

Explaining Agriculture Protectionism: A Consumer-Based Approach to Trade Policy Formation

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ABSTRACT

Joe Weinberg: Explaining Agriculture Protection: A Consumer Based Approach to Trade Policy Formation

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Trade protection literature is based on the interactions between producers, consumers, and government. Most recent empirical work tends to focus only on the institutional and/or producer determinants of trade policy in order to explain variation among countries. In many sectors, such as agriculture, this approach yields little success. I propose that much of this literature, by omitting the interests of the consumer, misinterprets the theory on which their work is based and leads to incomplete conclusions. I present two alternatives to these conventional models: one that relies specifically on consumer determinants and one that relies on both producer and consumer determinants. The latter of these models suggests that a new definition of protection is necessary in order to determine what factors affect its implementation. These comprehensive models present a new approach to understanding trade protection, while remaining loyal to the original work in this field. The results of these new models are more robust than those of their predecessors and provide a deeper insight into some of the core assumptions of trade policy in general.

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LIST OF ABBREVIATIONS

AARP (American Association of Retired Persons)

AGECONACT (Percentage of population economically active in agriculture sector)

AGVADD (Value Added from Agriculture Sector as a percentage of GDP)

CAP (Common Agricultural Policy)

CSE (Consumer Support Estimate)

CTE (Consumer Tax Equivalent)

EU (European Union)

GATT (General Agreement on Tariffs and Trade)

GDP (Gross Domestic Product)

GDPPC2000 (Gross Domestic Product Per Capita in Constant 2000 US Dollars)

NPC (Nominal Protection Coefficient)

NRA (Nominal Rate of Assistance)

NTB (Non Tariff Barrier)

OECD (Organisation for Economic Co-Operation and Development)

OLS (Ordinary Least Squares)

PPP (Purchasing Power Parity)

PR (Proportional Representation)

PSE (Producer Support Estimate)

MAJORITY (Single Member District)

UN (United Nations)

USD (United States Dollar)

Chapter One: Introduction to Agriculture Protectionism

Agriculture protection remains widespread in an era of otherwise free trade, confounding policy makers and policy scholars alike. Among these protectionist nations, there is also a surprising amount of variation both in quantity and type of protectionism. Though policy makers rely on these scholars for guidance, they have been unable to present compelling explanations for this seeming aberration. Although we possess the necessary tools, we have not been wielding them properly, and this is why we have been unsuccessful in our attempts to explain variance in agriculture protection. Agriculture should not be viewed as an outlier or an aberration. Rather, it should be welcomed as an illustration of a common problem and a lesson to those who study trade policy formation of how we can be more effective in linking theory to empirical analyses. This dissertation takes an alternative approach to measuring agriculture protection that improves the explanatory power of previous empirical models by adhering more closely to the theoretical literature on which such studies are based. In this sense, I am simply offering an old solution to a new problem and encouraging others to do the same.

Political scientists have coalesced around a common framework with which to analyze all matters of trade protection. This simple framework—introduced primarily by George Stigler (1971, and Sam Peltzman (1976)—relies on a tripartite relationship between the regulators (government), producers, and consumers. The producers ask for and benefit from protection, the consumer faces increased costs because of this protection, and the regulator must decide which interest to placate with their policy choices. Though the framework is simple and clear, the evolution of the literature since the 1970's has not accurately represented this framework. Extant

literature purports to model empirical applications of this framework yet consistently omits the consumer from analysis. Models of trade protection that focus only on the characteristics of producers and regulators do not model the politics of trade protection. In this dissertation, I take a three pronged approach to addressing and remedying this omission. It is my hope that others will follow this lead and return to the theoretical intent of our models when testing them empirically.

I build on recent trade literature and more specifically, recent literature on agriculture trade in three ways. First, I present a model using agriculture data to predict levels of protection using a producer-oriented dependent variable. Next, I present a similar model with a consumer-oriented dependent variable as well as guidelines on how consumers can be reintegrated into the empirical study of trade protection. Finally, I present a model that simultaneously analyzes producer and consumer variables in order to present a complete depiction of trade policy outcomes.

