The third question is addressed first by using the score as the dependent variable in ordered regression model of the factors influencing its variation across 104 developing and transitional economies. A second approach is offered in a case study of the evolution of Mexico's policy toward used automobile imports. The thesis concludes that used automobile protection is the result of inherent disadvantages faced by used automobile interests in intra-industry trade policy competition (in the sense of Nelson, 1988).

CHAPTER 1
INTRODUCTION TO USED AUTOMOBILE PROTECTION

1.1 Introduction

Over one weekend at the end of March 2001, India lifted restrictions on the import of 715 categories of foreign goods. This was the final installment of 1,429 categories of goods on which it was to abolish restrictions according to its agreement with the World Trade Organization (WTO). According to the Financial Times (Financial Times, April 2, 2001), this marked "the end of the protectionist approach to international trade [India] has pursued since independence." Further in the same article, however, the author reports that trade in at least one sector was not substantially liberalized: While used automobiles will now be permitted under the new regime, they "must not be more than three years old, must be right-hand drive, and must be imported through Bombay after paying 180 per cent import duty."

The persistence or emergence of used automobile protection despite significant liberalization of developing world trade policies starting in the 1980s (Rodrik, 1992; Milner, 1999) is not unique to India. In a 1999 "Compilation of Foreign Motor Vehicle Import Requirements" from the Department of Commerce (USDOC-ITA, 1999), roughly one third (27) of the 82 countries surveyed have some sort of additional restriction on

used cars and 10 of these banned them altogether.[1] The majority of these countries with additional restrictions were developing and transitional economies.

There is considerable work within economics and political science on the political economy of trade. There is also a smaller body of academic work on used capital and durable goods and their role in economic development. This literature reaches a near consensus that the used-machines trade provides the greatest potential benefit to lower-income individuals and developing countries. Thus it is interesting that the majority of economies with discriminatory restrictions against used automobiles appear to be developing countries. Despite the existence of these two literatures, and numerous references to used-machine protection in the latter, there has been no research focused on how and why developing economies restrict used machine imports and why these restrictions persist in an era of unprecedented trade liberalization. Therefore, this dissertation seeks answers to three research questions:

1. How does the regulation of used automobile imports vary across countries?
2. What is the impact of used automobile protection on trade (is its impact nontrivial)? And most importantly,
3. What factors explain the variation and persistence of these policies today?

This last question could perhaps be made more explicit and compelling by asking, why in the rush to free trade of the 1980s and 1990s did used automobiles get left behind?

In order to develop hypotheses related to these questions and test them, a-first-of-its-kind database of the trade policies governing used automobile imports across 131

[1] Subsequent research in putting together a database of international used automobile protection shows that this number is incomplete. The details of the database used here

national economies was developed. This database was generated using official sources, embassy queries and published reports from the press and elsewhere. From this database, an ordinal policy score is created and comparative statistics and regression techniques are used to test likely explanations for the persistence of this discrimination. Additionally, a case study of the Mexican experience with used automobile protection prior to, in, and after the NAFTA negotiations provides a more detailed look at how these policies are formed, implemented and received politically. Finally, some policy measures are discussed to maximize the economic and environmental benefits (minimize the costs) that might result from this trade.

1.2 Motivation and Relevance

The reason to pursue this research stems from both theoretical and practical policy concerns. First, at a purely practical level it seeks to reveal the regime structure and political economy affecting a growing and potentially large element of international trade, namely used automobiles.[2] In this vein, as is suggested by the literature in the next chapter, this market has the potential to overcome some of the current inequality of access to consumer durables, capital, and entrepreneurship opportunities in many economies. Second, this research provides a new perspective on a long-running debate in the trade and development literature on the appropriate role of second-hand machines in economic development and trade policy. Third, given the environmental and health issues that might be associated with both restricted and unrestricted trade in second-hand

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are presented in chapter 4.

[2] As an indication of the potential, it is said that in the US today the market for used cars is three times that of new ones (Scitovsky, 1994).

machines, this research is important for the field of trade and the environment, as it is an issue that will continue to be raised. Fourth and most importantly, this paper contributes to the existing political economy of trade literature. As Akerlof (1970) and others have done in the case of information asymmetry, and discussed further in the next section, this thesis will use the many similarities and few differences of the used and new automobile markets as something of a natural experiment to explore the implications of factors such as ownership concentration and foreign direct investment (FDI) on the political economy of trade liberalization. Finally, as treated in an appendix to Chapter 3 this dissertation contributes a new empirical example to fuel the antitrust literature on whether new durable goods producers have an incentive to control the used market for their products. To date this literature has focused on decisions internal to the firm, here the issue of policy intervention is raised.

1.3 Problem Statement

Why has used automobile protection persisted in an era of unprecedented trade liberalization? A brief discussion here will provide a useful context for the research, results and discussions that follow. There are three opposing views that currently exist in policy debates over this question.[3] Most economists would reply that such measures are

[3] In an interview (March 4, 2003), Charles Uthus of the Automotive Trade Council cited four reasons he has observed: 1) Environmental concerns about used automobiles having older and degraded environmental technology, and what to do with them at their end-of-life; 2) Safety concerns about vehicles with older or degraded safety equipment or parts; 3) The economic impact on an infant industry; Foreign automobile company concerns about sunk investments and brand image due to a lack of related support services. As will become clear, the final two are treated as related in this research for a number of reasons. Uthus says the Automotive Trade Policy Council has yet to state a formal position on the issue, but it has increasingly become more of a "front burner" issue.

implemented as a form of domestic industry protection. These measures might be currently intended protections or as measures from earlier regimes yet to be abolished. In any case most economists would point out that trade theory suggests developing countries have the most to gain from the used automobile trade (i.e. Grubel, 1980).

Economists sympathetic to such policies, however, might suggest they are legitimate anti-dumping measures. They might be used to keep unusable and environmentally damaging "junk" from being dumped on poorer countries by richer countries. As will be seen, many countries' representatives justify their insistence on used-automobile protection using environment, safety, and health concerns. Used automobiles are often assumed *a priori* to be less clean, less safe and/or less efficient than new goods. A few countries go so far as to declare used goods injurious to their technical advancement.[4] Both the industry-protection and environment and safety explanations suggest that these policies are solely for the benefit of the implementing country's economic interests or environmental health. In a world where trade policy increasingly includes a multilateral element in the form of regional or WTO-negotiated commitments, the question is why such policies persist when other restrictions were negotiated lower in this period. Also puzzling is that other policies are much better suited to these ends. Domestic protection from *all* automobiles would benefit a domestic automobile industry better than used automobile protection alone, and environmental policies aimed at

[4] Some country's use all of these arguments. For example, the "Statement by Morocco Requesting a Derrogation of Minimal Values" (WTO, 1998 G/VAL/W/27) states, "With regard to vehicles, the reference prices have been retained largely in order to limit imports of used cars, for the following reasons: consumer protection; avoidance of traffic accidents due to the poor condition of the vehicles; protection of the environment;

curbing pollution specifically are thought to be more effective and efficient in addressing environmental concerns. Indeed, as will be shown, many forms of used-automobile protection in use allow only the newest and the oldest automobiles, defeating any simple protection or environmental aims.

This leads to the observation that multinational automobile firms desire to minimize competition from the saturated secondary market is a significant factor. In this view (Moran, 1998; Kahn, 2000; Studer, 2002) multinational automobile firms use their influence to shape national trade regimes that liberalize the new-automobiles-and-parts-trade, maximizing global or regional economies of scale and production flexibility, while actively discouraging the liberalization of used-automobile markets. Moran (1998:46) for example, cites the example of the Japanese automobile producer Suzuki, which was reported to have demanded a ban on used vehicles as a prerequisite for a planned investment in Hungary in the early 1990s. Used-automobile protection is seen as something all new automobile producers (whether foreign or domestic) can agree on.

The multinational-protection and the health and environment hypotheses both appear to directly explain the persistence of discrimination against used automobiles in a way that a basic domestic industry protection argument does not. After all, the third and most important research question is not why used automobile imports are restricted but why national trade regimes, or the process of liberalization, *discriminate* against used automobiles. Both hypotheses might apply in specific cases: a country may be seeking to protect its industry *and* its environment.

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avoidance of an increase age of cars on the road in Morocco."

But used automobiles are not without their advocates. Consumers would seem to gain from liberalization but so too theoretically would those who sell used automobiles, since they would see their market share grow in an unprotected market. Why would the used-automobile market be protected "against its will?" The hypothesis developed here is that there are significant differences in the ability for new and used automobile interests to over come collective-action problems (Olson, 1971) and exercise political influence. One reason to suggest this comes from the nature of demand for used automobiles. As a group, the consumers of used automobiles (firms and individuals) are likely to be marginalized politically by relative poverty. Furthermore, there is a social bias against used products that even used automobile consumers themselves are likely to harbor. Organizing consumers of any type is often difficult, and organizing poor consumers is even more difficult. Organizing poorer consumers around a product that some may themselves be ashamed to buy is more difficult still. It is a stylized fact of politics that poverty reduces political influence. On the supply side, used-automobile providers to the domestic market are marginalized by the same social bias faced by consumers: the industry has been linked not only to poverty but also to criminality (neither without reason). More fundamentally, however, they are dealing in goods that have already been distributed once. This has a number of implications for the structure and influence of the industry.

First, the suppliers of used automobiles to the used automobile market (the previous consumers in foreign countries) are likely to be individuals who are geographically and otherwise separated from one another. They are also likely to be

involved in relatively few trades in their lifetimes, potentially with different purchasers each time. The upshot of this is that while the supply side of the used automobile market affects vast numbers of people, those affected are unlikely to view themselves as being "in the business" of selling used automobiles (international or otherwise) and are unlikely to be aware of their "interests" as used automobile suppliers. This makes it difficult for them to act on those interests politically at home let alone abroad. Thus the used automobile producers' foreign presence and political clout is very different from the new-automobile producers'. While the new-automobile producers also have production and customers dispersed throughout the globe, their side of the automobile industry is highly integrated, and ownership is concentrated among a few firms, in a few countries and regions; their customers are as a group more wealthy.

Second, as anyone who has sold their own automobile or driven along a country road knows, *barriers* to entry in the used automobile market are relatively low. Related to this, barriers to scale are significant. The production function of the used automobile sector is essentially "collect-repair-resell" as opposed to an industrial production function in the new automobile sector. Since suppliers of used automobiles are distributed relatively widely, labor, transportation, and other costs associated with collecting vehicle supplies for redistribution and sales are high. The goods are also unlikely to be uniform in shape, size, needed service, repairs and parts and so forth. This heterogeneity further increases the costs of doing business. More importantly, these costs are likely to grow at a constant or even increasing rate as a firm broadens the geographic area, the sources[5]

[5] Used automobiles from dealers, factories, and fleets are likely to be of higher, more

and the range of products (i.e. make, model, year) that it searches for, repairs, refurbishes and sells. Thus, there are no extensive economies of scale to exploit. Furthermore, from year to year, supplies are uncertain depending on primary producer production and the preferences and economic condition of previous consumers, not the demand in the used automobile market itself. This further increases uncertainty and instability.

Taken together, these factors have meant that used car operations are highly competitive, geographically dispersed, labor-intensive and relatively small. There are nearly two and a half times as many used car dealerships as new car dealerships in the US, and nearly three-quarters of used car dealerships are "one-man" operations. Market power in the used automobile industry is hard to come by.

Therefore, while the used-automobile market may be considerably larger (in terms of sales volume and customers) than the new-automobile market,[6] its membership is more likely to be temporary, disinterested, poor, geographically distributed and politically marginal. In ownership and geography it is dispersed (in global and often domestic terms), limiting its influence in domestic and international trade policy relative to the new-automobile sector. Therefore while the characteristics of the industry may suggest to economists that it is economically beneficial and feasible to liberalize, these same characteristics make the industry uncompetitive in domestic and international political forums - and therefore subject to greater discrimination.

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uniform quality than those from consumers. Automobiles as trade-ins from more wealthy consumers might be considered better than those bought from a police auction and so on.

[6] In the United States it is three times larger than the new car industry in 2001, a record year for the new automobile industry, 17 million new cars were sold compared to 42.6

What is perhaps interesting from a theoretical perspective is that the interests in the case of used/new automobile policy competition are exceptionally difficult to break down along standard political economy lines, such as the Stolper-Samuelson or Specific-factors based approaches. Instead the case seems to be a clear example of how policy is formed in what Nelson (1988) has referred to as *intra-industry/ inter-firm* policy competition, that is where firms competing in the same market have different policy preferences they wish to see realized.

1.4 Hypotheses

To address the three research questions stated above this dissertation proposal posits the following six hypotheses to be tested:

Hypothesis 1: Used-automobile protection has a significant and suppressive effect on the used automobile trade;

Hypothesis 2: The impact of trade restrictions will be greatest in developing countries;

Hypothesis 3: Developing countries are more likely to discriminate against used-automobiles than developed countries;

Hypothesis 4: Most of the current policies that discriminate against used automobiles do not significantly address the health, safety, environment and technology concerns often used to justify them;

Hypothesis 5: The presence of new automobile production is a significant and positive factor in explaining the severity of used automobile protection; and

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million used cars.

Hypothesis 6: The increase in foreign direct investment in the domestic automobile industries of developing countries is a positive and significant factor in explaining why countries moved from full protection or liberal trade regimes to used automobile protection.

While the logic on which these hypotheses are founded may be apparent from the preceding discussion, Chapter 3 develops the rationales more explicitly.

1.5 Structure of the Dissertation

This chapter proceeds with a chapter-by-chapter review of the research and analysis that follows. The chapter concludes by discussing Chapter 8 with an advance summary discussion of its findings and conclusions.

Chapter 2: Though there appears to be no obvious literature or published research antecedents specifically related to the political economy of used goods restrictions, there are numerous works that touch on this subject and are relevant to this work. The first of these is the literature on various aspects of the economics of second-hand markets and their regulation. Important works in this area include Fox (1957), Akerlof (1970), Swan (1980), Scitovsky (1994). The second body of literature deals specifically with the implications of used machines within trade theory. In this field, Sen's (1962) "On the Usefulness of Used Machines" provided a basic formulation in this area that drove considerable additional research up to today. Out of this literature arose a number of empirical tests most recently, Navaretti, Soloaga, and Takacs (1998a, 1998b, 2000) work on the international metalworking machines trade. The final body of literature is quite broadly, the political economy of trade. This literature asks a question that confounds

economists: Why if trade liberalization makes so much sense, do so many governments pursue protectionism? As Milner (1999) has pointed out, political scientists in the international political economy tradition have asked an almost opposite question, why if it is so politically costly does any government undertake liberalization? The literature review looks at these questions and lays out some of the standard theoretical and empirical responses.

Chapter 3: In Chapter 3, the findings of the literature presented in chapter 2 are integrated and the hypotheses presented above are derived. This is done in the case of the political economy of used automobile protection by asking three further questions:

1. Who wins and who loses from used automobile protection?
2. How much political influence is each group expected to have in overcoming the problems of collective action in exercising that influence? and
3. What factors are expected to vary across nations or over time to explain the variation in used automobile protection across these dimensions?

This somewhat ad hoc approach is suggested by the literature review in Chapter 2, where the link between the theoretical and empirical models of the political economy of trade policy was found to be weak, offering no "off-the-shelf" approach to as specific an empirical question as stands at the center of this dissertation.

Chapter 4: This chapter provides an overview of the *measurement* and *methods* used in the empirical portion of this dissertation. The first part of the chapter describes how the database of used automobile protection was developed and how the resulting heterogeneous mix of tariff and non-tariff barriers was synthesized into a single four-point "protection score." The score is ordinal where a score of 0 indicates no discriminatory protections on used automobiles while a score of 3 indicates a complete

ban. This section also includes a discussion of the apparent strengths and limitations of the database and score in addressing the questions motivating this research. The second section of the chapter provides a review of national used automobile import policies continent-by-continent. The final section of this chapter presents the methods used in the rest of the empirical portion of the dissertation. These include a model of trade flows in the gravity model tradition, a cross-national test of the political economy of used automobile protection using an ordered regression model with the protection score on the left hand side, and finally an introduction to the case study of Mexico in Chapter 7.

Chapter 5: This chapter specifies a gravity-type equation using used-automobile trade data from the US to 117 developed, transitional, and developing countries. This test serves to address the first two research questions addressed above. In terms of the central question of the political economy of used automobile protection, the most important purpose is to test the significance and impact of the protection score introduced in the previous chapter prior to using it as a dependent variable in Chapter 6.

Chapter 6: With this chapter, the analysis turns directly to the political economy of used automobile protection. An ordered probit model is specified to test the direction and significance of various factors across 104 developing and transitional countries, on the presence of more or less severe used automobile protections. These factors include the presence of an automobile industry, government intervention, and income distribution.

Chapter 7: This final empirical chapter seeks to provide a richer context for the type of political and economic issues addressed previously in the dissertation. Mexico

was chosen as a case study for a number of reasons: What has occurred in Mexico appears prototypical of what might be observed elsewhere; the NAFTA negotiations have been closely studied; and finally, there has been considerable activity since NAFTA around the issue of used automobile protection in domestic politics.

Chapter 8: The conclusion of this chapter finds strong evidence that used-automobile protection is widespread but found primarily in developing countries. These restrictions are also found to have a clearly suppressive effect on trade, and that the impact is greatest in lower income countries, which import a higher proportion of used automobiles ceteris paribus.

The conclusion to the political economy question breaks down into two parts. First, there is clear cross-national evidence that the incidence and severity of used automobile protection is strongly, and positively influenced by the presence of new automobile production capacity within a nation's economy. The presence of the industry appears to be more important than either its size or whether it is currently producing automobiles. The second, part of this question is whether FDI has a role in effecting the change from either full protection or more liberal trade to used-automobile protection. Here significant empirical evidence of FDI influence is found in country anecdotes, Interviews, and the case of Mexico. The relationship appears complex, however, in that more FDI does not appear to be linked in any linear fashion a greater likelihood of used-automobile protection. This hypothesis is not put to any direct test here, and might be the subject of future research. Still, the conclusion is tentatively drawn that the emergence of used-automobile protection is the result of a move away from traditional *domestic*

industry protection to more *multinational* protection in developing countries, geared toward attracting and retaining foreign investment. There may be linkages between restrictions on used goods and trade restrictions on second-hand usage of goods or technology (i.e. parallel importing or intellectual property regulations) that should be explored. As discussed above, it is also concluded here that used automobile protection provides strong case example of how intra-industry policy competition shapes national trade policies in ways not predicted by either factor- or sector-based approaches.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

This chapter begins with a discussion of the basic economics of used goods and used automobile markets. Then, the rest of the chapter is organized around identifying and exploring theoretical and empirical approaches to the three research questions discussed in Chapter 1. While the literature applying directly to the international used automobile trade and its regulation is quite limited, there are a number of related literatures that need to be recognized and explored.

2.2 The Economics and Structure of the Used Automobile Market

A useful starting point for this literature review is the role of used consumer durables and capital goods (hereafter "machines"), such as automobiles, in the domestic economy. The basic assumption of the economics literature is that used machines are imperfect substitutes for new machines, differing across a number of characteristics. Used machines have generally been described as (parentheses indicate where there are contradictions in the literature):[7]

1) Cheaper - and cheaper in foreign exchange;
2) More labor intensive;
3) Smaller scale, more versatile, and less specialized;
4) Closer to the age of their obsolescence;
5) Less efficient, reliable, or precise;
6) Less skill intensive (more skill intensive);
7) Cheaper to operate (more costly to operate);
8) Simpler to maintain;
9) Easier to manufacture spare parts for - harder to purchase new spare parts for;

[7] This list has been modified and updated somewhat from a list provided by Smith (1974).

10) Immediately available for delivery;
11) Having higher transport and transaction costs;
12) Conducive to learning by doing (likely to widen the technological gap); and
13) More difficult to finance.]

Some of the differences in new and used machines can be attributed to the process of depreciation as a machine wears and new, more technologically advanced machines are introduced. There are, however, other fundamental differences inherent to the new/used relationship, which can make it considerably more complex.

It is often assumed within economics, machines are initially sold for their net present value, i.e. the value of all future use is known perfectly at the time of production and therefore current production levels and prices reflect *all* future use. If, as is also often assumed, consumers have homogeneous preferences, incomes and production functions, however, there is no used machine market: The price seller receives from the sale will be no more than his current valuation of the machine and there he can gain nothing from the exchange.[8] Even in the case where preferences, incomes, and/or production functions vary, the assumption of perfect information of this sort suggests that used machine consumers are assured of finding an appropriate machine at a known price on offer when they were ready to purchase and sellers who are assured of finding a buyer when they wish to sell have built that knowledge into the original price they were willing to pay.

[8] See Fox (1957), Miller's (1960) note on Fox, and Sen's (1962) note for a more thorough discussion of this. For a more general discussion of the complexities of the used machine market see Rust (1985).

Empirically neither appears to be the case. On the one hand, as shown in the list above and discussed in greater detail below, higher transaction costs (primarily due to information problems) appear to limit the opportunities for exchange in used good markets even where both supply and demand exist. On the other hand, vibrant used markets do exist, particularly for high value machines such as automobiles, ships, and factory plant. So the case for perfect information appears itself to be limited.

The information problem in used markets is complicated further by the occurrence of changes from model-year-to-model-year and variation in use, care, and modification subsequent to initial purchase. Thus even machines that were nearly identical when new may differ greatly in quality when used. If there is not perfect information about future market conditions at the time of production, the result will be greater uncertainty not only about what quantity, but also what quality will be supplied and demanded in future periods. While this creates friction in used machine markets it also may create increased opportunities for exchange.

All exchanges contain an amount of uncertainty in the presence of information asymmetry. As famously suggested by Akerlof (1970), however, the greater heterogeneity in used-machine markets makes them potentially more uncertain than corresponding new-machine markets. The example he uses is the used automobile market. As just discussed, not only is there greater differentiation among outwardly similar automobiles in the used market, there is also greater heterogeneity in the intentions of sellers and buyers. Most current automobile owners are not "in the business" of selling used automobiles but of using them. Therefore, they may choose to

use the stream of services the automobile provides until it is obsolete, and if they own the automobile outright are under no contractual or economic compunction to sell at the current market price. Those with automobiles that no longer function as they desire them to or automobiles that turn out to be defective ("lemons"), however, may not only be compelled to sell, they may also choose to conceal defects from secondary consumers in order to minimize their loss. Potential consumers, for their part, are aware that greater quality heterogeneity exists in used markets, that some of the offerings are lemons, and that those selling lemons have an incentive to conceal this information. Akerlof argued that this leads consumers to undervalue the quality of all used automobiles as a defense against buying one that is a lemon. In response, owners of high quality used automobiles decide to continue using their automobiles rather than sell them at lower prices. This further reduces the volume of transactions in the used market below the socially optimal level. Through this process of "adverse selection," the used automobile market becomes a "market for lemons," a textbook example of market failure due to asymmetric information. Institutions such as warrantees, price lists and consumer reports, and so-called lemon laws, may increase consumer participation but at an additional cost.

Making a somewhat different argument, however, Bond (1982) argues the rent associated with asymmetric information may often accrue in the buyer's favor. A current owner may judge an automobile to be obsolete or a lemon where another consumer, possessing different knowledge, skills, and/or preferences sees a bargain, a fact he in turn may conceal from the seller. Bond (1982) finds statistical evidence that pick-up trucks purchased used required no more major repairs than trucks that are not traded. From this

he concludes that the used truck market is not a market for lemons, and that "while it may appear to [those with high maintenance costs] that used trucks are too costly to maintain, this results not from the existence of a market for lemons, but a reallocation of the stock of vehicles to those individuals who value them most highly" (Bond, 1982: 839). More recently, Hendel and Lizzeri (1999a) revisited the question with a model and empirical tests of the automobile market of their own. They too find that the used market is never shut down by adverse selection and volumes of trade are considerably higher than a strict reading of Akerlof's conclusions might suggest.

Finally, there is one further factor that exacerbates the uncertainty of used durable goods markets and that is the supply is fixed by past production. As discussed above, this is not particularly problematic if there is perfect information and a frictionless market place. If, however, there is imperfect information and friction in the market this means that used markets are much more likely to be prone to gluts and shortages than new goods markets, since these can only be addressed through price: No "new" used goods can be produced[9] if there is a shortage nor can production stop when there is over supply. In the case of a shortage prices can only rise and in the case of a glut scrap markets and waste streams are the only outlet. And while increasing prices may lead current owners to determine that the resale value exceeds the value of owning the used good, thus moving them to offer the good for resale in advance of initial expectations, others are encouraged to hold on to the good in speculation thus exacerbating a shortage. Similarly if the price declines, while some may decide to hold on to the product, either because it has greater

value in use than in resale or in hopes of the price rising in the future, others will likely choose to rid themselves of the product before the price declines further, exacerbating a glut. The market for existing housing is a popular and well-recognized example of this sort of problem[10], and it is a specific instance of a more general problem that market conditions in secondhand markets of all types (waste, recycling, reuse) are fundamentally determined by conditions in the primary market and not by their own supply and demand (Pelletiere, 2001).[11]

A conclusion from this literature may be that, with both heterogeneous goods and consumers with heterogeneous preferences, production functions, and/or incomes, used machine markets present a wider set of consumption opportunities to consumers than new goods alone, opportunities can be capitalized on by some consumers and not others. Thus a given used automobile is not necessarily of lower quality, less efficient or less advanced technologically than a given new automobile, nor are used automobiles necessarily less preferred in every instance. New automobiles are themselves differentiated to meet the different tastes and income levels of heterogeneous consumers. In this process, the offering of new automobiles becomes discontinuous as firms seek economies of scale in production and distribution by targeting a relatively few (mass

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[9] Clearly there may eventually be a market for reproductions of antiques and collectibles, but even here these are not seen as substituting for the new.

[10] While a good example, the real estate market clearly is differentiated from other used durable goods markets. An important factor differentiating real estate markets is that location as well as past production serves to fix the opportunities.

[11] This is complicated further in the case of used durable goods because new and used the products often compete directly in the same market.

produced) models at groups of consumer rather than individual consumers.[12] These automobiles, produced for various market segments and therefore already differentiated when initially sold, become further differentiated by use, making the market more continuous if and when they are resold. In the same price category, a buyer may be offered an initially higher-quality automobile that is used along with a lower quality new automobile.

2.2.1 Used Automobiles and Inequity

Though used automobiles filter down and fill in the offer curve from all price and quality levels, used automobile markets fill an especially important role in addressing needs at the bottom end of product markets. Given the sheer presence of depreciation, used-machines markets will always offer a lower price alternative to the lowest priced new machines. Scitovsky (1994:35) asserts that some used markets, chief among them the used-automobile market, "mitigate the inequalities of capitalism and enable poor people to assert their membership in society" by allowing many more individuals and firms to engage in similar production and consumption activities as those who can afford new. Fox (1957) reports that in 1940 Edsell Ford was asked by a congressional committee wrestling with the struggling US economy, what was standing in the way of repeating the success of the Model T. He replied:

> There have been several factors which have entered into the problem since the day when we built a very low-priced car. The first one was that those cars were being sold to original [first-time] owners to a great extent.... In the meantime they purchased that car and many others and have created a used car field. Now the used car is merchandised by the dealer, and in the

[12] Individual preferences are targeted more closely with the use of accessories and options packages.

> market for that used car is the man who bought a new car in that very low-priced field. (As quoted in Fox, 1957: 112)

The conclusion from this literature must be that the used automobile market serves to provide consumers with a more continuous and wider set of consumption choices: Current owners are able to trade their automobiles in sooner, before they are obsolete, and purchase a new automobile at a lower net cost; in the process other consumers with different preferences or lower incomes are offered a preferrable alternative to buying new (Fox, 1957; Miller 1960; Bond, 1983; Rust, 1985; Scitovsky, 1994; Hendel and Lizzeri, 1999a).

Another way in which used automobile markets address inequality is that they provide access to entry-level entrepreneurship opportunities. Scitovsky (1994) notes that there were 59,000 "one-man" used automobile dealerships in the United States in 1990 compared with 15,000 large used automobile dealers and 28,300 new automobile dealerships in the US. In 2001 the numbers were similar. The Manheim Auctions Used Car Market Report (2002: 6-13) reports there were only 20 new-automobile producers active in the US, 22,000 new automobile dealers (most of whom also sell used automobiles), and 54,000 "independent" automobile dealers (used automobile dealers). What these numbers do not reflect is that 29% of the market for used automobiles was made up by the so-called "casual" sector, i.e. individuals and unlicensed dealers. With used automobile sales of 42.6 million in the US in 2001 (compared to 17 million new), this translates into over 12 million used automobiles sold by the casual sector.

Formally, the reason for the very different entrepreneurship opportunities and structures of the used and new automobile markets is that there exist few of the

economies of scale or other barriers to entry in used automobile markets that exist in new automobile markets. The production function for the new-automobile producers is an industrial production function in the traditional sense, where there are widely recognized economies of scale in supply, production and distribution and significant technical and financial barriers to entry, limiting the number of firms in the market. This gives individual firms that do exist significant market power.

In the used automobile industry, the production function is best described as "collect-repair-resell." Returns to scale are likely to be nearly constant. They are even likely to decline at some point because increasing the scale of operations means increasing the heterogeneity (in terms of models, quality, location, etc.) of what is bought and where one must look for buyers. Since there is no production that occurs per se, capital costs are low and there are few technical barriers in generating or distributing product. The source of the product is millions of previous user/owners. Since the products have already been sold, the legal rights for resale are generally held by these consumers and there are few institutional barriers that exist to limit who may sell a used automobile. [13] The only consistent economies arise from increasing the density of opportunities to buy and sell used automobiles (i.e. locating in population centers) or from serving a very distinct market with a very distinct used product, e.g. antique or collectors markets. Thus there are few mechanisms for a used automobile firm to gain

[13] In the appendix to Chapter 3 there will be a brief discussion of attempts by primary producers to control the used market, one way this might be achieved is through maintaining legal control over a product, for example through leasing. Other policies such as environmental or safety measures may similarly limit the right of consumers to resell in the domestic market.

market power outside a very proscribed geographic and/or product market, without some form of government or non-economic intervention.

2.2.2 Section Summary

In summary, the different provenance of used machines i.e., that they are "produced" by current users as opposed to conventional producers, makes them inherently different as a class from new machine – with a number of important implications. While they may be generally viewed as inferior substitutes for new machines, by introducing greater heterogeneity into markets they both improve market efficiency and address issues of inequality for consumers and entrepreneurs by making markets more continuous vis-à-vis individual preferences. It follows therefore that artificially limiting these markets through trade restrictions is expected to have a negative impact on market efficiency and entrepreneurial opportunity. With greater heterogeneity, however, comes greater opportunity for information asymmetry and other market failures due to increased transaction costs. Institutions that provide access to information and reduce risk, such as warrantees, classified ads, consumer reports, or lemon laws, can increase a consumer's participation in used goods markets. But these can only be provided at a cost. The risks of buying a used automobile, however, are likely to also be lowered for a consumer facing lower repair and operating costs (whether due to individual skill or local wage advantages). Furthermore, if income or other constraints on a consumer's choice make buying a new automobile impossible, the comparative risk of purchasing of a used automobile relative to a new automobile is no longer a meaningful concept; the buyer will enter the used market or not buy an automobile at all. Since wage and income levels vary across nations, as do the institutions of exchange, this provides a

launching point for a more focused discussion of the international trade in used automobiles. It is on this foundation that the international trade in used automobiles takes place, and in this context that the three research questions driving this dissertation must be addressed.

2.3 Regulation of Used Automobile Imports

Up to this point, the focus in this chapter has been primarily on the inherent economic differences between used and new automobiles (and machines more generally). Institutions, to the degree they have been addressed thus far have been presented as a way to reduce the uncertainty and associated disadvantages of used automobile markets. The primary focus of the dissertation, however, is on institutions that discriminate against used automobiles, namely national protection of used automobile markets from imports.

How widespread is used automobile protection and what forms does it take? In the academic literature, there does not appear to be any survey work on the barriers to used automobile imports. The survey conducted here, and discussed in detail in Chapter 4, appears to be the first of its kind. Even the broader topic of barriers to used machines in general has received little attention. Most authors dealing with the trade-theoretic aspects of the international used machine trade note that such barriers exist, perhaps citing a specific example or two but go on to treat their theoretical appropriateness, without providing a comprehensive survey of their existence (e.g. Sen, 1962, Schwartz, 1973; Smith 1974, 1976; Grubel, 1980, and Mainwaring, 1986). One exception appears to be Navaretti, Soloaga, and Takacs (1998a, 1998b). These authors include a dummy for the presence of non-tariff barriers (NTB) discriminating against used equipment in their

initial empirical models. The data, derived from NTB data available at the World Bank, are not explicitly presented or summarized. When the variable proves insignificant, the authors conclude this may be due to incomplete data (Navaretti, Soloaga, and Takacs, 2000). As will be discussed in Chapter 4, there are a number of official and commercial sources that contain some country information on used-automobile protection, but none focuses on these restrictions specifically and, in the case of metalworking machinery, there is no source that provides a comprehensive picture of the extent of these policies.

2.4 Impact of Used-Automobile Protection on Trade

Given that there appear to be no existing policy surveys in the literature, it is not surprising that there appear to be few empirical tests of the trade or economic impacts of these policies. As just mentioned, Navaretti, Soloaga and Takacs (1998a, 1998b, 2000), using a model explicitly based on Bond (1983), control for the presence of NTBs in the used metalworking machine tool trade, but they declare their results in this regard to be inconclusive. Bond (1983) himself tested his model using domestic data. Echeverria et al. (2000) attempt to study the environmental impact of changes to Costa Rica's tariff schedule, which they propose was biased in favor of used automobiles at the time of their study. They conclude that there may be a case for "'neutralizing' this bias on environmental grounds"; while the current policy may favor lower-income citizens it is not, "the best way to achieve distributional objectives, particularly since the poorest are not likely to own a car of any sort" (Echeverria et al, 2000: 24). This, however, is the extent of their economic impact analysis. Their tests are not based on any clear model of the demand for automobiles in the Costa Rican market and their conclusions are based on

changes in the domestic automobile price generally, not the impact of border measures specifically.[14]

2.4.1 The Vintage Capital Trade Literature

There is considerable literature, however, which takes a theoretical approach to the used-machine trade and therefore implicitly or explicitly addresses the welfare implications of used-machine protection. In this literature the potentially complex relationship between used and new machines is boiled down to an assumption that used machines are more labor intensive. In part this is due to the assumption that technical progress in future machines is labor augmenting, and in part to the assumption that repair and maintenance costs grow with age.

The seminal work here appears to be a short "note" by Amartya Sen (1962). Sen develops a simple two-country trade model in which transportation costs are negligible, and the price of used capital is "determined with respect to the profit situation in the advanced economy" (Sen, 1962: 347). In other words, developing-country demand is small relative to total demand for machinery. Stating that it is obvious that lower labor costs make the higher repair costs resulting from the use of older machines less burdensome in developing countries, Sen begins using the "one-hoss-shay" assumption. This assumption is that a machine works at unchanged efficiency, without need of

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[14] There appear to be a number of problems with the economic fundamentals of their analysis, for example: 1) using Costa Rican "blue book" values, which include the effects of existing border measures, not world or origin country prices as market value benchmarks; and 2) trivializing increasing discrimination against cars over 5 years that occurs. This research suggests automobiles in the 5 to 10 year-old category are the most desirable in developing country markets. Though a further treatment of these problems does not seem warranted here, some difficulties directly relating to their characterization of policy will be addressed again in Chapter 4.

maintenance or repair, depreciating linearly toward a definite end of life (its value is therefore directly a function of the years of life it has left). With the additional assumption that labor-augmenting technological progress occurs in more recent vintages of the same machine, Sen concludes that the improved labor productivity of newer machines causes entrepreneurs in the high-wage developed country to sell machines of a previous vintage at a point of depreciation where a developing country entrepreneur, facing lower wages, can still produce with them competitively. For the developing country entrepreneur under these assumptions, purchasing used will always be preferable to purchasing new. Sen concludes further that even if the existence of technical obsolescence due to labor augmenting technical change is assumed away, with the lower wage rate, the gross profits for any given type of machine will still be higher in the lower wage economy and therefore buying used provides the developing country entrepreneur with greater liquidity to either purchase more machines, which will be operated at the higher rate of profit, or to make other investments at the prevailing higher interest rate.

Finally, Sen asks, what if there were not any difference in wages between the two countries? In this case the developing country entrepreneurs would not have a greater incentive to purchase used machines, the rate of profit being the same in both countries. A developing *country*, however, Sen argues would still have a social reason to employ older machines. More used machines could be bought (because with fewer years of life left their price is lower), more people could be employed, and therefore net output, could be increased, which in turn would spur consumption and development. While this might be true in both countries, it is assumed that in developing countries there is a larger

reservoir of unemployed or underemployed labor. Therefore such a policy is not only more beneficial socially in a developing country but also less likely to draw labor away from other sectors.

Ultimately, Sen's analysis depends on differences in factor endowments and many of the assumptions in the Hekscher-Ohlin (HO) tradition. Other economists working in this tradition (Bardahan, 1966, 1970; Schwartz, 1973; Smith, 1974; Grubel, 1980) all conclude that developing countries benefit from used machine imports. Indeed, somewhat controversially, Sen concludes these countries benefit most by importing the very oldest machines.

Economists using a "neo-Ricardian" approach (Gabisch, 1975; Mainwaring, 1986) took issue with such an unqualified conclusion. They posit that the benefits of used machines imports from developed to developing countries must be qualified according to nature of the technology, and the technological development of the recipient country and the sectors employing it. Still they endorse the notion that used-machine imports can benefit developing nations. Gabisch (1975: 52) concludes that "a technological gain from trade" can arise, "in addition to the 'usual' gains from trade" and that the "most recently" obsolete capital from a developed country can becomes a sort of "technological development aid" to developing countries. Mainwaring (1986: 262) finds that, while the "insistence on the use of second-hand machinery irrespective of the circumstances could be as damaging as prohibition", his colleagues are "right to call for the removal of simple rules preventing imports of second-hand machines."

In both his papers on the subject, Smith (1974, 1976) appears to have wanted to play a bridging role. Using factor proportions arguments in his first paper he finds "under fairly weak and plausible assumptions and in a wide variety of models, a high wage country specializes in the use of new machines, and a low wage country uses second-hand machines and, possibly, some new machines peculiar to itself" (Smith, 1974: 261). In the latter paper, he develops a number of vintage capital models, which he views as a "subset" of the earlier factor proportions models he considered in the 1974 paper. His stated motive in 1976 was to show that "if... the principle features of trade theory carry over to alternative models of capitalist production, then the confidence with which we apply the theory to the real world should be strengthened" (Smith, 1976: 99). He concludes that while the various factor proportions and neo-Ricardian models in his two papers differ in the specifics, the main features of the effects of trade remain the same: high-wage countries specialize in newer machines, while developing countries specialize in older machines.

Bond (1983), without directly referring to either tradition, develops a model where "small firms" faced with high interest rates and lower wage and capital utilization rates can better afford used machines, while the large firms facing low interest rates, high labor costs, and high capital utilization rates specialize in using new machines and selling them used to small firms. Navaretti, Soloaga, and Takacs (1998a, 1998b, 2000) extend this model to an explicitly international context, introducing the presence of similarly heterogeneous firms to the developing world economy. They too predict a similar pattern of trade in used and new machines.

2.4.2 Considering the Trade and Welfare Implications of Used Automobiles

The only author in the literature to expressly treat the international used *automobile* trade is Grubel (1980), who presents a number of "price-theoretic" arguments to explain why automobiles appear to depreciate more slowly in developing countries than they do in developed countries, and hence, why developing countries might benefit from used automobile exports from the developed world. Though his formal discussion is itself very general, by extending his analysis somewhat, specific insights can be drawn that will be important later on.

Grubel's model is based on two standard assumptions:

1. The developing country economy is more labor abundant and thus has lower average income levels and wage rates than the "industrialized" country; and
2. There are no transportation costs;

And three assumptions specific to this model:

3. All new automobiles are produced in the industrialized country;
4. There is free trade in new automobiles; and
5. The developing country prohibits used automobile imports. [15]

Under these assumptions, he develops four reasons for the slower depreciation of used automobiles in the developing country. First, by definition, developed country consumers have higher incomes relative to those in developing countries. Higher

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[15] Grubel was writing at the very beginning of the rush to free trade of the 1980s. High tariffs and quotas were generally placed on new cars and parts throughout the developing world. He considers such a policy noting that high tariffs or barriers for new cars coupled with a continued prohibition on used car imports increases the price of new cars but also raises the value of older cars still further in developing countries while leaving their value unchanged in developed countries.[15] As suggested in chapter 1, however, throughout the 1980s and 1990s barriers to new car imports fell across the developing world, thus the original assumptions are closer to reality than when he was writing.

incomes, however, also imply the higher wages in these countries, including for automobile repair and service. Thus as an automobile gets older these same consumers face increasingly high repair costs relative to the automobile's value, and the automobile depreciates quickly. In developing countries, wages are lower, so as just described re. used machines, an automobile can be profitably operated much longer in a developing country than a developed country.

Second, Grubel asserts that developed-country consumer aversion for repair costs has in general led to an increase in new automobile prices in real terms and the development and production of lower maintenance automobiles, further driving demand for new automobiles. In other words, technical change is labor augmenting in the sense that less labor is needed to keep the automobile operating. This is possible because developed country consumers, who are also likely to have higher savings and access to bank or industry financing,[16] continue to be better able to afford or avoid (through institutional financing) the higher up front cost of a new automobile at the same time that they dread the cost of maintenance. Within developed countries, the flip side of this is depressed used automobile market prices. In the developing world, however, low incomes and expensive financing (if financing exists at all) mean the increasing initial cost of a new automobile is a considerable and growing barrier to new automobile ownership, while low service costs mean the value of used automobiles is depressed less rapidly by labor augmenting improvements.

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[16] Grubel does not explicitly mention financing but this research suggests that this is and perhaps has become an important part of the equation, particularly in developing countries where institutional costs are high and financing dear.

There can be significant model-to-model technical change that takes place in the automobile industry. Beyond lowered maintenance, many of the changes that take place are in comfort, engine performance, and pollution mitigation. Developed-country consumers with higher incomes have relatively inelastic demand for such features, in some cases due to regulations and in others as what were once luxury features have become "standard." Developing-country consumers with lower incomes are likely to have a higher elasticity of demand for luxury features and accept models and vintages that do not include them, or in which these features have been damaged or are defective. These features may not only be ignored, they may in some cases be relatively inexpensively repaired, removed or jury-rigged. This should not be construed as suggesting that developing country consumers "prefer" used or run-down automobiles, but instead that, "older cars have basic utility and luxury features in a ratio more suitable for conditions in a developing than a developed country" (Grubel 1980: 783).[17]

A final explanatory factor suggested by Grubel is that the opportunity costs to an automobile owner of being immobilized by a breakdown are lower in developing countries. The lower incomes and higher time tolerances of a developing economy make breaking down less costly in terms of lost opportunities. This relates back to the greater uncertainty of used automobile markets (though he does not express it this way): with

[17] One technological innovation that Grubel suggests may be a wash is fuel efficiency, depressing used automobile prices in both countries. If both countries pay the same for gasoline, however, and developing country consumers are poorer and therefore in general more price sensitive (it is the lower cost of service that makes them less sensitive to maintenance costs) than fuel efficiency will be more prized in developing country. In 1984 it probably seemed that the average fuel efficiency of developed country fleets

lower labor rates and lower opportunity costs, developing country consumers are less adverse to the risk of dealing with a lemon or initially the cost uncertainties of transacting business in used automobile markets.

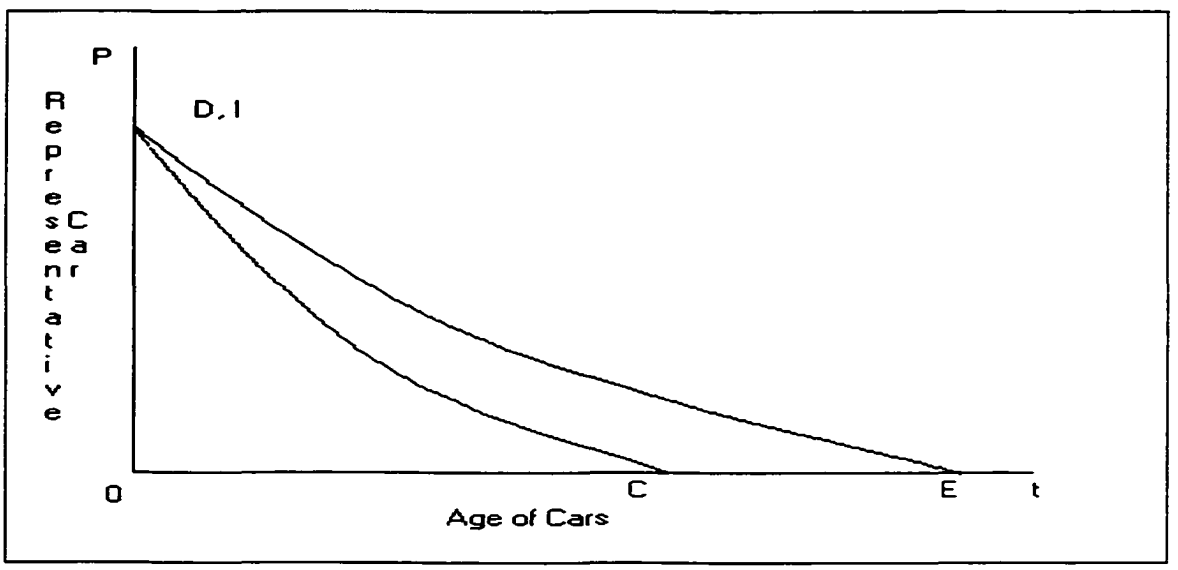

Figure 2-1 Automobile Depreciation with Used-Auto Protection

Therefore the depreciation schedules in the two countries appear as in Figure 2-1.

With no transportation costs or transaction cost differentials, the initial price of a new automobile is the same in both sets of countries as shown by points D (developing) and I (industrialized[18]).

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would only keep getting better, the opposite has occurred in most cases, perversely perhaps further increasing the value of older automobiles.

[18] For the next few pages "industrialized country" is used in place of "developed country" in order to simplify discussion of the figures.

For the four reasons elucidated above, consumers in the developed country shed an automobile earlier in its life than consumers in the developing country and, in general, used automobile prices decline less rapidly. A "representative" [19] used automobile in the industrialized country is therefore obsolete at point C and IC indicates the industrialized country depreciation schedule. Since no trade can occur between the two sets of countries, at this point the automobile is scrapped. With the automobile being scrapped further out the x-axis at time *E*, the developing-country depreciation schedule is represented by *DE* in Figure 2-1. While used automobiles are more highly valued in developing countries than developed countries for all the reasons above, there is another factor not addressed explicitly by Grubel. Under the initial assumptions that there are no used automobile imports and no domestic automobile production in the developing country, an additional used automobile cannot be "produced" without the prior import of a new automobile. Given the lower income of developing country consumers, the demand for higher-priced new automobiles is limited, but as they depreciate, demand grows. With fewer new automobiles imported, fewer used automobiles are "produced," further limiting the supply of used automobiles even though there is greater demand for them. This tilts the price relationship further in favor of older automobiles, and causes used automobiles to be scrapped at an even later date. The difference in the age of obsolescence in the two countries (CE) is therefore in part a function of the ban on used-

[19] Grubel's analysis is based on a "representative car." The prices of cars in each age category are assumed to be normally distributed and the median value is the price of the representative car for that age category. Thus when the representative car reaches a price of 0 after *OC* years, one half of the cars in the age category have already been scrapped

automobile imports. This effect may be offset somewhat by the income effect experienced by new automobile buyers in the developing country. With higher used automobile prices, some new automobile buyers are likely to buy new automobiles more often or more expensive automobiles since the relative cost of imported automobiles in terms of their current used automobiles is lower.

Removing the prohibition on used-automobile imports in this model would create a single market and a single depreciation schedule, with industrialized-country consumers concentrated at the top of the curve and developing consumers concentrated at the bottom: industrialized-country consumers would generally specialize in consuming new automobiles and "producing" used automobiles while developing-country consumers would specialize in consuming used automobiles and "producing" still older used automobiles and scrap. It is important to recognize, as indicated by Figure 2-1, in a unified market some developing country consumers would continue to be at the top of the schedule, buying new, and some industrialized country consumers near the bottom, determined by the income distributions within each country.

Grubel's discussion of the welfare impacts from introducing free trade in used automobiles between these two countries can be illustrated using a standard diagram such as Figure 2-2 (next page).[20] The autarky price of a representative used automobile of a given vintage in the industrialized world is *Pi* (industrialized) on the left-hand side. The

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and one-half still have positive value. The term "representative" is dropped but implied below.

[20] Grubel uses a single figure showing the unified market over time. Both for general clarity and the later discussion of the political economy of used automobile protection, the welfare impacts in the developed and developing world are shown separately here.

autarky price of a used automobile in the developing world (*Pd*) would be higher than *Pi* for the reasons just discussed. It follows that just as prohibitive protection led to a divergence of prices between the two countries, liberalization should result in convergence at a single free trade or world price (*Pw*), located somewhere between *Pd* and *Pi*, as shown in figure 2.2.

In a two country model with free trade the demand for industrialized country used automobiles increases and *Pw* is reached somewhere above *Pi*, as in Figure 2-2. In the industrialized country, consumer surplus (*CSi*) decreases by *Ai* and the quantity of used

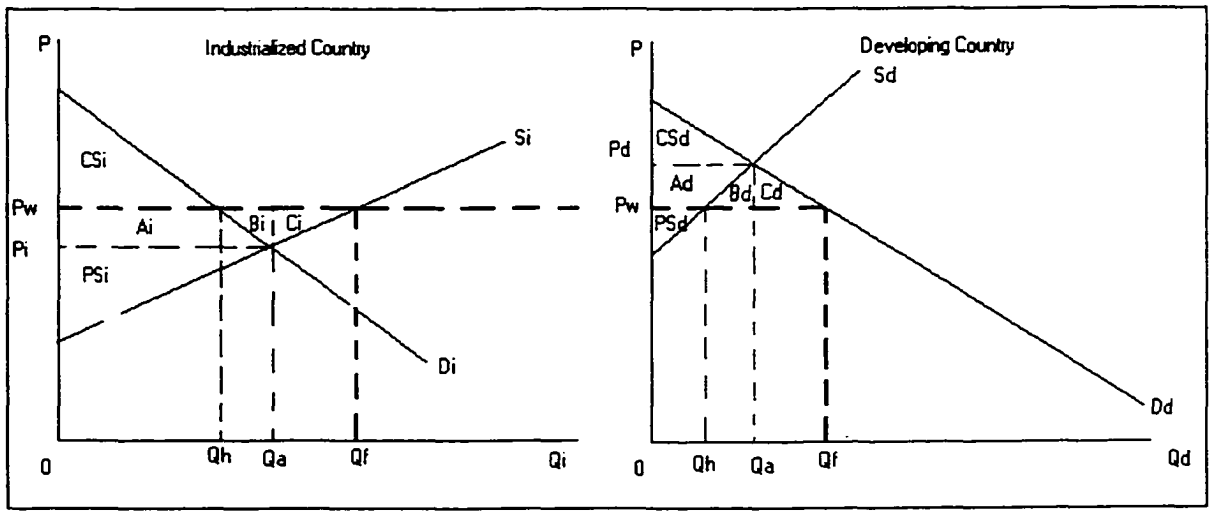

Figure 2-2 Trade Effects of Liberalization

automobiles consumed in the industrialized country declines from the autarky level (*0Qa*) to the new post liberalization level of *0Qh*. The total number of used automobiles exported from the industrialized country increases from zero to *QhQf*, where *0Qf* is the

total number used automobiles sold (domestic consumption plus exports) in the industrialized country. With the increase in sales and price, producer surplus (*PSi*) increases by the area *Ai+Bi+Ci*. Thus the net-increase in welfare in the industrialized country is equal to *Bi + Ci*. In the developing country used automobile producers, however, lose producer surplus (*PSd*) in the amount of *Ad*. This represents a corresponding gain in consumer surplus (*CSd*), however, of the area *Ad+Bd+Cd*; the net effect would be an increase in welfare equal to *Bd + Cd*.

Another issue specific to used-goods markets not specifically addressed by Grubel should be discussed. Traditionally the transfer of surplus from consumer to producer is seen as a redistribution of wealth from one group to another (with important political consequences, anticipating the discussion in the next section). The "producers" of used automobiles, however, are also current automobile owners *and* likely future automobile consumers. With liberalization it is likely that industrialized-country consumers who trade-in their current automobile for the new higher world price will use the increased return either to offset higher used automobile prices at home or, ceteris paribus, they may use the increase in used automobile values to purchase a now relatively lower price new automobile. Therefore much of the redistribution of welfare to "producers" (*Ai*) is a "bookkeeping exercise" since consumers will capture some portion of the benefits in their role as producers. Only in the presence of a future consumer who could have afforded a used automobile at the autarky price (*Pi*) but not at the world price (*Pw*) would there be a clear loss of consumer surplus in the industrialized country.

In the developing country, the effect is reversed. Current owners are faced with lower prices for their current automobile. However, the prices of all used automobiles have declined. If they choose to enter the used market, their producer surplus losses are likely to be offset to some degree by their gains in consumer surplus. As mentioned above, however, those consumers who previously bought new and sold used in the developed country potentially benefit from protection. In contrast, under liberalization they are harmed because, again ceteris paribus, the price of a new automobile increases in terms of trade in values of the used automobiles they currently own. Only those developing country consumers who could not previously own an automobile but are now able to at the new low post-reform price benefit unambiguously. Still, the likely losers from reform can be assumed to be a small proportion of both populations.

2.4.3 Implications of Market Size and Diversion from Scrap

As it has been presented here, in a strict two country model, with an eye on revealing all potential winners and losers for the discussion of international political economy, this welfare analysis is based on the notion that the increase in the quantity of industrialized country used automobiles demanded as a result of liberalization is sufficiently large to raise the domestic price in that country as in Figure 2-2. After a brief empirical consideration of the size of developed and developing markets and the vast stocks of used automobiles being scrapped or underutilized in industrialized countries, however, Grubel (1980) finds:

The developing country is likely to be a small market relative to the developed country (essentially supporting the assumption made by Sen (1962) and other more theoretical treatments); and

Much of the demand from an open developing country market might be met by cars that would otherwise be scrapped in the industrialized country.

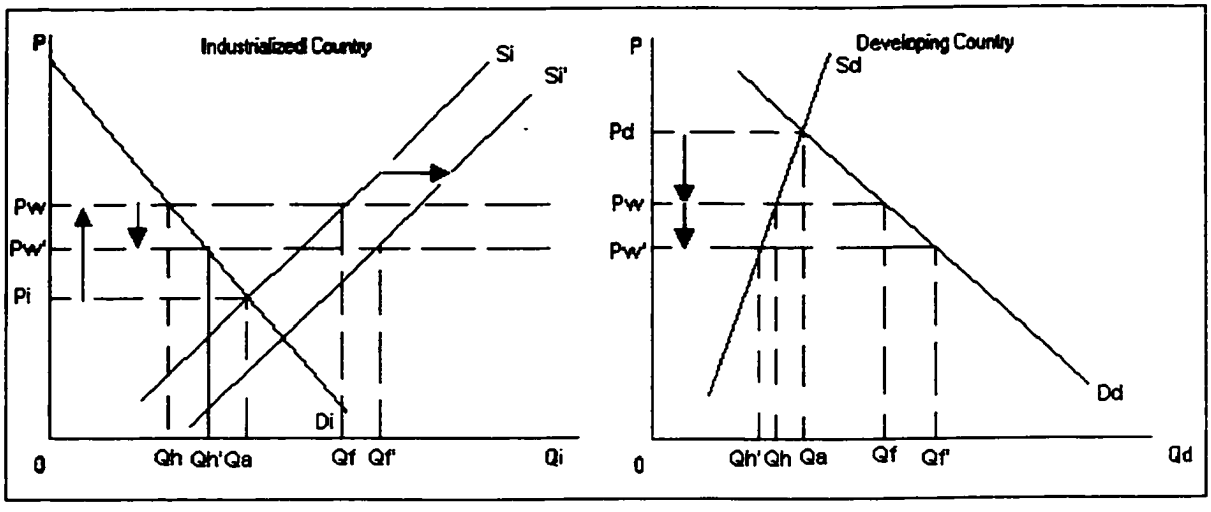

Figure 2-3 Effects of liberalization with Diversion from Scrap

While the small market assumption is not consistent with a two-country model, the effect of the diversion from scrap can be shown as in Figure 2-3. Starting from autarky (*Pi, Pd*) free trade is introduced and the world price is established at Pw (as was also seen in Figure 2-2). Now at this point there is diversion from scrap in the developed country to the developing country market as suggested by Grubel and in Figure 2-1. The different "production function" for used automobiles of the developing country due to the abundance of labor and low wage, leads the supply curve in the industrialized country to shift out from *Si* to *Si'* as these automobiles become desirable on the world market.

The shift in the supply curve leads to a decline in the world price from *Pw to Pw'* and an increase in welfare impacts in the developing country. While in the industrialized

country, the area of the nominal consumer surplus (*CSi* in Figure 2-2) returns to a size closer to its pre-liberalization area, the impact on producer surplus (*PSi*) and the net welfare effects in the industrialized country depends on how far to the right *Si* shifts. The price decline caused by the increase in the supply curve reduces producer surplus (the area *Ai+Bi+Ci* in Figure 2-2 is now shorter), but there is also an increase in the volume of sales (in terms of Figure 2-2, *Ci* would appear *longer* as well as shorter). Thus, it is possible that for to the body of industrialized country producers the increase in the volume of trade will generate benefits that offset or surpass losses due to the diversion from scrap subsequent to liberalization. In any case, after diversion in scrap the consumption of used automobiles increases in both countries for a total consumption of *0Qf'* as in Figure 2-3.

Grubel concludes that the combination of diversion of scrap *and* the small market assumption means that industrialized-country markets will be relatively unaffected and the benefits of used automobile liberalization will accrue primarily to consumers in the developing world. What Figure 2-3 also suggests, however, is that the costs of reform would also fall almost entirely on the current "producers" of used automobiles in the developing world who buy new and sell used. Moreover, while under the assumptions the impact may be relatively marginal, the new-automobile producer would still potentially lose sales as the income of his consumers declines.

By dropping the assumption that all automobiles are produced in the industrialized country, however, Grubel identifies another potential loser, a developing country new-automobile production industry. Grubel notes that competition from low

cost used automobiles would likely reduce domestic sales of these "typically high cost" new automobiles, particularly since many of these would be in that class of low-cost automobiles identified by Edsell Ford above as being particularly vulnerable to competition from the used market. For example the Financial Times (December 2, 2002) recently reported that the fastest-selling automobiles come from Chinese-owned companies producing automobiles at around, $10,000. The average used automobile in the US sells for roughly $8000.

Despite this, Grubel's overall conclusion is that the liberalization "of barriers to free trade in used cars would lead to substantial welfare gains for developing countries through both capital gains implicit in the arbitrage and positive externalities from car repair industries" (Grubel, 1980:781) and that, "the creation of a used automobile oriented industry...provides the same kinds of infant-industry benefits as does the new car industry" (Grubel, 1980: 786). More interesting from a policy point-of-view, he states that if the decision is made to protect an existent new-automobile industry in the developing country, a policy of reducing protection with age would reduce direct competition from newer automobiles while providing access to that portion of the market new automobiles cannot reach. This will be referred to in the next chapter as "Grubel protection."

Along with positive economic-efficiency spillovers from increased mobility and the stimulation of labor-intensive repair, conversion, reconditioning, and recycling industries, Grubel also considers negative externalities. These include increased congestion, an increased need for petroleum (eating into foreign reserves) and medical

expenses from accidents (but not environmental impacts). Without making any formal attempt to measure the value of these costs and benefits, he notes that industrialized countries have implicitly decided the positives outweigh the negatives, and that increased productivity and industrial activity he envisions would likely provide funding and support for measures to offset these costs.

2.4.4 Evidence from Cyprus

A recent study of Cyprus (Clerides, 2002) provides some empirical insight into the impact that moving from used automobile protection to greater liberalization has on consumer welfare. The study uses data from 1988 to 2000, five years before and seven years after Cyprus relaxed the age limit on automobile imports from two to five years in 1993. After some initial uncertainty, as institutions were developed and tested, used automobiles grew from 7.2 percent of all first-time registrations to a high of 72.4 percent in 1998. In this period, while new automobile sales declined from a high of over 15,000 in 1990 to a low of just above 5000 in 1998, total automobile sales rose from roughly 17,000 to nearly 23,000. Clerides not only finds that prices of used automobiles declined, but that new automobile prices stabilized and in many cases either declined or automobiles were offered with improved options packages (air-conditioning, power windows, etc.). This is a result not foreseen in Grubel's analysis because of the initial assumption that new automobiles can be purchased at the world free-trade price in both countries. Clerides' estimation of changes in consumer welfare leads him to conclude that the gains are "on the order of several hundred dollars per purchaser" (Clerides, 2002: 1). He also finds that Japanese used automobiles experience the greatest increase in sales while the greatest losers were importers of new Japanese automobiles.

2.4.5 Section Conclusion

In summary, a relatively extensive theoretical literature suggests the impact of used-automobile protection will be most significant among developing countries, small firms, and poor consumers. The limited empirical literature appears to support this conclusion. The only unambiguous gainers from protection therefore appear to be developing-country used automobile "producers" who buy new (because their trade-in price is higher while the price of a new automobile is unchanged) and a domestic, developing country, new-automobile producer. Grubel, however, argues that *new* automobile protection provides a more significant benefit to a domestic producer. Thus, he asks, why would a country only restrict used-automobile imports and thereby *favor* new-automobile imports? In other words, why favor new-automobile customers over used automobile customers or deny domestic producers the benefits of truly prohibitive protection? One answer might be the interests of foreign producers and their agents in the country, i.e new-import dealers and customers. The assumption that developing country markets are small may suggest that developed-country, new-automobile exporters' gains from developing country used-automobile protection are expected to be trivial. As the case of Cyprus suggests, however, within the context of a domestic developing-country market, the impact of used automobile trade policy on new–automobile dealers is likely to be significant.

2.5 Factors Explaining These Policies Today

There are a number of speculations made within the used-machine trade literature as to the causes or justifications for protection. For example, Smith (1974: 263) cites a 1970 UN Report as stating, "Proponents of the complete prohibition of second-hand

equipment...affirm that used equipment will slow down economic development by saddling countries...with obsolete technology." He suggests that other reasons for discrimination against used equipment is the perception of criminality and the possibility for currency smuggling by purchasing used equipment at grossly inflated prices from a foreign collaborator.

While Smith's explanations are largely practical, most economists finding used machine liberalization to be welfare maximizing would look for a domestic protection angle. In the case of used automobiles, Grubel (1980) clearly sees protection of a new automobile production industry as a likely cause. Navaretti et al. (1998a) sum up the various explanations in the literature stating: "the motivation for these policies is a combination of a desire to protect domestic industries from competition from low-priced goods, an attempt to avoid becoming a 'dumping ground' for cast-offs from high-income countries, and an attempt to push industries toward the 'technological frontier' and avoid the use of obsolete technologies." All these authors, however, simply surmise reasons for the existence of protectionism. Their academic interest lies elsewhere, and they do not theoretically examine or empirically test the political economy of these policies. Consequently, despite the large literature on the political economy of trade policy, there appears to be no published work on the political economy of used-automobile or even used-good protection except that arising directly from this research (Pelletiere and Reinert, 2002). There also does not appear to be any theoretical literature that applies itself directly or obviously to the case of restrictions on used good imports.

Nonetheless, the problem this dissertation seeks to address is an explicitly empirical problem rather than a theoretical one: the primary motivation is to explain the presence of a particular set of policies within the context of current thought on the political economy of trade, not to use this case to test any particular theory or theories. All the recent reviews in the economics literature (Baldwin, 1985; Hilman, 1989, 1991; Magee, 1994; Magee, 1984; Rodrik, 1995; Gawande and Krishna, 2001) and within political science (Nelson, 1988, 1998; Milner, 1999) find considerable theoretical heterodoxy and methodological pluralism. The reviews themselves offer comprehensive surveys in which the various models are compared and contrasted but no clear synthesis emerges. And there is little to link the theory to the empirical literature. Indeed, is no prior reason to choose one theoretical formulation of the political economy of trade policy over the others.

On this last point, Rodrik (1995: 1480) finds "the links between the empirical and theoretical literature have never been strong in this area...none of the leading approaches discussed earlier has been subjected to a direct empirical test... nor are some of the empirical regularities uncovered adequately explained by the existing theory." He goes on to chide the empirical work for only "appealing loosely to the theoretical literature" and using a "kitchen sink approach" to choosing the right-hand side variables. In a review narrowly focused on the empirical tests of the theory, most following Rodrik's review, Gawande and Krishna (2001) make a similar finding but strike a different tone in their conclusion: "researchers, combining a variety of data sources and methods, have provided a convincing confirmation of the presence and significance of political

economic influences," but "where distinguishing among the several alternative conjectures of the determinants of trade policy is concerned, the literature has been less successful." They further conclude that even as future theory should attempt to retain its "econometric amenability" it will have to incorporate the "broader set of influences" and the "complex set of interactions" suggested by the empirical literature (Gawande and Krishna, 2001: 37). In other words, as a field of research the political economy of trade policy remains something of an empirical puzzle looking for a theoretical consensus or orthodoxy.

Thus where the theoretical literature in the last section provided a set of model-driven and consensus-based predictions for the welfare impacts of used automobile protection, no similar consensus exists in the case of the political economy of these policies. One option therefore would be to select a theory to test based on criteria related to some preference external to the economic aspects of the question, for example an established theoretical preference, or data availability. Not only is there no obvious candidate in this regard, the empirical conclusions are also likely to be weakened if there is any question about the appropriateness of model. In this way, the findings might provide a test of the chosen model but once again that is not the objective being pursued here.

A number of the reviewers (Rodrik, 1996; Nelson, 1988, 1998; Milner, 1999; Gawande and Krishna, 2001) find that changes or variations in exogenous factors such as factor ownership, technology, and/or individual preferences for final consumption (the fundamental building blocks of the neoclassical economy) can be shown in specific

instances to have precipitated or at least contributed to specific policies or reforms. Nelson (1988; 1998) finds that many good explanations of specific policy reforms can be built on a historical, case-by-case, or ad hoc basis. Though such an approach may appear "theoretically trivial," he further suggests that in explaining trade policy reform, such as that across a wide cross section of developing and transitional countries at the end of last century, what he refers to as "large scale policy reform," the field may be in a "pre-theoretic" state of knowledge with the basic facts still needing to be organized: "[T]he most useful generalizations are likely to be inductive" (Nelson, 1998: 29). Used automobile protection is in and of itself not a large scale policy reform but, as will become clear, the existence and the variation of these policies need to be explained in the context of the large scale reforms that took place in developing and transitional economies over the past two decades.

Therefore, given the primarily empirical objectives of this research, and the conclusions of previous reviews, the best way to proceed is to develop an ad hoc approach by answering specific questions about the likely political economy of the used automobile trade. This is taken up in Chapter 3. The rest of this chapter focuses on identifying the questions that need to be answered.

2.5.1 Winners and Losers from Trade Policy

The first question is always who benefits and who loses from protection or reform. This is most often done with using the conclusions of standard trade theory using either the Stolper-Samuelson theorem in the HO tradition or the specific factors model of trade. In the HO model factors can move freely between sectors. It is expected that owners of the scarce factor support protection while owners of the abundant factor prefer

free trade regardless of the sector in which their factors are currently employed. Because a country's comparative advantage in world markets lies with its abundant factor, demand for this factor and therefore wages are likely to rise with free trade. Thus it is predicted that capitalists in capital abundant countries will oppose protection while in capital poor countries they will demand it. Within the international political economy literature, this model has been used to predict the emergence of class or urban-rural conflicts over trade policy (Rogowski, 1989; Milner, 1999; Hiscox, 2001).

Alternatively, in the specific-factors model, one factor is not free to move between sectors. For this reason, the model can be interpreted as having three factors, two specific and one mobile. Assuming capital is sector-specific, the preference for protection will be determined by industry. Capital specific to import competing sectors, in which the country does not have a comparative advantage will seek protection, while capital specific to sectors with a comparative advantage will prefer free trade. Thus the preference for protection breaks down along industry lines. Table 2-1 (next page) provides an overview of the coalitions that are expected to form based on the two different assumptions about factor specificity made in the basic trade models.

Table 2-0-1 Factor Mobility and Trade Politics Interest Groups

Factor Specificity	Coalitions Formed	Effect on *Class*-based Political Organizations	Effect on *Industry*-based Political Organizations
High	Industry	Internally divided over trade issues and adopt ambiguous policy positions dependent on industry affiliation.	Adopt unified coherent protectionist (when import competing) or free trade (when exporting) positions
Low	Class	Adopt unified coherent protectionist (when representing scarce factors) or free trade (when abundant) positions.	Internally divided over trade issues and adopt ambiguous policy positions, dependent on factor affiliation.

Source: Adapted from Hiscox 2001

The empirical evidence has found support for both models i.e., the empirical results have not identified a general advantage for either approach in explaining observed trade policy variation or change. In fact, both Rodrik (1995) and Milner (1999) find that many industry-based empirical models provide results that are not strictly speaking in keeping with either sector- or factor based theories. Summarizing the results they find that low skilled, labor-intensive industries with high or rising import penetration are associated with protection while capital intensive, high-skilled industries and particularly those that are export orientated and internationally integrated, are associated with less protection.

2.5.2 Turning Preferences into Policy

After identifying who wins and loses, the second important element is determining why one group prevails and the other does not. The most basic models (within economics) in this regard are the "Adding Machine" and its close cousin the "Median Voter" approaches. The adding-machine model, which is attributed to Caves

(1976), is more of a conjecture that "*suggests* a sectoral type of model" (Milner, 1999: 96 emphasis added) than a formal theoretical model (Gawande and Krishna, 2001). It simply states that elected officials favor industries with the largest number of voters. Empirically, employment levels by sector have been used as a positive indicator of likely protection.

Related to this the most popular theoretical model in the empirical work is the median-voter model (Mayer, 1984; Markusen et al. 1995:327-332), which is in turn based on Black's (1958) more general median-voter result. As the name implies, this model is based on the notion that each individual has one "vote" to cast for or against a single policy measure. In the case of trade policy, for example, assuming each voter owns some proportion of two factors, each voter's preferred level of protection will be determined by how specialized she is in one or the other factor. The government then chooses the preferred policy of the largest number of voters, or in the case of a continuous choice such as a tariff rate, a policy that comes closest to approximating the preferred policy of the largest number of voters. This is analogous to choosing the preferences of the median voter.

Not only does the median voter model provide specific and empirically testable predictions, it is based on the accepted micro-foundations of individual behavior on which most formal economics is based. It also provides a simple illustration of why it is that rational individuals might choose a policy that is objectively sub optimal (through the lens of economic theory) as a result of the political process, an important point for economists (Nelson, 1998). Depending on the distribution of factor ownership it is

possible that the economically scarce factor will be "politically" abundant. In Stolper-Samuelson terms, for example, even in a labor-scarce economy, the majority of voters likely only own their own labor, while a relative few voters also own some proportion of capital. If the benefits to capital are large, it is possible that while the net-benefits favor liberalization, the median voter will favor protection.

An issue is more likely to be politically important when large numbers of people are affected, and their policy preferences determined to some degree by their individual economic situation. Empirically, however, there are two problems with the basic-adding machine conjecture and the median voter model. First they do not easily accommodate the role of groups, money, and other factors known to influence political outcomes. Second, few policy decisions are determined by explicit or implicit nationwide referendum. Most democratic countries have some form of proportional representation or other more complex voting structure and many more have autocratic or other hybrid forms of government. And in all governments many decisions are reached through rather informal processes. Therefore it is not surprising that the predictions of these approaches are not obviously supported by the evidence (Gawande and Krishna, 2001). This is not to say the number of individuals (voters) supporting or opposing a policy is not an important factor, but there are clearly some intervening variables that need to be included.

The most basic concept in this regard is the *interest group* or *pressure group* model taken from political science. The suggestion here is that different groups (economic interests) have different abilities to organize and overcome the free-rider problem in order to effectively lobby the government (Olson, 1965; Stigler, 1971;

Peltman, 1976; and Pincus, 1975). As famously suggested by Olson, protectionism is favored because its costs, while perhaps great, are spread widely over many people while its benefits, though perhaps not as large, are enjoyed by a few. Thus, the simple adding machine or median-voter approaches miss the mark. Later Olson (1983) argued that economic groups are more likely to successfully organize in changing economic environments in which jobs or income is threatened. Industries that are declining are more likely to look to trade policy for relief. This is similar to the conclusion that Milner (1999) and Rodrik (1995) draw from the literature: import competing firms (i.e. those that are globally uncompetitive) will actively seek protection.

The second issue is the financial resources that an affected group has available and is willing to apply to the political process. A number of formal models have sought to integrate campaign contributions (Findlay and Wellisz, 1982; Hilman 1982; Grossman and Helpman, 1994; and Magee, Brock, and Young, 1989) with the two most recent gaining most of the empirical attention. Empirical tests include Gawande (1998b) in the case of Magee Brock and Young, and Goldberg and Maggi (1999) and Gawande and Bandyopadhyay (2000) in the case of Grossman and Helpman. These tests generally found that political contributions were highly effective in the US with "political contributors getting a much larger payoff in terms of trade protection than is suggested by theory" (Gawande and Krishna, 2001:20).

Finally, though total membership may translate into some degree of political influence, increasing group size often means greater heterogeneity of preferences within a group, diluting or splintering the group's voice. A large group will have to spend more

effort overcoming collective-action problems. While financial resources are the primary way in which groups can achieve a greater degree of collective action, either compensating members for participating or by educating them on the "true" costs or benefits to them of a specific policy, other factors that can serve collective action are a shared education, ideology or sense of a shared experience or social bond.

The group size conjecture has led to the proposal that the concentration of factor ownership among firms or individuals would reduce the costs of collective action and therefore is an important factor in determining group influence. The concentration of factor owners (employees or firms) geographically has also been hypothesized to have this effect. These propositions have been tested empirically. In most cases the number of firms in an industry is used, though other concentration ratios are also used. [21] Baldwin (1985) found the number of firms was significant in cross-sectional variations among industries, but insignificant in explaining tariff change. Rodrik (1987) finds an unambiguous and negative relationship between the number of firms in an industry and tariff protection, though Hillman (1991) finds the result to be ambiguous. Trefler (1993) uses the non-tariff barrier (NTB) coverage ratio (i.e. the proportion of imports by tariff line affected by NTBs) in the US as his dependent variable instead of a tariff. He finds industry structure variables such as buyer and seller concentrations are significant, though not as important as comparative advantage factors such as import penetration. Based on these findings and their own research, Gawande and Krishna (2001) conclude that the

[21] See Mansfield and Busch (1999) for a discussion of the geographic concentration literature and Gawande and Krishna (2001) for a more general discussion.

role of concentration and industry organization has yet to be fully accounted for in economic theorizing.

In the case of geographic concentration, there had long been a split between those that viewed geographic concentration as a way to reduce coordination costs and facilitate collective action and the notion that industries with geographically dispersed firms or operations were more likely to influence more politicians and see their demands for protection answered (Pincus, 1975; Caves 1976; Hansen 1990; Trefler 1993; Busch and Reinhardt, 1999). The second theory, however, only seems to apply in representative democracies where representation is dispersed in small geographic districts. Busch and Reinhardt (1999) use interaction terms to separate the concept of the dispersion of an industry across political boundaries (US States) and its economic concentration within political boundaries. They find strong evidence that an industry does best in gaining NTB protection when it is dispersed across many jurisdictions, but only if it is also highly concentrated economically in the areas where it is located. Related to this, another variable that has been suggested is the degree of vertical integration in an industry, that is the upstream and downstream linkages it has within a domestic economy, the transparency of those linkages inside and outside the industry, and the concentration of ownership and wealth of those integrated industries (Gawande and Krishna, 2001).

Thus the logic of collective action and the role played by wealth are two factors in explaining the weakness of simple membership numbers in explaining the political influence of winners and losers. The other issue raised above was the structure of the government itself, the type of government with which the various interest groups must

contend. This extends from the general type of governance (Mansfield, Milner and Rosendorf, 2000), i.e. democracy, autocracy etc., to the number of competing factions or parties, particularly in a parliamentary democracy (Rogowsky, 1987; Mansfield and Busch, 1995). Though some political scientists argue that democratic governments are less likely to seek protection (Wintrobe, 1998; Milner 1999), democracies, particularly those with many competitive parties, are thought to be more protectionist because they are more likely to become deadlocked over trade issues as focused lobbies sway individual politicians or parties (Rogowski, 1987; Mansfield and Busch, 1995; Mansfield, Milner and Rosendorf, 2000). Conversely, an autocratic regime's policies are thought to depend entirely on the ideology and constituency of the autocrat, and therefore a priori there is no reason to believe they will be either for or against free trade, though the rent-seeking behavior often assigned to autocrats may also suggest protectionism. In their empirical study of 14 industrialized countries, Mansfield and Busch found that larger-representation districts and proportional representation seem to suggest greater protectionism.

The ideology of a government, political party or politician has been suggested as an important variable. If ideology determined either by history or by economic or social factors such as education, a politician or party maybe locked in to positions, which they are then forced to seek support for among voters or contributors. This is implicit in Magee, Brock, and Young (1989) where political parties are assumed to determine a policy and then seek individuals and firms to make contributions to get the into office. (In Grossman and Helpman (1994), governments change their policies based on

contributions.) Not only might these preferences be formed by a politician's own factor or asset ownership, but also by historical membership in social or economic interest groups. Examining preferences based on politicians' class or social membership, however, is left to political science and sociology literature. Nelson (1988), Pastor and Wise (1994) Milner (1999) and Babb (2001) for example provide some discussion of this.

The sorts of practical concerns cited by Smith (1974) or the type of environmental concerns evident in Echeverria et al. (2000) may ultimately also be important. Such preferences may be held by a politician or they may be the result of the existence in the electorate of sentiments external to the strictly microeconomic notion of preference discussed above, such as environmental concern or nationalism, which in part determine their vote or lobby activities (O'Rourke and Sinnott, 2001). A group that can tap into such sentiments may be more likely to see favorable policies (from its perspective) implemented.

Related to this, it is assumed that in most instances politicians in power are likely to favor the status quo because the current system either saw them to power or is of their own making. They respect current rent owners and fear the uncertainty of change. Rodrik (1992, 1996), who proposes a Political Cost Benefit Ratio (PCBR) as a heuristic device to explain the political reluctance of politicians to engage in policy reform, makes a similar argument. In short, he points out that in most cases the total redistribution that results specifically from trade reforms (as opposed to other more targeted policies) dwarfs the net benefits. In other words, trade reforms are rarely Pareto optimal and therefore while perhaps economically efficient, reform is politically inefficient.

Beyond the known costs and benefits, it is likely to be impossible to identify all the likely outcomes of a reform, introducing considerable uncertainty. The uncertainty of reform extends beyond politicians to their constituents, such that even those who are likely to gain may not ask for reform if they are not *certain* to gain and they may fight reforms unless they are certain not to lose. Furthermore, in the presence of imperfect information not only will there be uncertainty, but some constituents may not be informed at all of potential costs or benefits. Similarly politicians may not be informed or may avoid information. It is often up to interest groups to inform (or misinform) their members, politicians and the general public (a process for which they need resources). Pastor and Wise (1994) illustrate these various points empirically in the case of Mexico. An interest group that controls information or access to information about policy reform is likely to have an advantage both in overcoming collective action problems among its members and in influencing nonmembers.

Thus far the discussion has been on factors domestic to a country. But a group or policy position may succeed due to external pressures or the success of domestic negotiators in international trade agreements (Gawande and Krishna, 2001). Such success may be based on the skill of negotiators but is also likely to be based on national strategic or economic importance, in other words the amount of leverage a country can exercise, the credibility of its threats, or how lucrative its incentives. There is often an asymmetry seen between big economies and small economies (for example developed and developing countries) in that a smaller country is likely to need the bigger countries as markets to buy and sell much more than the other way around. Thus bigger economies

can compel policy in smaller countries in a way that smaller countries cannot from larger countries.

International economic institutions, specifically institutions such as the WTO, the World Bank, the International Monetary Fund (IMF), and many other bilateral and multilateral agreements and institutions, increasingly dictate the policy choices of nations and national institutions (Pastor and Wise, 1994; Milner, 1999). Whether it is expressed as "Western neoliberal hegemony" or a "Golden Straight Jacket" (Friedman, 2000) there can be little doubt that formal GATT/WTO rules, IMF Conditionality, World Bank Structural Adjustment and other formal and informal commitments to international markets such as exchange rate pegs can dictate or restrict the actions of nations (Yatawara and Ajona, 2000). Though nations formally "bind themselves" to these institutions, agreements made for one purpose or to achieve an overall goal can tie policy makers' hands in specific unforeseen or unwanted ways. In this way, domestic groups may also see their influence diminished and foreign interests may find they have more say either directly through international organization representatives or through their home governments involvement in international organizations.

Beyond the formal restrictions on possible action, a final consideration is that in smaller economies those groups or policy interests associated with larger economies or multinational institutions may have access to external sources of wealth, knowledge, or political leverage and thereby gain a policy advantage. The fact that large economies tend to dominate in multinational institutions, sometimes formally (e.g. in the IMF and the World Bank, larger Western European and North American Economies have more

governing votes) and sometimes informally, as at the WTO, may compound this effect. There has also been considerable work on the role of multinational firms (Bennet and Sharpe, 1985; Milner 1988; 1999; Whiting, 1992; Moran, 1998) in making domestic trade policy in host nations. Though the analysis of international political economy along these lines is widespread, particularly within the field of International Organization, the conclusions authors reach about the influence of these external relationships remain disparate (Milner, 1999).

2.5.3 Explaining Cross-sectional Variation and Temporal Change

There is one final question that must be asked in developing a set of hypotheses for the question of why countries choose to protect (or not liberalize) the used automobile market. This is: What factors are likely to vary across countries or over time?

Though it is perhaps "theoretically trivial" as Nelson (1998) suggests, a clear source of variation in policy may be variation in the variables suggested above: industry structure and ownership, economic conditions, government type, changing attitudes of external partners or institutions (i.e. the World Bank IMF etc.) etc. One interesting variable, not yet discussed is income distribution. It has been suggested that income levels and income distribution prior to reform may have a significant impact on the ability for a country to implement and accept price and industrial reforms (Alesina and Rodrik, 1994). In general, the logic is that since measured income equality likely means there is less difference between the median and average incomes, governments with more evenly distributed incomes ex ante are less concerned with the redistributive aspects of a policy and therefore can concentrate on the political efficiency aspects. It might also be that more even income distributions suggest that redistributive policies such as social

security or health and unemployment insurance have already been implemented and are available to compensate losers in case of a loss of welfare from reform. Alesina and Rodrik (1994) use measures of income inequality in growth regressions to support their theory.

In an empirical political economy sense, however, there may be more to measures of income inequality than an increased ability to make policy, or for middle class consumption to drive growth (Murphy, Schleifer, and Vishny, 1989). If income inequality is understood as an indicator of the ability of one class in an economy to extract rents from the others, or perhaps, the inability of the lower classes to extract rent from the upper classes, it is in itself an indicator of political influence by class or the distribution of political power by group. The more "people with influence" are able to dictate rents, the less redistributive reform seems likely. Thus if political influence, and therefore rents, are already more evenly distributed, this may mean that when reform is necessary, perhaps indicated by crisis, that a broader range of policies can be seriously considered because there are fewer "sacred cows," and the social order is not so precariously balanced as it might be to maintain a skewed income distribution.