While the politics of trade protection suggest that one side “wins” while the other side “loses”, the reliance on producer-oriented studies can only be successful in predicting how much the producers will “win.” The common misunderstanding in this work is that one can simply infer how much consumers will lose by measuring how much producers will gain. This is an important oversight and an incomplete assumption. One cannot infer the consumer costs of protectionism only from the producer gains any more than she could predict the winner of a baseball game using only the score of one team. I use agriculture trade data to illustrate this predicament and present an improved strategy of measuring both the costs and benefits of a particular policy decision.

Agriculture trade data is particularly useful for this task as the World Bank has recently presented perhaps the most comprehensive trade dataset to date (Anderson, et al; 2009). These data allow tests of these various models against the traditional framework and present more meaningful results than previous scholars who did not have the luxury of such a collection.

Agriculture trade policy has been a confounding matter for political scientists but presents more immediate problems for international organizations and the world's poor. The earnings of rural farmers in the developing world have long been depressed by pro-urban / anti-agricultural domestic policies as well as agricultural protection in other countries. These larger and wealthier countries enact policies which lower the prices of food, feed and fiber on international markets. These policies (of both the developed and developing world) have characterized world agricultural markets for many years (Haberler, 1958, Tweeten, 1979, Johnson, 1973) and show no immediate signs of abatement. This is one area where political scientists can make an immediate impact on policy. There are three primary problems associated with modern agriculture protection.

First, these policies are wasteful of resources. They impede efficient allocation from producers to consumers domestically—as well as slow domestic and international economic growth by stifling the normal dynamic gains from trade with restrictive import and export policies. These market insulating behaviors also make markets less stable which threatens mono-exporters and poorer nations, while encouraging reciprocal market insulation in response.

Second, these policies add to income inequality between and within countries. Farm support in wealthier countries and farm taxation in poorer countries necessarily exacerbates between-country inequalities. Meanwhile, since most domestic policies operate mainly through

altering the price of outputs, most of these benefits accrue to larger producers, or landowners in the case of tenanted farms.

Finally, these policies place another immeasurable cost on the world economy--the unnecessarily slow progress of international trade negotiations. After being deliberately omitted from the first seven rounds of the General Agreement on Tariffs and Trade (GATT), agriculture negotiations have monopolized the past 15 years of World Trade Organization (WTO) deliberation, nearly derailing the eight year Uruguay round of negotiations and currently preventing any progress on the now ten year old Doha round of talks. While it is debatable whether the WTO would have been able to make additional progress in other areas had they not been so preoccupied with agriculture, the difficulty in achieving any real progress has only encouraged the creation of regional and other preferential trading agreements that further exacerbate the problem. (Anderson, 2009)

It would benefit our discipline and the international community to determine the root causes of this problematic protection and offer helpful solutions. However, I maintain that if we continue to use a faulty approach to examining trade policy, we will be ill equipped to offer any such solutions. As George Stigler (1971) said,

“Until we understand why our society adopts its policies, we will be poorly equipped to give useful advice on how to change those policies”

What follows is a modest first step towards this goal.

Chapter 2: Determinants of Agriculture Protection Variance--Producer Support as Protection

Why do some countries protect their agriculture industry heavily while other countries protect it very little, and still others actually tax their agriculture producers? The OECD Producer Support Estimates (PSE) measure the benefits of interventionist policies to the farmers in each country, yet vary quite widely. For example, in the year 1998 Vietnam had a PSE of 9.8, meaning that Vietnamese farmers received 9.8% more for their goods than they would have in the absence of that nation's agriculture trade policies. In the same year, Switzerland had a PSE of 78.1 while Indonesia had a staggering -38 PSE—suggesting that the Indonesian government was actually harming their agriculture industry far more than most countries support it.

The exact source of variance is unclear, though empirical literature cites several possibilities. Early work in this area (Anderson and Hayami, 1986) looked to economic characteristics among countries for an explanation. More recent work suggests that these economic differences are compounded by institutional differences among democracies, which push governments towards the interests of certain groups. The common link in all of the related trade literature--broadly defined as the Endogenous Tariff Theory—is a focus only on the interplay between producers and institutions in their explanation of trade policy formation. Though I will be arguing against this two-party approach to modeling trade policy formation it is necessary to first present this model as a means of elucidating how any alternative models differ.