When it comes to variation over time, the literature is even less certain than in the case of policy formation in general (Rodrik, 1995, 1996; Nelson, 1998). Again, it is empirically valid to appeal to exogenous change in the variables above, or to historical events such as a change in government or technology. It has been suggested, for example, that an economic crisis may galvanize political activity including trade policy reform (Rodrik 1992, 1996; Milner, 1999) by raising the costs of sticking with the status

quo. For example, it may have been that in the East Asian and Latin American countries the economic crises of the 1980s and 1990s allowed "reformist governments to package fiscal reforms, which were absolutely crucial for the return of price stability, with trade and industrial policy reforms, which were viewed as desirable in the long run but were incidental to the immediate crisis" (Rodrik, 1996: 27). Traditionally, however, it has been assumed that crisis made nations more not less protectionist. Again, empirically it appears there are many robust answers, which may be rationalized economically, but there does not appear to be a clear set of factors to be deduced from theory.

The conclusion to this section is largely to be found in the next chapter, where the hypotheses that drive the rest of this research are developed. The point that can be drawn here is that empirically explaining used automobile protection appears to require something of a "kitchen sink" approach. In the process something more general about trade policy formation, variation, and change may be revealed.

2.6 Chapter Conclusion

There are a few findings from this chapter that will be particularly important going forward. The first is that used automobiles compete with and complement new automobiles *throughout* the automobile market. At the same time, there is always a used automobile cheaper than the lowest-priced automobile and the process of depreciation virtually guarantees that used automobiles will be of particular importance at the low end of the market. By the same token newer automobiles are expected to serve those with a higher average income. As Scitovsky (1994) framed it, used automobile markets have an important role in smoothing out the inequalities of capitalist production. Perhaps most

importantly, it was shown that the used market has a very different industrial structure than the new market, with the new market showing much higher concentrations of ownership. In the second section the lack of existing surveys of used automobile protection was discussed. The survey conducted here appears to be the first of its kind specific to automobiles.[22] In the third section, the trade theory literature was reviewed. Though the majority of this literature focused on used machines more generally, there emerges a strong consensus that the used machine trade including used automobiles is beneficial for development and improves economic efficiency in both developed and developing countries. Finally in the fourth section, it was revealed that there is not an existing literature to speak of on the political economy of used-automobile or even used machine protection. Furthermore, the political economy literature, at least within economics, appears to be continually in flux, and no clear model presents itself with which to test the political economy of used automobile protection. Instead an ad hoc approach is suggested. The next chapter will seek to provide some well-founded expectations in answer to the questions identified here:

1. Who wins and who loses from used automobile protection being erected;
2. What might determine the political influence of those interested in used automobile protection; and
3. Why might variation across nations or over time be observed?

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[22] There is a survey of used machinery regulations available at http://web.ita.doc.gov/machinery/usedmach.nsf (1/05/03)

CHAPTER 3
HYPOTHESES BUILDING

3.1 Introduction

The first portion of this chapter uses the findings of the literature review in Chapter 2 to specifically address the dissertation's three guiding research questions. The second section takes a step back from the theoretical and hypothetical approach of most of the literature by providing some recent anecdotes on the implementation of used automobile protection in Eastern Europe, Africa, and Asia. The third section addresses other potential explanations for used automobile protection such as environmental and technological concerns that have been raised in the previous sections and chapters. The chapter concludes by stating the specific hypotheses to be tested by the empirical analysis in Chapters 4, 5, 6, and 7.

3.2 Regulation of Used Automobile Imports

The first research question asks how used automobile protection varies across countries. Though the literature review presented in Chapter 2 did not uncover any previous survey specifically of used automobile protection, related surveys such as the US Department of Commerce's *Compilation of Foreign Automobile Import Requirements* (1999, 2001) suggest that such policies are in fact widespread. More fundamentally, however, any prior expectations about the presence and distribution of these policies is likely to depend significantly in turn on expectations about their trade impacts and the political economy behind their implementation, the focus of the second and third research questions.

3.3 Impact of Used Automobile Protection on Trade

The second research question relates to how significant an impact these regulations have on trade and the trade-related aspects of national economies. Clearly, trade protection is expected to have a suppressive effect on imports. The more restrictive the protective measures, the greater the expected negative impact on this trade. It is also the overwhelming consensus of the literature that restricting the trade in used goods and used automobiles specifically is no different from trade protection in general, and will have a negative impact on national welfare.[23]

Furthermore, used machines generally, and used automobiles specifically, are expected to be particularly well suited to conditions in developing countries. As discussed last chapter, this is not due to their lower purchase price alone, but also the comparative advantage developing countries are assumed to have based on the costs of repair, their greater elasticity of demand for luxury features, and the lower opportunity costs associated with receiving a lemon. Therefore, it is expected that countries with lower incomes will import a higher proportion, if not necessarily a greater number, of used automobiles. Assuming for a moment that used automobile protection is distributed uniformly across all nations, it is expected that used automobile protection would

[23] As also discussed in the last chapter this consensus was reached without any significant consideration of potential spillover effects (externalities), both negative and positive. For the body of this research, the economics definition of welfare is maintained with the knowledge that as a matter of practical policy negative externalities must be considered and in specific countries and instances trade policies must be considered if they are to be addressed. Grubel (1980) normatively judges the benefits to outweigh the costs. Echeverria at al. (2000) reach a somewhat different but similarly cursory conclusion. Economists generally suggest that negative externalities would be better treated by non-trade policies. A further discussion of this issue appears in Chapter 8.

disproportionately affect the welfare of the less-developed countries. The flipside of this would be that the greatest expected export losses would be in developed countries.

3.4 Factors Explaining these Policies Today

The final research question, and the one that requires the longest treatment here, is: What factors explain the presence and variation in used automobile trade policies within and across nations? Last chapter it was suggested that there appears to be no "off-the-shelf" answer to this question and that instead hypotheses might best be generated by developing some expectations with respect to three questions:

Who wins and who loses from used automobile protection;

How much political influence is each group expected to have and how capable is each group expected to be at overcoming the problems of collective action in exercising that influence; and

What factors are expected to vary across nations or over time to explain the variation in used automobile protection across these dimensions?

Each of these questions is taken up in turn. For the purpose of the argument and the prose in this section, it is useful to reemphasize that, based on the findings of the last chapter, reiterated in the last section, a developing country is considered a likely net importer of used automobiles in the absence of restrictions. The developing world is the set of likely net importers. Thus a developed country is also a likely net exporter of used automobiles, and the developed world the set of all such countries. The economics and political economy of the used automobile trade is expected to have different characteristics in each.

3.4.1 Winners and Losers

In general, the literature reviewed in the last chapter suggested that just as lower income countries have more to gain from the import of used automobiles, within nations

lower-income automobile consumers, firms and individuals, also have more to gain from a liberal used automobile market. Wealthier consumers are also affected, but poorer consumers have fewer alternatives. Any policy that raises the price or reduces the selection in the used automobile market, including used automobile protection, is therefore expected to have the greatest negative impact among this population of consumers. But what about other, more specific interests, such as the producers and sellers of new and used automobiles? Table 3-1 (next page) provides a summary of the winners and losers derived in the discussion that follows. Clearly, this table and the discussion below provide a somewhat more disaggregated picture than that suggested either by the standard political economy frameworks or the more pragmatic and specific analysis of Grubel (1980) discussed in Chapter 2.

Table 3-1 Summary of Expected Winners and Losers From Used Auto Protection

Interest Group	Winner or Loser?	Comments
"Infant" Auto Producer	Winner	Prefers more protection. Protection preference: 1) prohibitive, 2) "Grubel"*, and 3) used auto protection. Least preferred: free trade
Exporting Auto Producer	Winner	Prefers used auto protection, except where additional foreign protection has a significant impact on domestic sales leading to a net decline in sales, in which case free trade preferred. Prohibitive and Grubel protection least preferred.
New Auto Importer	Winner	Prefers used auto protection. Free trade second choice. Prohibitive and Grubel protection least preferred.
Multinational Auto Producer	Winner	In a country where it produces, used auto protection allows a measure of domestic protection while maintaining access for firm's foreign new production. Otherwise same as "New Auto Exporter"
New Auto Consumer	Mixed	Prefers used auto protection of the domestic market as price of a new import declines relative to trade-in value. The nominal loser is the foreign country new auto consumer. Significance of lose varies with foreign market size assumptions. Prohibitive and Grubel protection least preferred.
Used Auto Importer	Loser	Prefers free trade. Strongly prefers strict Grubel protection, i.e. trade in used automobiles only, but no examples of this policy exist. Grubel protection third choice.
Used Auto Exporter	Loser	See "Used Auto Importer."
Used Auto Consumer	Loser	Prefers free trade. Grubel protection second best.

*Grubel Protection: new and *newer* automobiles face *higher* protection (Grubel, 1980)

3.4.1.1 Stolper-Samuelson

Traditionally, political economy models within economics have relied on basic trade theory for the determination of trade policy preferences. For example, since a used automobile is expected to be more labor intensive than a new vehicle, the logic of the Stolper-Samuelson theorem might suggest labor in developing (i.e. labor abundant) countries might oppose their import. Yet used automobiles are only labor intensive *upon* importation. Thus, the literature in the HO tradition concluded unanimously that labor benefits from used automobile imports and therefore might even be expected to actively oppose protection. A used automobile can, however, be a near substitute for a domestically produced new automobile, a capital-intensive product. Thus the Stolper-Samuelson theorem might be interpreted to suggest that capital in capital-scarce, developing countries supports protection to reduce competition from foreign made, capital-intensive goods. This too, however, runs contrary to the conclusions of other authors in the HO tradition who conclude it is developing country capitalists who gain the most from importing used machines to take advantage of their countries' labor abundance. Grubel (1980) makes a similar case for including automobile owners and consumers in this group suggesting that freer trade will facilitate their ability to buy preferred automobiles.[24] As discussed previously, automobiles serve both as consumer

[24] On this last point, if free trade accelerates the application of labor augmenting technology in a developed country, labor there might be thought to have an incentive to limit the used machine trade. There would still not be an incentive to oppose *imports* of labor-intensive machinery. However, labor might support export restrictions or ask its own government not to oppose existing or proposed foreign restrictions in multinational forums and negotiations. A priori, it seems unlikely that foreign labor on its own would have much influence on the politics within another nation. Other policies, however, such as contractual restrictions on the implementation of new technology better achieve this

durables and as capital goods in production. In the end, therefore, the Stolper-Samuelson theorem can only explain protection from capital-intensive imports in general, and does *not* provide a robust set of winners and losers with which to build a hypothesis for discrimination against *used automobiles* specifically.

3.4.1.2 Specific-factors

What about the specific-factors model? Clearly, the winners and losers in Table 3-1 might be thought of as representing two industrial sectors, new and the used automobiles. As in the case of the Stolper-Samuelson theorem, however, upon closer inspection a specific-factors approach does not appear well suited to explaining used automobile protection. If, in keeping with the strict neoclassical foundations of the specific factors model, the used and new automobile markets are considered as two separate markets served by two separate "industries" and affected by two separate trade policies this would in turn suggest that:

1. The used automobile industry favored protection;
2. It was successful in receiving it; and
3. The new industry either did not favor protection or if it did, it was less successful in receiving it.

This immediately presents a number of difficulties. First, as will be discussed further below, it is questionable that the used automobile industry would be politically successful where the new-automobile industry was not. More fundamentally, however, there appears to be little economic – or empirical – justification for assuming that used automobile interests would prefer protection in the first place. The used automobile

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goal, as seen for example in the West Coast dock workers contract dispute of 2002, where much of the dispute centered on the introduction of new labor augmenting technology.

"industry" does not, strictly speaking, "produce" automobiles, but instead provides value added in domestic sales and service. Therefore, it is likely to be indifferent as to the source of its automobiles as long as the return from their sale and service is the same. In the face of used automobile protection, the market in a developing country would face a decline in sales volumes due to the relative increase in the price of used automobiles lowering profits and employment. For the used automobile consumers in the developing world, while higher prices are likely to be offset by higher "trade-in" values, the volume and selection of used automobiles in the market would be reduced, and so too would consumer welfare.

Used automobile resellers in a developed country also do not benefit from protection of their home market for reasons similar to those given for the developing country industry above, though the importance of imports to market is likely to be significantly less. As an exporting industry it also clearly does not gain from foreign protection. The story is only slightly different for developing world used automobile consumers. Under the standard market-size assumptions discussed last chapter, they are likely indifferent to used automobile protection in the developing world. Even if the protected export market *is* sufficiently large to have a significant impact on the domestic market, foreign protection would reduce the price current automobile owners receive for their current automobile but it also reduces the price of a future used automobile. In contrast to the case in the developing country, it might seem that these consumers would *benefit* from increased selection, but as the discussion of Figures 2-1 and 2-3 (last chapter) showed due to the lower utility derived from "more used" automobiles,

developing country protection results primarily in more automobiles going to scrap in the developed country.

As indicated in Table 3-1, used automobile interests in both sets of countries are clearly losers from used automobile protection. Thus, it seems unlikely that they would advocate for protection of their domestic market and a strict specific-factors approach also appears to be of limited value in generating hypotheses. The necessary condition that used automobile interests would pursue protection finds little support.

3.4.1.3 Intraindustry Competition: an Alternative Framework

Beyond this, however, it seems unreasonable that the political economies of the new and used automobile markets would be entirely independent of one another, as required by the specific-factors model. Throughout most of this dissertation it has been suggested that new and used automobiles compete with - as well as complement - each other in the same market: A policy designed to affect one can be expected to have a significant influence on the other.

Table 3-1 shows that it is the *new* automobile industry that is expected to be the primary winner from used automobile protection. The specific-factors model, however, is based on the strict neoclassical view that firms are defined by a production function and that an industry is a collection of firms with the same production function. All firms within an industry, i.e. serving a particular national product market, are assumed to have the very same trade policy preferences. But in this case there is a clear difference and conflict over the shape of a policy that will affect the automobile market in general, i.e. both new and used automobile markets.

To address this problem, Nelson, (1988) has described *intra-industry/inter-firm* trade policy preference differentiation as occurring where: "two firms producing the same final product in competitive markets with internal structures (i.e. incentive structure, relationship to factor and product markets) that generate different preferences over alternative states of the world (p.804)." Though used and new automobiles are not "the same product" they are clearly in many cases competing products brought to market by firms with very different characteristics, production functions and relationships to other markets. Nelson concludes that, "while mapping policies into states of the economy would no longer be neoclassical, endogenous preferences would still be derivable" (pg. 805). Thus breaking with the homogeneous production function assumption complicates the formal political economy model, threatening to make the hypotheses here appear still more ad hoc, however, it also appears to be a necessary step toward understanding who wins and loses from used automobile protection.[25]

Intra-industry policy competition may occur in a number of ways. Factions may compete to gain the ability to "speak for the industry" or have their views included in the

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[25] Given the focus here on the automobile industry, it is interesting that the example Nelson cites for intra-industry/interfirm policy rivalries is the demands made by the US "Big Three" (Ford, GM, and Chrysler) and the United Automobile Workers Union for protection in the US in the late 1970s.[25] All three desired protection for the US automobile industry. Yet different financial conditions, investment and production decisions, and institutional relationships led the three firms and the union to prefer and advocate different *forms* of protection. A similar argument is made in the case of Mexico by a number of authors (Bennet and Sharpe, 1985; Whiting, 1992; Thacker, 2001; Studer, 2002). As will be discussed in Chapter 7, differences among the Big Three and other foreign producers had important implications for the development of Mexican automotive industry and its trade policies. Other intra-industry/interfirm conflicts between national and multinational firms, the parts industry and the terminal industry, and small and large parts producers also were important to shaping Mexican policy up until today.

industry's agenda for negotiations. Dissenting groups within the industry seek to gain policy or economic concessions from the dominant group in return for their own explicit or implicit support for the dominant. They can also be excluded in various ways from policy making. In some cases, if this sort of co-option is not possible, those excluded may voice their dissent or even form a significant opposition to the prevailing industry position. The perceived benefits of maintaining positive relationships within the industry or threats of retaliation, however, often serve to mute their criticism or effectiveness. Similarly, intended or unintended information asymmetries may exist within an industry. Many industry participants, particularly smaller firms without the resources to devote to policy making or associations, may be left unaware of how they might benefit or lose from policy changes or even that a change is possible or taking place. If they *are* aware, they may not be aware of how they might influence the process.

Returning to the case of used automobile protection, as discussed last chapter and indicated in Table 3-1, while an infant domestic automobile industry certainly benefits from used automobile protection, it is far more likely to benefit from, and request from a national government, the *prohibitive protection* of the domestic automobile market (Grubel, 1980). Even the government is likely to prefer "Grubel protection" (a policy that lowers protection with the age of an imported vehicle)[26] over used automobile protection. Along with providing a compromise between consumer interests and domestic industry protection, it also might provide the government with some additional

[26] As discussed in Chapter 2, Grubel (1980) suggests this is the most rational policy for a developing country government seeking to serve the needs of its consumers and protect its domestic automobile industry.

benefit similar to what Sen (1962) sees in the case of free trade: By lowering the cost of automobiles purchased domestically, domestic savings could be directed toward domestic investment, perhaps even an export-oriented automobile industry, promoting growth and preserving foreign reserves. At this point, it becomes necessary to explain why an industry might seek, and why it might receive, used automobile protection not prohibitive or Grubel protection.

One possibility from within the industry is the countervailing influence of *imported* new-automobile interests may force domestic producers to compromise on the level of protection. Under Grubel's initial conditions, in which automobiles are only produced abroad (in a developed country), protecting the used market with a comprehensive ban on used automobile imports has the effect of raising the market share of imported new automobiles. Developing-country automobile consumers who prefer imported automobiles find that used automobile protection raises the trade-in value of their current automobiles without directly affecting the price of new automobiles, thereby reducing the relative price of a new automobile. At the same time imported used automobiles are no longer available, forcing those consumers with sufficient resources into the new market. Developing-country new-automobile import dealers who experience a higher number of sales – again assuming arbitrage does not occur (in which case they simply receive a higher unit price (Clerides, 2002)). Perhaps more importantly, in contrast to domestic producers, new automobile importers would be substantially harmed by either prohibitive or Grubel protection. Either policy would hurt their business, and if carried through to the extreme of a complete ban on new automobile

imports, put them out of business entirely. Free trade would allow new automobile imports, but as discussed above, their market share would be greater under used automobile protection. Furthermore, it has been suggested (Interview: Uthus, March 4, 2003) that there is opposition to the free trade in used automobiles from new automobile importers, concerned that their "brand image" will be tarnished if vehicles are imported for which they are unable to provide "authorized" support services. While this will certainly be the case for importers in markets they have yet to enter, it is also true for brands seeking to serve a market with only a limited selection of automobiles.[27] Free trade would therefore be preferred to either prohibitive or Grubel protection, but less preferred than used automobile protection as indicated in Table 3-1.

Since used automobile protection is expected to increase the sales of new automobile imports, a final winner that emerges from intra-industry considerations is a foreign automobile exporter. This conclusion needs to be qualified somewhat. It is predicated on the standard market size assumptions. If this assumption is maintained, there would be an unambiguous increase in foreign market share and therefore exports. Yet, while this increase might be significant in relation to the developing market, to the exporter who already has access to that market, it would represent only a marginal

[27] Interestingly, Grubel (1980) suggests that brand image will be helped because used automobiles will allow brand loyalty to develop before development levels allow the purchase of new automobiles. This perhaps relates to the reported Japanese interest in exporting used automobiles. These automobiles are considered much more broadly dependable, easy to maintain, and suited to developing world conditions.

increase in sales in what is assumed to be a small market.[28] If the assumption is dropped and the market being protected were large enough, or if the group of protected markets became large enough, there is potential for used automobile prices in the exporter's other markets, including the home market, to be lowered if a significant glut of used automobiles builds up there after protection. Even if, as already discussed, developed-country consumers continue to be averse to entering the used market and therefore lower prices do not simply translate into more used automobile purchases, consumers can no longer get top dollar for their used automobiles and therefore they will have to either choose a less preferred (lower price) new automobile or to hold onto their current automobile until it is obsolete.[29] All this discussion is to suggest that while a new-automobile exporter is a potential winner from used automobile protection, their interest in used automobile protection is likely to be qualified.

Thus, by broadening the possible sources for determining policy preferences to include intra-industry competition, it can be shown that new automobile importers and consumers as well as foreign new automobile exporters have a preference for used automobile protection over other forms of protection or free trade. Even an infant

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[28] Though it also is likely that a significant political expenditure in the developing country's political market is also likely to be a marginal expenditure for a developed world exporter, so that the benefits might still justify the cost.

[29] It appears that a number of countries that encourage the rapid shedding of automobiles may also *encourage* used automobile exports to relieve the pressure this brings to the domestic market. Japan and Korea are two oft-cited examples of this behavior (interview: Uthus, March 4, 2003). Japan is often asks countries to clarify their used automobile import policies at as part of the Trade Policy Review Process at the WTO. There is more on this in the anecdotes and discussions below, however, as the case of Suzuki suggests there is a differentiation made between countries where production is located and where it is not.

industry producer in a developing country may show a weak preference for used automobile protection if more preferred forms of protection are not politically feasible. Thus the political economy that emerges around automotive policy is an intra-industry conflict over trade policy between foreign and domestic automobile interests, but more fundamentally between new and used automobile interests. Finally, since only developing countries are expected to be under pressure from used-automobile imports and the demand from these countries is in most cases expected to be trivial to the operation of developed world markets and the bottom lines of developed world new and used automobile interests, the political economy of used automobile protection might be expected to play out primarily in the domestic politics of the developing world. With this the discussion of Table 3-1 is nearly complete. But there is one important set of economic and political interests not considered by Grubel's analysis.

3.4.1.4 The Final Piece of the Puzzle: Multinational Interests

Table 3-1 lists "multinational" automobile producers as being a separate political entity from either exporters or domestic producers. In the past three decades, foreign direct investment (FDI) in the automobile industry - already significant - expanded both across and within nations. Today nominally national, even previously nationalized, automobile firms and industries have well over the 10 percent FDI threshold usually considered as significant. India, for example, is estimated here to have 45 percent of production stemming from FDI.[30] Of all the automobile-producing countries, only Russia, Taiwan, and South Korea appear to have had FDI participation rates below 10

percent as of 1999 (the focus year of the empirical analysis in chapters 5 and 6) and all three have experienced increased FDI in the years since. For those countries with production this increased emphasis on FDI is likely to be a very significant development for the political economy of protection. The infant industry producer who prefers prohibitive or Grubel protection, listed first in Table 3-1, has largely become a historical consideration.

Much of the foreign automobile investment in developing countries today was made within what were at the time protected markets. While many of these investments were often induced from firms as a quid pro quo for market access, the promise of the rents associated with protection certainly helped to sweeten the deal (Whiting, 1992; Moran, 1994; Studer, 2002). Once an investment predicated on protection was made, however, import competition stemming from liberalization would threaten these rents and potentially threaten the return from the investment (particularly if it occurs before substantial depreciation of the assets has occurred).

Though the multinational firm would be in a similar position to a domestic infant industry if liberalization were to occur, a multinational firm does not have the same preferences for prohibitive or Grubel protection as a domestic investor would. As they have increased their investments abroad, multinational automobile producers have moved toward a strategy in which they seek greater efficiency and flexibility by serving individual markets with a product mix drawn from a number of plants distributed across a

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[30] These estimates of FDI participation are discussed in detail in an appendix to this chapter and are based on data from World Automobile Industry Trends 2001 and Automobile Industry magazine.

number of nations regionally or even globally (Studer, 2002). Since both prohibitive protection and Grubel protection restrict imports of new automobiles, including those from the foreign plants of a domestically settled multinational firm, they limit a multinational firm's ability either to serve the market or fully rationalize production, supply and distribution across all plants and markets.[31] The calculation would be different if the firm produced all or most of its product for the domestic market domestically.

Therefore, used automobile protection in a developing country appears to offer two advantages over other forms of protection for a multinational firm with a domestic presence and a multinational production and distribution system.

1. Relative to free trade, it provides a measure of domestic market protection and increases the certainty of a return on already sunk investments;
2. It offers some protection for existing investments but does not diminish a multinational firm's ability to rationalize and maintain the flexibility of its operations multinationally.

Thus used automobile protection might represent a policy that protects existing assets built under a more protectionist regime, while still opening markets to greater new-automobile imports as demanded perhaps by domestic automobile consumers, foreign importers, trading partners *and* domestically settled multinational automobile producers. Studer (2002; and in Kahn, 2000) appears to reach this conclusion stating that it was US companies, which had recently made large investments in Mexico's protected market,

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[31] Policies that would restrict imports to firms with domestic production might be considered, such as those used in Mexico in the early 1980s (See Chapter 7). Such policies not only clearly violate international rules such as the GATT/WTO principle of nondiscrimination they also have resulted in legal challenges and significant political

that encouraged the used automobile ban under NAFTA to protect their investments. This view was substantiated by industry sources (interview: Uthus, March 4, 2003).

There is also some evidence, however, that this strategy may be more than an ad hoc attempt to minimize the loss or uncertainty to sunk investments caused by an unexpected rush to free trade in countries such as Mexico. It may be a globally preferred policy. In a passing reference, Moran (1994: 86) points to the case of Suzuki in Hungary, where *future* investments were predicated on the government *increasing* the barriers to used automobile imports. There is also some evidence of this in the case of NAFTA as well (Chapter 7) and in other countries (see Russia anecdote below).

The blurring of the division between foreign and domestic may also extend to those countries where there is no domestic production. In a multinational system of production, those referred to as new automobile importers are likely franchised dealers of the foreign automobile exporters from which they import. They have a direct and contractual agreement with the foreign producers and original equipment parts suppliers. Though their interests may in some cases be different from those of the foreign producer, they are more likely to resolve their differences internal to the firm, and present a unified policy position.[32] Similarly, the foreign producer may feel the need to support dealers on a domestic policy issue not central to the parent company's concerns in order to maintain

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pressure to have them removed. Used automobile protection, while also clearly against WTO rules, has not generated similar attention. A detail raised below.

[32] A recent flap was reported in the Chile FTA agreements when the Chilean representatives of the Big Three sent Robert Zoellick a letter asking him to exempt used automobiles from liberalization without consulting the home offices. Even though the Big Three supported this position they resented their Chilean counterparts taking this

loyalty or goodwill. Thus a multinational producer is the final winner included in Table 3-1.

3.4.2 Determining Political Influence

It may seem obvious that the new-automobile industry is the more politically important of the two interests that are competing for policy in this case, and it is argued here that this is the case. Yet, there is no general determination that can be made as to whether new or used automobile markets are likely to be more important economically to a country's economy. Not only does the presence and importance of the new-automobile industry vary across countries, but as was shown in the case of the US, the used automobile industry can be quite substantial, providing not just employment and consumption opportunities but also broad opportunities for entrepreneurial activity. Grubel (1980) posits that a used automobile industry within a developing country is likely to provide more employment and similar spillover benefits than an infant new-automobile production industry in a developing country.

From an interest-group perspective, however, what is clear is that regardless of how many people the two markets employ or benefit, the new automobile market has a number of advantages politically. For one thing, as discussed last chapter the new automobile industry has many fewer participants and a higher concentration of wealth than the used automobile industry: fewer dealers, fewer customers, and fewer "producers." Globally, the new-automobile production industry is one of the largest industries in the world (in terms of sales, employment, and other important variables),

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action on their own. Reportedly the Chile FTA includes a ban on used automobile imports to Chile.

however, as of 2000 there were fewer than 40 significant independent automobile producers worldwide,[33] which produced 56 million motor vehicles and over 40 million passenger automobiles that year. Over half of that production (29.8 million motor vehicles and 20.7 passenger automobiles) is produced by the top five producers (GM, Ford, Toyota, Volkswagen, DaimlerChrysler) (OICA, 2001). For this reason the new automobile market is considered an oligopolistic market (Whiting, 1992; Studer, 2002). At the same time there were over 500 million passenger automobiles estimated to be in use in the world, i.e. 500 million used-automobile "producers" (Motostat, 1999). In the US there are 20 automobile manufacturers present, but over 100 million potential used-automobile resellers (i.e. current owners). Since these differences in the concentration of ownership are the result of the different market relationships and economic incentives inherent to the two production systems, in the main this structure will be the same in every national market.

[33] It is very difficult to fully account for joint ventures and wholly–owned subsidiaries in this business. The International Organization of Motor Vehicle Manufacturers (Known by it French initials, OICA), which provides the most authoritative list, finds 36 large passenger vehicle manufacturers, as well as over 700,000 motor vehicles produced by unnamed manufacturers in "China, India, Russia, Turkey, Poland...." Some of the independents companies such as Daewoo and Isuzu have been linked at various times with GM, and Renault and Nissan are one and the same company today.

Table 3-0-2 Developing Country Used Automobile Political Economy*

Group	Winner/ Loser	Global Distribution	Group Size**	Wealth**	Wealth Concentration **	Geographic Concentration*
New Auto Consumers	Winner	All nations	Small	Middle Class to Wealthy	Moderate	Concentrated in urban areas
New Auto Dealers	Winner	All nations	Small	Wealthy	High	Concentrated in urban areas
New Auto Producers	Winner	Less than half of all nations	Rarely more than two firms	Extremely Wealthy	Extremely High	A few plants often in a single region
Used Auto Consumers	Loser	All nations	Largest Group	Poor to Middle Class	Low	Widely dispersed incl. Rural areas
Used Auto Dealers	Loser	All nations	Large	Poor to Wealthy	Low to Moderate	Widely dispersed incl. Rural centers

* For simplification this table is nominally restricted to developing countries, therefore used and new automobile exporters are not included. An infant auto industry is not considered due to its increasing rarity.

**In domestic though not necessarily not global terms.

Table 3-2 summarizes the expected group size and wealth characteristics of the winners and losers from used automobile protection within a developing nation. What this table also shows is that geographic concentration is also potentially a factor. Stern (1989) for example has found that automobiles filter down from urban to rural areas as they age, and clearly automobile plants and new automobile showrooms are more concentrated than current owners and used automobile points-of-sale.

Equally importantly, perhaps, members of the new automobile groups are likely to be well integrated with one another, in many cases organized into single firms. New import dealers are likely to have a franchise agreement with the foreign or domestic producer while most production is itself linked to multinational production systems by foreign direct investment. This creates explicit business linkages and legal and economic leverage that can be exercised among members in the formation of policy.

In contrast, while the losers from used automobile protection are expected to outnumber their opponents, they are also expected to be poorer and more economically and geographically distributed than the new automobile interests. Concomitant with poverty is often, though not always, a lack of education and therefore little independent ability to become informed on policy measures. This is particularly likely to be the case in developing countries where wealth and political power is highly concentrated in the hands of the few. Furthermore, even in developed economies large segments of the used automobile market operates "informally" in the sense of de Soto (1989). Even in a country such as the US many sales are "casual" and unlikely to be reported to authorities. Those who benefit informally may feel reluctant to make their gains public by lobbying to protect them. Indeed, the informality of the market leads to real and perceived criminality, which further limits the participation and the appeal of used automobile interests in the political process.

This raises another issue, few of the millions of people who participate in and benefit from used automobile markets consider themselves "in the business" of buying or selling used automobiles. In other words, few participants in the market are likely to

identify themselves as part of any sort of organized used automobile "interest." This compounds the collective action problem considerably. The theory of collective action suggests that even if the cumulative loss to society is large, when the losses from a policy change to each individual are marginally small, sufficient opposition is less likely to be mobilized. If most participants in used automobile markets do not depend on used automobile markets or gain a significant stream of income from them, than they are less likely to organize on their behalf. This effect is further compounded where those most helped by liberalization are the small entrepreneurs and consumers who do not exist while the used automobile market remains protected. With reform these individuals will have the *potential* to benefit. "Potential" winners, however, do not make good advocates for policy reform. Indeed, they are unlikely to even be aware of their potential for gain unless someone else goes out of his way to inform them: they need to be convinced of the likelihood of their gains to become effective advocates, and in most cases that takes both organization and money.

Therefore, new automobile producers and new automobile interests generally are expected to be far more influential politically. This is not because they are necessarily economically or numerically but because they are fewer in number, have greater financial resources, and as individuals and firms in a much more concentrated market, have significantly more to win or lose. Thus a priori the new automobile interests appear to have a clear political advantage that ceteris paribus can be expected to play out across all nations. Yet used automobile protection is not universal. This too needs to be explained.

3.4.3 Variation across Countries and Time

One reason for the variation may clearly be the differentiation that has already been made between developed and developing countries. According to the assumptions of trade theory, some countries will be net importers of used automobiles and others will be net exporters. Net exporters will not be under pressure from imports and therefore protection from used automobiles may be unnecessary or even redundant. In this vein the domestic market for automobiles as determined by population, income levels and income distributions would be an important variable i.e., who can afford, how many of what kind of automobile in a particular country? This would determine the economic importance of the market to outside interests as well as the propensity to import used automobiles.

A second source for variation, as shown by Table 3-2 in the last section is the presence of a new automobile production plant or capacity. Similarly, variations in the character of this presence, i.e., its size, whether it is primarily domestic or multinational, and its relative importance to the domestic economy would appear to be important.

A third source for variation, as suggested last chapter, would be variation in government across nations or over time. This might be a variation in the formal structure of government or in the politicians and bureaucrats that populate an existing structure. Directly related to the last point is variation in the ideology of the government or its constituents, whether in direct relation to trade policy, i.e. a movement toward or away from a free trade ideology, or to issues such as environmental concern or income distribution and privilege. Also important would be variations in the regulation of the industry, from environmental regulations to lemon laws and antitrust statutes. Finally,

there are changes to external commitments such as trade agreements, financial arrangements, treaties, and so forth to be considered.

3.5 An Anecdotal Overview

This section uses brief sketches of recent events in Russia, Kenya, Nigeria, and India with two purposes in mind. The first is to provide an initial check of the "face validity" of some of the more theoretical conclusions drawn above before turning to more formal tests in the coming chapters. The second is to suggest other factors that need to be considered before presenting a final set of hypotheses to test in the coming chapters.

3.5.1 Russia

In June 2001 Russia announced its intention to raise customs duties on all automobiles older than 7 years. Used cars over three years were already subject to a higher charge, calculated according to engine size. Initially the talk was of an tariff of 100 percent or more on the older imported cars, essentially doubling their price.

Interestingly, at the time Deputy Prime Minister Ilya Klebanov said the reason to consider such legislation was that EU recycling provisions under consideration at the time would lead to dumping in Eastern Europe, an essentially environmental concern. The government, he said, hoped to discourage dumping with this legislation (Interfax, June 13, 2001; Business Russia, 2001). It has been suggested, however, that the policy initiative was in fact the result of intense lobbying by automobile producers, who had met with Vladimir Putin on the issue of used automobile protection in May. In the year 2000, the import of used automobiles, primarily from Europe and Japan, was said to have surged 90 percent to 155,000 "putting a dent in new car sales and threatening the local car manufacturing sector...a significant source of employment in Russia." (Business

Russia, 2001) Russian metals and automobile magnates were said to have joined forces in order to lobby for the continuation of protection for the Russian automobile industry.[34]

The plan was met with mixed reactions, however, by foreign automobile interests in Russia. In one account (Business Russia, 2001) General Motor's representative, Ms. McCormack, is quoted as saying that the current regime "kind of kicks the legs out from under a manufacturing project," which GM was in the process of completing at the time. Ms. McCormack stated that higher duties on used automobiles mean more new imported automobiles will be sold, which helps GM internationally, rewards authorized import dealers and penalizes "shady" ones, who do not provide reliable after-sales service and use false invoices. She concluded "I wouldn't call it protectionist, it is what manufacturers have been looking for." The reaction from Andrei Gordasevich, a representative of Volkswagen, which does not produce in Russia but imports its automobiles from Eastern Europe and Germany was somewhat different. He bemoans the loss to consumers' "quality of choice." He also states that new imported automobiles will not benefit since they sell in the $15,000 range, while used automobiles sell for $5000 or so. Only Russian automobiles, which sell for as little as $5000 new, compete against used automobiles. This sentiment is echoed by another observer, who is quoted as saying, "the general public isn't very happy about it... now they will have to buy [Russian] Ladas and Volgas."

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[34] According to one source, " In mid-March oligarch Oleg Derispaska - associated with the Sibal metals empire - met with President Putin, and the next week the government approved a ten-year plan for the Russian auto industry that foresees restrictive tariffs on used automobiles over seven years old and the raising of tariffs on newer automobiles

In December 2001 (A&G Information Services, December 3, 2001), it was reported the government had decided to postpone a decision on raising the used car import tariffs until January 2002 in order to find a compromise between Russian producers and consumers. Apparently there had been significant public protest over the proposed policy. On December 15, the news agency TASS reported that used automobile imports from Japan were soaring in advance of the expected change in regulations with 6 and seven-year old models being most prized.[35] The Russian State Customs Committee also reported around that time that while imports of new automobiles had doubled in 2001, in the same period imports of used automobiles had trebled, it was also reported that that 270,000 used automobiles had entered Russia in the first 9 months of 2001 (ITAR/TASS, January 17, 2002). At the end of January the deputy prime minister again decided to "postpone" signing the bill. Again, the delay was said to be due to opposition by consumers and despite lobbying from producers (A&G Information Services, January 28, 2002). The final policy was eventually announced in late March and was implemented in October 2002 (Pravda, October 10, 2002; BBC, September 1, 2002). The compromise the government struck was that in addition to previously existing fees, automobiles under seven years would face a tariff of 25 percent and those 7 to 12 years old (the age of car particularly suited for the Russian market) would have a tariff of 35

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from 25 to 35 percent as of 2005. In "Special Focus: WTO Accession." Russia Weekly Monitor March 28, 2002

[35] Accroding to Japanese customs data, 29,083 automobiles were officially sent to Russia that year. Pravda reported on October 10, 2002 (a year later) that the boom in imports was over at the far east customs houses after the new rules were to go into effect on October 4, 2002. "Boom in import of used automobiles of foreign make is over at sea custom-houses of Far East"

percent. Automobiles over 12 years would see tariffs drop 5 percent each year until they were tariff free. Clearly, a tariff of 35 percent represented significant reduction from the 100 percent tariff initially proposed. This suggests that the opposition to the policy was significant, though the exact makeup of that opposition is not immediately clear from the English press reports.[36] Apparently, this still represented a 200 percent increase in duties paid on a used automobile, however, and perhaps as much as 90 percent of the population opposed the policy.[37]

The most often stated purpose of the new rules was to protect the Russian automobile industry. But the domestic industry was not the only beneficiary. The policy also appears linked with both increased FDI and increased imports of new automobiles. In July 2002, Ford launched a $450 million plant in Russia to produce the "entry- level" Focus (still far more expensive than the majority of Russians can afford) for the Russian Market. In August, Huyndai Motors announced it was upping its forecast of Russian sales from roughly 2000 sold in 2001 to 5,000 in 2002 and that it expected to import 30,000 by 2005. On September 23, eleven days before the new policy was to go into effect, GM announced the opening of its new $388 million Russian plant which it operates as a joint venture with the Russian company Avtovaz.

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[36] Japan apparently made a formal complaint about the tariff policy in general (Japan Economic Newswire, July 10, 2002.) Also it is unclear whether pressure from Western European countries on recycling played a role.

[37] The following figures are given in Pravda (October 10, 2002) a Suzuki Escudo would now face duties of $3940 compared to $1347, and the larger Land Cruiser Prado would face duties of $11,980 instead of $4,270. The same article states that a survey of 2,454 people in the Maritime Territory 96.5 percent of those polled had a negative opinion of the policy. Seventy-one percent of those polled owned an imported used automobile.

3.5.2 Kenya

A similar set of events seems to have been taking place in Kenya over the same period. In September 1999, the Vice President of Kenya, George Saitoti, announced that while used goods (known locally as *mitumba*), including automobiles would not be banned, a heavy import duty would be placed on them. It was reported at the time that in the case of automobiles this policy was in response to demands from the Kenyan automobile industry (the Nation, September 17, 1999). Three months later the curbs on *mitumba* imports were still being considered, particularly on clothes and vehicles. At the time new, completely built automobiles were being taxed at 35 percent while used automobiles paid an additional 20 percent and could not be imported if they are over 10 years old. Both the Central Organization of Trade Unions and the Federation of Kenya Employers were said to be backing the plan (the Nation, December 17, 1999), thus suggesting a sectoral rather than a factor-based coalition. Over a year later, the Kenyan parliament appears to have rejected a proposal to ban used car imports over 8 years old. This time the report suggests that intense lobbying from *used* car importers was in evidence as well as "whining" from assemblers, one MP is quoted as saying that the vehicle assemblers "failed to justify their existence" (Makokha, 2000).

This does not appear to be the end of the story, however. By March 2001 the government was again said to be coming up with strategies to curb *mitumba* vehicle imports after the Kenyan Motor Industry Association (KMI) again called for a ban. This led to a public dispute between the assemblers of completely knocked down kits and the used automobile dealers represented by the Kenyan Auto Bazaar Association (KABA) (The Nation, June 26, 2001). KMI claimed to have assembles more completely knocked-

down kits than it imported completely-built units, thus directly or indirectly employing 15,000 people "at high wages." For its part KABA charged that KMI was doctoring figures and that they in fact imported more automobiles than they had assembled, and therefore had not provided the employment and income benefits claimed. For its part, KABA countered that used vehicles provide cheap transport particularly for the informal shared-transport sector, which employs over 55,000 people including mechanics. Thus, the argument made by KABA is very similar to that given by Grubel (1980) that the used market provides more broad-based employment opportunities in a developing country than an infant new automobile producer, though this employment is at lower wages and often informal.

A year later, the issue again appears in Kenya's papers. The legislation banning automobiles over eight years old, previously rejected, had recently been passed and in the process had stranded some 200 used automobiles in port. KABA chairman John Kipchumba asked the government to allow these automobiles into the country if they had certificates of road-worthiness from their country of origin. The Kenyan Bureau of Standards was proposing at the time a pre-inspection requirement in the country of origin. Along with the ban on older automobiles, according to Mr. Kipchumba used automobiles under eight years face an additional 20 percent "anti-dumping" tax and a "more than 10 percent excise duty." Finally he asked that there be clarity about whether the Kenyan Department of Public Works or the Directorate of Motor Vehicles Inspection was responsible for inspection of imported vehicles. As part of his justification for these measures he stated that the new automobile industry was able to provide only 10,000

automobiles a year while annual demand in Kenya might be placed at 30,000 (The Nation, July 29, 2002).

Unlike in Russia, the new automobile industry in Kenya is assembly and import only; there is not a production industry with its related suppliers and services. The assembly operation only produces a few thousand automobiles and, if KABA is to be believed, including imports the industry only provides for only a third of the potential domestic market. Still, as in Russia, the industry appears to have significant clout in government. What is interesting about the Kenyan case is the prominent, public role played by KABA in opposing the new-automobile industry's efforts. While KABA appears to have lost the fight in halting the implementation of a more recent age limit, the fact that they held up the bill for two years, and still had the will and the resources to mount opposition in parliament after the ban, appears significant.

3.5.3 Nigeria

In June 1999 (The News, June 14, 1999) it was reported that the Roro Port that used to be responsible for 80 percent of car imports was once again in full swing after the Government's "policy summersault" on used cars. In 1996 the government raised protection on all imports after the implementation of an IMF Structural Adjustment Program (SAP) in the 1980s led to a liberalization of trade and a flood of used goods imports. In 1997 and 1998 the government banned cars over eight years old, but in 1999 (the focus year for the research below) apparently this was lifted and imports of used cars skyrocketed again.[38]

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[38] The total number of cars rose from 350 to 76, 000 according to one story (Africa News Service June 19, 2001)

In January 2001 the tariff on *tokunbo* (the local name for used) automobiles reduced from 30 percent to 5 percent (Newswatch, January 22, 2001). Showing a similarly public concern with the EU "dumping" vehicles as seen in Russia, at the time the policy was announced the Nigerian Government said that it had warned the EU not to "abuse" the more liberal policy in a message delivered to the Ambassador of Belgium. In an apparent contradiction, the minister also said a ban on used automobiles was being considered though this would likely sour relations with the EU and Belgium (This Day, January 12, 2001).

This contradiction might not exist, however. There was confusion over how to interpret the law. Apparently it was meant to apply only to heavy vehicles and it required that Nigerian ports be used (Vanguard Daily, January 12, 2001). What was billed as a liberalization was largely greeted by importers as increased protection. In a story on increased smuggling from Benin, for example, Benin importers say that Nigeria must reduce Nigerian Port Authority charges, customs duties and shipping company charges for the used automobile trade to return there (Tempo, February 8, 2001). They also reiterate that the tariff reduction in Nigeria will have no effect on *tokunbo* due to a lack of clarity around the wording of the law. Metche Nnadiekwe, the President of the United Berger Motor Dealers Association (UBMDA), the Nigerian used automobile dealers association, suggested that the law would actually lead to a rise in costs because it takes two weeks to off-load an automobile in Lagos and only two days in neighboring Benin. Indeed the new policy appeared to be sending prices higher not lower and sending importers to smuggle more automobiles from neighboring countries (The News, March

12, 2001): As many as 10,000 automobiles are said to arrive every week in Cotonou, Benin for distribution to central and Western Africa. (NPR, June 17, 2001).

Apparently this was not enough. At a June 2001 press conference the Nigerian Automobile Manufacturers Association (NAMA) asserted that in 2000 only 6,303 new cars were imported, while 47,630 used cars were legally imported and registered (The Guardian June 18, 2001). The GM representatives at the conference were said to have focused on the need for protection from imported used automobiles (Africa News Service June 19, 2001). The executives also called for government patronage.

By that fall, at the recommendation of a committee convened to look for ways to "decongest ports," a new ban on used automobiles older than five years was passed and was to be implemented beginning in January 2002 (The News, October 9, 2001; Tempo, October 22, 2001). A month earlier the government had slapped a similar ban on used air conditioners and refrigerators. President Obasanjo is said to have been resisting calls for a ban as this was the last resort of the poor. He is quoted as saying " a used car is better than no car at all." This position drew the ire of automobile importers particularly Peugeot Automobile of Nigeria (PAN). The story relates how the company wooed the president's wife, who is said to have stated publicly she would convince him to change his mind and protect the domestic industry.

When the policy was formally announced, it was done by the Nigerian family minister, who gave concerns about safety and the environment to justify implementing the policy (Tempo, October 22, 2001). This apparently did not sit well with many. One commercial bus operator is quoted in pidgin as saying " So they fit ask us not to buy

Tokunbo again...them dey wicked." Civil servants are also singled out as having "no kind words" for the government. A civil servant who wished to remain anonymous stated "I can't blame the government. They don't know what survival has become for many of us. If they have their ears close to the ground, they can appreciate the huge loads of burden Nigerians are carrying."

3.5.4 India

What recently took place in India has already been highlighted at the very beginning of Chapter 1: The ban on used automobiles was one of the last items to be converted from quantitative restrictions to tariffs in the process of "tariffication," as part of its WTO accession agreement. While there was significant liberalization of restrictions on most goods, used automobiles were slapped with a 180 percent tariff and various other technical restrictions as well as being directed to specific ports. What makes the Indian case interesting is that while all three of the previous countries were attempting *tighten up* restrictions on the used market, India has never liberalized its used automobile trade. India had a near complete ban on all automobile imports from the late 1950s until the 1980s, when it began to liberalize and the 1990s when significant foreign direct investment started to arrive.

Despite the increasing liberalization of the new-automobile market, however, India kept a strict ban on used automobile imports. This is quite a different pattern than observed in the first three anecdotes where new, *more* restrictive policies were being considered. While Russia restricted its entire market during Soviet times, it liberalized its automobile trade almost completely after the fall of the Iron Curtain. Nigeria apparently moved to restrict used automobile imports after initially undertaking broad trade-policy

reforms including used-market liberalization while undergoing an IMF-led process of structural adjustment. Similarly, in Kenya the move was from a relatively more liberal used automobile trade regime to a relatively more restrictive one. This difference appears important because in India there are no reports of political unrest over the failure to liberalize used automobile markets as was observed in the other cases where increased restrictions were being imposed. Indeed as restrictive as it is, the new Indian policy actually represents a liberalization of a sort. There are, however, plenty of academics and other commentators who took up the issue and pointed an accusing finger at foreign firms (Panagriya, 2001; Agarwal, 1999; Prasad 2000).

The current debate began in the late 1990s as India began to contemplate the final steps of its WTO accession agreement. This heated up in the winter and spring of 2001, as a WTO dispute settlement case brought by the US cited India's "quantitative restrictions on imports of agricultural, textile and industrial products," (WTO WT/DS90/R) and it became clear that remaining quantitative restrictions were threatened. Early in 1999 the Society of Indian Automobile Manufacturers (SIAM) had formulated a policy of significantly raising import duties on used automobiles in place of the current discriminatory ban if removing the ban became necessary. In 2000, Murasoli Maran, the industry and commerce minister, stated "under no circumstances, shall we permit India to become a second hand dumping ground for junks...the nascent automobile industry...can not be left in the lurch so easily" (Prasad, 2000). The chief executives of Ford and Fiat are said to have agreed, citing the many technical and economic benefits new

automobiles bring and the need for Indians to "preserve foreign reserves"[39] and improve their capacity to export (Prasad, 2000). In its recommendations for the coming Indian auto Policy, SIAM called for an import tariff of greater than 100 percent. In this vein, Philip G. Spender, the managing director of Ford India, states that the primary policy demand for the Indian government was " controlling and restricting the entry of second-hand cars because a new car industry and a used import industry can not coexist." Spender goes on to say, however, " I think the import tariffs for completely built units need to be as low as possible to ensure the viability of the local industry but should encourage quality improvement and competitiveness...what I mean is you don't want too much protection" (The Hindu Business Line, December 19, 2000). Ford had just begun producing the Ikon (Focus) in India.

When asked about the likely impact of used automobile liberalization, which appeared unavoidable under India's WTO accession agreement, India's director general for foreign trade, is said to have been dismissive. He suggested it was not a problem, that foreign firms invested in India's automobile sector were already making their presence felt on the issue so that India would not be forced to significantly open their market to imported used automobiles (The Hindu Business Line, June 15, 2000).

3.5.5 Country Anecdotes Conclusions

In each case, used automobile protection appears to be of a relatively recent vintage. In India it resulted from significant new-automobile sector liberalization, which occurred without any corresponding used automobile liberalization. Indeed, the previous

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[39] This logic is used in many instances even though it is the exact opposite of the logic used by economists such as Sen (1962) to justify liberalizing the used machine market.

prohibition against used automobiles was translated into the tariffs and technical barriers more readily accepted at the WTO. In Russia it resulted from an active tightening of the used automobile restrictions, without any corresponding tightening of new automobile restrictions. In Kenya as in Russia the trend appears to be toward greater restrictions after an initial period of liberalization. The case of India in comparison to the other countries suggests that *how* used automobile protection emerges may be important. In those countries in which the used-automobile import industry gained a foothold there appears to have been a popular element in resisting new restrictions. In Kenya and Nigeria there is reference to organized used automobile interests. In contrast, in India the opposition seems to come from professionals, particularly economists.

Above all, however, in each case there is domestic new-automobile production present. In each case there are strong indications for the involvement of the new-automobile producers in advocating specifically used automobile protection. In each case, multinational new automobile production interests also appear to be involved. In Russia and India, particularly, foreign representatives from the parent company were explicit in their support for specifically used automobile protection. In India, Ford's Phillip G. Spender stated directly that Ford's preferred policy is "controlling and restricting the entry of second-hand cars" while "the import tariffs for completely built units need to be as low as possible" (The Hindu Business Line, June 15, 2000). Thus, multinational producers appear to be of the position that they stand to gain from used automobile protection. These are simply anecdotes pieced together from a variety of

sources, whereas the purpose of the chapters that follow is to provide a more systematic test of these potential explanations.

3.6 Evidence of Environmental and other Explanations

What about countries without production or assembly operations? It was suggested in the first section that even in countries where there is no domestic automobile production or assembly to speak of, protecting new-automobile import dealers (and their customers) may provide a political interest in used automobile protection. For example, though Jamaica does not have the capacity to produce automobiles, in its communications with the WTO, it cites the injury done to new automobile "sales" as a reason for requesting an exemption in its valuation agreement (WTO G/VAL/W/W/60/add.1.)[40] Similarly, in Cyprus after import regulations on used automobiles were relaxed, it was the new automobile dealers that lobbied to re-enact the previous tougher restrictions (Clerides, 2002). These dealers also initially refused to service imported used automobiles.

Still, in most cases quite different or additional reasons for used automobile protection are given, particularly at the WTO and other international forums where domestic protection is frowned upon. The rationales for used car protection and discrimination fall into three categories: 1) problems with valuation; 2) protection against fraud and corruption, and 3) safety and environmental concern. In most cases, a combination of these arguments is used. For example, Brazil's representative to the World Trade Organization (WTO) cited customs valuation concerns and the potential for

fraud as well as "negative impacts for the environment and public safety arising from the commercialization of used consumer goods in the domestic market" to explain his country's protections (WTO WT/TPR/m/21/add.1.) Brazil also pointed out that such policies were "common to many members".

Colombia is more specific, citing Article XX of GATT 1994, which allows general exceptions for nations to achieve "non-economic" objectives including the health and safety of human, plant and animal life. During its accession process to the WTO, Ecuador stated repeatedly that it was in the process of reforming its policy toward used automobiles, establishing "compatible criteria for the importation of used vehicles, based on the need to protect human health and safety and the environment." They also justified the existence of its current ban on other grounds (WTO WT/ACC/ECU/8). As Brazil, they argued that their own survey of WTO members found many similar measures in place.[41] Honduras' representative stated before the WTO Committee on Customs Valuation that, "the import of used vehicles and used tires led to traffic accidents plus damage to the environment" (WTO G/VAL/M/12). Along with the need to protect domestic sales, in its communication with the WTO Committee on Customs Valuation,

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[40] This and all other WTO documents are referred to using their document dissemination codes.

[41] Furthermore, Ecuador makes the claim that, due to domestic consumer preferences, there is little demand for used automobiles in Ecuador, and therefore the current ban should not be considered trade distorting. The notion that trade in used automobiles is insignificant would seem to be an argument against restrictions not for them, and in any case the empirical evidence - from the millions of smuggled automobiles in Mexico to the increase in used automobile imports to the DR of over 215 percent after only a partial liberalization - suggests otherwise.

Jamaica cites among its reasons 'the use of fraudulent invoices', 'the creation of traffic jams', "health problems due to pollution," and "greater wear and tear on the roads.[42]"

Outside of the Americas, Morocco's responses to the WTO provide some further insight into the rationales given by governments for restrictions. In 1998 the government of Morocco stated to the committee on valuation:

> With regard to vehicles, the reference prices have been retained largely in order to limit imports of used cars, for the following reasons: Protection of the consumer; avoidance of traffic accidents due to the poor condition of the vehicles; protection of the environment; avoidance of an increase in the average age of cars on the road in Morocco.

It is clearly conceivable that the presence of environmental standards such as emissions standards affect levels of protection against used automobiles. It is well known that a byproduct of higher emissions standards in the US and Europe has been restrictions on imports from elsewhere. The direction of causation, however, is not clear. A country with few resources to pursue domestic environmental objectives could utilize a restriction on imports of used automobiles as a "poor man's" emissions standard. For example, in the same communication with the WTO cited above, Morocco states in the case of used appliances:

> The retention of the reference prices for customs valuation is justified ...to ensure minimum import quality in the absence of a quality control system and compulsory standards. It should be pointed out in this connection that studies are now under way to introduce such a system and bring our national legislation on quality and standards into line with WTO provisions."(G/VAL/W/27)[43]

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[42] WTO G/VAL/W/60/add.1

[43] This argument, however, was specifically applied to electronics and consumer appliances to the exclusion of automobiles, specifically discussed in the documents

3.6.1 Environmental Considerations

What this quote reveals is that Morocco and many other developing countries often do not have even basic domestic health, environment and safety programs in place when they implement multilaterally negotiated trade regulations. These countries often find themselves wanting such policies but implementing them within the domestic economy often proves more difficult. Thus poorer countries that lack sufficient domestic regulations and infrastructure might introduce used automobile protection as an interim or stopgap health and safety and environment policy implemented to control automobile quality domestically. Alternatively, however, recognizing that junked cars and other aspects of the used car trade might cause problems, restrictions on imports of used automobiles could be complementary to domestic emissions standards, indicating general concern in a country for the environment.

Table 3-0-3 Emmissions Standards and Production Capacity (ca. 1999)

	Developing and Transitional		Developed		Total
	Production Capacity	No Production Capacity	Production Capacity	No Production Capacity	
Emissions standards	22	7	16	6	51
No-emissions Satndards	22	58	0	0	80
Total	44	65	16	6	131

Sources: *World Automotive Industry Trends*, *Automobile Industry* and communication with Michael Walsh

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preceding paragraphs. (The second reason given is the protection of domestic production.)

As indicated by Table 3-3 (last page), as an explanatory variable, emissions standards prove to be highly collinear with automobile production and assembly capacity. Only seven nations without automobile production capacity have emissions standards of any type among the 109 developing and transitional economies included in this research: El Salvador, Costa Rica, Singapore, Latvia, Hong Kong, Estonia, and Israel. Of these seven, Singapore and Israel have tight restrictions on used car imports, while Costa Rica, Latvia and Estonia have light restrictions, El Salvador uses Blue Book values, and Hong Kong has a non-discriminatory regime (this ranking of policies is discussed in more detail next chapter). Thus even among the smaller sample of non-producers, the presence of emissions standards does not give any further insight into whether a country is likely to restrict used automobile imports. In contrast, all 22 of the developed countries have emissions standards but only Canada, New Zealand and Australia had significant policies against used automobiles in 1999. Thus emissions policies are also highly correlated with income. It is difficult to find another measure of environmental concern by a government or its people across developing countries and it is difficult to discern any independent relationship between environmental standards and used automobile protection, beyond the official statements of governments and automobile industry associations.

It is interesting to note that a policy that encourages the purchase of older used automobiles is generally seen as being the worst environmental alternative (Echeverria et

al., 2000). While no country has implemented Grubel protection, some such as Russia and Mexico (under NAFTA) have sought to exclude newer used automobiles while allowing in older automobiles. They, however, also allow the import of *new* automobiles under much lighter restrictions, negating the primary intention of Grubel protection and the environmental benefits of restrictions: the worst of both worlds.

Many countries such as Poland or Kuwait, however, have implemented policies that favor newer used-automobiles as well as new automobiles by putting an age limit on how old an automobile can be when it is imported. While this seems to address environmental more than protection concerns, a number of authors (Kahn, 1994; Agarwal, 2000; Panagariya, 2000) have argued that excluding newer used-automobiles is not likely to reduce air pollution in developing countries. Indeed, these authors argue, as Grubel does, that restrictions on used automobile imports decrease the rate of depreciation and extend the life of an automobile in a developing country, as was shown in Figure 2-1 of Chapter 2. Allowing the import of used automobiles is likely to *improve* the environmental and safety standards of the automobile fleets in these countries by reducing their average age. More importantly, it will reduce the cost of transferring to a more fuel-efficient and environmentally regulated fleet by offering automobiles with environmental safeguards at a lower price. This is especially the case since the safety and environmental standards of new automobiles produced for the domestic markets of countries such as India, Mexico, and Brazil are often below those of newer secondhand

products from Japan, Europe, or the United States.[44] As Masami Kojima and Magda Lovei (2001) of the World Bank sum this up by advising, "The purchasing pattern of vehicle owners should be carefully balanced against the expected environmental advantages of restricting the import of old vehicles," further cautioning, "If...consumers can not buy relatively new vehicles, an import restriction based on age would postpone the replacement of high emitters." They too suggest that free trade allows an easier phase-in of environmentally superior fuels. Adding some empirical heft to these ideas, Clerides (2002) found that while dealers had raised environmental concerns in calling for renewed restrictions in Cyprus after used automobile liberalization in 1993, that with liberalization the age of used automobiles decreased sharply and the quality of the automobiles, largely imported from Japan, increased sharply. He also found, however, that the total number of automobiles increased as did the proportion of used automobiles, suggesting there is an income as well as a substitution effect to contend with, further complicating any a priori assessment of the environmental implications.

This simply suggests the well-known conclusion within economics that targeted environmental or safety regulations would be more efficient way to achieve environment and safety ends than import restrictions on used automobiles. Such standards-based restrictions, however, are likely to serve as a barrier to older automobiles without emissions technology. As Agarwal (2000) argues, and as suggested by the comments of Morocco above, such regulations would also more likely be WTO compliant. A further important reason to be skeptical is that the environment and safety arguments, is that as

[44] See also *The Economist* (2002) on this and the associated air pollution effects in Latin

Clerides (2002) finds in Cyprus they often originate from the automobile producers or dealers association. It is this aspect in particular that Agarwal (2000) and Panagariya (2000) are reacting to in India. As discussed above, used automobile restrictions may be presented as a "poor man's" environmental policy, but it is possible that it serves the exact opposite purpose, extending the lives of older automobiles. Examples of what might be a better "transitional" policy is the stated policy of Panama. Panama requires an installed catalytic converter upon importation though it does not have the capacity to inspect automobiles that have already entered the country. Clearly, the regulatory capacity of countries to enforce such regulations at the border may be no better than their ability to regulate vehicles internally, but such a policy presents an alternative that actually targets the emissions of vehicles not just used or older vehicles. Bulgaria, which has domestic emissions regulations, recently announced that automobiles with a valid Euro 1 emissions permit can be imported duty-free.

3.6.2 Technological Considerations

Beyond environment and safety, the technological reasons against used capital imports, raised by Todoro (1970) and neo-Ricardians such as Mainwaring (1986) are not likely to be significant in the case of used automobiles. First, in terms of consumption, as just discussed in the case of environmental technologies, many used automobiles are likely to be more technologically advanced than those produced new for consumption in developing countries. Thus being used is not a good indicator of technological advancement. From the perspective of production, automobiles are not productive technology in the same way as machine tools and productive plant. Much of the

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America.

technological progress they experience is related more to their role as consumer goods and in the areas of health, safety, and the environment (as just discussed) than to provide more "productive" transportation. One area that looked particularly important in the 1970s was fuel economy, where it was argued that developing countries would benefit from such advances just as much or more than developed countries do (Grubel, 1980). Recent trends, however, suggest that fuel economy is not necessarily associated with the most recent automobiles and therefore may not be particularly relevant.

3.7 Hypotheses Restated

The conclusion to this chapter is to re-state the specific hypotheses given in chapter 1, which are to be tested in the next four chapters.

Hypothesis 1: Used automobile protection has a significant and suppressive effect on the used automobile trade;

Hypothesis 2: The impact of trade restrictions will be greatest in developing countries;

Hypothesis 3: Developing countries are more likely to discriminate against used automobiles than developed countries;

Hypothesis 4: Most of the current policies that discriminate against used automobiles do not significantly address the health, safety, environmental and technology concerns often used to justify them;

Hypothesis 5: The presence of new-automobile production is a significant and positive factor in explaining the severity of used automobile protection; and

Hypothesis 6: The increase in foreign direct investment and dominance of most domestic automobile industries in developing countries is a positive and significant factor in explaining why countries moved from prohibitive protection or liberal trade regimes to used automobile protection.

Appendix 3-1: New/Used Competition Elsewhere in Economics

As discussed in Chapters 2 and 3, the most straight forward answer to the question of why countries discriminate against used machines in their trade policy is competition between used and new products, which motivates new machine producers to advocate used machine protection. While this seems relatively straightforward, and it is supported by the anecdotes and limited empirical evidence presented thus far, within economics such an appeal to "intra-industry" competition is more controversial. Within economics there is also significant literature within the anti-trust tradition on whether new machine producers have an incentive to interfere with the functioning of used machine markets or product durability (and therefore the opportunities for resale in the used sector) in order to limit future competition from their own products.[45] And here too, within economics this proposition appears more controversial than it is to others.

It is interesting to note that what has been described above is essentially a special, and as yet unexplored, case within this antitrust literature. Though the antitrust literature does not explicitly address issues of political economy, such issues are not too far below the surface. Indeed, the ultimate question being asked is whether there are grounds for government interference in the operation of used markets and who would benefit from such actions.

Due to its conceptual and analytical simplicity the theoretical literature has focused on the case of a monopolist while recognizing similar problems might exist in

other market structures with concentrated ownership. In this area, the work of Peter L. Swan (1972) provides something of a benchmark. Swan used the standard assumption that the net present value of a durable good is known to both consumers and producers to conclude that a monopolist selling durable goods maximizes profitability by setting durability equal to the socially optimal level and then efficiently extracting consumer surplus from it. He may do this either all at once by receiving by using the net present value as the price or over time by leasing the product. Miller (1974) used similar logic in the case of college textbooks, to conclude that a monopolist will extract consumer surplus from subsequent sales by renting textbooks (offering to buy them back) and therefore will not have an incentive to kill-off the market for an old textbook prematurely. These authors conclude, there is no incentive for firms to deviate from exogenously determined, socially optimal durability and price levels.

Not all authors concur. Parks (1977) looked at predicting scrapping rates based on repair costs and durability characteristics. Rather than the net present value being known at the time of production, thus determining the price, there is a constant reevaluation of used automobiles based on changes in the exogenous variables that determine used automobile prices. Durability was defined as a "decision variable for the producer" that "can be expected to respond to changes in economic conditions as seen at the time of manufacture" (Parks, 1977: 1101). Once produced, however, economic conditions may change in unexpected ways and a second variable is how well economic conditions later in an automobile's life match those at the date of its production. If repair

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[45] There is also a related literature on competition and anti-competitive behavior between

or scrapping prices are different from those expected at the time the owner bought the automobile, the decision to scrap the automobile is affected. Rust (1986), formulating the problem as a Stackelberg game between a monopolist and consumers, finding that "with endogenous scrappage[46], consumers have a substitution possibility which limits profits of a monopoly seller... ...and causes the monopolist to distort durability from the socially optimal level" (Rust, 1986: 65). Anderson and Ginsberg (1994) use a model where consumers have heterogeneous tastes for new and used goods and the secondhand market is penalized with the presence of transaction costs (absent in the new market) to conclude that under a relatively broad array of assumptions a monopolist is better off interfering with the used market. They cite raising taxes on used automobiles as a specific example. Finally, in a more recent treatment of these issues, Hendel and Lizzeri (1999b) posit four actions a monopolist can take to interfere with used machine markets. He can: (1) plan the obsolescence of goods through design; (2) lease to control the entry of their machines into used markets; (3) seek to influence transaction costs in the used market; or (4) influence the cost of after-market repairs by refusing to deal with independent operators. From their model they draw four conclusions related to the various policies a firm might adopt. First in contrast to Swan (1972), a monopolist does not provide socially optimal durability. Second, in contrast to Miller (1974), allowing a monopolist to rent does not induce socially optimal durability (though this may be preferable to forcing them to sell rather than rent). Third, the monopolist benefit from a well regulated used machines

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primary and recycled materials firms (Grant, 1999; Martin, 1982; Swan, 1980)

[46] This is a term he introduced in an earlier general equilibrium model of the durable goods market (Rust, 1985), the findings of which he carries over to this research.

markets because it leads to more frequent sales of new machines.[47] Fourth and finally, the monopolist has a preference for controlling (restricting) the consumer's opportunities for extending the life of a machine (i.e. through controlling parts and repair services).[48]

Though this review has been cursory, the specifics of this literature are necessarily beyond the scope of this dissertation. It suggests, however, that an increasingly strong view is emerging in economics that under a range of assumptions and situations, a monopolist, and by extension perhaps any firm with a high degree of market power, has an incentive to influence the competition from the used market - even if he does not necessarily seek to control or kill it off.

Where it gets interesting from a political economy of trade perspective, however, (and why taking what has already become a significant digression at this point seems justified) is this: Parks (1977) suggests unanticipated *policy change* as one of the exogenous variables that can change the value of a used automobile subsequent to its initial sale. Parks (1977) does not explore this issue further, limiting himself to modeling scrapping rates in the US based on changes in automobile characteristics and the ratio of new car prices to repair costs in subsequent years. The literature in general tends to focus on pricing and product decisions internal to the firm.

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[47] The logic here related to the findings of Scitovsky (1994) and Fox (1957) mentioned in the last section that well functioning second-hand markets lead consumers to "trade up" more frequently.

[48] Interestingly independent repair shops just won a major court case in the US requiring original manufacturers to make computer codes and other information necessary for diagnostics and repair publicly available. Maintaining this information as proprietary information was ruled to violate antitrust rules.

Anderson and Ginsberg (1994), who suggest automobile taxes as a transaction cost in the used market that a monopolist might seek to manipulate, do not address how this manipulation would occur. Yet, the implication is clear, if policy changes can have an unanticipated influence on the level of competition between used goods and new goods, an incentive would seem to clearly exist for new automobile producers to seek to proactively influence the used market through their involvement in policy making.

Empirically, testing or observing the internal decision making of firms as it relates toward the market for its products used is difficult. What is known has largely been compelled by various court cases against major US firms (Xerox, United Shoe Company, Alcoa). If, however, there is evidence that multinational automobile producers seek used automobile protection as a preferred policy to either prohibitive protection or free markets in order to protect themselves against competition from their own product, it may provide empirical evidence of such anticompetitive behavior outside the confines of the firm and therefore where it is more apparent.

Appendix 3-2: Calculations of FDI Proportions

Chapter 3 contains a number of estimates of FDI participation in national automobile industries. The original intention was to use FDI proportions or a measure of Industry FDI penetration as appears in Grether, de Melo, and M. Olarreaga (2001), to get a better picture of the role of foreign investment in the political economy model presented in Chapter 6. For a number of reasons related to the limitations of the methods and the data, some of which are discussed in that chapter, this was not possible. The estimates of FDI participation created in this process are based on ownership and joint venture data from World Automobile Industry Trends (2001) and Automobile Industry magazine and were derived in the following manner.

Estimates of the production-weighted proportion of foreign ownership in passenger car production industry (S^f).

S^f is defined as,

$$S^f = Y^f / Y \qquad (1)$$

Where Y is the total domestic production of passenger cars and Y^f as in equation 2.

$$Y^f = \Sigma y_n s_n , \qquad (2)$$

where y_n is the number of new passenger cars produced or assembled by domestic firm or unit n in the current year and s_n is the proportion of foreign ownership of that firm or unit in that year. These estimates of FDI participation are based on data from World Automobile Industry Trends 2001 and Automobile Industry magazine.

Dividing this by domestic production as in (2) yields an estimate of the proportion of FDI in the country. For example in 1999, 10,714 cars were produced in a 50/50 joint venture between Hyundai and local owners in Turkey. Therefore, for this unit s = .5, and ys equals 5357 cars. This same calculation was made for all seven companies that produced or assembled cars in Turkey in that year and the results were summed (113903.6). This number was then divided by the sum total production for all seven units (222041). The result is .51, or it is estimated that 51% of Turkey's passenger car production was attributable to foreign investment.

The estimates obtained for 35 developing and transitional countries appear in Table 3-4.

Table 3-0-4 FDI Estimates for Automobile Producing Nations 1999

Nations	Proportion FDI	Nations	Proportion FDI
1. Argentina	0.79	19. Poland	0.84
2. Brazil	0.99	20. Romania	0.51
3. Chile	0.91	21. Russia	0.07
4. China	0.45	22. South Africa	0.64
5. Colombia	0.56	23. South Korea	0
6. Czech Republic	1	24. Taiwan	.36
7. Egypt	0.28	25. Thailand	0.6
8. Hungary	0.88	26. Tunisia	0.12
9. India	0.54	27. Turkey	0.51
10. Indonesia	0.54	28. Ukraine	0.5
11. Iran	.	29. Uruguay	0.4
12. Kenya	0.58	30. Uzbekistan	0.5
13. Malaysia	0.22	31. Venezuela	0.79
14. Mexico	1	32. Zimbabwe	0.17
15. Morocco	0.37	33. Slovakia	1
16. Nigeria	0.38	34. Botswana	1.00
17. Pakistan	0.33	35. Slovenia	1.00
18. Philipines	0.42		

CHAPTER 4
MEASUREMENT AND METHODS

4.1 Introduction

The last chapter largely assumed that used-automobile protection is widespread and non-trivial, that is it has real impacts on the flow of trade, and that these impacts are indeed negative. This chapter begins to provide a more robust empirical basis for these assumptions leading up to the econometric and case study analyses of the next three chapters. The chapter begins with a presentation and discussion of the used-automobile protection database on which the analyses in Chapters 4 and 5 are based. This is followed by a brief continent-by-continent review of country policies. The third and concluding section of this chapter provides an overview of the various methods used in Chapters 4, 5 and 6 based on the opportunities and constraints suggested by the use of a categorical policy variable and the theoretical and empirical foundations discussed in Chapters 1 and 2.

4.2 The Used-automobile Restrictions Database

To date, data on used-automobile protection in trade regimes have not been collected consistently, and no cross-national policy information specific to used-automobile import regulations exists in any one place. Part of the reason for this appears to be the general lack of industry organization in the used-automobile business: specifically, there is no well-funded national or international used-automobile trade

associations as exist in the case of new automobiles. Related to this, there has been relatively little government interest in the trade of used-automobiles in the western industrial countries. One interviewee went so far as to suggest that used goods were considered "taboo" at the US Department of Commerce until a few years ago. Perhaps more importantly, however, as suggested above, this pattern of discrimination appears to be a somewhat emergent phenomenon, coming into stark relief as trade negotiations and regime changes led to liberalization of trade in the new automobile sector throughout the 1990s. In any case, the first step in this research was to assemble such a database of national policies toward used-automobile imports for the chosen focus year of 1999.

While there is no single source for this information, references to used-automobile trade restrictions do exist in a variety of more general trade policy reviews. The data here are drawn from a number of sources as well as personal communications and a survey of commercial attaches in Washington, D.C. The official published or on-line sources included in this database are the US Department of Commerce International Trade Administration's *Compilation of Foreign Motor Vehicle Import Requirements* (1999, 2001), the *Report on Remanufactured Parts Import Requirements* (1999), and the *Worldwide Used Equipment Import Regulations* database (available at www.ita.doc.gov), and the United States Department of State *Country Commercial Guides* (2001), plus a review of data provided in individual country reports of the US government's Trade Information Center (www.trade.gov/td/tic/). Information was also gathered from the United States Trade Representative's *Foreign Trade Barriers* (2000) report. A similar review was conducted of World Trade Organization (WTO) documents, with the reports

emanating from the Trade Policy Review Panels being a noteworthy contributor of information on these policies.

The material was reviewed source-by-source and, for each country, covered three general types of information were entered into the database,

1. Where policies affecting used-automobile imports were mentioned, a description of the policy was noted, including any explicit statements to the effect that no additional restrictions were present for used-automobile imports;
2. When *no mention* was made of used-automobiles or used machinery in the entry for a country in a particular source this was noted; and
3. Where *no report* was available for a specific country in a particular source, this too was noted.

None of these reviews appears to have inquired consistently about used-automobile regulations, nor did any of the sources cover exactly the same countries. A review was then done across sources country-by-country, leading to an emergent, comprehensive picture of used-automobile protection and discrimination. In most countries a clear policy was discernable. In some cases where a protectionist policy was clearly in place, further information was needed as to the exact nature of the policy. A review of international business and trade press reports, country customs information, and other government sources was used to provide additional information and, where possible, determine the nature of policies and the timing of policy changes. Where two authoritative sources reporting on a subject were clearly contradictory, an effort was made to get country-specific information from country officials to clarify the policy that would have existed in or around 1999. Though formal responses to a survey faxed to commercial attachés were limited, results and follow-up phone interviews were used in a few cases to further check the reports of published sources. If a determination was still

not possible, the country was excluded from further consideration. Other countries excluded from the analysis were those where no information from any official source was available.

In the case of countries where authoritative reports (from a national government or international organization source) were available and there was no mention of used-automobile restrictions in *any* source (i.e. press reports, government information, other reports), they were said to have no additional restrictions. Similarly any country where it was stated by any of the authoritative sources that there were no restrictions and that statement was not contradicted by any other source was also considered not to have any additional restriction on used automobiles.

In the end, using the data collection methods and criteria discussed above of 132 of 159 countries investigated, were judged to have sufficient evidence to discern and confirm a specific policy.

4.2.1 Creating a Policy Measure

After these data were compiled and specific policies identified, a review across policies made it clear that the majority of the additional protections on used-automobiles were non-tariff barriers (NTBs), and it would not be possible to construct a continuous measure of protection such as tariff levels or tariff differentials. The policies identified, however, could be classified into a small number of categories. In order to provide a summary measure, a four-point policy score was developed (Table 4-1) with zero (0) indicating little or no differentiation between new and used-automobile import policies and 3 indicating the most restrictive policies were in place. This score is presented in

Table 4-1. Each successive score contains a subset of policies deemed to be more severe than those placed in the previous score.

Table 4-0-1 Protection Score

Score	Policy Summaries	Number of Countries (n=131)
0	No additional restrictions on imports or 'Blue Book' market based valuation applied.	57
1	Taxes escalate with the age of the vehicle; capped depreciation; age limit of 6 years or older applied; a small additional fee/duty; or a combination of these or lesser restrictions.*	23
2	Age limits of 5 years or fewer applied; can not be imported fully assembled; a substantial additional fee or duty; or a combination of these or lesser restrictions.	29
3	Imports prohibited; Required import licenses not being approved; (few formal exceptions)	22

These underlying policies and the countries that have them are discussed further in the next section. At this stage, however, a few qualifications are in order. This instrument was developed to provide as clear-cut decision rules for the diverse individual country policies that were being assessed. The categories were made after a review of policy descriptions taken from the sources discussed above suggested many similarities existed across countries. Therefore, since the categories were set beforehand, the initial determination of what policies belong in what category was based on a somewhat subjective determination of severity. Furthermore, though there do appear to be clear categories of policy instruments, when the variations in policy elements and the variability in their enforcement among countries is considered, the actual distribution of

policies must be considered both continuous and unknown. Thus the discrete protection score shown here is simply an indicator for a latent and continuous "used-automobile protectionism" variable. This will be important to remember in the empirical tests discussed below and carried out in chapter 4 and 5.

Related to this, two further things should be noted. First, what are reported here for the purposes of analysis are the discernable formal policies of these nations. Thus any informal friction or facilitation of cross border trade that may influence the true effect of these policies is not reflected in these descriptions or scores. Second, many countries reported to have no additional restrictions have technical or environmental standards with the effect of excluding some used-automobiles from the market. As long as these restrictions are formally applied to all automobiles, however, no additional restriction is noted.

4.3 The Regional Pattern of Protection

Eighty-six of the 131 countries for which sufficient evidence was gathered to make a determination had some sort of additional restriction on used-automobile imports in or around 1999 (Figure 4-1, next page). Of the 111 non-industrialized countries in the database, over half (66) have additional restrictions. Twenty-one of these countries have policies that prohibit or nearly prohibit all used-automobile imports. As the map shows, few of the developed countries in the world have significant restrictions on used-automobile imports, the exceptions being Canada, New Zealand, Australia, and Greece, while industrializing countries in Asia and South America have the highest restrictions. The region specific discussions that follow begin with a fairly detailed discussion of the

policies in Latin America followed by increasingly less detailed overviews for the remaining regions as many of the policies will have become familiar. The appendix to this chapter contains a selection of variables for all the countries in the database.

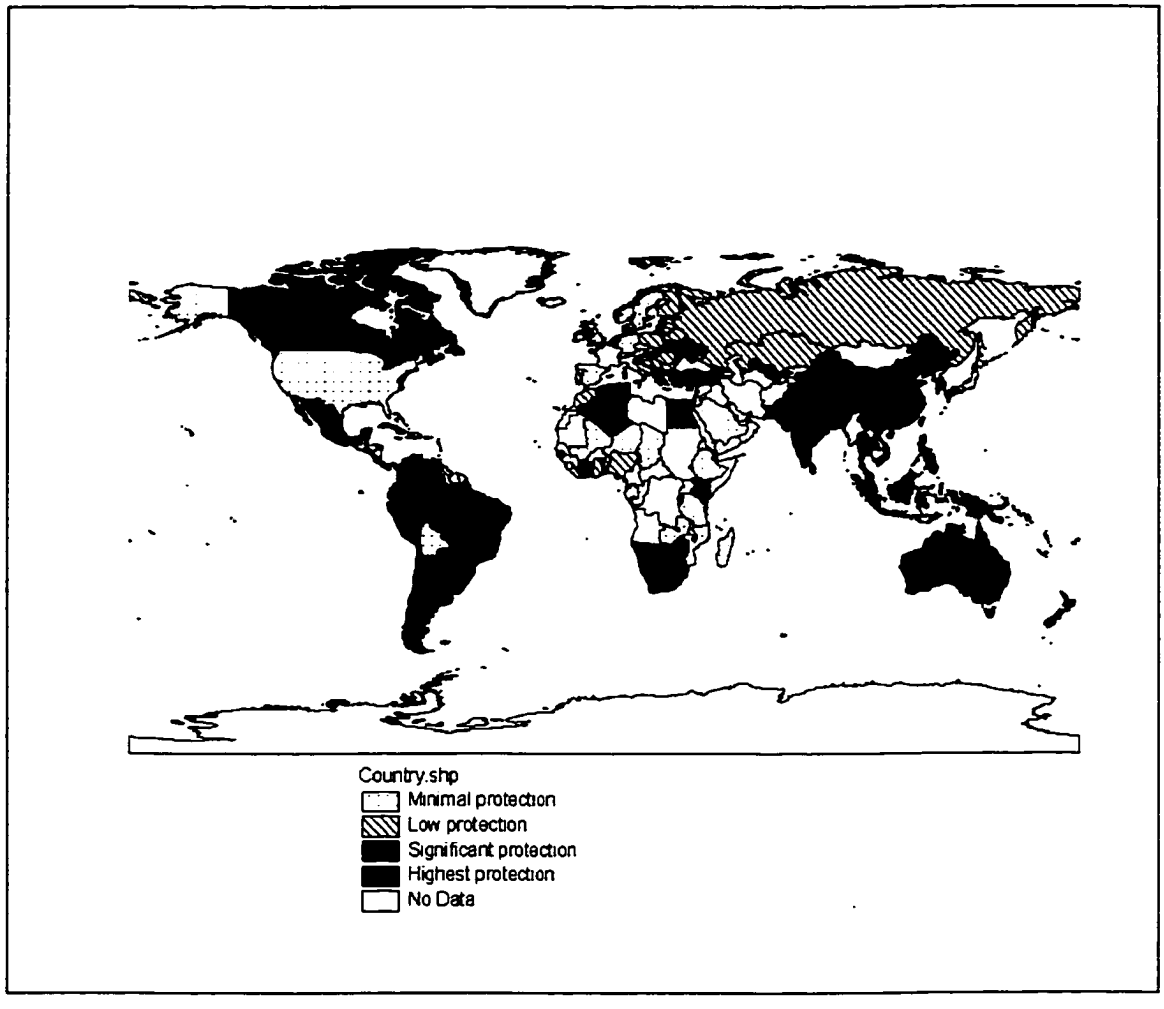

Figure 4-1 Used-Automobile Protection Around the World

4.3.1 The Americas

Used-automobile protection in Latin America comes in a number of varieties.[49] Seven relatively small countries in the region: Bahamas, Barbados, Belize, Bolivia, El Salvador, Guatemala, and Panama have minimal or no protectionist policies toward used-automobiles. Barbados and the Bahamas appear to have no additional restrictions on used-automobiles. Bolivia requires a pre-shipment inspection for both used and new automobiles, and duties and fees are the same for both. The US Department of Commerce reports that the Asociación Boliviana Automotriz has pressured the government for a formal ban on used-automobiles, but there is no indication that this pressure has been successful to date. Countries such as Belize, Panama, Guatemala, and El Salvador use reference prices in the valuation of some used-automobiles, using either domestically-generated and published market prices or the US 'Blue Book' values. However, no additional restrictions apply, and the extent of depreciation is not capped.[50] Finally, the United States has no restrictions (other than environmental and technical standards) on the import of used-automobiles.