This chapter begins with overview of the Endogenous Tariff Theory literature and the application of the Stigler-Peltzman framework to the issue of agriculture protection. Next, an empirical test utilizes common hypotheses and variables to determine the ability of producer and

institutional characteristics to explain variance in producer protection. The results of the test illuminate the problems associated with empirical studies that focus solely on producers as a measurement of--and explanation for--protectionist policies.

The model I utilize to explain the variance in producer support closely resembles the state-of-the-art work of Park and Jensen (2007). This model follows a traditional producer/institutional approach to predict average levels of producer protection (NRA/PSE) across all national agriculture products. Due to the constraints of Park and Jensen's data, it is difficult to draw many conclusions about the relationship between these producer characteristics and the dependent variable. Perhaps with a larger dataset, the impact of these will become clearer and this adjusted approach might strengthen a purely producer-oriented argument. However, I pursue this test with the understanding that even the most well crafted model is not sufficient if it only focuses on two players in a three player game.

Literature Review

Trade policy literature or "Endogenous Tariff Theory" literature more specifically, can be separated into two groups: one that focuses on the demand side of protectionism and one that focuses on the supply side. In either case, the relationship among what George Stigler calls the "regulator" (provider of policies), the producer, and the consumer are clear: The producers ask for trade protection, the consumers are economically worse off if the protection is provided, and the regulator must determine a policy to implement that maximizes the benefit to producers while minimizing the cost to consumers.

The "demand" side of protection literature focuses attention on which types of producers will seek protection and under what conditions their demands are made. Many of these predictions

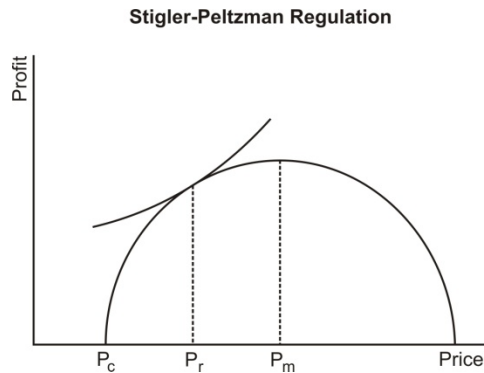
have factoral explanations (Magee, Brock and Young, 1983; Feenstra and Bhagwati 1982, Mayer, 1984; Rogowski, 1989; Scheve and Slaughter, 1998) for preference formation. These tend to center on the demands of workers and the demands of the owners of capital within these businesses and their often disparate goals. The demand literature also presents sectoral or “specific factor models” (Magee, Brock and Young, 1989; Frieden, 1990; Irwin, 1994) in which both the capital and labor of a specific industry coalesces around a common interest—preservation of the sector in the face of foreign competitors.

The “supply” side of protection is addressed in an extension of this literature that studies how, once these policy preferences are formed, politicians decide to either submit to them with a beneficial policy choice or to deny them and risk the political fallout. The early supply-side literature was primarily theoretical with little empirical testing of those theories. More recently, empirical extensions have been added that are based on the theoretical framework of their predecessors but may not follow them closely enough to be successful.

The supply-side literature is rooted firmly in the Stigler-Peltzman framework of regulation. George Stigler (1971) introduced his model of regulation which builds on previous work by Olson (1965) and Downs (1957) to explain how “regulators” (government) would. The crux of his argument is that regulators favor those who can organize, and producers can organize more easily than consumers. Hence, regulators favor producer over consumer interests. Peltzman (1976) extends Stigler’s explanation by expanding on the characteristics of the regulator and treating them as a more dynamic entity. Specifically, Peltzman offers a model in which politicians weigh consumer and the producer interests against one another. Politicians strive to maximize campaign contributions from producers and votes from consumers. Figure one

illustrates this logic when regulators seek to maintain a price that simultaneously assuages producer and consumer interests, while maximizing support from both groups.