Another five relatively small countries in the region, Costa Rica, Dominican Republic, Haiti, Honduras, and Nicaragua, have low barriers to the used-automobile trade. For its part, Haiti simply applies an additional 10 percent tariff on automobiles

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[49] See Pelletiere and Reinert (2002)

[50] While the use of reference prices is less than optimal from the perspective of trade theory, given the informal origins of many of the automobiles brought by migrants from the United States, such a system is often necessary. Also, such valuation techniques may not be discriminating against used-automobiles - an automobile in poor shape might be over-valued, but a 'creampuff' is likely to be undervalued. By providing a transparent and easily understood valuation method, based on what are ultimately market-determined values, these regimes rank among the least restrictive in the region.

older than the current model year. A more popular measure in this category, however, is capped depreciation. While some observers treat this as a general import *incentive* (e.g., Echeverria et al., 2000), it is clearly a *restriction over the lifetime* of an automobile, however slight its impact may be. The Dominican Republic (DR) provides an excellent example of this. The DR assesses all imported new and used passenger vehicles (except pick-ups) with a flat 30 percent tariff. Automobiles are assessed a further selective consumption tax based on the price of the automobile in US dollars. Used-automobiles, therefore, do not face discrimination in the assessment of duties or import taxes. There is, however, discrimination in how the value basis for duties and taxes is calculated. While the invoice is accepted as the basis for new automobiles, the value of a used-automobile is calculated using a depreciation schedule based on the price of a new automobile in the current year. The price is depreciated 5 percent one year after the model year, and a further 5 percent for each year up to four years. In years five, six and seven, an additional 10 percent depreciation is calculated for each year. The customs value is therefore 50 percent of the new automobile price in year seven. Importantly, no further depreciation is provided for past year seven.

There are a number of problems with this. First, more than with the reference prices discussed above, from a purely theoretical perspective, capped depreciation clearly obscures the true relationship between an individual automobile and its value, hindering the efficient working of the market. Second, the assessment is complicated by model changes and other factors over time, and together these factors are likely to create considerable friction at the border to make assessments and resolve disputes. More

importantly, however, automobiles continue to depreciate after seven years of use. Thus, in the first seven years, depending on the individual characteristics of the automobile in question, it may be either overvalued or undervalued. Past year seven, however, it is increasingly the case as the automobile depreciates but the customs value remains unchanged that the value of the automobile will be *overstated* for customs purposes, and the importer will have to pay an increasingly high import tax and duty burden relative to the automobile's actual purchase price or market value. This is the rationale for the higher discrimination score.[51]

Among the other countries in the region that use this sort of restriction, the depreciation is often steeper in the first few years. In Costa Rica, it is capped at 70 percent in year five.[52] In Honduras, it is 75 percent in year five, while in Nicaragua the cap is set at 75 percent in year six. Over the lifecycle of an automobile, capped depreciation discriminates against it for being older, but not necessarily simply for being used.

Jamaica, Peru, and Trinidad and Tobago all have relatively severe restrictions. Trinidad and Tobago requires that used-automobiles be disassembled before importation.

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[51] In the DR, this system actually represents a liberalization that occurred in 1994. Previously, duties and import taxes for used-automobiles were calculated using new automobile values without depreciation. Between liberalization in 1994 and 1999, the import of used-automobiles into the DR increased over 200 percent.

[52] Over the years, Costa Rica has alternated between using reference 'Blue Book' prices and depreciation schedules for calculating import duties and taxes, causing some confusion. In 1999, the temporal focus of the data in this study, depreciation schedules were being used according to authors who studied Costa Rica's regime explicitly (Echeverria et al., 2000). According to the Costa Rican consulate, the current policy is based on Blue Book values and duty rates that *increase* from 59.33 percent to 85.32 percent over six years with the higher rate applying to all automobiles over 6 years.

Engines are often removed from used vehicles before importation and shipped separately. Peru and Jamaica both have age delimited bans. Since 1996, Peru has banned automobiles over five years old and commercial vehicles over eight years old. Furthermore, imported used-automobiles with fewer than 24 seats face a 'selective consumption tax' of 45 percent, while similar *new* automobiles face a rate of only 20 percent.[53] In 1998, Jamaica's motor vehicle policy was tightened to allow only licensed used-automobile dealers to import automobiles no older than four years old and light commercial vehicles no older than five years old.

Finally, Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Uruguay, and Venezuela all have prohibitions against used-automobile imports. In the cases of Argentina, Brazil, Paraguay, and Uruguay, this complete ban is also part of the Mercosur regional trade agreement.[54] In these countries, formal exceptions are often made for specialty equipment but rarely for automobiles. Chile, for example, allows the import of used ambulances, funeral, fire fighting, street cleaning, irrigation, towing, television, armored, and other special-purpose vehicles but makes no explicit exception for passenger automobiles of any kind. Uruguay explicitly allows sports or classic vehicles 20 years of age or older to be used for display or competition. In Mexico, import licenses allow the import of used vehicles only so long as they are used to fulfill a

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[53] Interestingly, if new or used-automobiles are 'reconditioned' (converted from right to left-hand drive) in Peru's southern region, they are exempted from the selective consumption tax all together. This gives a clear advantage to Japanese makes, both used and new, and also is clearly intended to create or support a domestic conversion industry.

[54] Interestingly, the Andean Group (Bolivia, Colombia, Ecuador, Peru, Venezuela) has a similar provision, but there is greater policy diversity at the individual country level, an indication perhaps of the greater effectiveness of Mercosur (Foroutan, 1998).

business contract in the country. Also, those living within the border and free trade zones of Baja California, partial zones of Sonora, the state of Baja California del Sur, and the border city of Cananea in Sonora are able to own imported used-automobiles that are four to 15 years older than the current model year.[55] Canada also has a complete ban on all automobiles except those produced in Canada or the US according to rules worked out as part of the US-Canada FTA.

4.3.2 North Africa and the Middle East

In this region, not surprisingly there is a split between the Gulf States and the more populous and poorer countries. Of the Gulf States only Kuwait has restrictions on used-automobile imports, albeit a relatively severe age limit allowing only automobiles less than five years. Bahrain advertises itself as a regional used-automobile and part hub. Tunisia has a restriction allowing automobiles less than three years old, and Lebanon has a restriction at eight years. Israel restricts the import of used-automobiles by denying them special tax treatment and restricting imports to personal use. Algeria, Egypt, Syria, and Turkey all prohibited used-automobile imports entirely. Jordan dropped its used-automobile ban in November of 1999 (Syria followed in 2000). Morocco used reference prices that apparently were not based on sales.

4.3.3 Asia and the Pacific

Similar to Latin America, restriction levels are quite high in the Asia-Pacific region. Only Japan has no additional restriction on used-automobiles, though high standards keep most used-automobiles out of the market. These high domestic standards also contribute to the fact that Japan is the world's largest exporter of used-automobiles

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[55] Formally they are not allowed to sell them outside these regions, though in reality

to the developed world exporting well over 400,000 used passenger automobiles a year.[56] A number of large countries, namely, China, India, Indonesia, Pakistan and South Korea, as well as, Thailand, Vietnam, and the Philippines all prohibit used-automobile imports entirely. Taiwan is a special case, apparently only allowing imports for personal use and no resale. It was announced that this prohibition on imports was dropped entirely in 2001 as part of its entry to the WTO. Similarly, India nominally gave up its prohibition in 2001 as part of its WTO accession agreement, but replaced it with a whole barrage of NTBs. The net effect of this reform is likely to be minimal.

Among those countries with lesser restrictions, the second most popular policy in Asia was an age limit of less than five years. This applied in Bangladesh, Malaysia (with additional license to assure non-competition), Nepal, Singapore (along with a $6000 fee) and Sri Lanka. Papua New Guinea has no tariff for the import of new automobiles but a 100% tariff for the import of used-automobiles. Australia had $12,000 per unit fee while New Zealand required special restrictions and inspections for imported used-automobiles. In Bhutan the import of a used-automobile requires special permission.

4.3.4 Eastern Europe and the Former Soviet Republics

None of the Eastern European and former Soviet Republics ban used-automobiles outright. On the other hand, only Slovenia, the Czech republic, Moldova, and Kyrgyzstan appear to have no additional restrictions on imports. The Ukraine, Uzbekistan, and Hungary all had very restrictive policies in 1999, either age limits of less than five years (Hungary, Ukraine), or in the case of Uzbekistan, the tariff on used is

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many of these do get 'left' further south.

[56] 2001 data provided by Masaaki Fuse, Chuo University, Japan

100% compared to 30% for new automobiles of all classes. For the rest of the countries, the primary restrictions are an age limit (Romania and Poland) or age based tariffs in Russia (in 1999), Georgia, Estonia, and Lithuania. Bulgaria has capped depreciation and the Slovak Republic charged a fee ranging from $285 to $1428 in 1998.

4.3.5 Africa

Of the countries in Sub-Saharan and Southern Africa for which data is available none appear to prohibit used-automobiles completely. The members of the Southern African Customs Union, South Africa, Botswana, Lesotho, Namibia and Swaziland, nominally restrict used-automobile imports in part at the insistence of South Africa, which requires import permits and caps depreciation at 45%. As of 1996 the Ivory Coast banned used-automobile imports, but has since "taken steps to liberalize the market for used-automobiles" (USDOC, 1999). Kenya had a ten-year limit and an additional 20% tax (on top of 35% for all automobiles). As discussed in the Kenya anecdote last chapter, Kenya is remarkable in Africa because its used-automobile industry group, the Kenyan Auto Bazaar Association, KABA appears to be well organized having repeatedly defeated attempts by the Kenya Motor Industry Association (KMI) to ban used-automobiles completely. Mauritius bans used-automobiles over five years old and has a ban on used spare parts. Nigeria is really a special case. As also noted last chapter, it's policies toward used-automobiles fluctuate regularly with ample evidence of both popular pressure for liberalization and industry opposition. The period around 1999 appears to have been a time of liberalization with a relaxation of its ban and a suspension of pre-inspection requirements. There were a number of restrictions left in place, however, such as limiting import to Nigerian ports. During this period the government repeatedly

announced and then retracted other restrictions. Senegal dropped a ban in place in 1994, and in 1999 applied the same 20% tariff to both used and new. Finally Zimbabwe restricts imports to automobiles less than four years old, but less than one-year old if they are to be resold.

4.3.5 Western Europe

Finland, Denmark, Portugal and Greece were recently cited by the European Court of Justice for having a "dissuasive entry tax" on the import of second hand automobiles. In 1999, formally Greece also continues to restrict imports to automobiles less than five years old. The rest of those cited had just the tax, and were coded with a score of 1. Austria was similarly cited for using market average prices rather than invoice prices when figuring the duty on a used-automobile. As discussed in the case of Belize, Panama, Guatemala, and El Salvador, this practice is given score a 0; furthermore in the same decision Austria was cited for using list prices for new automobiles, so the differentiation between treatment of new and used automobiles was further minimized.

4.3.6 Database Summary

Thus it appears that used-automobile protection and discrimination are widespread in national trade regimes. There do appear to be some similarities within continents with countries in Asia and Latin America being more protected than those elsewhere. The cross-national analyses in the next two chapters will investigate the underlying causes of this more closely.

4.4 Methods

It was argued above that the protection score can provide an indication of the severity of protection as well as an indication of discrimination, and that this score can be

used to draw insights into the political economy of these policies on a cross-national basis. In the next two chapters (Chapters 5 & 6) the score will be used first as an independent variable and then as a dependent variable. In Chapter 7, some of the conclusions from the cross-national comparisons will be examined in the specific country case of Mexico. Though the explicit model specifications will be made in each of these chapters, in the way of preparing the reader for what's to come the methods used in of each chapter and their motivation are discussed briefly here.

4.4.1 The Gravity Model

In chapter 5, a gravity model is used to simultaneously test the policy score used here and the predictions of trade theory as to the direction of trade and its importance to developing economies discussed in Chapter 2. Along with testing the economic foundations of this research and the validity of the protection score developed above, this chapter will also provide an empirical introduction to the international used-automobile trade.

In its most basic form, the gravity model predicts that the volume of trade between two countries is proportional to the size of their economies (GDP) and inversely related to the trade barriers and the distance or transport cost - measured in various ways - between them (Tinbergen, 1962; Anderson, 1979; Bergstrand 1985, 1989; Boisso and Ferrantino, 1997; Feenstra, Markusen, and Rose, 2001), though some specifications use only economy size and trade barriers (Feenstra, Markusen, and Rose, 2001; Evenett and Keller, 2002).

More formally, the general model used here takes the form

$$\ln X_{ij} = \alpha + \beta_1 \ln Y_i + \beta_2 \ln Y_j + \beta_3 \ln D_{ij} + \beta_4 Z_{ij} + \varepsilon$$

where X_{ij} is a measure of trade from country *i to* country *j*, Y_i is a measure of the economic size introduced separately for countries *i* and *j*, D_{ij} is a measure of distance between *i* and *j*, and Z_{ij} represents other factors either facilitating or hindering trade between *i* and *j*. In this case Z_{ij} is the protection score, which is predicted to be a negative and significant factor in predicting the flow of trade between these countries.

A highly successful empirical model, the gravity model is not associated with any single theory of trade. Early explanations of its explanatory power relied on the product specialization inherent in the traditional Heckscher-Ohlin trade model, though empirical tests suggest there is no support for perfect specialization, and more recent authors (Feenstra, Markusen, and Rose, 2001; Evenett and Keller, 2002) have favored models of increasing returns, product differentiation, and models predicting intraindustry trade. Evenett and Keller (2002) even suggest that intraindustry trade based on Ricardian technology differences would deserve to be tested if adequate production technology data were available.

In light of growing acceptance within international economics for models that include increasing returns to scale and intraindustry trade as well as a role for geographic variables, there appears to be a resurgence of interest in gravity models and their theoretic foundations. Though this lack of theoretical clarity is clearly a boon to those who are seeking to work out such theoretical puzzles, it should not be viewed as a drawback for what is being proposed here. Just as in the discussion of the theory underlying the

international trade in used machines, between factor proportions and neo-Ricardian models, this dissertation, while recognizing these fundamental issues, does not attempt to play any further role in clarifying them. The purpose here is instead to use this highly successful empirical method (and there is broad agreement that it is successful) to test both the usefulness of the protection score developed here and the fundamental assumptions that were made in the last two chapters about the nature and direction of the used-automobile trade.

4.4.2 Political Economy Methods

While the analysis in Chapter 5 serves a useful empirical purpose, it is in Chapters 6 and 7 that the political economy issues around which this dissertation is built are addressed directly. In Chapter 6, an ordinal regression model is conducted with the protection score as the dependent variable, to shed light on the sources and processes governing the political economy of used-automobile protection across nations for the year 1999. In this model, the protection scores are moved to the left-hand side and become the dependent variables.

As discussed briefly above, the actual protection levels that the various countries choose is a latent variable. The exact policy a country chooses and its achieved or intended level of protection is impossible to determine for each of the economies in the sample. The protection score used here is represents an attempt to approximate and provide a rough categorical ordering of countries' choices of protection from a continuous underlying stream of more and less restrictive policies.

What is important for this analysis is that while the policies are ranked, the distances between categories, more specifically the distances between any two

observations within these categories, are unknown and variable. This violates the assumptions of a linear regression model, namely that there is a linear model that can generate the data and maintain an error term with a mean of 0 and constant variance. Thus in some instances using linear methods on ordinal data leads to incorrect conclusions (McKelvey and Zavonia, 1975: 117).[57] In contrast to the linear models, the ordered regression model is therefore non-linear and the magnitude of the change in the probability in one of the independent variables depends on the levels of all the other independent variables.

4.4.2.1 An Ordered Regression Model[58]

More formally, if y^* is defined as a continuous latent variable ranging from $-\infty$ to ∞, and it is assumed that y^* could be predicted by:

$$y_i^* = \alpha + \beta X_i + \varepsilon_i$$

where X is a place holder for the explanatory variables used to predict y^*, i is the observation and ε the random error. While this is the model that might predict the latent variable, the *measurement model* is expanded to divide y^* into j ordinal categories:

$$y_i = m \text{ if } \tau_{m-1} \leq y_i^* < \tau_m \text{ for } m=1 \text{ to } j$$

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[57] That being said, in this case the two types of model generated very similar results in terms of what factors were found to be significant and the direction of their influence across all models with the same data and variables. Some statisticians consulted suggested using linear regression methods for the purposes needed here would be simpler and sufficient for the type of general direction and significance indications being sought. The ordered regression model, however, is presented here both because it seems more appropriate and because it acts to warn readers against interpreting the coefficients in the results as one would those derived from a linear regression model.

[58] The discussion here is based on Long and Freese (2001) Chapter 5.

where the thresholds τ_1 through τ_{j-1} are estimated. Thus in this specific case y_i is the ordinal (observed) used-automobile protection score, while y* is the actual level of protection a country intends or achieves (these two representing somewhat different choices). The observed categories can be tied to the latent variable thus:

$$y_i = \begin{cases} 0 & \text{if } \tau_0 = -\infty \le y_i^* < \tau_1 \\ 1 & \text{if } \tau_1 \le y_i^* < \tau_2 \\ 2 & \text{if } \tau_2 \le y_i^* < \tau_3 \\ 3 & \text{if } \tau_3 \le y_i^* < \tau_4 = \infty \end{cases}$$

where as above 0 indicates no protection or discrimination against used-automobiles, 1 indicates policies judged to provide light protection of a discriminatory nature, 2 indicates policies thought to provide heavy protection of a discriminatory nature, and 3 indicates the severest discriminatory protections (prohibitions). When the latent y* crosses one of these thresholds, the observed category is assumed to indicate a change.

This model is used to look at the cross-national variation in the protection score in terms of the industry, institutional, and redistribution variables discussed in the political economy literature in order to draw conclusions about the political economy of used-automobile protection.

4.4.2.2 A Case Study

Finally, cross-national empirical tests such as those conducted in Chapters 5 and 6 can only convey so much detail and are severely limited by the availability and quality of data, which continues to be a problem today as it was when Smith (1974) also highlighted this problem. Therefore, Chapter 7 provides a focused case study of Mexico and policies toward used-automobile imports leading up to, during and after the NAFTA negotiations.

This case study is intended to complement the research in the other chapters providing a more detailed look at the policy process than can appear in the regression models providing more empirical rigor than appears in the anecdotal evidence sprinkled throughout chapters 1, 2, 3, and 4. This mixed approach has been used elsewhere in sociological and political science research to benefit from the generally accepted insights derived from large sample sizes and statistical analysis without foregoing the detailed analysis and specific insights that only a case study can provide (Orum, Feagin, and Sjoberg, 1991).

4.5 Chapter Summary

While it is difficult to measure and compare the actual level of intended or achieved discriminatory used-automobile protection across countries, creating a used-automobile protection score is relatively easy over a wide sample of countries. As suggested in Chapters 1 and 2, it appears that such discriminatory protection is indeed widespread. No continent is without such policies, and there appears to be some continent-by-continent similarities. This will allow an preliminary test of the implications of these policies for trade in the next chapter, by using the protection score as an independent variable in a gravity model, modified somewhat to reflect that US export data is being used. In Chapter 5, moving the protection score allows a cross-national political economy analysis, which in turn will be used to inform the case study in Chapter 6.

Appendix 4-1: The Protection Score by Country circa 1999

Nations		Score	Policy Description	Auto Production Capacity
1.	Albania	1	Fixed taxes on used	No
2.	Algeria	3	Complete Prohibition	Yes
3.	Argentina	3	Complete Prohibition	Yes
4.	Australia	2	"$12,000 surcharge (exemptions)"	Yes
5.	Austria	0	No additional restrictions	Yes
6.	Bahamas	0	Blue Book Values	No
7.	Bahrain	0	Imports permitted as of 1998	No
8.	Bangladesh	2	Banned over 5 years	Yes
9.	Barbados	0	No additional restrictions	No
10.	Belarus	1	"US embassy reports return to ""light restrictions"" in 1998"	Yes
11.	Belgium	0	No additional restrictions	Yes
12.	Belize	0	No additional restrictions	No
13.	Benin	0	No additional restrictions	No
14.	Bhutan	2	Requires import license	No
15.	Bolivia	0	No additional restrictions	No
16.	Botswana	2	Import License and capped depreciation (Score based on SA (SACU) regs)	Yes
17.	Brazil	3	Complete Prohibition	Yes
18.	Brunei	0	No additional restrictions	No
19.	Bulgaria	1	Capped Depreciation (Unless Auto has a Euro 1 Certificate)	Yes
20.	Burkina Faso	0	No additional restrictions	No
21.	Cameroon	0	No additional restrictions	No
22.	Canada	3	Complete Prohibition (Except CUFTA Rule of Origin)	Yes
23.	Chad	0	No additional restrictions	No
24.	Chile	3	Complete Prohibition	Yes
25.	China	3	Complete Prohibition	Yes
26.	Colombia	3	Complete Prohibition	Yes
27.	Costa Rica	1	Capped Depreciation	No
28.	Croatia	0	No additional restrictions	No
29.	Cyprus	1	Age limit fewer than 3 years	No
30.	Czech Republic	0	No additional restrictions	Yes
31.	Denmark	1	"Euro. Court of Justice ruled ""fixed tax rate"" discriminates against used automobiles (2001)"	No
32.	Dijibouti	0	No additional restrictions	No

Nations		Score	Policy Description	Auto Production Capacity
33.	Dominican Rep	1	Capped depreciation	No
34.	Ecuador	3	Complete prohibition	Yes
35.	Egypt	3	Complete prohibition	Yes
36.	El Salvador	0	Blue book values	No
37.	Estonia	1	Excise tax doubles if older than 10 years	No
38.	Ethiopia	0	No additional restrictions	No
39.	Finland	1	"Euro. Court of Justice ruled ""fixed tax rate"" discriminates against used automobiles (2001)"	Yes
40.	France	0	No additional restrictions	Yes
41.	Gabon	0	No additional restrictions	No
42.	Georgia	1	Tariff based on age	No
43.	Germany	0	No additional restrictions	Yes
44.	Ghana	1	Age limit fewer than 10 years	Yes
45.	Greece	2	Age limit fewer than 5 years	No
46.	Guatemala	0	No additional restrictions	No
47.	Guinea	1	Tariff based on age	No
48.	Guyana	1	"Light restrictions"	
49.	Haiti	1	Additonal 10 percent tariff	No
50.	Honduras	1	Capped depreciation	No
51.	Hong Kong	0	No additional restrictions	No
52.	Hungary	2	Age limit fewer than 4 years	Yes
53.	India	3	Complete prohibition	Yes
54.	Indonesia	3	Complete prohibition	Yes
55.	Ireland	0	No additional restrictions	No
56.	Israel	2	Ban on imports for commercial purposes	No
57.	Italy	0	No additional restrictions	Yes
58.	Jamaica	2	Age limit fewer than 5 years	No
59.	Japan	0	No additional restrictions	Yes
60.	Jordan	0	No additional restrictions	No
61.	Kazakhstan	1	Higher Tariff for Used	Yes
62.	Kenya	2	Age limit fewer than 10 years plus additional 20 percent duty	Yes
63.	Kuwait	2	Age limit fewer than 5 years	No
64.	Kyrgyz Republic	0	No additional restrictions	No
65.	Latvia	0	No additional restrictions	No
66.	Lebanon	1	Age limit fewer than 8 years	No
67.	Lesotho	2	Import License and capped depreciation (Score based on SA (SACU) regs)	No

Nations		Score	Policy Description	Auto Production Capacity
68.	Lithuania	1	Tariff based on age	No
69.	Luxembourg	0	No additional restrictions	No
70.	Madagascar	0	No additional restrictions	No
71.	Malawi	0	No additional restrictions	No
72.	Malaysia	2	Import License almost impossible to obtain for a used automobile	Yes
73.	Mali	0	No additional restrictions	No
74.	Mauritius	2	Age limit fewer than 5 years (also capped depreciation and ban on used parts)	No
75.	Mexico	3	Complete Prohibition (Except in border region)	Yes
76.	Moldova	0	No additional restrictions	No
77.	Morocco	1	Reference prices	Yes
78.	Mozambique	0	"No additional restrictions (Unclear, there may be some sort of reference pricing)"	No
79.	Namibia	2	Quota on used automobiles	No
80.	Nepal	2	Age limit fewer than 5 years plus additional tariffs	No
81.	Netherlands	0	No additional restrictions	Yes
82.	New Zealand	1	Additional inspection requirements	No
83.	Nicaragua	1	Reference prices	No
84.	Niger	0	No additional restrictions	No
85.	Nigeria	1	No additional restrictions (1999 Only)	Yes
86.	Norway	0	No additional restrictions	No
87.	Oman	0	No additional restrictions	No
88.	Pakistan	3	Complete Prohibition	Yes
89.	Panama	0	No additional restrictions (Catalytic Converter Required)	No
90.	Papua New Guinea	2	100% Tariff for used 0% for new	No
91.	Paraguay	3	Complete prohibition	Yes
92.	Peru	2	"Age limit fewer than 5 years (Exception for ""conversion"" industry)"	Yes
93.	Philipines	3	Complete prohibition	Yes
94.	Poland	1	Age limit fewer than 10 years	Yes
95.	Portugal	1	"Euro. Court of Justice ruled ""fixed tax rate"" discriminates against used automobiles (2001)"	Yes
96.	Qatar	0	No additional restrictions	No
97.	Romania	1	Age limit fewer than 10 years (Also Euro	Yes

Nations	Score	Policy Description	Auto Production Capacity
		2 Certificate Required)	
98. Russia	1	Additional tariffs if over 3 years	Yes
99. Saudi Arabia	0	No additional restrictions	No
100. Senegal	0	No additional restrictions	No
101. Singapore	2	$ca. $6000 surcharge on used	No
102. Slovakia	1	Age based fees and extra inspections	Yes
103. Slovenia	0	No additional restrictions	Yes
104. South Africa	2	Import License and capped depreciation	Yes
105. South Korea	3	Complete prohibition	Yes
106. Spain	0	No additional restrictions	Yes
107. Sri Lanka	2	Age limit fewer than 3 years	No
108. Swaziland	2	Import License and capped depreciation (Score based on SA (SACU) regs)	No
109. Sweden	0	No additional restrictions	Yes
110. Switzerland	0	No additional restrictions	Yes
111. Taiwan	2	Personal use only - no resale	Yes
112. Tanzania	0	No additional restrictions	No
113. Thailand	3	Complete prohibition	Yes
114. Togo	0	No additional restrictions	No
115. Trinidad Tabago	2	Must not be fully assembled	No
116. Tunisia	2	Age limit fewer than 3 years	Yes
117. Turkey	3	Complete prohibition	Yes
118. UAE	0	No additional restrictions	No
119. Uganda	0	No additional restrictions	No
120. Ukraine	2	Age limit fewer than 5 years	Yes
121. United Kingdom	0	No additional restrictions	Yes
122. United States	0	No additional restrictions	Yes
123. Uruguay	3	Complete prohibition	Yes
124. US Virgin Islands	0	No additional restrictions	No
125. Uzbekistan	2	100% Tariff for used 0% for new (New raised to 30-40% in 2001)	Yes
126. Venezuela	3	Complete prohibition	Yes
127. Vietnam	3	Complete Prohibition	Yes
128. Yemen	0	No additional restrictions	No
129. Yugoslavia	3	Complete prohibition	Yes
130. Zambia	0	No additional restrictions	No
131. Zimbabwe	2	Age limit fewer than 4 years	Yes

CHAPTER 5
A GRAVITY MODEL OF US USED-AUTOMOBILE EXPORTS

5.1 Introduction

In the last chapter, the gravity model of trade to be used here was discussed in general terms. In this chapter, two models are specified to address the influence of used-automobile protection on trade. The first model investigates the impact of recipient country restrictions on *gross* US exports of used automobiles. The second model tests the impact of these restrictions on the *proportion* of used-automobile exports to all automobile exports from the US.[59] In both models, the export data are in unit, not value, terms.

Within the context of this dissertation, the purpose of estimating these models is threefold. First and foremost, it addresses the second research question presented in Chapter 1, namely whether used-automobile protection is a significant and non-trivial barrier to trade. Second, it provides an additional check of some of the assumptions made in the literature, which also form the basis for the political-economy hypotheses being tested here, particularly related to used automobiles' importance to lower–income, developing country markets. Finally, it allows a further investigation of the protection

[59] This proportions model is similar to that developed by Navaretti, Soloaga, and Takacs (1998a, 1998b, and 2000) tested with used metalworking equipment exports from the US. This similarity is particularly close to the model in 1998b, which included both a distance and NTB variable. The estimation here, however, differs not only in the type of

score developed in the last chapter. In Chapter 6, this score is used as the dependent variable in a direct cross-national test of the political economy of used-automobile protection. Before turning to the models, themselves it is perhaps useful to provide a specific discussion of the potential barriers to the trade in used automobiles.

5.2 The Barriers to the Used-automobile Trade

There are a number of different types of barriers that may serve to discriminate against used automobiles in international trade. The first set of barriers contains the type of automobile trade policies discussed last chapter. Clearly, by targeting used or older vehicles for additional protection, these policies represent additional and discriminatory barriers to the used-automobile trade.

There is a second set of barriers, however, which may not be explicitly aimed at used automobiles but which by adding a fixed cost to the price of *any* imported automobile may have a similar effect. This has been formalized as the Alchian and Allen theorem (Borcherding and Silberg, 1978, Bauman, 2001), which simply states that a fixed charge added to two goods of different quality will reduce the *relative* cost of the higher quality, more expensive good, and therefore increase its share of demand. Traditionally, this theorem has been illustrated in terms of shipping costs to postulate that the fixed cost of shipping will increase the relative value of the higher priced good at the more distant location.[60] Thus if used automobiles are generally inferior to new automobiles, the

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equipment exports being investigated and in the independent variables, but also in the interpretation and transformation of these variables.

[60] The traditional example is the effect of adding shipping costs to apples produced in Washington State. The Alchian and Allen theorem first appeared in print in Alchian and Allen's *University Economics* (1964) and it was immediately challenged (Gould and

demand for US used automobiles might be expected to decay with distance from the US not only in number but as a proportion of total US passenger vehicle exports. [61]

Environmental policies such as automobile emissions standards clearly might fall into this category where the cost of installing new equipment or repairing existing equipment might have a similar effect. Another example is the cost for automobiles exported from the US to countries that drive on the opposite side of the road. Plants in the US do not produce many right-hand drive automobiles and therefore it is likely that both new and used automobiles exported from the U.S. would face some additional "conversion" cost whether in the US or upon arrival in the destination country.[62] In both these cases, retrofitting or bringing an older automobile up to standard may often be more costly.

A third set of trade barriers, disproportionately affect the consumers most likely to purchase used automobiles rather than having a disproportionate impact on the price of

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Segall, 1969). A 1975 letter-to-the-editor exchange in the Seattle Times on why the apples in Washington seemed to be of lower quality than the Washington State apples purchased in distant states, led to renewed interest in the subject starting with the Borchering and Silberberg (1978) article. They argue that the theorem works in the special case where the goods are close substitutes. Bauman (2001) suggests that by carefully considering the units and the nature of the costs, the theorem can be more widely applied. Used and new automobiles appear to be a valid case.

[61] It is important to note, that this does not suggest that consumers are necessarily substituting new US automobiles for used US automobiles, though this is likely to be occurring in some cases. Instead it suggests that consumers may be purchasing new automobiles from the US and used-automobiles from somewhere closer, or substituting something else for imported used-automobiles. Thus used-automobiles in the US are not exported and are either purchased as their value at home decreases or scrapped despite the nominal existence of foreign demand. (See Yoram, 2001 for a related discussion; see also discussion in Chapter 2 & 3)

[62] Even if the automobile can be driven (de facto or de jure) in its original condition upon arrival, a cost will still be present in terms of regulatory and operational hassle

used automobiles themselves. For example, as with distance and conversion costs, tariffs add to the price of both used and new automobiles. However, they are traditionally levied in some proportion to the price of the automobile and are not a fixed cost. Thus the Alchian and Allen theorem would not apply. The authors of a similar study of used metalworking machinery exports (Navaretti, Soloaga, and Takacs 1998a, 2000) make the prediction that tariffs increase the overall cost of imported capital and therefore should encourage firms importing capital to become more labor intensive. This, they suggest, should lead to the purchase of a higher proportion of more labor-intensive used machinery. This might also apply to used automobiles. They were disappointed, however, when their results showed the opposite relationship.

This may not be surprising. Rather than importing used, consumers may substitute domestic alternatives, including maintaining their current equipment longer. The discriminatory (negative) effect may be due to the regressive nature of any broad tariff, particularly on a popular good such as automobiles. As in the well-worn example of a domestic sales tax, the higher one's income, the more money is available for consumption beyond the bare necessities, the more marginal the impact of a tax on consumption choices. As income rises, the price of an automobile as a proportion of total income is expected to decrease. Conversely, to the degree an imported automobile is not a necessity (because there are domestic transportation alternatives or because already imported automobiles can be made to make do), a tax or tariff may encourage poorer consumers to seek cheaper alternatives or put off a purchase in order not to threaten the consumption of greater necessities. Though the demand for automobiles can be assumed

to be relatively elastic compared to the demand for greater necessities, it is inelastic compared to the demand for greater luxuries. Thus a tariff on automobiles will have less of a suppressive effect on consumption for domestic consumers with higher income levels. Since the poorer segment of the automobile market is where used-automobile sales are concentrated, while new automobiles dominate at the top, it seems likely that the proportion of used automobiles imported will decline as well as their number in the face of high tariffs.[63]

Thus, the analysis of trade barriers should not only include measures of direct discrimination against used goods, such as the protection score introduced last chapter, but also must include policy and technical measures that may indirectly discriminate, as well as factors such as distance which itself is beyond the scope of human intervention (though it might be addressed indirectly by subsidies to transport or other interventions).

5.3 The Gross Exports Model

The first model seeks to explain the volume of trade in used automobiles from the US to 119 of the countries in the database for which there is sufficient data. In form, the

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[63] To illustrate the Alchian and Allen theorem and the impact of fixed costs, it is most often assumed that there is a single consumer or homogeneous group consumers who are choosing between (substitutable) products differentiated by price and quality. The regressive nature of a proportional tax, however, is most often illustrated by the case where consumers with heterogeneous incomes choose how much of a commodity such as "food" or "automobiles" they can afford. It should be clear a fixed cost simply represents a specific and, in the presence of heterogeneous consumers, more regressive consumption "tax" than one proportional to price. In other words, a fixed cost not only makes the higher priced good a better relative value, but the proportional impact on the pocketbooks of those with higher incomes, who are ceteris paribus more likely to purchase the higher priced item, is also considerably less. Therefore, while the average MNF tariff variable and the fixed cost variables are both expected to have a negative influence, the fixed cost variables are expected to have a more significant impact.

first model represents a standard gravity equation in which the volume of trade is said to be positively related to the size of participating economies and negatively influenced by the friction between them measured by distance, trade barriers and the like. It differs only in that the size of the US economy is implied and not explicit in the estimating equation because the US is the origin for all trade in the underlying data. The basic estimating equation is:

$$\ln e_i^u = \alpha + \beta_1 \ln gdpcap + \beta_2 \ln pop_i + \beta_3 \ln dist_i + \beta_4 left_i + \beta_5 tariff_i + \beta_6 protect_i + \beta_7 res_i + \varepsilon_i$$

The dependent variable is the log of average annual exports (in units) from the US to country i in units (e_i^u).[64] The trade in used automobiles fluctuates from year to year. The protection scores, which stand at the center of this analysis, simply indicate that an additional restriction was in place on used-automobile imports in or around the year 1999. True time series data on the emergence and persistence of these policies across a significant number of countries has yet to be collected. Therefore, it is difficult to determine what effect (if any) policy changes over the years may have had on these fluctuations in specific countries. To smooth year-to-year fluctuations, however, the annual exports are averaged over the three-year period 1998-2000.

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[64] The data are taken from the U.S. International Trade Commission website. See their interactive Tariff and Trade Database. The 10-digit HTS codes aggregated for total exports were, 873230090, 8703240090, 873320050 and 8703330085. The use of units seems more appropriate because of the vagaries, both inherent and criminal, of invoices and customs valuation. In this vein, the data on used-automobiles also suffers from the US customs practice of not requiring goods costing less than $2500 to have an export declaration. Many of the used-automobiles sold for developing markets cost less than

The first two independent variables indicate the economic size of the destination country *i*. One is the log of per capita income (lgcap) from the World Bank purchasing power parity data for 1999.[65] The second variable (pop) is the population of country *i*, again as provided by the World Bank. It is expected that used-automobiles exports will be positively correlated with both variables.[66]

In keeping with the gravity equation, the next set of independent variables indicate the trade friction between the US and country *i*. The first of these (dist), the third independent variable, is a measure of distance, in kilometers (as the crow flies) from the US to country *i*.[67] As discussed above, distance appears to be a particularly important variable for used automobiles. An additional reason to include distance here is that countries other than the US export used. For example, Japan and the EU are both major automobile markets that shed significant numbers of used automobiles in exports. Based on data recently received from the Chuo University Data, Japan exported 415,000 used passenger automobiles and 930,000 used vehicles (including motorcycles) in 2001. Based on the expectation of used goods' greater sensitivity to distance, discussed in the last section, the opportunity to import used automobiles from *other* markets at competitive prices is expected to increase with distance from the US, further reducing

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this and according to USDOC staff (Interview: Bodson) are not likely to be reflected in the data.

65 In some cases where World Bank Data is not available (e.g. Taiwan), estimates from the US Central Intelligence Agency World Fact Book are used.

66 One problem with this is that transshipment and subsequent international sales are not controlled for in the US trade data. Belgium, Bahrain, and Benin are examples of relatively small countries that do a relatively large used-automobile business in this way. This is not expected to unduly bias the overall findings, however.

67 Distances from U.S. Census and U.S. Geological Survey data.

demand on the US. The distance-measure used is the shortest distance from the importing country capital to one of five large regional ports in the US (New York, Miami, Houston, Los Angeles, and Seattle),[68] and it is expected to be inversely related to gross exports.

The fourth independent variable (left) reflects trade friction inherent in the fact that automobile drivers in many countries drive on the opposite side of the road from the US, including some of the largest car markets, such as Japan, India, and the UK. Clearly, driving on the opposite side of the road is seen as an additional cost and should reduce the attractiveness of importing left-hand drive used automobiles from the US.[69] A dummy is used to indicate countries that drive on the left-hand side of the road, and therefore likely require right-hand drive automobiles.

Another friction variable (tariff) included here is the log of the average most favored nation (MFN) tariff on passenger automobiles.[70] As discussed above, a high

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[68] Distance is often taken from a single city based on economic concentration or geographic centrality (Boisso and Ferrantino, 1997). The market for used-automobiles in the US, where automobile ownership is ubiquitous, however, is directly related to the distribution of population and economic activity. In the US economic activity and population are concentrated along its coasts and border-states. Therefore, this measure seeks to indicate the extreme proximity of Caribbean nations and most importantly, Mexico and Canada, to large US used-automobile markets.

[69] An environmental policy variable was initially included, namely an emissions standards dummy, it however proved to be highly correlated with income and was not included in the final model.

[70] This is the average MNF tariff for six-digit HTS Code 870323 (passenger vehicles with spark ignition internal combustion engines) as reported by the UNCTAD TRAINS data. The majority of used-automobiles exported from the US (70% of those exported in 1999) fall into this six-digit category. Data coverage is for various and recent years. This data has been augmented in a limited number of cases with tariff rates for US imports reported in the USDOC *Compilation of Foreign Motor Vehicle Import Requirements* (1999,

tariff is expected to reduce demand for all automobiles, including used, but have a particular impact on poorer automobile consumers and therefore the proportion of used automobiles imported. In the gross-exports model, however, it also serves as an (imperfect) indicator of the protectiveness of the underlying automobile import regime. When included in the model with the used-automobile protection score, the tariff variable may help to isolate the impact of used-automobile protection from the restrictions inherent in a generally protective automobile import regime. Due to limited data availability, however, the number of observations in this model drops by six to 113 countries.

The last friction variable (protect) is the ordinal protection score of Table 4-1 (last chapter). It is introduced within the context of the ordinary least squares regression model as a series of dummy variables, described further in the next section.

The final variables (reg) introduced to the model are broad regional dummies indicating Africa, the Americas, Asia and Europe.[71] The purpose of including these variables relates back to the discussion of the distance variable above. A priori, it seems likely that factors other than distance may also contribute to creating regional automobile markets. Shared history, culture and other commercial and noncommercial ties likely affect the trade in used automobiles both intangibly, in the biases and tastes of local consumers, and, more concretely, in the similarity of technical requirements, road systems, policies (such as fuel taxes) and driving conditions. Indeed in many cases

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2001). Untransformed, the average tariffs for this category of vehicle ranges from 0 to 150 percent, with a mean of 23.12 and a standard deviation of 23.42.

countries in a region share the same road network. Therefore, Japan and Europe, for example, may a priori be expected to be better able to meet consumer demand and market constraints in Southeast Asia and Eastern Europe respectively. In the same way, the US may have a similar relationship with countries in the Americas, where its national and commercial influence have been longstanding.

5.3.1 Results for the Gross-Exports Model

The results for the gross exports model appear in Table 5-1. In the first column all the independent variables are highly significant with the expected sign, except the variable of interest. The protection score dummy, which in this case simply indicates the presence of any additional restriction on used automobiles (protection scores of 1,2, or 3), is negative as hypothesized, but it is not significant. Market size is positive and highly significant in both its measures. Distance and drive-side are both negative and significant as expected.

In column 2, a new protection score dummy is introduced indicating only the two highest protection scores (2 and 3) while the null category is expanded to include those with only slight additional restrictions (i.e. 0 and 1). In this second model, the coefficient of the new protection dummy is considerably more significant and more negative. This seems to indicate that restrictions falling into the higher categories of protection have a clear suppressive effect on the used-automobile trade, while the impact of those in the lower categories is less certain. The direction, significance, and size of the coefficients for the other independent variables remain largely similar between the two specifications.

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[71] The null category includes the countries of the Middle East and North Africa, and Canada, New Zealand, and Australia.

In column 3, the regional dummies are introduced. In this model, the protection score dummy, the same used in the previous model, remains negative and becomes highly significant. Though the distance variable remains highly significant and negative at the 1 percent level, as might be expected, its significance and size are somewhat reduced with the introduction of the regional dummies. Among the regional dummies, Europe and Asia are both negative while Africa and the Americas are both positive, conforming roughly to expectations. Only the Europe dummy, however, is significant, but at better than the 1 percent level.

In column 4, the model includes the logged average MNF tariff values. The tariff variable enters negatively and significantly, while the results for the other variables including the protection score remain similar to the previous model. Interestingly, among the regional dummies only Asia becomes noticeably less significant, suggesting perhaps that trade regimes in Asia have higher tariff levels and greater protection against automobiles in general.

The results in column 5 are for the same model as in column 4, except that the protection score has been replaced by a dummy indicating only the highest level of protection (a protection score of 3). As expected, this variable enters more highly significant and negative. Also in this model, among the regional dummies the Americas become nominally significant at the 5 percent level. Europe remains negative and highly significant as well.

The final model in column 6 tests the robustness of these results using the average exports over the five-year period 1997-2001 as the dependent variable. The results are quite similar to the previous model, giving them greater credence.

5.4 The Proportional Exports Model

Above, the basic gravity-type model was augmented with a number of different independent variables to control for the specific relationships of individual countries to the U.S. market for used automobiles. The model in this section takes a slightly different approach looking at the exports of used automobiles exported from the US to country *i* as a proportion of all passenger vehicles ($\frac{e_i^u}{e_i}$), where e_i is the total passenger-vehicle exports from the US to country *i*.[72] The inclusion of total passenger-vehicle exports from the US as a denominator controls to some degree for both the underlying pattern of automotive trade with the US and the size of the market in country *i*. Therefore, the population and regional dummy variables are no longer included as they are less meaningful. In this case the basic estimating equation is specified as:

$$\frac{e_i^u}{e_i} = \alpha + \beta_1 \ln gdpcap_i + \beta_2 \ln dist_i + \beta_3 left_i + \beta_4 tariff + \beta_5 protect_i + \varepsilon_i$$

Also given the new dependent variable, the remaining independent variables from the last model require somewhat new interpretations. In this model, income is expected to have a negative influence on the proportion of used automobiles imported. As suggested by Grubel (1980), comparative advantage suggests that even if they import

72 Again, the data for these measures comes from the US International Trade Commission. The total number of passenger vehicle exports were aggregated at the six

fewer automobiles overall (as was shown above), countries with lower incomes will import a higher *proportion* of used automobiles. For the average country in this sample, 44 percent of the automobiles imported from the US are used. Among the 20 high-income OECD countries in this sample the proportion is only 25 percent and it is 48 percent among the 96 transitional and traditional developing countries in this sample, with over 18 of these countries importing over 80 percent used automobiles.[73] In this model, the other independent variables, rather than simply representing trade friction, are instead intended to represent factors influencing the inherent comparative advantage or disadvantage of used automobile relative to new automobile exports from the US.

5.4.1 Results from the Proportional Exports Model

The results from this model are given in Table 5-2.[74] In the basic model in the first column, income and distance are negative and highly significant as expected. The first protection variable (protection score of 2 and 3) is also negative and significant at the 5 percent level. The protection score is replaced in the second model by the dummy indicating only a protection score of 3. This protection dummy also enters with a negative coefficient and it is highly significant at the 1 percent level. In the third column, the log of average MNF tariffs is introduced. As in the last set of models, the number of

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digit HTS level using the codes corresponding to the 10 digit codes used in the case of used-automobiles.

[73] This need not be restricted to developing countries. Finland imports over 80% used from the US and the Netherlands over 60%, though in the latter case it is likely that some of this trade is transshipped to other markets particularly in Europe and Africa.

[74] The sample for the proportions analysis includes only 117 observations because Chad and Lesotho imported neither used nor new automobiles from the US in this three-year period. The fact that both countries were included in the USITC data on used-automobile imports, however, reflects the fact that they both had purchased used-automobiles in the

observations here too falls by six (to 111). This variable enters negatively as expected, but it is nominally insignificant (i.e. significant at the 10 percent level). The final column once again tests these results for average exports over the period 1997 to 2001. In this case, the average tariff becomes nominally significant at the 5 percent level, as does the left-hand side dummy, but otherwise the results are quite similar.

The lower R-square statistic in this model compared to the gross exports model likely reflects the fact that the factors that affect the decision to export new automobiles from the US may be different than those affecting the decision to export used automobiles, and vice versa. The opportunities for error are therefore increased.

5.5 Discussion of Results

The results in Tables 5-1 and 5-2 show that variables related to both active discrimination against used automobiles and factors related to the inherent inferiority of used automobiles have the expected negative impact on US used-automobile exports.

Used-automobile protection not only has a significant and negative impact on trade, but the inclusion of the average MNF tariff variable in the gross exports model (column 4, 5 and 6 in Table 2) suggests that the impact is distinct from the severity of the underlying automobile import regime. This conclusion is strengthened by the results of the proportions model where the significant and negative relationship between protection and the proportion of used automobiles suggests that these policies have a discriminatory effect on used automobiles independent of the import regime affecting all automobiles.

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recent past, a fact reflected by their non-zero values in the 1997-2001 data, shown in column 6, which also explains their inclusion in the gross exports data.

The analysis also supports another of the assumptions being made about the international trade in used automobiles. The results of the gross-exports model show that countries with higher incomes and populations import more used automobiles from the US. This suggests that used-automobile exports do serve the entire spectrum of markets from the most to the least developed.[75] The proportions model results, however, suggest that the number of used automobiles imported by a country is inversely proportional to that country's income. In other words, this suggests that used automobiles are indeed "not luxury" goods and that countries consume fewer of them as a proportion of total imports as their income increases. From another perspective, used automobiles do appear to provide an alternative channel for automobile ownership and entrepreneurship as suggested by Scitovsky (1994) and in Chapter 2.

The significance and negative sign of the distance variable in both models suggests that transportation costs represent a significant friction in the used-automobile trade. Furthermore, the negative influence of the distance variable in the proportions model provides some preliminary support for the Alchian and Allen hypothesis, and its application to the issue of the international used-goods trade. Though the left-hand side dummy is only nominally significant in the 1997 to 2001 data, this and its consistently negative coefficient may also provide further support for this conclusion. The results are similar for the tariff variable, indicating that the impact of such tariffs is regressive.

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[75] A look at export value and average unit values of exports might provide better insight into this. The dollar values in the US data appear to be less reliable (Interview: Ferrantino) and for the moment this lies beyond the scope of this research.

Though the results of the gross exports model do not hinge on the presence of regional dummies, the consistent signs of their estimated coefficients and the significance of the European and Americas dummies suggests that regional or location-specific factors play a role in the market for used automobiles. Europe appears to have a particular aversion to used-automobile imports from the US.

5.6 Conclusion

The sign and significance of the distance variable in these two models suggests that demand for used automobiles decays more rapidly over distance than is the case for new automobiles. The other generally applicable cost variables are similarly negative, suggesting that even if the intended discrimination against used automobiles were removed, in international trade used automobiles would still be at a distinct disadvantage.

That said used-automobile protection still appears to be a nontrivial barrier to trade. To put the results here in some perspective, comparing the predicted exports in the presence and absence of protection using the model in column 3 of the gross exports model (Table 1), suggests that complete liberalization of these policies would increase exports of used automobiles by 59,234. This is an estimated 34% increase in US used-automobile imports. At the 1999 average used automobile price in the US of $8208 (ADC Auctions, 2000) this translates into increased average annual sales of $486 million. Even at a price of $4505, the lower average price earned in the "Casual Sales by Individuals" market in the US, this translates into increased average annual sales by the used automobile sector of $267 million dollars. Of course, this model provides little

insight into the expected impact of this trade on the new automobile market in either the US or abroad.

As discussed in the introduction to this chapter, there were three purposes for the analysis in this chapter. The first was to ascertain whether the policies described here are in fact significant and non-trivial barriers to trade. As discussed above, the conclusion here is that they are. The second purpose was to validate the assumptions in the more theoretical literature about the direction of trade and implications of restrictions. Finally, in finding that the trade conforms that the protection score developed in Chapter 4 appears to behave reasonably and according to expectations in an area where expectations have been well defined by previous research, this in turn provides a higher level of confidence for using this score to investigate the political economy of these policies, an area where expectations are relatively more speculative.

Table 5-0-1 Results from Gross Exports Model

	(1)	(2)	(3)	(4)	(5)	(6)
	ln e_i^u	ln e_i^u	ln e_i^u	ln e_i^u	ln e_i^u	ln e_i^u
	98-00	98-00	98-00	98-00	98-00	97-01
Constant	0.200	-1.161	-12.174	-8.043	-8.935	-8.168
	(0.07)	(0.41)	(3.13)**	(2.11)*	(2.41)*	(2.17)*
ln gdpcap	1.129	1.157	1.707	1.449	1.421	1.335
	(8.15)**	(8.47)**	(9.29)**	(7.55)**	(7.71)**	(7.13)**
ln population	0.492	0.543	0.734	0.727	0.812	0.781
	(4.81)**	(5.35)**	(6.99)**	(7.30)**	(7.73)**	(7.33)**
ln distance	-1.450	-1.404	-0.986	-1.019	-1.067	-0.997
	(6.79)**	(6.74)**	(3.46)**	(3.78)**	(4.15)**	(3.82)**
Left	-1.207	-0.997	-1.074	-1.140	-1.543	-1.514
	(3.50)**	(2.82)**	(2.88)**	(3.21)**	(4.42)**	(4.27)**
Protection 1,2,3	-0.201					
	(0.63)					
Protection 2,3		-0.725	-1.361	-0.948		
		(2.14)*	(3.81)**	(2.65)**		
Protection 3					-1.648	-1.389
					(3.39)**	(2.81)**
Europe			-1.628	-1.511	-1.447	-1.450
			(3.46)**	(3.28)**	(3.29)**	(3.24)**
Americas			0.795	0.962	1.246	1.291
			(1.35)	(1.71)	(2.20)*	(2.25)*
Asia			-0.670	-0.289	-0.045	-0.106
			(1.18)	(0.52)	(0.08)	(0.19)
Africa			0.619	0.719	0.669	0.524
			(1.11)	(1.25)	(1.18)	(0.91)
ln avg. tariff				-0.637	-0.596	-0.629
				(4.05)**	(3.84)**	(3.99)**
Observations	119	119	119	113	113	113
R-squared	0.58	0.60	0.67	0.72	0.73	0.71

Absolute value of t statistics in parentheses
* significant at 5%; ** significant at 1%

Table 5-0-2 Results from Proportions Model

	(1) $\frac{e_i^u}{e_i}$ 98-00	(2) $\frac{e_i^u}{e_i}$ 98-00	(3) $\frac{e_i^u}{e_i}$ 98-00	(4) $\frac{e_i^u}{e_i}$ 98-00
Constant	2.367	2.527	2.865	3.022
	(6.63)**	(7.20)**	(7.42)**	(7.72)**
Ln gdpcap	-0.115	-0.121	-0.147	-0.157
	(5.41)**	(5.81)**	(6.29)**	(6.71)**
Ln distance	-0.100	-0.112	-0.109	-0.114
	(3.07)**	(3.52)**	(3.44)**	(3.57)**
left	-0.049	-0.091	-0.104	-0.113
	(0.89)	(1.74)	(1.97)	(2.12)*
Protection 2,3	-0.107			
	(2.10)*			
Protection 3		-0.183	-0.145	-0.144
		(2.98)**	(2.20)*	(2.16)*
Ln avg. tariff			-0.051	-0.056
			(1.84)	(1.99)*
Observations	117	117	111	113
R-squared	0.28	0.31	0.36	0.38

Absolute value of t statistics in parentheses
* significant at 5%; ** significant at 1%

CHAPTER 6
THE POLITICAL ECONOMY OF USED-AUTOMOBILE PROTECTION: A CROSS-NATIONAL ANALYSIS

6.1 Introduction

It has been argued throughout this dissertation that that used-automobile protection has a significant impact on trade. Beyond the various anecdotal evidence to this effect, the last chapter showed strong evidence in the case of US exports that liberalization of the two most severe ordinal protection levels would significantly increase trade in used automobiles and that much of this trade would flow to the poorest countries. There is every reason to believe that this generalizes to exports from other regions. The question now becomes, why do these protection policies exist in the first place? What factors can explain the variation and persistence of these policies today?

One way to approach this question is to compare these policies and potential explanatory factors in case studies across a number of countries. The difficulties and intricacies of generating a large number of comparable national case studies has largely limited this approach, and would be particularly daunting for such a highly-specific and little researched topic as used-automobile protection. An alternative may be a cross-national statistical analysis using numerical indications of country policies, politics, and economic factors. This is the method applied in this chapter. Though the use of panel data might be preferable for such a study, as discussed in Chapter 4, it is difficult to get sufficient data for a time series.

The analysis in Chapter 5 seemed to confirm that the ordered measure of protection against used-automobile imports developed in Chapter 4 represented a valid indication of used-automobile protection for quantitative purposes. In this chapter, the protection score is moved from the right-hand side of the equation to the left to become the dependent variable in a cross-national political economy regression model.

In the presence of an ordinal dependent variable, this chapter develops a simple ordered probit model using a sample of 104 developing and transitional economies. The focus on developing and transitional countries in this chapter is justified by a number of factors discussed thus far. First, as discussed in Chapter 2, theory suggests that developing and transitional economies are likely to be under the greatest pressure from these imports and also stand to gain most from used-automobile liberalization. The results of Chapter 5 suggested that these countries do import a higher proportion of used automobiles. Moreover, it is empirically the case that the used automobile trade among the US, Europe, and Japan is more of a two-way trade, while between the developed and developing world the trade is overwhelmingly one-way from rich to poor countries. Second, the nature of international political economy is such that attempting to explain the policy decisions of the world's richest countries, the origin and destination of most foreign investment and international trade, in the same model as the world's poorest countries seems to make little sense. Finally, as seen in Chapter 4, used-automobile protection is concentrated in the developing world, while few of the developed economies have discriminatory restrictions on the import of used-automobiles. Thus both

the pressures and the opportunities for used-automobile protection are expected to be quite different in these two sets of countries.

As with any statistical approach to an institutional problem, using a cross-national ordered probit model has a number of drawbacks particularly in the availability of data and the data constraints dictated by the assumptions and the mechanics of the procedure.[76] As will be discussed at the end of the next section, many of the factors raised as having a possible influence on the political economy of used-automobile protection cannot be easily integrated into this framework. The benefit, however, is that it provides a structured and easily digestible way to present, compare, and discuss the many variables that are tractable using this method and their influence across a wide cross-section of countries. In this way, it provides a broad overview into which the other information and conclusions presented elsewhere in this dissertation can be placed.

The first section of this chapter specifies the model based on the findings of the previous chapters. This is followed by the results using a cross section of 109 developing and transitional countries. The chapter concludes by identifying some of the issues raised by this cross-national test that might be better addressed by specific case studies such as that of Mexico in Chapter 7.

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[76] This method was discussed in general terms in Chapter 4. For a further discussion of its strengths and weaknesses see also McKelvey and Zavoina (1975) and Chapter 5 of Long and Freese (2001). One important restriction for cross national comparisons is that the suggested minimum sample size for meaningful maximum likelihood analysis is 100 observations. This and co-linearity concerns restrict the choice of variables. It should also be noted, however, that this guidance is in place simply because little is known about the small sample behavior of maximum likelihood estimators, and in this case the sample represents most of the underlying population.

6.2 Ordered Probit Model Specification

Base on Pelletiere and Reinert (2002), the first ordered probit estimating equation used here is as follows:

$$protect_i = \alpha + \beta_1 auto_i + \beta_2 regime_i + \beta_3 \ln gdpcap_i + \beta_4 wto_i + \beta_5 fixed_i + \beta_6 trans_i + \beta_7 \ln gini_i + \varepsilon_i$$

On the right-hand side of Equation 6-1 are seven, country-related explanatory variables relating to the presence of an automobile industry, political regime, income level, WTO membership, exchange rate regime, transitional status, and income distribution. We consider each of these in turn.

As suggested by Grubel (1980) and discussed above, political pressures to restrict imports of used-automobiles can arise from the presence of *new* automobile production or assembly within the country in question. For this reason, the first explanatory variable (auto) on the right-hand side of Equation 6-1 measures the presence of an automobile industry in country i. Three alternative forms of this variable are employed. The first is the natural log of new automobile production and assembly in 1999 (lnprod).[77] The second alternative is a dummy variable indicating the presence of automobile production or assembly in 1999 (prod). The third, is a variable indicating the 1999 installed *capacity* for production (capac), irrespective of whether it was actually used for production in that year.[78]

The size of the industry, as perhaps indicated by production levels, is likely to be important in the way of "adding machine" or median voter calculations of political

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[77] The production data is from the Paris-based Organisation Internationale des Constructeurs d'Automobiles (OICA).

[78] Our capacity data is taken from the World Automobile Industry Trends Yearbook.

influence.[79] The more important the industry is to the domestic economy or in terms of world production, the more important it is likely to be to politicians and political interests, both domestic and foreign. Despite this, the mere presence of an automobile industry is often a matter of prestige and it is difficult from production alone to judge how domestic populations and politicians rate its importance. Indeed, as suggested above in Chapters 2 and 3, countries with small or threatened automobile industries, or those trying to get an industry started may be the most supportive of protection in their efforts to maintain or attract investment. For this reason, the third measure is the preferred measure from a political economy point of view. The inclusion of the other two ensure the robustness of results. In all three cases, the hypothesis is that the presence of a new automobile production industry is positively associated with the ordinal protection measure.

The extent to which pressures for protection can be translated into actual protective policy appears to depend on the political regime, and these regimes vary widely in their characteristics across our large sample of developing, transitional, and industrializing countries. Mansfield, Milner, and Rosendorff's (2000) regime variables are used to explore the link between political regime and trade policy using the Marshall and Jaggers (2001) 'Polity' data.[80] Two regime breakdowns are explored. The first

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[79] See Chapter 2 and Mayer (1984); Markusen et al.,(1995: 327-332)

[80] More information on this dataset can be found at www.bsos.umd.edu/cidcm/inscr/polity/. As described in Mansfield, Milner and Rosendorf (2000), a polity score of 6 or greater was used to denote a coherent democracy, while a score of -6 or less was used to indicate a coherent autocracy. Intermediate values characterize incoherent regimes. In Polity IV, used here, the polity

dichotomy (dem) is between democratic regimes and non-democratic regimes. Consistent with the assumptions of Mansfield, Milner and Rosendorf (2000), the hypothesis used here is that democracies better channel pressures for protection into policy. This is based on the capacity of the popularly elected legislature to constrain a country's chief executive (an explicit element of the Polity data) and on the further consideration that economic interests will be able to exploit every legislator's desire to enact the level of trade barriers that will maximize his or her own political support.

Mansfield, Milner and Rosendorf (2000) note, however, that there is a priori no reason why an autocrat would be against free trade. All that the theory suggests is that the policies of an autocracy would reflect the interests of those who support the ruler. In some cases these interests would be served by free trade and in others by protection. In some cases more autocratic regimes perceive their rule as depending on very specific bases of popular support. What may be more important is the ability of the government to identify, act on and maintain its policy direction. Therefore, the second breakdown (cohere) is between those regimes that are considered coherent and those that are not. Coherent democracies and coherent autocracies are likely to have clearly defined bases of power and constituencies and channels through which influence for protection might be transmitted. Those country governments that combine elements of both, those that are incoherent in the terminology of the polity database, are considered to be less stable, and are often going through a transition or upheaval of some sort (Gurr, 1974 and Marshall and Jaggers, 2001). In these regimes the transmission of influence may be more difficult.

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score is based on five indications of the competitiveness of executive recruitment,

This is considered as an alternative to the democracy dummy. In previous work (Pelletiere and Reinert, 2002), there appeared to be support for the hypothesis that incoherent regimes were less likely to restrict used-automobiles.

After the regime variables, the role of income is considered. Chapters 3, 4, and 5 have all discussed how used-automobile protection is expected to have different impacts at different income levels, within as well as among nations. At lower national income levels, the politically-important upper-middle class may be dependent on used-automobiles, whereas at higher national income levels, this class might be in a position to afford new automobiles. For this reason, the log of PPP-adjusted 1999 GDP per capita is included as a third explanatory variable. Our hypothesis here is that this variable will be positively associated with the ordinal protection measure.

From income, the consideration moves to external institutional variables. Membership in the WTO subjects countries to scrutiny through the trade policy review mechanism and dispute settlement procedures. Further, used-automobile protection is a subject in a number of WTO trade policy review reports and questioning by other members. For this reason, is conceivable that WTO membership acts as a deterrent to used-automobile protection or may encourage liberalization of existing restrictions. A dummy for membership in the WTO is included.

A similar variable is exchange rate regime. Though this is fixed by the national government it creates an explicit contract with both foreign and domestic holders of the national currency, and this may limit subsequent policy choice. The exchange rate

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constraints on the chief executive, and openness of participation.

regime is included here because of its links to calls for used automobile protection found in the developing world press, particularly in the presence of a local automobile industry, balance of payments concerns are raised in justifying restrictions on used-automobile restrictions.[81] As suggested by Corden (1991), there is some tendency for countries pursuing a fixed exchange rate regime to increase protection levels to support an overvalued currency. For example, Yatawara and Ajona (2001) use pooled data to demonstrate that "a fixed exchange rate regime increases the likelihood of tightening commercial policy, and reduces the likelihood of liberalization" (pg. 3 and 16). Given these considerations, the fifth right-hand side variable (fixed) in Equation 6-1 is a dummy variable to indicate the presence of a fixed exchange rate regime during any of the years 1995 to 1998.[82] This variable is expected to be positively associated with the ordinal protection measure.

Chapters 3 and 4 left the impression that transitional economies were differentiated as a group from other countries in having lower protection levels against used-automobiles, perhaps due to the their "latecomer" status as entrants into the world trading system when open economies were *de rigueur*. This and the nature of their entrance, i.e. sudden regime collapse and de facto open borders in many cases, led to far more liberal trading regimes than found elsewhere in the developing world at the time. This was particularly the case for automobiles new and used, as pent up demand in the east was finally satisfied. For this reason, the sixth variable (trans) on the right hand side

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[81] Ghana is a recent example. See *Africa News Service* (2000) and *Accra Mail* (2000).

of Equation 6-1 indicates transition status.[83] As indicated by the Russia anecdote in Chapter 3, the expectation is that this variable will be negatively associated with the ordinal protection measure. The logic being that in countries with initially liberal trade regimes toward used-automobiles, used-automobile interests will have developed to oppose protection.

Throughout this dissertation it has been stressed that used-automobiles are durable goods consumed most intensively by the lower (middle) classes. Measured inequality in these countries is likely to by an indicator of the ability of upper classes to appropriate rents from the lower middle classes, including through used-automobile protection. As presented in Chapters 2 and 3, new imported automobile purchasers, who are likely to be more wealthy than those that purchase used or even domestic new automobiles, actually benefit from used-automobile protection if they sell their current automobile in the domestic used-automobile market. For this reason, the Gini coefficient is included as the last right-hand side variable (gini) in Equation 6-1. Unfortunately, these data are available for only 88 of the 104 countries included in the probit analysis. For this reason, they are only utilized once in a reduced sample. The expectation here is that income inequality will be positively associated with the protection score.

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[82] In terms of International Monetary Fund nomenclature, we consider a 'fixed' exchange rate as on pegged to the US dollar, the pound sterling, the French franc, other currencies, or currency baskets.

[83] The transition countries in our sample include Latvia, Czech Republic, Croatia, Moldova, Slovenia, Albania, Russia, Estonia, Slovakia, Bulgaria, Kazakhstan, Lithuania, Romania, Belarus, Georgia, Poland, Uzbekistan, Ukraine, Hungary, Yugoslavia, and Vietnam.

Given the small sample size, to preserve degrees of freedom in the analysis two potentially important variables are initially excluded. The first of these is the presence of environmental standards. As discussed above, while policies such as emissions standards clearly might either complement or substitute for used automobile import restrictions, the presence of such policies is highly collinear with automobile production capacity and to a lesser degree with income and therefore excluded from the initial analysis. The second variable with a similar problem is market size. As discussed in greater detail in Pelletiere and Reinert (2002), market size appears important due to what is generally referred to as the small market hypothesis, i.e. that small markets are likely to be more trade dependent and therefore open to trade. Large domestic markets may be able to support sufficiently large and efficient automobile markets to reasonable satisfy domestic demand. But for this very reason, population is also highly and positively correlated with automobile production and therefore initially excluded. The more customers in a market the more attractive it is. Given the potential importance of these variables, and since prediction is not a concern in this case, it is illustrative to look at a model that includes these variables as well.

6.3 Results of the Ordered Regression Model

The results of this model are presented in Table 6-1. The model of Column 1 is characterized by its use of the log of automobile production and the democracy regime dummy, and the other variables of Equation 6-1, except for gini (which does not appear until Column 5). With the exception of the fixed exchange rate regime variable, each coefficient of Column 1 has the expected sign. The only statistically significant variables,

however, are automobile production, WTO membership, and transitional status. The key result here is that restrictions on used-automobile imports do indeed appear to be driven by political pressure associated with new automobile production (both domestic and foreign) as first suggested by Grubel (1980).

The model of Column 2 substitutes a production dummy variable for the log of automobile production, and again the presence of a domestic industry is statistically significant. So to, however, is the log of income per capita. This indicates that the ability of the middle classes to afford new automobiles might make used-automobile protection more likely. Or, to put it another way, a liberal import regime in used-automobiles might have inferior good characteristics.

In Column 3, the capacity dummy is statistically significant and more so than the other two approaches of Columns 1 and 2. This may suggest that, along with the presence of current production, the sheer promise of an industry or the future return of production is enough to influence policy choice. In Chapter 3, based on the comments of Moran (1998: 46), it was suggested that such policies might be made a prerequisite for investment. It is in this preferred model that democratic regime becomes statistically significant. It does then appear that democracies better channel pressures for used-automobile protection into actual protective policy. In this preferred model, the positive income effect remains. Also, the significance of WTO membership increases in exerting pressure for liberalizing used-automobile imports. As in each model, transitional status makes used-automobile protection less likely.

Column 4 changes the regime variable from that of Column 3. Instead of democracy, we expand the dummy set to include all coherent regimes. While the coefficient is positive as expected, it is not statistically significant, and the statistical significance of the other explanatory variables decreases.

Column 5 of Table 6-1 uses a reduced sample of 88 countries to test the role of income distribution in used-automobile protection.[84] As in Column 4, this specification is based on the capacity and coherent regime dummy variables, but does not include the transitional dummy.[85] The capacity dummy and income per capita variable remain significant for the reduced sample. Most importantly, the natural log of the Gini coefficient is both of the expected sign (positive) and statistically significant at the one percent level. Thus there appears to be at least preliminary evidence that inequality contributes to used-automobile protection as expected. That is, the ability of upper classes to appropriate rents from the lower middle classes appears to play a role in used-automobile protection.

In Table 6-2, the full model is built, starting with the basic market size variables of population and income, and then adding the complete list of domestic and international institutional variables, followed by the capacity to produce dummy, the transitional economy variable, the coherent regime, and finally Gini Coefficient variable. In this model the results are quite similar to the initial model. Though the domestic market size

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[84] This sample size is *below* that considered to be sufficient for ordered probit analysis, namely 100. Therefore, the results of Column 5 should be interpreted with additional caution.

[85] It was not possible to use the democratic regime and transitional economy dummies due to multicolinearity problems, in part related to the smaller sample size.

variables appear significant initially, this significance disappears with the inclusion of the industry capacity variable. The environmental policy variable enters as insignificant and remains so. In column 4, we see that the significant variables are similar to those in the initial equation. In column 5, the coherent regime dummy is substituted for the democracy dummy, and it enters as positive but nominally insignificant. Finally, in column 6, the Gini coefficient is included. As before the income per capita returns to significance, but in this case the Gini coefficient itself is not significant, likely as a result of the generally flatter income distribution reported for most transitional economies in the 1990s.

6.4 Conclusion

What can be concluded from the political economy results of Table 6-1? First, there is evidence that the capacity to produce automobiles, either domestic- or foreign-owned, comes with pressures to restrict imports of used-automobiles. This is an empirical confirmation of the domestic protection effect suggested by Grubel (1980). There is some evidence that these pressures to protect against used-automobile imports are channeled more effectively in democracies than in autocracies. There is also some evidence that protection pressures are higher as incomes increase and that WTO membership deters such pressures or that countries that are part of the WTO resist such pressure. There is evidence that, as a group, transitional economies are less likely to protect used-automobile markets than non-transitional economies, a potential reflection of the "latecomer effect" and also perhaps of what was suggested based on the anecdotes in Chapter 3, and more generally by Rodrik (1992, 1996) that once used automobile

markets are liberalized (and used automobile interest groups are expanded) there is greater resistance to protection. Finally, there is strong evidence, albeit based on a restricted sample, that pressures to restrict imports of used-automobiles are more likely to be transmitted into actual restrictive policies the more unequal the distribution of income.

How do the results of the political economy discussion in Chapter 3 appear in light of these empirical findings? The strong positive and significant relationship between new automobile production variables and the severity of protection supports both the hypothesis that it is *intraindustry* interest that drives the implementation of these policies (i.e. that it is *new*-automobile production interests that seek *used*-automobile protection) and the rejection in Chapter 3 of a strict specific-factors explanation and. Though there is no explicit variable indicating the presence of a used automobile market or industry, it can be safely assumed that one exists in every country, in a sense part of the null category. Since, all countries are expected to have a used-automobile sector that could potentially ask for protection, the fact that those with the capacity to produce automobiles are more likely to have used-automobile protection is significant. There is also some support for considering industry presence to be far more important than many of the other concerns raised in justifying protection such as balance of payments. There is, however, no consideration in the model of the most often cited concern, environmental damage (See discussion in Chapter 3). In more general terms, there does seem to be cross-sectional variation related to variations in government form and membership in organizations such as the WTO as was suggested in Chapter 2.

The significance and direction of the income measures may provide some indication of the political strength of the poorer elements of the society. Since it can be assumed that used automobiles are associated with lower income individuals, this perhaps provides support for the significance of the class and income differentiation made in Chapter 3. Also, the production level of the domestic new-automobile industry provides some information on the importance of the domestic industry, at least in global terms. Still, comparisons of individual group sizes and characteristics are nearly fairly limited in this analysis. There are no variables that explicitly indicate variation among the other "winners and losers" indicated in Table 3-1 last chapter. This is largely due to the specific difficulties with data and methods discussed above and in chapter 3, as well as the general lack of significant data on national used-automobile markets.

Thus, among the political economy hypotheses presented in Chapter 3 (Hypotheses 5 and 6) the results presented here provide strong support for hypothesis five, that the presence of the new automobile industry is a positive and significant factor in explaining the severity of used automobile production. But, Chapter 3 was explicit in seeing the role of multinational firms and increasing automotive FDI in developing countries as significant factor in the emergence of used-automobile protection instead of other potential policies (i.e. free trade, Grubel protection, or prohibitive protection). Also, it made a point of disaggregating the winners and losers, and thus far there has not been any treatment of this beyond the anecdotes of Chapter 3. Finally, the analysis here is cross-sectional, it provides insight into the variation across nations but not over time. To address these issues, Chapter 7 turns to a case study of Mexico's policy evolution.

Table 6-1 Results from Ordered Probit Analysis

	(1) Protection Score	(2) Protection Score	(3) Protection Score	(4) Protection Score	(5) Protection Score
ln Prod (units)	0.503**				
	(4.97)				
Prod. (1/0)		0.507**			
		(5.26)			
Capacity (1/0)			0.686**	0.679**	0.574**
			(7.32)	(7.23)	(5.72)
Democratic	0.102	0.128	0.168*		
	(1.07)	(1.37)	(2.10)		
Coherent				0.155	0.106
				(1.88)	(1.13)
ln gdpcap	0.169	0.192*	0.172*	0.151	0.210*
	(1.72)	(1.99)	(2.11)	(1.82)	(2.08)
WTO	-0.207*	-0.229*	-0.228**	-0.197*	-0.090
	(2.08)	(2.31)	(2.68)	(2.40)	(1.01)
Fixed Rate	-0.120	-0.114	-0.059	-0.068	-0.074
	(1.34)	(1.29)	(0.77)	(0.89)	(0.84)
Transitional	-0.309**	-0.305**	-0.436**	-0.422**	
	(3.11)	(3.12)	(4.77)	(4.65)	
ln Gini					0.255**
					(2.72)
Observations	104	104	104	104	88
Pseudo R-squared	0.16	0.17	0.29	0.29	0.23

Note: Absolute values of z-statistics are in parentheses. "*" denotes significance at the 5 percent level, and "**" denotes significance at the 1 percent level. Prob > Chi-square .0000 for all models

Table 6-2 Results from the Ordered Probit Analysis – Full Model

	(1) Protection Score	(2) Protection Score	(3) Protection Score	(4) Protection Score	(5) Protection Score	(6) Protection Score
Lngcap	0.384	0.433	0.190	0.189	0.151	0.348
	(4.01)**	(3.60)**	(1.52)	(1.78)	(1.40)	(2.76)**
Lnpop	0.615	0.558	0.175	0.003	0.002	0.128
	(5.97)**	(4.68)**	(1.26)	(0.03)	(0.02)	(1.00)
Democratic		0.096	0.085	0.183		0.151
		(1.00)	(0.93)	(2.27)*		(1.02)
WTO		0.012	-0.017	-0.158	-0.129	-0.123
		(0.14)	(0.19)	(2.02)*	(1.68)	(1.46)
Fixed Rate		-0.017	-0.045	-0.012	-0.027	0.006
		(0.18)	(0.51)	(0.16)	(0.35)	(0.00)
Emission Reg		-0.063	-0.024	0.104	0.147	0.026
		(0.52)	(0.21)	(1.06)	(1.52)	(0.17)
Capacity (1/0)			0.487	0.629	0.611	0.482
			(4.05)**	(5.47)**	(5.31)**	(4.18)**
Transitional				-0.470	-0.444	-0.464
				(5.18)**	(4.97)**	(4.32)**
ln Gini						0.013
						(0.16)
Coherent					0.141	
					(1.77)	
Observations	109	104	104	104	104	88
Psedo R-Square	.15	.15	.21	.32	.31	.34

Note: Absolute values of z-statistics are in parentheses. "*" denotes significance at the 5 percent level, and "**" denotes significance at the 1 percent level. Prob > Chi-square .0000 for all models.

CHAPTER 7
A CASE STUDY OF MEXICO

7.1 Introduction

For those studying the political economy of trade policy in the developing world, the liberalization of the Mexican economy beginning in the 1980s has been one of the most intriguing case studies of the past two decades. Mexico, a country wedded to nationalist trade and development policies since before World War II, began to liberalize its economy in the 1980s even as it suffered a severe debt crisis. More interesting is that it sustained that policy direction throughout the decade. By 1994 it had signed and begun implementing the North American Free Trade Agreement (NAFTA), a far-reaching multilateral trade agreement with the United States and Canada. Since then, similar deals have followed with nine South American countries, the European Union and Israel. Today Mexico is considered one of the most pro free-trade economies in the developing world.

How was support for these trade deals generated - and successful - in a country known for its nationalist and populist politics? How did this transformation take place and what were the factors that caused it? Did the impetus come from outside, from the IMF, the World Bank or foreign multinational firms? Or was it the result of domestic changes in political power, economic outlook and education? Or was it some combination of both? These are some of the central questions that have occupied

economists, political scientists and sociologists interested with the Mexican political economy of the past two decades (Whiting, 1992; Wise and Pastor, 1994; Babb, 2001; Thacker, 2001).

One of the most studied cases in this literature is the automobile industry (Bennett and Sharpe, 1985; Whiting, 1992; Fujita et al, 1994; Robert, 2000; Thacker, 2001; Cameron, 2001: Studer, 2002). The complexity of the negotiations, the importance of the industry and the extent of protection initially, and the subsequent liberalization, all draw the attention of researchers. In light of the successful conclusion of the NAFTA negotiations, most authors have focused primarily on identifying and investigating the factors that made the liberalization that did occur possible.

In this context, one aspect of this agreement is largely overlooked. In a pattern observed elsewhere in Latin America and across the developing world (Chapter 4; Pelletiere and Reinert, 2002), despite significant liberalization in the automobile sector, the import of used automobiles into Mexico - and from Mexico to Canada - is generally banned until 2009. After 2009, ten year-old automobiles will be allowed; two years later eight year-old automobiles will be allowed, and so on. In this way, the used automobile trade in North America is not due to be fully liberalized until 2019 - a full 25 years after NAFTA began to be implemented.[86]

[86] This is a sort of hybrid of Grubel-protection, discussed briefly in chapter 3. By liberalizing older automobiles first, new automobiles are protected from competition from used automobiles for the longest time. Since the new automobile market will already be liberalized, protection for domestic automobile operations is limited while gross emitters are allowed.

By contrast, liberalization of new automobile imports began almost immediately. That market is due to be completely liberalized by 2004. Five years before liberalization even begins for used automobiles, any individual will be able to buy a new automobile produced[87] in the United States or Canada and import it to any part of Mexico without a license or special permit. Already by 2001, a few years before complete liberalization in 2004, roughly 50 percent of the new automobiles sold annually in Mexico were imported. Prior to the signing of NAFTA in 1994, the percentage was near zero (Soto, 2002).

It would be easy to conclude that the issue of used automobiles has received so little attention because it is minor in political and economic terms. Perhaps it could be seen as something that the US negotiators and the multinational automobile industry - traditionally seen as the primary beneficiaries and drivers of liberalization – and the Mexican negotiators - seen as more protectionist - were willing to compromise on. Though the Mexican negotiators and many large economic interests embraced the trade negotiations and liberalization, they also faced a more skeptical domestic automobile parts sector and others intent on preserving as much of their pre-existing automobile policy as possible (Thacker, 2000; Cameron and Tomlin, 2001). Thus limited protections such as used-automobile protection might have been a minor concession to these nationalist interests.

Closer examination, however, reveals that used automobiles are not a minor or marginal trade policy issue in Mexico or to the North American Automobile industry. In Mexico, particularly in the post-NAFTA era, used automobiles and used automobile

[87] Automobiles that meet regional content requirements as defined by NAFTA.

liberalization have become elements of populist politics with significant appeal. Similarly, a historical review suggests that the used automobile ban under NAFTA is best seen not just as an artifact of Mexico's earlier nationalist policies but instead as a policy that emerged with liberalization, at the suggestion and with the encouragement of foreign automobile producers.

Using the case of Mexico, this chapter argues that the comparison of used and new automobile trade liberalization provides a fresh perspective on the "rush to free trade" (Rodrik, 1992) that occurred across many developing and transitional countries in the late 1980s and 1990s. This is motivated first by the notion that is often as interesting to study the anomalies as the trend, in this case what did not get liberalized in the face of an overall trend toward liberalization. Second, as Babb (2001:13) has pointed out, Mexico's development follows a similar pattern to other, particularly Latin American, developing countries. Its history is one of colonial status followed by nationalism and underdevelopment, import substitution, state-financed populism, and the debt crisis of the 1980s, all of which laid the ground for the liberalization of the 1990s. At the same time, it is also an extreme case. Due to its shared history, border, and population with the US, Mexico is more closely integrated with, and immediately affected by, economic, policy and education trends in the US than most other nations. Since the 1990s was defined by the spread of the so-called "Washington Consensus"[88] on trade and development policy, Babb argues, as a case study Mexico can serve as both a "prototypical" and as an "ideal" case for similar issues throughout the developing world. In this case, Mexico's

88 See Williamson (1999) on the origin and subsequent use of this term.

discrimination against used-automobiles is noteworthy due to the proximity of the large, mature US used-automobile market and the signing of the NAFTA agreement, but it is also indicative of policies throughout Latin America and the developing world.

Finally, the similarities and differences in market and industry structure between the new and used automobile industries, discussed in Chapter 2, can provide an illustrative case study of the influence of economic, geographic, and political concentration on collective action and outcomes of trade policy (Busch and Reinhardt, 1999). Despite being nominally in the same industry, the new automobile production and distribution system is characterized by an oligopolistic industrial structure and a high degree of integration throughout the production and distribution chain, while the used automobile system is highly decentralized and faces barriers to scale and integration throughout. Thus *a priori* it seems likely the new automobile industry would face a considerable advantage in overcoming the collective action problem (Olson, 1971) and winning concessions in the NAFTA negotiations. Other authors, notably Strom C. Thacker (2000), have looked at the differing interests of large and small-scale firms within the automobile negotiations and the different opportunities they had for participation. The explicit differentiation of new and used automobiles provides another clear opportunity for assessment.

7.2 Case Structure

This chapter continues by identifying the rationales and explanations for used automobile discrimination found in the specific case of Mexico. This is followed by a history of the automobile sector in Mexico, with a particular focus on the changing policy

and industry environment in which it developed. The next section looks at the Mexican domestic market for automobiles to identify consumer interests to match those of producers addressed in the previous section. A discussion of the NAFTA automotive negotiations follows with a focus on how the used automobile provisions emerged in this process. While used automobile protection did not raise significant controversy within the closed-door negotiations, after implementation the issue has become a high profile political issue in Mexico. Thus it is necessary to give a more thorough consideration of the used automobile sector in Mexico and the domestic politics of used automobiles as they emerged after the ratification of NAFTA. This is followed by an analysis of what this case says about the "winners and losers" from used-automobile protection, their political influence, and the reasons for Mexico's change in policy.

The research underpinning this analysis comes from a variety of sources including press reports, statistical sources, industry experts, and a series of interviews conducted with national trade officials, automotive industry representatives, Mexican automobile dealers and others in Washington and Mexico City (list in appendix)

7.3 Explaining the Used automobile Ban in Mexico

Why did NAFTA provide for a 15-year ban on used automobiles and a ten-year phase in of liberalization after that, when the phase in of new automobile liberalization began almost immediately? In the case of Mexico, four of the explanations seen above in chapter 3 are observed. The first is the tie between the trade and criminality, drugs, invoice fraud, swindles, and border corruption. Though the logic of this explanation appears to be somewhat circular – i.e. much of what allows or forces this activity into the

realm of criminality is the prohibition itself - it appears often in the domestic debate over the enforcement and the necessity of the prohibition. The second is the environment and safety argument, which is heard from the government and the Mexican Automobile Manufacturers Association (AMIA) and the Mexican Automobile Distributors Association (AMDA). As elsewhere (see other examples in Chapter 3) this is often made a nationalist appeal, by referring to the used automobiles that would likely be imported as "foreign junk," too dirty, too unsafe, and too old for the US market. The third explanation is a simplistic domestic industry protection argument, i.e that used automobiles hurt the domestic industry (the pride of Mexico), heard from the same sources but geared toward domestic consumption. The fourth explanation is that it protects not the Mexican industry *per se* but the interests of foreign direct investors in the Mexican new automobile production sector and only secondarily those of the Mexican labor and firms in the supply chain. The argument here is that having made large investments in assembly and engine plants in Mexico under protection, foreign firms were seeking to protect these assets under NAFTA from competition from their own second-hand products from the US. Though not widely reported at the time, from the very day it was announced the deal on used automobiles was seen in the US as a "victory for US automakers," (Journal of Commerce. August 4, 1992) that "Detroit shrewdly protected itself from used automobile competition" (USA Today, November 22, 1993) within Mexico.

Since the Mexican new automobile production and assembly sector of the industry had become 100 per cent foreign owned by the time discriminatory used

automobile protection was created, the substantial difference between these last two explanations is minimal. From a political standpoint, however, the emphasis on domestic versus foreign interests is significant. Each of these explanations will be expanded on within a narrative of Mexican policy before, during, and after the negotiation of NAFTA.

7.4 Policy and the Development of the Mexican Automobile Sector

It is doubtful that any aspect of the development and eventual liberalization of the Mexican economy has received as much attention as the automobile sector. Bennett and Sharpe (1985) provide an exhaustive case study of the industry and the negotiations that occurred between the Mexican government and the Automotive multinational firms throughout the 1960s and 70s. A more recent treatment is Studer (2002). The sector is also popular as a case study within wider discussions of trade liberalization in Mexico and NAFTA such as in Whiting (1992), Fujita et al. (1994), Cameron and Tomlin (2000), Thacker (2001), Robert (2001), and the United Nations Economic Commission for Latin America (ECLAC, 1999). From these sources a clear history of the protection and subsequent liberalization of the Mexican automobile industry emerges.

7.4.1 The Early Years

Early on in its industrial development, under Porifirio Diaz (1876-1910), Mexico opened sectors of the economy to foreign investors able to bring needed economic activities and projects not readily available from Mexican firms or entrepreneurs. It was in this vein that the Mexican automobile industry started in 1925 when Ford established an assembly plant in Mexico City as part of its own international expansion. The purpose of this investment was to supply the growing Mexican market with automobiles produced in the US and assembled locally. General Motors followed ten years later in 1935 and

Chrysler brought up the rear for the American producers in 1938. While GM and Ford owned their operations in Mexico outright, initially Chrysler entered the market with a majority Mexican partner, Faricas-Auto-Mex. Mexican firms also assembled other makes under license. By 1960 there were 10 assembly plants in the Mexico City area putting out roughly 30,000 units of 44 makes and 117 models. The local integration was only about 20 percent of the direct cost of production (Fujita et al. 1994: 202). To most observers at the time the Mexican industry appeared too diverse and dispersed, and with too little local integration to be a viable engine for development and growth in the economy.

7.4.2 Import Substitution

The presidential Automotive Decree of 1962 attempted to force both a consolidation of the industry and an increase in local integration by extending import substitution to the automobile industry. This policy represented an attempt to move the Mexican industry away from its historical role of simply assembling completely knocked down or semi-knocked down kits imported from the US and other countries to producing automobiles with all the upstream activities associated with that. It was also a policy intended to strengthen the hand of Mexican investors and firms in relation to the Big Three (Ford, GM, Chrysler) - the major players in the Mexican industry – and other foreign interests. The major provisions of this decree were a 60 percent Mexican content requirement (motors and critical components could not be imported) for automobiles. The imports of kits, whether completely or semi-knocked down, and completely built automobiles, *used or new*, were prohibited.

The foreign firms opposed this policy vehemently, but the Mexican government was also adamant. Once Ford agreed to the local production requirements, the other two US firms also acquiesced, investing further in their operations and supplier networks in and around Mexico City. This firm behavior, repeated often in the history of the industry, is a result of the automobile industry's oligopolistic structure. Participants in such a market feel they must make defensive investments to match the presence of their competitors in a market (Whiting, 1982: 214). Once one firm moves, the others must either go along or risk ceding market share.

For the next twenty years, Mexico attempted to fine-tune this policy to encourage a nationally integrated domestic automotive industry by increasing and adjusting the performance requirements that it expected firms to meet in exchange for access to the Mexican market. For their part, the US Big Three, and Nissan and Volkswagen, which had become resident in Mexico in 1961 and 1964 respectively, continually attempted to renegotiate the terms as their own operations and global structures changed (Bennet and Sharpe, 1985; Whiting, 1992; Studer, 2002). These terminal producers would increasingly offer exports and specific investments to minimize Mexican restrictions on trade and industry operations.

The 1962 decree had little effect and the industry remained fragmented. The overall movement was toward less rather than more Mexican participation in the industry as foreign investors increased their participation in Mexican operations (Whiting, 1992: 215 and ftnt. 11). This led the government to announce the 1969 Export Promotion Decree. The final shape of this decree was determined when, to head off the creation of a

Mexican "national champion" through government consolidation of the remaining Mexican operations, Ford proposed policies to encourage exports by foreign firms from Mexico, improving Mexico's trade and currency balances.

The national champion plan had been proposed by Faricas-Auto-Mex, which was majority Mexican owned (a third was owned by Chrysler), and backed by the finance ministry. President Diaz Ordaz is said to have backed the Ford plan, with some re-negotiation, due to the support and lobbying it received from the Bank of Mexico and a group of technocrats (*técnicos*) he brought with him into office. Under the decree, foreign firms faced mandatory export requirements. Once again, while US MNFs were not excited about sacrificing existing economies of scale at proximate US plants by increasing production in Mexico, once Ford complied, the others followed suit (Whiting, 1992: 216).

As it turned out, the firms did not meet the performance requirements, and the 1969 decree, reaffirmed in 1972, did not achieve the desired results. Mexican participation in the industry continued to decline and the industry remained fragmented. The export requirements were not met, in part because the global recession (1974-1975) hurt companies' sales and operations worldwide. Furthermore, the existing plants had been developed to serve the domestic market: they were not the newest nor the most efficient, and they were located near Mexico City. Exporting from these plants would not have been competitive, particularly given Mexico City's distance from the US market and Mexico's poor transportation network among other factors.

In an environment where there was already global surplus production and declining demand for their products, US firms saw few opportunities to profitably export from Mexico without threatening production elsewhere. Given these economic difficulties and the fact that all the firms failed to comply, the Mexican government felt it could not force compliance from foreign firms without threatening the existence of the domestic parts industry, which had become an important part of its political constituency (Bennett and Sharpe, 1985: 187). Though Mexican participation in the terminal automobile production and assembly operations continued to decline, employment was still significant and the decrees had been successful in keeping the local parts industry firmly in Mexican hands. Throughout the 1960s and 1970s local parts production boomed at a rate of about 10 percent a year (Fujita et al. 1994: 202). It was this sector of the industry in particular the government wished to protect.

7.4.3 Oil and the Changing Industrial and Policy Landscape

The oil crisis and global economic downturn made foreign firms' threats to close their Mexican plants if forced to export credible. Ironically in the longer term it would also force significant changes in the industry that only a decade later would boost the role of Mexican operations in these firms' regional operations (Whiting, 1992; Fujita et al., 1994; ECLAC, 1999; Studer, 2002). Declining demand in already saturated developed markets and the shift to fuel-efficient automobiles brought on by the 1973 Oil Crisis would mean that by the end of the decade US firms were repositioning and rationalizing investments on a global scale. GM, and later Ford, moved to produce a "world car." The world car concept was simply that mechanically identical automobiles would be produced in a small number of plants distributed around the world. Thus the parts for the

car would also be sourced from similarly distributed suppliers and stock (of both parts and finished products) could be easily shifted between markets based on price and inventory considerations. In this environment, foreign investments were no longer made simply in pursuit of domestic market share but as pieces of integrated regional and global production and distribution systems. Though exports from Mexico were initially proposed under political duress, in the new environment US firms would begin making new investments and shuffling production to cut costs and meet global competition. Mexico would become an increasingly attractive production base for exports to the proximate US market.

But these developments were only beginning to take shape, and in the mid-1970s, the Mexican government proposed to strengthen its import substitution policy. A draft decree in 1976 proposed an 80 percent national content requirement. Also included were new formulas for calculating local content to overcome the control that foreign automobile producers had over the accounting for intrafirm transfers. It was well known that foreign producers manipulated the declared value of both imports and exports to appear to come closer to Mexico's targeted trade balances. The new formulas sought to reduce the opportunity for such manipulation, and thereby increase stagnating Mexican integration into automobile production. These more nationalist provisions were largely due to the inclusion of domestic automotive parts firms in the drafting of the decree for the first time (Bennet and Sharpe, 1985: 201).

Though the influence of the parts lobby was felt, with many more members, who in most cases were dependent on producers, it did not have as much clout as the terminal

producers and high local content provisions would not make it into the final decree. Both the import substitution approach and its political failure were also endemic of wider political problems of the Echeverria administration, which presented the draft. Jose Lopez Portillo became president in 1976 and a new decree was announced in 1977. The import substitution policies in the 1976 draft were greatly watered down. In general, the policy eliminated price controls and direct regulations in favor of fiscal incentives.

As an oil exporter in a period of high oil prices, however, the Mexican government was in a historically relatively strong position, the government felt economically secure and the Mexican automobile market was growing rapidly (Studer, 2002). The new decree remained an instrument of nationalist industrial development. There were tougher restrictions on balancing trade at the firm level, a still significant 50 percent domestic content requirement, and firms with some Mexican participation, namely Renault de Mexico and Vehiculos Automotors Mexicanos (Chrysler now wholly owned its Mexican operations), were given further special considerations.

At the time, the decree was considered technically sophisticated, reflecting the long history of negotiation and the increasing sophistication of Mexican officials negotiating these agreements (Bennet and Sharpe, 1985: chapter 9). This time around, *tecnicos* in the Mexican administration took knowing advantage of the previously observed behavior of the MNFs to act defensively and this oligopolistic behavior once again led all five resident MNFs to commit more resources to the Mexican market in order not to be excluded entirely.

Though the Big Three opposed the decree vigorously, with the changes taking place in the global industry, they preferred export-led development to import substitution. In this case it was ultimately GM that first accepted the terms. At the time, GM remained relatively strong in the US market and had moved first among the US producers to downsize and rationalize production globally. Ford resisted the longest, in part because it continued to have an assembly and production-in-market strategy and did not have an obvious outlet in the US market for its Mexican products (Bennet and Sharpe, 1985; Whiting, 1992; Studer, 2002).

Nothing in the 1977 decree lifted the ban on automobile imports. Interestingly, however, from 1976 to 1981 there was an increase in imports from $9 million to $514 million (Studer, 2002: 162). New and used automobile dealers in the northern Mexican states began to complain bitterly that Mexicans were crossing the border, buying cheaper automobiles in the US, and importing them illegally. In response, the Mexican government established quotas allowing licensed Mexican dealers in the northern border states to import automobiles legally. Today, dealers can only legally import automobiles 4 to 15 years older than the current model year and only sell them in Tijuana, Mexicali, and Juarez. Along with restricting imports to dealers in the northern border states, the registration of these "foreign" automobiles is limited to residents of these states. While this program might have seemed a limited response by the government to a local economic problem and specific political demand, as Studer (2002: 162) writes, "A decade later, these importations would become a politically explosive issue."

7.4.4 Debt Crisis and Liberalization

The 1983 automotive decree came a year after the Mexican Debt Crisis. The relative strength the government felt in 1977 was entirely dissipated by this crisis, and with oil revenues down sharply, the Mexican government was in need of foreign exchange. For the first time, Mexican policy was geared toward meeting its export goals by helping foreign firms to exploit Mexico's competitive advantage in labor costs *within* existing international production and marketing networks, rather than requiring the substitution of Mexican inputs (Studer, 2002).

On its face, the decree sought to increase local integration in final production to 60 percent and required firms to reduce the number of makes and models they produced in Mexico to one production line. Exceptions to both requirements were granted, however, if firms engaged in significant exports. This allowed firms to export from Mexico competitively. Second production-lines were allowed for exports, and content requirements dropped to 56 percent if 56 percent of production from that line were exported and to 30 per cent if over 80 percent of production were exported. Even if the liberalization was only limited to export production, this was a watershed event: for the first time firms could access cheaper Mexican labor without significantly sacrificing their access to components on the internationally market.

The decree also included populist elements such as requiring 20 percent of production was for "austere," no-frills automobiles to serve the lower end of the new automobile market. In 1985 this was to be increased to 25 percent. Also, eight cylinder engines were banned, apparently for environmental and fuel efficiency reasons. Once

again, there was no formal change to the ban on imports of complete automobiles, used or new.

From 1978 to 1981, oil revenues and government spending had fueled domestic sales and the growth of the industry. In 1981 the domestic market totaled 340,000 units. During this boom, demand had been met with imports and a large trade deficit. With a straight-line projection, it seemed it would be years until the necessary investments were made to meet the Mexican governments trade balance goals. The industry moved to balanced trade in new vehicles for the first time, however, in 1983 as the debt crisis reduced domestic demand, and therefore imports, while the favorable terms of trade and the new decree encouraged firms to greatly increase production and investment in Mexico. In that year Mexico achieved an automotive trade balance of $51 million and though the Mexican market has recovered and flagged, Mexico has remained net exporter of automobiles in most of the years since. By 1989 Mexican vehicles made up 13 percent of the sales in the US market and investment in the industry moved away from Mexico City (and the domestic market) toward Mexico's northern border with the US. In the 1980s, four new assembly and plants were constructed, all in the northern border states (Fujita et al, 1994: 207).

Mexico was becoming integrated in North American and international automobile production and distribution systems. Even the parts industry, with its majority Mexican ownership and high employment and wage levels, which had been declining in the first part of the decade, began to grow again.

In 1986, Mexico joined the General Agreement on Tariffs and Trade (GATT). Its accession nominally required it to comply with GATT rules, offering most favored nation status to all members and providing and national treatment to foreign firms. Because of this, many of the elements of its previous industrial development regimes would not be GATT compliant.

Carrying on from the 1983 decree, and as a result of the increased FDI in the industry, its growth, and the GATT accession, the 1989 decree looked significantly different from previous decrees. Perhaps more important was how the decree was arrived at. The decree was negotiated before it was announced and the automobile industry coordinated its actions more closely internally and with the government in advance of the announcement. Thus firms had already begun to "educate" the government by the mid-1980s on what they would like to see in a new policy. Thacker (2001:179) quotes a representative of one of the five producers as saying, "We told them, 'with these policies, we can invest hundreds of millions of dollars.'" He was referring to a document that the company sent to high-level government officials in advance of the 1989 decree, providing specific policy recommendations for a new decree.

As a result, for the first time since 1962, the 1989 decree allowed resident manufacturers to import some complete automobiles and trucks and sell them through their distributors anywhere in the country. Manufacturers were also given greater flexibility in their choice of suppliers, and could choose foreign-owned suppliers in Mexico and still comply with the national content requirement. The local content requirement was itself reduced to 36 percent.

In the face of this significant liberalization, Nissan and VW demanded protection from subcompacts (automobiles with engine sizes less than 1800cc), which they also later received. This was generally recognized as a quid pro quo for the billions both had recently invested in Mexico (Thacker, 2001: 178).

While not explicitly mentioned, under the 1989 decree used automobiles, excepting those imported under quota into the northern border states, were implicitly prohibited: their import would not be offset by any "balancing" exports.

According to Thacker (2001) the liberalization of the industry and the weakening of protections for the Mexican parts industry showed the "structural leverage" that the foreign automobile producers had gained through increased coordination and the changes in Mexico's economic fortunes. The same company source quoted above, states: "Before the government could impose decrees on us. They could not do that this time" (Thacker, 2001: 180). As Studer (2002: 184) points out, however, meaningful protections and performance requirements were also included. The number of imports sold in the domestic market in a year could not exceed 15 percent of total domestic sales, and the ability to import was dependent on a firm maintaining a positive trade balance. Finally, while the national content requirement was reduced for vehicles produced for the Mexican market, 36 percent was still significant. Since the formula by which local content was calculated was again reformulated so that only purchased parts counted toward the requirement, not labor or plant, the de facto decrease was only to 40 percent.

The industry continued to grow in Mexico. As the NAFTA negotiations got underway in earnest, the automotive industry was said to employ 60,000 people directly

and 300,000 indirectly in parts manufacturing and other related industries. More importantly, at the end of this period, many companies began to move significant production to Mexico. In 1988 for example, Volkswagen moved all it North American operations to Mexico, closing a plant in Pennsylvania. By 1990, the automotive industry accounted for 2.3 percent of Mexican GDP and nine percent of industrial output. Leading up to the implementation of NAFTA, from 1989 to 1993, FDI in the automotive sector increased from $360 million to $2.2 billion. In total, $3.5 billion in production and $4.1 billion in assembly operations was invested during this period. In the period from 1994 to 2001, post-NAFTA another $20 billion would be invested by foreign firms in assembly and production operations in the country. By 1993, the number of imported automobiles rose from near zero in 1989 to over 12,000, though this was only 2 percent of the 605,000 automobiles sold in Mexico that year. By 2001, 51 percent of the nearly 1 million automobiles sold in Mexico were imported. During the same period, however, exports grew over 700 percent from 196,000 units in 1989 to 1.4 million units in 2001. In the 1990s Mexico became fully integrated into a regional system of intraindustry trade (Fujita et al, 1994; Ruffins, 1999; Soto, 2002; Studer, 2002).

7.5 Changing Attitudes Toward Foreign Firms and Used Automobiles

There are a number of conclusions to be drawn from this history with relevance for the issue of used automobile protection. First, from its beginnings, the role of the Mexican automobile industry changed considerably from kit assembly for the domestic market to a largely nationalist import substitution project and finally a competitive export base for supplying automobiles to foreign markets, primarily the US. By the middle of

the 1980s the investments made in Mexico by MNFs were no longer coerced by government policy nor primarily defensive. Instead investment in Mexico had become part of a proactive global strategy. This reflected a general transition in the industry to the global and regional rationalization of sourcing, production and distribution away from a home country and national market based model.

This process, however, also corresponded to a "denationalisation" of the terminal production and assembly sector in Mexico (Whiting, 1992). By the late 1980s, the terminal part of the industry was 100 percent foreign owned. While the parts and supply industry was still majority Mexican owned, this was beginning to decline as well with the new flexibility of the 1980s decrees. Many US and Canadian firms reported pressure by their producing partners to set up shop and serve production in Mexico as this was now permitted by the new decrees (interview: Gaines).

A second related conclusion is that there were repeated interactions between automobile multinational firms and the Mexican Government over a thirty-year period from the 1960s to the 1990s. In this period, this relationship moved from one of state *versus* foreign firms to a pattern in which the interests of both parties became increasingly intertwined. Where the Mexican government initially imposed decrees by the late 1980s decrees were being negotiated *prior* to being announced. The decrees of 1983 and 1989 represented a calculated and relatively amiable compromise between the government, the foreign industry, and to far a lesser degree the Mexican parts industry. The continued presence of nationalist elements, such as the 36 percent content requirement or the 1983 requirement that an austere, "people's car" be built, indicate

some of the areas where the political interests of the Mexican State and politicians continued to differ from the economic interests of the multinantional firms.

In this period, firms within the Mexican industry, particularly the foreign automobile producers, increased their intra-industry coordination of political positions. At the beginning, and as late as the 1977 decree, the companies staked out individual responses in reaction to Mexican decrees. By the time of the NAFTA negotiations, the industry, represented by AMIA, was able to achieve a relatively high degree of coordination prior to approaching the Mexican Government. There remained some significant differences between the US firms and Nissan and Volkswagen, but these too were increasingly ironed out internally throughout the negotiating process.

Finally, a central purpose of the above history for this research is to establish that the issue of *used* automobile protection and illegal *used* automobile imports was not treated as distinct issue to be addressed by policy for most of Mexico's history with the automobile industry. Only after the 1989 decree, when new automobile imports were allowed for the first time since 1962, were imported new automobiles treated differently than imported used automobiles. Even at this point, the differentiation was implicit rather than explicit. Prior to 1989, the differentiation in policy had largely been between national and foreign automobiles, not new and used. After this decree, the focus turns toward *used* foreign automobiles as the target for policy.

7.6 The Mexican Automobile Market

Thus far, the development of the domestic new automobile production industry and its evolving interaction with the Mexican government have been discussed. But this

is only one side of the used automobile political economy equation in Mexico. The other side is to be found in the consumer automobile market.

The rapid growth of the automobile industry and similar progress in export oriented industries aside, Mexico remains a developing economy in Latin American. It has many of the domestic market characteristics that come with that, primarily a low GDP per capita and a highly unequal distribution of income (Table 7-1). This creates what has been referred to as a "dual economy." In consumer markets, this means there is a small internationally integrated, higher income group of consumers with tastes and purchasing power virtually indistinguishable from well off, developed world consumers on the one hand, and on the other a majority of consumers with very low incomes and few such opportunities.

Table 7-0-1 Income Per Capita and Distribution in the US and Mexico (1989)

	Mexico	US
GDP per Capita	$6,202	$23,223
Gini Coefficient	54.98	38.16
National Income Share		
Pop. Quintile 1	3.2%	4.6%
Pop. Quintile 2	7%	10.6%
Pop. Quintile 3	11.5%	16.5%
Pop. Quintile 4	19%	23.7%
Pop. Quintile 5	59.3%	44.6%

Sources: World Bank (Income Distribution: Deiniger & Squire Data Set)

The general scale of inequality on the eve of the NAFTA negotiations can be summarized by the gini-coefficients (discussed previously in Chapter 6) in Table 7-1. With a gini-coefficient of 54.98, Mexico has considerably greater income inequality than the US, which itself ranks high among developed countries (Canada's gini-coefficient in the same year was 27.41). In Mexico the lowest earning quintile of the population received only 3 percent of the income, while the richest quintile received roughly 60 percent in 1989. Perhaps more importantly, in comparison to the US, the second, third, and fourth quintiles also receive a significantly lower proportion of the national income. Thus, not only is the purchasing power of the "average" Mexican" lower than in the US or Canada, but within the Mexican population income and purchasing power is much more concentrated in the hands of the few. Income inequality in Mexico is thought to have become greater in the years since the passage of NAFTA (Lopez-Carova, 2001).

This pattern is clearly reflected in the automobile market. In 2001 there were 15.8 million automobiles in Mexico. This translates into roughly 7 people per automobile. Furthermore, the average age of an automobile was 15 years. This compares to the US where there are 213 million automobiles, 2 people per automobile, and the average age of an automobile is eight years old. As Table 7-2 shows, the distribution of automobiles in the two countries by age category is also quite different.

Table 7-0-2 Distribution of US and Mexican Automobile Populations by Age (2001)

Years of Age	US	Mexico
0-5	33%	21%
6-10	30%	19%
11-15	22%	10%
Over 16	15%	40%
Illegal Cars	0%	10%

Source: Soto (2002)

A number of things stand out in this comparison. First there is the "hour glass" shape of the Mexican market, where the largest segments are newer automobiles of zero to five years and those over 16 years. The US, by contrast, shows the expected (with consistent rates of depreciation, scrappage, and macroeconomic climate) "triangle" with the largest number of cars in the zero to five-year age category and diminishing numbers thereafter.

While Mexico's current market distribution may in part be due to the volatility of its economy, particularly the 1995 peso crisis, the large size of the group over 16 years is also in part due to the slower depreciation of automobiles in developing countries (Chapter 2; Grubel, 1980). In other words, as an open-ended category, automobiles that enter this category are maintained many years over 16 before they are eventually scrapped; they continue to accumulate at the bottom. Also, as described above, despite the prohibition on imports, these numbers are augmented by used automobiles from the US either imported legally, by border dealers or older pick-up trucks (allowed since 1999), or automobiles imported illegally and later legally registered (more on all of these below).

This raises the second difference between the US and Mexico, the presence of a significant number of illegal automobiles. While there are certainly automobiles operated illegally in the US, the number in Table 7-2 refers to automobiles whose very presence in Mexico is illegal, so called "*chocolates.*"[89] Estimates of the number of *chocolates* vary from a few hundred thousand to over 3 million, the 10 percent estimate in Table 7-2 would suggest that there were 1.5 million *chocolates* in Mexico in 2001. The Mexican government has intermittently allowed illegal automobiles to be registered (a so-called "regularization"), which in turn swells the number of older automobiles that are registered. Fifty percent of the automobiles in Mexico are either older than 16 years or illegal (age unknown).

Table 7-3 shows the breakdown of the Mexican new automobile market by size class. As might be expected subcompacts dominate the market. (The fall in luxury models over these years appears to be due to a number of macroeconomic, consumer market, and policy factors.)

89 The origin of this term appears to be from chueco meaning "crooked," which in slang became *chocolates*.

Table 7-0-3 Mexican Automobile Sales by Size Class 1993 and 2001

Size Class	1993	2001
Subcompact	192,410	349,540
	(48.2%)	(51.9%)
Compact	161,380	276,710
	(40.4%)	(41.4%)
Standard (Lujo)	21,060	42,810
	(5.3%)	(6.4%)
Luxury (Deportivo)	24,290	4,970
	(6.1%)	(.07%)

Source: Soto (2002)

As Table 7-4 indicates, however, the concentration of sales in subcompact and compact automobiles does not mean that the majority of automobiles sold in Mexico are "affordable." Over 50 percent of new automobiles sold in Mexico today cost more than $25,000, in a country where the average income is around $6000 and median income is significantly lower (Table 7-1). While the single largest category is the modest (by developed-world standards) $15,000 to $25,000 category, it has only a slightly larger proportion of sales than the $45,000 and above category.

Table 7-0-4 Mexican Automobile Sales by Price Class 2001

Price Class	Percent of Sales
Less than $15,000	16.4
$15,001-25,000	32.8
$25,001-35,000	12.2
$35,001-45,000	10.5
Greater than $45,001	28.1
Total	100

Source: Soto, May 20, 2002

Thus, the structure of the new automobile market mirrors the income distribution discussed above. New automobile sales are concentrated among the highest income members of the society. According to interviews (Espinosa, Salvatore, Kahan) the automobiles that are imported illegally sell for $1000 to $3000. Though this is nearly one-twentieth the cost of the cheapest new car, it still represents one-sixth to one-half of the average Mexican's salary and far more than the majority of Mexicans can afford.

There are other aspects of the domestic market with a bearing on the case of used automobile imports. Mexican industry claims that the reason that new automobiles are more expensive in Mexico is that government taxes add 15 percent to 30 percent to the cost of the vehicle. Perhaps equally important, however, the new automobile market in Mexico is controlled by dealer associations organized by make (e.g. the Honda dealers) that set and control prices nationwide. The associations even employ decoy buyers to police the price schedules. The mark-up on new automobiles in the Mexican market is generally considered to be twice that in the US (interview: Espinosa). In the US, where such price controls are illegal and the used automobile market is relatively unencumbered, new and used automobile sales are often of similar importance to a dealer's bottom line. Many dealers are said to operate their new sales operation only to break even in order to drive their used automobile operation. New automobiles are dominant in the Mexican dealers calculations (interview: Espinosa).

Mexico's market shows a number of characteristics of a developing world market as described by Grubel (1980) and discussed above. We also see that the majority of new automobile sales in the market are at what is in general terms the top end of the market,

serving the class of people with high incomes. Used automobiles, or at least automobiles over 16 years and illegal automobiles, serve the majority of the population, however. As Grubel suggested, the majority of used automobiles serve a low-income market unreachable by the new automobile industry. Still used cars would provide alternatives and some degree of competition across the entire price spectrum. Finally, it appears that existing markup in Mexico makes used automobiles less attractive to existing new automobile dealers.

7.7 The Illegal Trade

Before moving to an assessment of the political economy of used automobile protection, it is perhaps wise to give a more explicit account of the ways in which illegal used automobiles enter Mexico from the US. In the process, the role of the trade in corruption and criminality can be addressed.

The first way is that a "*coyote*," Mexican slang for a smuggler, imports the automobiles illegally using corrupt officials. Once in Mexico he sells it on the black market where it remains illegal. A bribe of roughly $100 per automobile is said to be paid to get them across the border.

As discussed above, used automobiles may enter the country legally with border residents or Non-Mexican citizens. These automobiles are often "left" behind either by family members or in return for payment, or stolen while in Mexico. While they were brought into the country legally, they enter the pool of unregistered automobiles.

The case of cars permitted for the border regions being left further south, indicates there is also a "gray market" for automobiles. Along with the border exceptions,

automobiles enter the gray market in a number of ways. For example, a coyote sells the automobile to a customer who in turn buys a false invoice from a border dealer with a quota. The licensed dealers make more money for less effort in this case, selling pieces of paper rather than incurring the costs of importing and selling the automobile himself.

A variation of this occurs when the permitted dealer himself buys an automobile in the US and gets a false invoice - for example, $500 on a $1000 automobile from the seller or from a conspiring US dealer after the sale. The car is then brought into Mexico with the permitted dealer paying duty (4 percent) on the $500 invoice. He then sells it for $2000 to $3000 in Mexico but only invoices the customer for $1000 (a recorded profit of $500 but a real profit of over $1000). In this case, the automobile is legal but in the eyes of the Mexican state fraud was committed and the papers are false.

There is another way that some consumers of illegal automobiles get valid registrations: political and agricultural organizations sometimes sell or give "safe" registrations to supporters. Illegal automobiles are registered to the party or agricultural organization in return for support. Traditionally these vehicles are seen as being off-limits to law enforcement.

7.8 The NAFTA Automobile Sector Negotiations

The automobile sector negotiations were some of the most contentious in the NAFTA negotiating process, requiring a special annex (300-A) along with textiles to the NAFTA text (Cameron and Tomlin, 2001; Thacker, 2001; Robert, 2001). From the literature, there appear to have been two major issues in the automotive negotiations. First, there was the level of regional content requirements to be set under the new

agreement being proposed. Second, it had to be decided how much if any of either the Mexican automotive decrees or the Canada-US Auto Pact and Canada-US Free Trade Agreement (CUSFTA) could be retained under any new agreement. In the first instance, the US automobile companies, with significant regional capacity and supply networks, called for an 80 percent regional content requirement. The US negotiators' starting position was for 70 percent. The Canadians and particularly the Mexican's opposed this because of significant Asian and European automotive FDI in their countries (though far less significant than that by the Big Three), and those companies depended on European and Asian imported content. In the second instance, it is generally stated that the US firms wished to see the national considerations in the (US-Canada) Auto Pact and the Mexican Automotive Decrees done away with or substantially renegotiated in favor of a regional regime. The Canadians and Mexicans sought to protect the nationalist elements of the existing automobile regimes.

After a year and a half of negotiations (May 1991 through August 1992), regional content was finally set at 62.5 percent. Ultimately serving as something of a role model, the Autopact as it emerged from CUSFTA largely left alone with regard to automobiles, and after much wrangling, the Mexican Auto decrees were phased out, but only after a five-year transition period. Higher tariffs were to be phased out by 2004, and as already discussed, a prohibition on used automobile imports was to be phased out by 2019.

7.8.1 The Nature of the Negotiations

The negotiations were conducted by government teams led by the US Trade Representative, the Canadian Ministry for International Trade and the Mexican Secretariat of Trade and Industrial Development (SECOFI). There were about 20

negotiating groups under the chief negotiators who were in turn under the ministers. The rules for the automotive sector were negotiated by the automotive and rules of origin working groups. The negotiating groups resolved most matters of detail, with the senior level providing overall guidance and resolving matters on which the negotiating groups could not agree. The primary guidance that these groups were given was that there would be "no exceptions," i.e. liberalization would be negotiated for all goods.

The participation of important private industry representatives in the NAFTA negotiations was by all accounts substantial. While the participation of the private sector in itself was hardly unprecedented, one important difference was that private sector interests were not only consulted at home and at a distance but many were invited to be resident on-site throughout the negotiations, not least by Mexico. Many individual firms sent their own representatives to the negotiations.

In the case of the automotive industry, Canada and the US consulted with "their" automobile interests, in both cases predominantly the US producers. In the Mexican case, there was a more formal "side room" in which industry representatives were present to comment on and contribute to the efforts of the Mexican negotiators. The Coordinating Council of Foreign Trade Business Organizations (COECE) formed its automotive negotiating team with AMIA representing the five foreign assemblers and producers and the National Auto Parts Industry (INA) represented the predominantly Mexican parts producers. In contrast to previous industry interactions with the Mexican State, where firms had nominally independent bargaining positions both from each other and the state, here that was not to be the case. Thus, in the case of the automotive negotiations, the Big

Three were "behind the three countries around the bargaining table" as one negotiator complained (Cameron and Tomlin, 2001: 124).

In Mexico, AMIA and INA intended to negotiate positions first within their respective industries and then meet prior to meetings with SECOFI to reconcile any differences between the two industry positions. The hotel room next to the Mexican negotiating team's own rooms was to be filled with representative from both groups to brief and confer with government negotiators. As it turned out, the Mexican parts producers' core position was to maintain the 36 percent local content requirement, one of the most egregious elements of the 1989 decree from the perspective of AMIA's members. This dispute burned up a lot of energy *within* the Mexican industry and ultimately led to separate side rooms for the two sectors.

The parts industry was further divided by firm size, which had an additional impact of the negotiations (Thacker, 2001: 173-178). In 1992, the top 15 parts firms accounted for 35 percent of sales, one firm alone accounted for 10 percent. Most of these firms were part of larger conglomerates and vertically integrated with the multinational firms. These firms were more concerned with the continued presence and increasing investment of producers and their relationship with them than maintaining the content requirements *per se*. The remaining 500 plus firms were small, and their share of production was declining as Mexico liberalized. They did not have the people, the time or, as the head of AMIA put it, "the language" (Thacker, 2001:176) required to participate. While larger firms sent their own representatives, INA had considerable difficulty as the de facto representative of the smaller firms. Mexican negotiators would

claim credit for gaining a delayed phase out of the decrees (Cameron and Tomlin, 2001), but in the end the auto decrees were phased out and the local content requirements abolished.

In the US and Canada, there were similar issues, though most had already been addressed within the context of the long standing Auto Pact and the recent CUSFTA negotiations, and therefore fewer consultations were needed as the politics around these issues had already gelled. The Canadian priority was to keep the existing agreements in place, and secondarily to gain access for their firms to the Mexican market. The Auto Pact was left untouched, but Canadian producers did not gain immediate access to the Mexican market. Though the Canadian and US parts producers worried about Mexican national content requirements affecting their ability to supply the growing Mexican industry, they were content to have the automobile producers argue this issue. The Big Three dominated the US position, to the extent that despite having advisors from these companies in their own side rooms, Mexico and Canada came to view the US as the "industry's representative" (Cameron and Tomlin, 2001: 126).

7.8.2 Used Automobiles in the Lead-up to NAFTA

A priori, it might have been expected that a prohibition on used automobiles would be another controversial issue in a free trade agreement where the negotiators agreed there would be "no exceptions." There was certainly something of a precedent for controversy around the issue of used automobile protection in Mexico and Canada.

The first precedent is to be found in the history of the CUSFTA, which was signed in 1989. After implementation, in 1992 as the NAFTA negotiations were on-going and a few months before the NAFTA used automobile provisions were announced,

"working groups" were assembled to work on difficult implementation issues with CUSFTA (USDOC, April 20, 1992). Used automobiles were one such example. Prior to CUSFTA, Canada banned used automobile imports and had since 1931.

The establishment of a free trade area, however, appeared to make it possible to import used automobiles from the US to Canada and vice versa. After implementation, however, the Canadian customs service charged full Canadian duty on used automobile imports because few were accompanied by certificates of origin. Used automobile dealers and citizens complained to US and Canadian authorities, who in turn sought to clarify the matter when the two sides met. Simple liberalization was met with resistance from the Big Three and under pressure from industry and consumers, a compromise was worked out whereby the automobile industry, primarily Ford, GM, and Chrysler, would draw up a list of automobiles allowable for import based on their origins (USDOC, April 20, 1992; Interview: Gaines).

As was touched on above, the issue also did not come out of the blue in Mexico. For 30 years, up to the 1989 automotive decree, no complete automobiles could be imported into Mexico whether they were partially assembled, completely knocked down or completely assembled (new or used). The 2000-mile US-Mexican border, however, has always been rather porous. This fact and the increasing cross border traffic with the US through the Maquiladora program and returning emigrants led to the special provisions for imports to the 18-mile (20-km) region just south of the border. This was done at the insistence of northern dealers, who were also granted import quotas they

could fill with new or used automobiles. The problem of automobiles making it across the border illegally or leaving the border zone illegally was therefore longstanding.

The first "regularization," a policy allowing the penalty-free registration of illegal automobiles for a limited period of time, occurred in 1952. By charging a fee for registration the government was attempting not only to register the vehicles but also to capture some of the revenue foregone if the automobiles remained illegal. Over the years, this was repeated seven times at the request of local governments who faced regulatory difficulties and an inability to limit the trade, but it increasingly was also seen as a political favor to the owners of these automobiles, done with an eye on turning out votes around election time. The transfer of automobiles from the US to Mexico by returning or visiting émigrés were a growing part of the income transfers from abroad, particularly to the Mexican border states.

Over this period, the prohibition and the regularizations, however, were still largely seen as policies affecting illegally imported *foreign* automobiles. Though the illegal foreign automobiles were primarily used, used automobiles were not indicated as the problem until government policy shifted to allow substantial imports of new automobiles in 1989. At this point political rhetoric from the government and the industry appears to have shifted to demonizing foreign *used* automobiles in particular.

As the Mexican market became increasingly liberalized and imports of new automobiles increased, the issue of *chocolates* came increasingly to the fore. By 1992, Texas automobile auctions reported a large increase in wholesalers shipping large lots of used automobiles to Mexico. One auction house estimated a 40 percent increase in sales

to wholesalers bound for Mexico in that year, including a recent purchase of two and a half truck loads of "good" used automobiles for $283,000 (Journal of Commerce, June 9, 1992)

In Mexico, this rise in imported used automobiles was reported with concern about safety, lawlessness, and the health of the local industry. The story also made its way North of the border at the time with a similar but distinct spin: A 1990 Time Magazine story reported that many of the rising number of automobiles stolen in the US and illegally imported to Mexico were appropriated by the Mexican officials that recovered them. Stolen or not, the vast majority of *chocolates* are from the US.

In summary, prior to the NAFTA negotiations, US used automobile imports were already a prominent policy issue in Mexico and to a lesser degree in Canada, where the problem of used automobiles had also been encountered in the case of CUSTFA. The governments of the US and Canada not only had some experience negotiating the issue, and were aware of the difficulties caused by the equivocal language of CUSTFA, they also knew of the opposition to liberalization expressed by US automobile makers, who had made their position clear. What was also likely to be clear was that basic trade theory suggests that since Mexico is a relatively poor country relative to the US and Canada, used automobile liberalization would be considerably more significant in the case of opening the Mexican market than it was in the Canadian case. This was already apparent in the size and growth of the illegal trade to Mexico and the regular pressure on the Mexican government to "regularize" these illegal vehicles. These two observations would suggest to even the most casual observer that the current Mexican used automobile

prohibition was trade distorting and that there was an existing constituency in Mexico that would benefit from liberalization. Yet, despite this, used-automobile protection was one of the least controversial aspects within the negotiating rooms.

7.8.3 Who Advocates for Used Automobiles?

Despite the attention that the automotive negotiations of NAFTA have received, the literature on the NAFTA negotiations no more than notes the prohibitions against used automobiles in the NAFTA text. And indeed, the used automobile issue does not appear to have been a significant issue in the closed-door negotiations. Maxwell A. Cameron, who was part of writing a significant blow-by-blow, meeting-by-meeting account of the negotiating process (Cameron and Tomlin 2001), stated in an interview for this research that the issue did not come up once in their interviews, though they also did not ask. Within the negotiations the used automobile provisions seemed to be uncontroversial relative to the other nationalist remnants from Mexico's automotive decrees and the CUSFTA.

According to Studer (2002: 193), it was the Big Three that "recommended" that used automobile protection be continued in the NAFTA text even as new automobiles were being liberalized. According to one interviewee (interview: Gaines) who was part of negotiating the rules of origin in both CUSFTA and NAFTA, including the used automobile provisions of CUSFTA, the used-automobile protections were on the table "from the beginning." The deal was worked out in the automotive negotiating group, and agreed to with little discussion by the chief negotiators. Charles "Chip" Roh, then the assistant US Trade Representative, stated in recent correspondence:

> My recollection is that this was an "easy" exception to agree to, in the sense that 1) there was no existing legal traffic in used cars; 2) Mexico didn't want them, because of concern that would undercut the new car market; and 3) The big 3 of the U.S. had the same concern.

In response to further questioning he went on to say:

> I don't recall any pressure to liberalize faster. In fact, my recollection is that we provided for liberalization primarily because we did not want any permanent exceptions to free trade for any product between the United States and Mexico, since making any exception would be a precedent for other sectors to ask for exceptions." (Interview: Roh dates 10/19/02; 10/21/02)

Steve Jacobs, who at the time was the US automobile sector negotiator's deputy and more closely involved in the automotive negotiations, is even more explicit:

> At the end of the day it was simply a negotiated outcome with no particular rationale, except that the oldest, less desirable autos got liberalized first to maintain the market for new autos as long as possible.

He goes on to say that there was "no strong constituency for or against" liberalization but that the "concept that the ban needed to go was understood" because "it provided an incentive for corruption and smuggling, " though his comments above suggest the final policy was also arrived at to maintain the market for new automobiles

Thus it appears the liberalization of used automobile imports was proposed and agreed to largely because the negotiators insisted on their being "no exceptions," not due to any perceived pressure within the negotiations to liberalize. The 25 year phase-out, an eternity in international trade and negotiation, was as close to an exception as the negotiators were willing to go. As Mr. Roh suggests, there was no one at the negotiations

who had an express positive interest in used automobile liberalization while there were many that had an express interest in continued protection.

Those identified in Chapter 3 as being potential winners from used automobile liberalization had various reasons for not being present. As is widely recognized in the political economy literature, consumers' interests in a general sense are rarely advocated in such negotiations due to the problems of collective action. This is seen as one of the chief impediments to liberal trade policy. "Consumer organizations," such as the Consumers Union or various "Nader" organizations in the US, to the degree they represent some consumers interests were also not represented at the table and in their advocacy outside the negotiations they focused on issues of safety, environment and sovereignty. The negotiators themselves might be expected to negotiate in part from their own interest. As consumers and likely owners of used automobiles, they might be expected to have taken this issue on. In this particular case, however, they are of an economic class unlikely to represent the interests of the majority of used automobile consumers who would benefit in Mexico. In any case, used automobile consumers were not at the table or behind it in any clear way.

There are other groups among those identified above, however, who might have an interest in liberalization who also might face a less formidable collective action constraint then consumers. In particular there is the used automobile industry in all three countries. In Mexico, they do not appear to be organized, indeed given the controlled dealer networks, the existing prohibition on used automobile imports, and the marginally legal or often illegal character of many of the current used automobile import businesses,

this is not surprising. Again, as Chip Roh stated, there was no existing legal trade so no one seemed to much care about extending the existing prohibition. This was discussed in Chapters 2 and 3, the collective action problem is expected to be compounded in the case where the beneficiaries will only exist post-reform in the form of future entrepreneurs and their customers.

One existing group that might have gained from a liberalization was the small parts manufacturers, who potentially could have benefited from a increase in after-market parts demand, but as discussed above they had a lack of representation to contend with, and many also had existing relationships with new automobile producers. In Canada and the US, however, there are existent, more organized, and better funded used automobile interests. US Department of Commerce staff suggested that some attempt was made to raise a used-automobile lobby in the negotiations. They identified used automobile dealers, after-market parts makers, and re-manufacturers as potential constituencies. They contacted the National Association of Independent Dealer Association (NAIDA) and the National Automobile Auction Association (NAAA). They also contacted the after-market parts producers. Just as with the Mexican autoparts industry, the "pro-used car lobby did not have the personnel" (interview: Gaines) to have an impact on the negotiations. In general, the parts manufacturers were more interested in being able to serve the Mexican market from the US. After the liberalization of the Mexican market in the 1983 and 1989 decrees many manufacturers had been putting pressure on US parts makers to set up shop in Mexico. Therefore, they were willing to throw their lot in with the producers who were seeking the removal of all barriers to trade in new automotive

parts and automobiles. The original equipment manufacturers outnumber the after-market parts manufacturers, who might have had a greater interest in the Mexican used market expanding, and therefore the parts lobby did not address this issue. The motivation Department of Commerce employees gave for their attempts to raise a pro-used-automobile lobby was a closely held belief that "you can't exclude a whole category of goods" (interview: Gaines). Again, "no exceptions."

7.9 Policy and Politics in Mexico Post-NAFTA

Just as in the case of CUSFTA, with the used automobile industry and used automobile consumers not taking part in the actual negotiations, it was only as events unfolded after the passage of NAFTA that the political economy of liberalizing new and not used automobiles became clear.

In the political debate over NAFTA in the US, there was little focus on the issue. There is no record of remarks on the issue of the used automobile prohibition in the Congressional Record. Representatives of the USTR, however, were asked about the ban in an "informal walk-through" of the draft NAFTA bill on October 13, 1993 (Inside US Trade, October 15, 1993). Mr. Roh, took the question, stating both US *industry* and the Mexican government advocated continuing the ban. Representative Robert Matsui, a Democrat from California and a key NAFTA booster, also claimed the US Government backed the ban because it would help save United Auto Workers jobs by forcing Mexican's to buy new automobiles.

US Nationalist and populist Patrick Buchanan (1993), also noticed this clause. In an editorial to the Pittsburgh Post-Gazette he wrote:

> NAFTA is a fraud. It is not the free trade agreement of the utopian's vision. It's 2,000 pages of rules and regulations, with side agreements. US investors are denied any right to explore for oil, or to buy Mexican wells and refineries. Mexico's water remains off-limits to US fisherman. US companies cannot run bus or truck services inside Mexico. *We can't sell used cars there, freely, for 25 years.* (Italics added)

The issue had been dealt with, also at the margins, in Canada previously in relation to the CUSFTA. But in Mexico, where the prohibition is focussed and its impact the greatest, the issue has grown in stature since NAFTA. Despite the formal ban on used automobiles created by NAFTA, Mexico felt it necessary to continue to take steps to reduce the flow of used automobiles to Mexico. In 1993, Mexico began implementing a series of policies to address the issue. Initially, an $11 dollar deposit was required for any individual bringing an automobile into Mexico. The stated purpose of this policy was to stem the flow of used automobiles into the country (Business Mexico, 1993). A 1994 law cracked down on "transmigrants." Those passing through Mexico on their way to Central and South America were only allowed to bring only one automobile and their personal belongings. Certain pieces of equipment such as washing machines needed a special permit. The stated reason was safety and environmental concern. Transmigrants claimed the paperwork is impossible to fulfill, and that the law seemed more geared toward protecting the Mexican market (Dallas Morning News, February 5, 1994).

This policy did little to stem the flow of illegal used automobiles, and after simmering most of the decade, by the late 1990s the issue had heated up again. In March of 1999, with a presidential election approaching the Mexican commerce department (SECOFI) announced a grace period aimed at automobiles older than 5 years old. People had until September 13, 2000 to drive automobiles out of the country without the threat

of confiscation. An April of that year the Financial Times (April 17, 1999) reported on a emerging showdown between the Institutional Revolution Party (PRI) and the Peasant Democratic Union (PDU) over regularizing illegally imported used automobiles. Herminio Blanco the Commerce Secretary is quoted as saying, "The position of the government is clear: We will not regularize illegal vehicles." Again, a "regularization" of automobiles is when illegal cars are allowed to gain legal registrations if the owners pay the taxes and fees; it differs from the amnesty the government offered, which only allowed automobiles to be removed from Mexico without fear of prosecution. The Government began to crack down on illegal imports. In May 1999, an association of new and used automobile dealers (la Associon Nacional de Commercientes de Automoviles y Camiones Nuevos y Usados, ANCA) reported that new automobiles had declined 8 percent in the first two months of 1999 while used automobile sales had declined 20 percent. Among the reasons given for this decline was the lower the number of used automobiles brought in from the US.

An August 1999 Newsweek Article reports on a government campaign in Chihuahua to register and tax *chocolates*. The story reports the Governor was usurping central control, something rarely done in Mexico, and upsetting his fellow PRI. In the fall of 1999, the Mexican government considered requiring an $800 deposit on automobiles coming in from the US, to replace the existing $11 deposit, to make sure they did not get "left behind". This led to a massive outcry by Mexicans and tourists in the US (New York Times, October 30, 1999). According to a Los Angeles Times story (Los Angeles Times, November 26, 1999), the new measure has provoked anger on both

sides of the border. In the United States, the Congressional Border Caucus, whose members come from border states, asked President Bill Clinton to intercede and Mexican American groups in Texas and California called for a boycott of Mexican beer and other products. The call for a boycott appears to be regular threat by Mexicans in the US, the implementation and its efficacy is uncertain. In Mexico, the illegal-car issue continued to be a significant issue in the rural-urban conflict between peasant organizations and industry lobbyists and rural legislators and the central government. The Los Angeles Times story quotes Salvador Rivera, identified as a senior official with the National Confederation of Compesinos (peasants), the rural organizing arm of the PRI saying, "In the end, these industrialists want to turn us into something like Cuba. There will be no cars for the poor," an interesting twist on the rhetoric of liberalization.

After only a few days, Mexico backed down on the $800. Officially it was being "suspended until further notice" and would be subject to a re-examination (New York Times, December 19, 1999). Despite the increasing temperature around this issue, however, the Mexico-EU trade deal negotiated in 1999 followed a pattern similar to NAFTA by prohibiting used automobile imports. Though it is beyond the scope of this research to look into negotiations around this agreement, it seems likely that NAFTA was used as guide and once again used automobile interests were not at the table.

On January 12, 2000, ANCA reported that 30 percent of Mexico's automobiles have false documents. In February the USDOC sent out a report on the global news wire that Tijuana was looking into an emissions test for all vehicles, supported by the Tijuana Chamber of Commerce, the National Chamber of Industries and Manufactures, and the

Association of Automobiles (Financial Times Information, February 3, 2000). The report blames the surge in used automobiles on rising incomes in that province citing over 500,000 illegal automobiles there.

In the spring of 2000, the government reversed its policy somewhat, deciding to legalize the importation of used pick-up trucks after the previous year running into political trouble when it tried to clamp down on the trade. The government had run into opposition from Governors of northern states, in particular the Chihuahua campaign to legalize the *chocolates*. The government's policy change was to no longer require ten-year old pick-ups to be registered and it offered a regularization for owners of pick-ups five years old or older if they were in the country and registered by September 2000. A fee of $200 was to be charged and they were to be intended for farm work. The opposition including, current President Vincente Fox's National Action Party (PAN), decried the move as electioneering before the July elections, though they had pushed for such policies in the past (Latin America, Mexico and NAFTA Report April 11, 2000). The AMIA claimed that these policies would only lead to clogged and dangerous Mexican roads. As was the case with past regularizations the PRI tried to play both sides of the fence to please its automobile constituency and its populist adherents, particularly peasants of its associated agricultural organization the CNC in rural areas.

The impact of this policy was felt immediately in Texas where residents began to receive unsolicited offers for their trucks at their homes from Mexicans going door-to-door (interview: Kahn). The impact of this trade was being felt as far away as Colorado. A September 17, 2000 story in the Denver Post reports on a Colorado auto auction where

"on any given day 10 to percent go to Mexico." In July of 2000, in a historic win the PAN, in an "Alliance for Change" coalition with the Green Ecological Party of Mexico (PVEM), won the presidential election in Mexico. For the first time since the Mexican Revolution, a party other than the PRI held the top elected post in the nation. No longer in power, the PRI gave greater priority to the regularization of used automobiles, no longer nominally resisting the policy but actively pursuing it. The PRD and the PRI organized a marathon march to Mexico City to pressure authorities for "relief." The PAN, recently come to power, opposed the regularization. The PRI made a big deal of this, citing PAN's earlier attempts to use the *chocolates* issue for their own political gain.

An October 1, 2000 story in *Business Mexico*, the newsletter of the American Chamber of Commerce in Mexico, on the growth of the Mexican automobile industry spends considerable time on the issue of *chocolates*, the growing protests outside of SECOFI, and the proposed regularization. Arturo Avila of AMDA states that the PRI had long followed a "sideways" approach of regularization and claims if the current crop of automobiles are made legal, new automobile sales will drop this year. The CNC, however, continued to protest outside SECOFI even after the decree allowing 10 year old pick-ups. In the Business Mexico article, Iram Arellanes the CNC representative said the protesters were seeking to legalize all illegal automobiles "for work."

Raul Ramos Tercero, SECOFI's former Undersecretary of Regulations and Services for SECOFI, makes the claim in response that regularization will just encourage more illegal automobiles with a further expectation of regularizations and therefore should be opposed. He says instead the government should set up stricter controls and set

up special programs to scrap obsolete automobiles, a policy that would clearly reduce the age of Mexico's fleet but would not address the demand for automobiles. In a summary of the challenges the Mexican automobile industry faces at the start of a new millenium, Cesar Flores Esquival, AMIA executive vice president, gives four priorities:

1. Boost competition among auto suppliers;
2. Promote the further growth of the domestic market;
3. Deregulate the sector; and
4. Avoid the legalization of smuggled *chocolates*.

In the winter of 2000, the Mexican Congress passed the PRI regularization legislation, unanimously in the Senate, in the first electoral defeat for President Fox (AP, December 28, 2000). Pickup trucks older than 10 years old continued to be allowed, and those living in border areas would continue to be exempted from the restrictions. The AP states that foreign automobile companies in Mexico are "responsible" for the ban. This appears to be indicative of a shift in the rhetoric within Mexico, perhaps coinciding with PRI's move to the opposition, with an increased emphasis on the role of *foreign* firms in supporting the ban. In January 2001 the legislation went effect.

7.10 Assessing the Political Economy of Used-Automobile Protection in Mexico

This seems to be a good place to draw a line and take stock of the political economy within the context presented in Chapter 3. As in Chapter 3, we begin with the winners and the losers from the current policy in Mexico.

7.10.1 Winners and Losers

In the case of Mexico and the NAFTA countries we find that the politics breaks down largely along the lines identified in Chapter 3, as shown in table 7-5 (next page). As indicated, in Mexico there no longer exist any "infant industry" producers only

multinational ones. While the multinational firms sought to win access for their products produced abroad, with the Big Three looking to limit this access primarily to North American production, they also appear to have introduced the plan not to liberalize used-automobile imports. In Mexico, AMIA a lobby group formed by the foreign firms, seems to have taken the "voice" of the industry and most negotiation appears to have been *intraindustry* between AMIA and other sectors of the industry. While there is no evidence of new automobile purchasers advocating the prolonged phase out of the ban, there was also no opposition from this quarter either before or after the implementation of NAFTA. While price-fixing and taxes appear to have limited the impact of trade liberalization on new automobile prices - though this may change when the Mexican new automobile market is fully opened next year - in the years since NAFTA the number of makes of passenger vehicles in the Mexican market has increased from five (the Big three plus Nissan and Volkswagen) in 1993 to 16 in 2002 and the total number of vehicle models available in Mexico has increased from 192 to 875. Demand and prices for used-automobiles continue to be much higher in Mexico than in the US. Sources stated that a $1000 used-automobile in the US sells for over $2000 across the border. Thus it would seem new automobile buyers have received greater selection as a result of NAFTA, and while prices may not be lower trade-in values have remained high.

Table 7-5 Summary of Expected Winners and Losers From Used Auto Protection

Interest Group	Winner or Loser?	Comments
"Infant" Auto Producer	NA	By 1990s all domestic auto producers entirely foreign owned.
New Auto Importers	Winner	Pre NAFTA only companies that produced automobiles could import to Mexico. NAFTA substitutes regional preferences. Recent EU agreement opens door to other imports but leaves used auto protection in place.
Multinational Auto Producer	Winner	Clear evidence that existing automobile producers sought used-automobile protection even as they sought to restrict "non-regional" new-auto producers from the market.
New Auto Consumer	Mixed	Interviewees suggest protection ups trade-in values in Mexico (as suggested in Chapter 3), but lack of competition from used automobiles and sufficient antitrust policy means used automobile prices are also higher.*
Used Auto Importer	Mixed	Existing used auto-importers get quota or criminal rents, and have a vested interest. "Potential" dealers lose.
Used Auto Exporter	Loser	US dealers/car owners report increases in trade when a "regularization" is announced or anticipated.
Used Auto Consumer	Loser	Mexican used automobile consumers pay a significant mark-up on used automobiles due to market restrictions. Some turn to "crime" by exploiting border regulations and returning immigrants to illegally import vehicles.
Political Parties	Winner	A consistent source for political favors to supporters and an opportunity for election grandstanding by *selective* liberalization

* See Clerides (2002) for a similar discussion from Cyprus.

Beyond the multinational firms the picture for new automobile importers has also improved, particularly if they have production in the region. The picture appears more

mixed for new automobile consumers, because unlike in Grubel's analysis new automobiles are not sold at the world (i.e. US) price, but instead dealers appear to use the lack of competition to increase prices and engage in further anticompetitive behavior. Though differences in tax burdens may also play a role as the Mexican dealers suggest.

Developing country used-automobile dealers were identified in Chapter 3 as being the other certain loser from the implementation of used automobile discrimination. In Mexico, however, there does not appear to be a vocal used-automobile advocacy group. As suggested by the counter point of India, however, liberalization may be a prerequisite for such an advocacy group to form. In Mexico, the used-automobile market has never been opened to imports in any general way. More importantly, perhaps, many of the dealers who dealing in used-automobiles at the time NAFTA was being negotiated were likely to be receiving rents under the current system of used automobile protection: quota rents received by border dealers; criminal rents received by *coyotes* and those who "left" automobiles behind; or both as in the case of the border dealer who sell papers to illegally imported automobiles. These dealers had something to lose through liberalization, while many of those who would have gained entrepreneurship opportunities through remained only *potential* advocates.

Thus, as indicated by Table 7-5, it is the used automobile consumer who is the only unambiguous loser of the current Mexican policy. Though even these users, particularly rural workers and farmers are able to extract concessions from the government. This is evidenced particularly by the protests in Mexico City and the pressure the government felt to make an exception for very old pick-up trucks, a vehicle

particularly suited for low-income rural automobile consumers. What is interesting is that while the issue of used-automobile imports had been apparent in Mexican politics for quite some time, these interests were not represented at the NAFTA negotiations. Once NAFTA was implemented, the discrimination against used-automobiles became an issue fomented by the activities of populist political organizations such as the PRD. Along with exceptions for older pick-up trucks there are regular "regularizations," which leads us top the last row of the table.

Within the context of Mexican politics, political parties are one of the new winners identified. Restrictions allow them the opportunity for exceptions and the opportunity to champion reforms. This can be seen in the regularizations and in the quotas granted to border dealers, the exception for 10 year-old pick-up trucks targeted at rural peasants, and the granting of "safe registrations" to political supporters. Most recently the PRI and PRD pushed for regularizations as soon as they were in the opposition. There is also the opportunity for corruption by local officials at the border or as in the case of automobile confiscation. Thus, politicians may have little to gain from universal or permanent reform and they may prefer to grant exceptions and talk about reform since this allows them to extract rents and votes. While this may apply in the case of any policy, lower political costs may make the used-automobile policy a particularly attractive option for this type of activity.

7.10.2 Political Influence

The comparative political influence of these various groups is perhaps obvious within the context of Mexico. On the one hand, there are the increasingly successful and economically important Mexican automobile producers. An ascendant industrial sector if

there ever was one, new automobile production is also highly concentrated and vertically integrated within Mexico. There are only five companies with Mexican operations to coordinate positions and actions among and each of them is well aware of how important Mexican trade policy is to their bottom line. While the task of overcoming collective action problems should not be trivialized, as evidenced by Mexico's early success in dividing and conquering the industry or the friction among parts producers, it is clear that by the time NAFTA was in the negotiation phase the institution of AMIA was up to the task. As just discussed, important elements of the existing used-automobile sector appear to have won or appropriated rents within the current system.

On the other hand, there are the consumers of used-automobiles and the potential consumers of used-automobiles - the lower-middle income urban classes and rural farmers – and the potential entrepreneurs. As has been stressed throughout this dissertation, the ability to organize within and among these groups is diminished by problems of wealth and group size, leading to the conclusion that they will be less effective than the highly concentrated and more wealthy interests in favor of used automobile protection. Clearly, however, it is not a rout. There has been significant opposition to the policy of used-automobile protection. For example, while the border dealers are treated as winners under the current used-automobile protection regime, this is because of protests they made in the 1980s as Mexico began to liberalize its automotive trade. Similarly, protests had brought regular regularizations and the exception for 10 year-old pick ups. In each case, a smaller group appears to have lobbied and won a specific and limited form of liberalization. In the case of the regularizations, after a

number of years a new pool of owners of illegal automobiles emerges presenting a political interest and a political opportunity to political parties.

7.10.3 Why the Change in Policy?

In 2004, the Mexican new automobile market will be open to the rest of North America. For five years, there will be stark discrimination against used automobiles before that trade is liberalized over the following ten years. Until the 1989 decree, there had been a formal prohibition against foreign automobile imports. What factors appear to explain the move from full protection to used-automobile protection culminating in the NAFTA agreement?

A number of factors have been cited for the Mexican government's shift to a more liberal trade regime in the 1980s (See for example Pastor and Wise, 1994; Thacker, 2000; Babb, 2001). The question here is why not used-automobiles? The factor that emerges most prominently above is the change in industry structure and ownership. As multinational automobile producers moved from an export or production-in-market strategy to a regional or global production and distribution strategy it sought to balance the returns from protection against the returns from flexibility and global economies of scale. Also as domestic ownership gave way to increasing FDI participation, "Mexican" interests in new-automobile production declined. This then led firms to request from the increasingly receptive Mexican government a move from domestic protection to what might be termed "multinational protection," where trade is allowed in such a way as to benefit the resident foreign producers. This is evident and has been remarked on in the case of the Big Three's insistence on high regional content rules and the exclusion of firms not already invested in the NAFTA countries on the eve of the agreement from full

access to the benefits of the liberalization pact (Cameron and Tomlin, 2000; Robert, 2000; Thacker, 2000). Thus the prolonged phase-in of used-automobile liberalization, an exception in a trade liberalization treaty with "no exceptions" is not so much an anamoly but a continuation of a pattern seen elsewhere.

7.11 Conclusions

The Mexican case helps to hang some meat on the bones of the analysis provided in previous chapters providing more detail and a perspective over a longer span of time. The conclusions, however, are similar.

It is clear that the issue was also quite important to the Mexican government and US industry both of which were well situated and prepared to present their preferences in the negotiations. Not only had Mexico and foreign automobile producers dealt with regularizations since the 1950s, but Nissan and VW had already sought protection from subcompacts in earlier liberalizations. Furthermore, the difficulties that emerged from the ambiguity of the CUSFTA automotive agreement as it related to used-automobiles prepared US and Canadian negotiators to avoid a similar issue arising in the implementation of NAFTA. By the time of the NAFTA negotiations, all the foreign new automobile producers were clear in their position, articulated by AMIA, which sought to dismantle the nationalist policies of the Mexican automobile decrees while maintaining protection from used automobile imports.

But it is also clear is that, despite the lack of controversy at the time the NAFTA negotiations were completed this position was not universally held within Mexico. In Mexico, as elsewhere, the used automobile sector primarily serves the poorer more

marginal classes of automobile consumer and dealer. These consumers, however, were not represented in negotiations. This was not necessarily because they were actively excluded but primarily because they didn't "speak language," were unorganized and informal. This not only limited the capacity of the losers from continued used automobile protection in Mexico for intra-group collective action and political influence, it also limited their ability to form effective coalitions across industries or sectors.

The Mexico case also introduces a number of new wrinkles. The first is that advocacy in favor of used-automobile liberalization is limited not only because the beneficiaries are poor and politically limited or because existing restrictions reduce initial participation and therefore political interest in used automobile markets, but also because those interests that do exist are likely to be extracting rents from the current system of protection. In many cases, the rents being extracted are criminal but as in the case of border dealers the rents may also be legally granted as a political favor. Liberalization would eliminate both these types of rent. In some cases, operations might be better characterized as informal rather than criminal, in the sense that entrepreneurs or consumers engage in nominally illegal activity out of necessity or convenience. Such participants in the illegal used market might welcome liberalization and the removal of the stigma of illegality, though this same stigma may also limit political activity a priori. Another related wrinkle that appeared in the Mexico case is the way in which Mexican political parties appear to exploit the ambiguity of Mexican enforcement and their ability to grant exceptions targeted at groups or election time. This further diminishes the

potential pro-reform coalition in a way not foreseen by the theoretical treatments of collective action discussed in Chapter 2.

The final wrinkle, is that the small independent parts producers, who might benefit especially from the growth of the used market, with the assumption of higher repairs and smaller quantities of parts demanded, and who might have generated and benefited from the sort of spillover and learning by doing benefits foreseen by Grubel (1980) and Smith (1974) had largely lost their political clout by the late 1980s. Though there is little evidence that these firms were or would have advocated for used-automobile liberalization, the firms in the parts lobby that were able to actively participate in NAFTA were those large firms that were well-integrated with the new automobile producers. As Thacker (2000) describes it, though they had their differences with AMIA, these firms eventually acquiesced to the new-automobile producers agenda. A similar asymmetry existed in the US and Canadian markets, where aftermarket parts firms interested in expanding the used market in Mexico were drowned out by the original equipment manufacturers.

This case has represented a preliminary look at this issue within Mexico. It is a topic that is certainly worth future research.

CHAPTER 8
CONCLUSION

8.1 Introduction

This dissertation was guided by three research questions:

1. How does the regulation of used automobile imports vary across countries?
2. What is the impact of used automobile protection on trade (is its impact nontrivial)? And most importantly
3. What factors explain the variation and persistence of these policies today?

By way of answering these questions, six more specific hypotheses were proposed.

Hypothesis 1: Used automobile protection has a significant and suppressive effect on the used automobile trade.

Hypothesis 2: The impact of trade restrictions will be greatest in developing countries.

Hypothesis 3: Developing countries are more likely to discriminate against used automobiles than developed countries.

Hypothesis 4: Most of the current policies that discriminate against used automobiles do not significantly address the health, safety, environmental and technology concerns often used to justify them.

Hypothesis 5: The presence of new-automobile production is a significant and positive factor in explaining the severity of used automobile protection.

Hypothesis 6: The increase in foreign direct investment and dominance of most domestic automobile industries in developing countries is a positive and significant factor in explaining why countries moved from prohibitive protection or liberal trade regimes to used automobile protection.

This chapter seeks to summarize what conclusions can be drawn from the evidence and analysis in the preceding chapters to address the proposed hypotheses. The hypotheses are taken up where they relate to a specific research question.

8.2 Addressing the Questions

The first question was addressed primarily by the creation of the database described in Chapter 4, summarized in Figure 4-1 and in the appendix to that chapter. The conclusion is clearly that the policy of used automobile protection is widespread, but especially prevalent in the developing world, as expected. There also appear to be some regional patterns with Latin America having a high proportion of countries with prohibitions on used automobile imports. Thus there appears to be strong empirical support for the third hypothesis, namely that developing countries are more likely to discriminate against used-automobiles than developed countries

In answer to the second question, the gravity model in Chapter 5 suggested that used-automobile protection, as indicated by the ordinal protection score described in Chapter 4, has a clearly suppressive effect on trade. Also as expected, ceteris paribus, the lower a country's average income the greater the proportion of used-automobiles imported. Taken together these two finding suggest that similar protections have a disproportionate impact on consumers in lower income countries. The case study of

Mexico in Chapter 7, and the anecdotes provided as part of Chapter 3, showed that political reaction to increased used-automobile protection (or the lack of liberalization) came from the lower and middle classes, with complaints of the hardship used-automobile protection placed on these groups. These findings therefore provide strong support for Hypothesis 1 that used-automobile protection has a significant and suppressive effect on the used automobile trade and Hypothesis 2 that the impact of such protection is greatest in developing countries, and more specifically on the lower-income populations within these countries.

Two hypotheses were developed in response to the final research question. The first, proposed by Grubel (1980) was that it was the presence and advocacy of *new* automobile producers, rather than used automobile interest groups that were significant and positive factors in explaining the presence of used automobile protection. This appears to be a clear finding in all four of the anecdotes in Chapter 3, from the ordered probit analysis in Chapter 6, and from the case study of Mexico in Chapter 7. The difficulty with this conclusion is that it does not explain why countries such as India and Mexico moved from policies of full protection to used-automobile protection.

The discussion in Chapter 3 suggested a hypothesis for the emergence of used-automobile protection instead of any of the other potential policy options such as full protection, Grubel protection, or free trade (Hypothesis 6). This was that the increasingly multinational nature of automobile production and trade led to a transition from domestic industry protection not to free trade but to "multinational protection." In other words, as countries sought to encourage or retain non-national investment in the increasingly

multinational industry, there was a move to protections better suited to regional or multinational production and distribution systems than traditional domestic protection regimes. This hypothesized transition is primarily characterized by increasing controls on the trade of used products or second-hand technologies at the same time restrictions on the trade in primary products and proprietary technologies is liberalized. Increasing intellectual property and parallel import controls (themselves a form of "second-hand" market protection) may be more "sexy" variations on this theme. Hypothesis 6, therefore stated that the increase in foreign direct investment in the domestic automobile industries of developing countries is a positive and significant factor in explaining why countries moved from full protection or liberal trade regimes to used automobile protection.

This hypothesis was also suggested by Moran (1998) and Studer (2002) who report in the case of Hungary and Mexico respectively that used automobile protection was one of the policies that foreign multinational automobile firms sought from these host countries in return for investment or continued operation. And indeed, there appears to be a wide variety of similar evidence to support this hypothesis, particularly in the anecdotes in Chapter 3 and Mexico case study. This evidence comes primarily in the form of quotes from industry sources stating that reducing barriers to new completely built units while maintaining protections on used automobiles is the preferred policy choice of their firm or for the industry. Specifically, this view was stated clearly by foreign multinational representatives, as in the case of GM's Ms. McCormack in Russia and Ford's Mr. Spender in India, and also by domestic executives as in the case of Kenya

and Nigeria.[90] In the Mexico case, a number of sources both those involved with policy and those who observed the process reached this conclusion. In its official position, AMIA states the control of used automobile imports is one of its top priorities even as another is to "deregulate" the industry. The progression of Mexican policy as it is laid out in Chapter 7, also supports this conclusion.

Yet due data and methodological issues along with concerns about the scope of the dissertation this dissertation is unable to provide provides a further test of this hypothesis than what is found in these anecdotes and the Mexico case study. Indeed, the relationship that begins to emerge from the analysis here is quite complex. While foreign firms and foreign investment appear to have a clear relationship with market openness (Milner, 1988, 1999) *and* used-automobile protection, a number of countries, particularly in Eastern Europe such as the Czech Republic and Slovenia have high levels of foreign participation (100 percent in both these cases) and no immediately apparent discrimination against used-automobile imports.[91] This simply suggests that other economic and institutional factors are at work such as those in the ordered-probit model in Chapter 6. From the results for the various industry variables in this model, it appears that the presence of an automobile industry is perhaps more important than its size, and by extension, its importance to the domestic economy in predicting the likelihood of protection. In this way countries *seeking* to attract FDI may have a greater incentive to implement policies such as used-automobile protection than those with well-established

[90] See country anecdotes in Chapter 3.

industries and FDI. This may explain the existence of these policies in countries such as Peru, where production has ceased and Vietnam where in 1999 it had yet to begin. Also, as suggested above, the used automobile trade may be less of a threat in some countries where higher income levels and more even income distributions among a large population support a significant new automobile market.

While, FDI appears to be a factor both in the switch from full protection or more liberal policies *and* in the adoption of used automobile protection, it is not immediately apparent that *more* FDI makes used automobile protection *more* likely or more severe in any linear way. There instead appears to be a binary or other non-linear relationship between these two, with the quality of used automobile protection being perhaps better predicted by the inclusion of other factors or across other dimensions of FDI than simply its presence or extent.

There is more to this hypothesis, however, than determining that new (multinational) automobile producers are the likely winners from used automobile protection. There is also the issue of why the producers are likely to be politically successful relative to the losers from used automobile protection. This was addressed in the dissertation by comparing the capability for collective action and political influence between the two groups. The anecdotal evidence and the case study of Mexico provide clear evidence of the collective action problems of the opponents to used automobile protection, who are generally poorer and more numerous than those who benefit from it.

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[91] One important point here may be that both of these countries are themselves quite small markets while their production serves the large neighboring EU and Eastern European markets. Thus protecting these markets may be less of a concern.

Furthermore, in countries such as Mexico, where restrictions have long been in place, the number of self-identified beneficiaries is likely to be low, as benefits are primarily only potential. A wrinkle added by the Mexico case, is the degree to which these policies were also exploited for the appropriation of criminal and political rents, further diminishing the capabilities of the pro-liberalization coalition in that country.

The final hypothesis of this dissertation yet to be discussed is that the current policies that discriminate against used automobiles do not significantly address the health, safety, environment and technology concerns often used to justify them (Hypothesis 4). Again, in this case data, methodological and scope concerns precluded a formal and discrete test of this hypothesis. Still in the full model in chapter 6, the anecdotes, the case study of Mexico, and in the research for the database of policies, there appeared to be little evidence that used automobile protection was designed with these concerns in mind. Even in Costa Rica, a country and a government known for its sensitivity to environmental concern, it was found that the policy was not designed to meet environmental objectives (Echeverria, et al. 2000). In this regard, the basic point was made in this dissertation that age or the state of being "used" is an imperfect predictor of safety or environmental performance; that explicit environmental or safety standards were a better approach. This is due not only to the heterogeneity of the used automobile fleet but also due to the heterogeneity of new automobiles. Many automobiles models are produced new with lower standards than many automobiles that exist in the used fleet and are available in domestic or foreign markets. Also, as discussed briefly in Chapter 2, there has been a reversal of trend since the 1970s and

1980s back toward larger automobiles in developed country markets, specifically toward Sport Utility Vehicles in the US, which means that the fleet of newer automobiles may include many less efficient, worse emitters than the fleets of previous years. Thus, a restriction based on the state of being used or on age is likely to be a fairly blunt instrument in weeding out better from worse environmental performers. Finally, as suggested by a number of authors (Grubel, 1980; Kojima and Lovei, 2001; Panagariya, 2000) import restrictions on used automobiles are likely to increase in the age of obsolescence for the existing domestic automobile stock and cause the retention of the globally worst emitters and safety hazards.

There does appear, however, to be an environmental aspect of this problem that is largely overlooked by the literature (and this dissertation). There are clear environmental externalities from this trade to be addressed. First, the argument made above is based on the assumption that liberalization will raise the safety and environmental performance of the average automobile by allowing the increased substitution of newer used automobiles for older used automobiles. Yet, access to cheaper automobiles also means many people who could previously not afford an automobile will be able to, leading inextricably to more automobiles in use. In other words, with a *substitution effect* also comes an *income effect* as more people are able to afford automobiles. Even if the individual automobiles are better environmental performers, there will be more of them. The substitution that occurs may also occur at the other end of the market, and may not be of one used automobile for another. There is the potential for some consumers who would have bought new lower emitters will now purchase older, cheaper worse emitters. While it

may not be *universally* applicable, there is likely to be a general relationship between age and environmental performance. Because of deterioration and technological change, older automobiles have a greater likelihood of being worse emitters than most new automobiles.

While the extent and significance of this last effect is unclear, used automobile liberalization will mean more automobiles on the road, more emissions, more accidents and so on - a function of numbers if not necessarily of age. Thus, used automobile liberalization cannot be viewed as a policy that leads necessarily to improved environmental quality. Similarly, the increase in automobiles resulting from a lifting of restrictions on used automobiles is likely to be met in many developing countries by a deficit of the infrastructure to handle the increase, leading to congestion and further increases in emissions and accidents. Grubel (1980) is quick to say that developed countries have accepted the negative externalities of increased personal "automobility" and therefore so too should developing countries, but the question is whether there is an import policy short of a used automobile ban that might efficiently and effectively address some of these concerns?

As suggested above, the issue of the declining quality of automobiles with age is best addressed by the institution and competent enforcement of government health, safety, and environment standards. If this applied within the domestic economy as well, it would obviate any concerns of lower quality automobiles being retained in the economy even if experience suggests this is much easier said than done.

There is another environmental problem to be addressed. Used automobiles are by definition closer to obsolescence and therefore the need for disposal. Even at the hypothetical level, the issue of the costs of disposal initially appears stickier than the issue of emissions. Clearly, recycling requirements and disposal fees assessed in developed countries are a concern for developing countries as these policies may, depending on their design and implementation, create an incentive to export the junk automobiles at their end-of-life. One solution is for developing countries to charge an automobile disposal fee or institute a deposit system of their own. One difficulty is that this adds to the cost of a car directly (perhaps more so since the automobile will be effectively charged for its disposal twice, once in the developed country and once in the developing country) and therefore is likely to be politically unpalatable. More importantly, such a system requires a complex financial mechanism to keep these funds segregated and available at the time of the automobile's eventual disposal. Many of the most affected countries do not have this capacity and there will still be an incentive for a developing country government to collect the fee and not incur the cost of disposal or to transfer this cost to later generations.

The solution to this from a policy perspective, proposed by the World Bank (Kojima and Lovei, 2001) and the Dutch Association for North South Campaigns (INZET), is for developing countries to receive the fee from the country in which the fee was initially charged when an automobile is recycled, perhaps in the form of aid to reduce disposal impacts and for the development of a recycling industry. Many

economists might argue it should be up to the country to decide how to best mitigate these impacts.

Clearly, the devil is in the details. To date relatively few developing countries have implemented, let alone are able to enforce, automotive or environmental standards in any sophisticated way. At the same time, while many European countries and Japan seem willing to impose disposal fees and deposits many countries do not and are unlikely too, the US being the primary example. Therefore, further research should be carried out into how policies can be designed to balance the need and the equitable distribution of personal transportation with the need to address these environmental externalities.

8.3 Future Research

The most immediate contribution of this dissertation is the assembly of the policy database and the creation of the protection score, which open up a number of areas to more systematic empirical research.

The first such area is in the area of environmental protection and industrial ecology. What are the impacts of the used automobile trade on demand for new and used automobiles and their use and how does this then translate into local, regional and global environmental impacts? The second area was suggested by the literature review. Comparing the trade and treatment of used and new automobiles appears to provide a number of opportunities for testing various economic and policy theories. To date, there does not appear to have been any significant empirical tests of the Alchian and Allen theorem. Further consideration based on what appears in Chapter 5 seems a promising area for research. The second area for research of this type appears to be in the area of

political economy, with continued research into why used goods are treated differently than their new counterparts. In this way, further developing the linkages between restrictions on used goods and those on second-hand usage of goods or technology (i.e. parallel importing or intellectual property regulations). In many ways issues such as digital piracy appear to have taken center stage, because many of the old barriers to the used and second-hand trade in "digitizable" products such as music or words have been broken down by technology. There is much to do.

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INTERVIEWS

1. David Sutterthwaite, President, Prisma Microfinance 7/22/01
2. John Bodson, International Trade Specialist, Office of Machinery US Department of Commerce, 4/3/02 (Per telephone)
3. Jeff Dutton, International Trade Specialist, NAFTA Inter-American Affairs US Department of Commerce, 4/4/02 (Washington, D.C.)
4. Michael Ferrantino Industry Economist, US International Trade Commission, 4/11/02 (Washington, D.C.)
5. Laura Polly, International Trade Analyst, Transportation Branch, US International Trade Commission, 4/11/02 (Washington, D.C.)
6. Carrie Kahn, NPR Reporter, (Via Telephone)
7. Max Cameron, University of British Columbia, 4/15/02 (via e-mail)
8. Randy Miller, International Trade Specialist, Office of Automotive Affairs, US Department of Commerce 4/18/02 (Per telephone)
9. Mauricio Espinosa, Partner, Leedom and Associates, 4/18/02 (Per telephone); 5/20/02 (Mexico City)
10. Robin Gaines*, International Trade Specialist Office of Information Technology, US Department of Commerce, 5/16/02 (Washington, D.C.)
11. Salvador C. Guiterez , General Manager Optima Automotriz SA de CV (Honda dealership in Tijuana), 5/20/02 (Mexico City)
12. Ary Kahan, President Kahan SA DE C.V. , 5/21/02 (Mexico City)**
13. Isabelle Studer, Profesor-investigador, Facultad Latinoamericana de Ciencias Sociales, 5/21/02 (Mexico City) and via e-mail)

14. Steve Jacobs*, Stephen Jacobs, Deputy Assistant Secretary of Commerce for Agreements Compliance, US Department of Commerce (Per E-mail)
15. Charles "Chip" Roh*, Partner, Weill Gotshall and Manges (Per e-mail)
16. Arturo Jessel*, Senior Trade Counselor and Information Specialist at the Embassy of Mexico, TK (Washington, DC)
17. John Melle, Deputy Assistant US Trade Representative for NAFTA and Mexico, April 15, 2002 (via e-mail)
18. Charles Uthus, Vice President, Automotive Trade Policy Council, March 4, 2003 (via Telephone)

* Part of NAFTA negotiations: Mr. Roh was Deputy Chief Negotiator for the United States, Ms. Gaines was a member of the Rules of Origin Working Group, Mr. Jacobs was Deputy Negotiator for Automotive Issues. Mr. Jessel directly involved in the negotiation of the North American Free Trade Agreement ("NAFTA"), and was a member of the team that monitors the implementation of NAFTA.

**Ary Kahan is a past president of AMDA. His family began importing Dodge automobiles in 1926 and to this day is the largest owner of Chrysler dealerships in Mexico.

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Danilo Pelletiere was born on March 28, 1972 in Berkely, California. He graduated from School Without Walls Senior High School in Washington, D.C. He received his Bachelor of Arts from the University of Pennsylvania in 1994. He was a Fulbright Scholar in Germany studying economic development in 1994-1995. In 1997 he received his Master of Arts from George Mason University.

"Institutions are not... created to be socially efficient; rather they, or at least the formal rules, are created to serve the interests of those with bargaining power to create new rules." (Douglass North)