Figure 1. Stigler-Peltzman model of Price Regulation



Popular supply side models of trade politics explicitly rely on the Stigler-Peltzman framework, but have largely been a theoretical pursuit (Hillman, 1982; Becker, 1983; Grossman and Helpman, 1994). Hillman (1982 and 1989) shows how legislators weigh the costs of protecting declining industries against the interests of their constituents as consumers. These legislators (regulators) will support industry up to the point where additional protection costs them consumer votes. Grossman and Helpman (1994) offer a more explicit model in which groups offer and representatives collect campaign contributions in exchange for favorable trade policy. Politicians make trade-offs between industry and consumer interests. Like other models, the regulator maximizes their benefit by collecting contributions until the marginal additional contribution reduces the number of votes they receive. This examination of producer competition

and rent-seeking behaviors provides a compelling insight into interest group politics, but offers a less complete picture of general trade politics.

The formal approach to trade policy formation has much to do with the lack of reliable and testable data. This dearth of testable data most likely stems from the difficulty in measuring both tariff and non-tariff barriers; which have overtaken tariffs as the *modus operandi* of protectionist governments. Furthermore, the bargaining of the World Trade Organization (WTO) has reduced protectionism in many economic sectors to the point that the compiling of extensive datasets could be viewed more as a hobby than a productive undertaking.

Recent empirical studies of what “interests” politicians (votes and money) have been able to accumulate some quantity of testable data, but are more specifically geared toward general trade protection than specific issues (McGillivray, 2004; Gawande and Hoekman, 2006; Erlich, 2007). Valuable extensions to this empirical literature include the effects of candidate selection and geography (Busch and Reinhardt, 1999; McKeown and Fordham, 2003) on policy outcomes and even trade policy in the absence of interested legislators (Frieden, 1988; Hiscox, 1999). These are among the few well regarded works that apply empirical analyses to the purely theoretical frameworks presented by their predecessors. Empirical studies of this type are few—due in part to the non-availability of large datasets and possibly in part to the new international trade regime of the WTO. These works can be criticized on a number of levels, but a few criticisms stand out.

First, the majority of these empirical works focus exclusively on the producer; what they demand and what they receive. This is an incomplete modeling of the Stigler-Peltzman framework, which explicitly explains that regulators are weighing producer interests *against*

consumer interests. While the producers in these models have different characteristics and strategies to use on the regulators, the consumers remain conspicuously absent from analysis. This issue will be addressed at length in the following chapter.

Second, the dependent variables that are tested can be problematically broad--as in the case of Erlich's total tariff levels—or problematically vague as are the price levels of Rogowski and Kayser. It is unlikely that--with so much authority devolved to the executive and international organizations--any individual legislator can or would make decisions about general price levels or tariffs across multiple sectors. Finally, much of this literature focuses only on certain countries. Busch and Reinhardt (1999) and Gawande and Hoekman (2006) focus only on the United States while Erlich (2007) and others analyze only OECD countries—a majority of which are members of the European Union. Results derived from such studies are difficult to recover in larger samples with a greater variety of countries. When determining how regulators and producers interact across a wide variety of countries, it is important to consider the institutional differences among regulators in different countries. More recently, Rogowski and Kayser (2002, 2008) addressed this problem in an attempt to distinguish among the wealthy and democratic developed countries that we often reanalyze.

Institutional Differences

The importance of institutions in trade policy formation should not be underestimated. Peltzman was among the first to examine differences among regulators, but since then, most of the focus has been on differences among producers. This issue is of primary importance now, because most trade literature is either focused solely on the United States or a slightly larger group of wealthy OECD members. Any theory that models campaign contributions against the votes of “congressmen” is clearly skewed toward specific countries—and even specific (now outdated) campaign contribution laws. When larger samples are tested that include countries with differing institutional structures, more variables of interest become observable, and hence, these variables should be included. There is no room for institutional differences in Hillman or Grossman and Helpman, though there are obviously institutional differences among the countries in studies that model these theories. Their models do not need to be abandoned, but they could be reworked to more accurately reflect international trade policy.

Rogowski and Kayser (2002; Rogowski, Chang and Kayser, 2008) introduced a possible solution to this dilemma in which they investigated the institutional determinants of policymaking. This approach sets them at somewhat of an analytical crossroads between the suppliers and demanders of trade policies. In a world in which protectionism is good for the producers and bad for the consumers, and politicians have to choose between one or the other, Rogowski and Kayser investigate how different institutions affect their decision making. More specifically, they propose that Single Member District electoral systems are systematically more “consumer-friendly” than proportional representation systems. Although these articles are not about trade policy formation, per se, the logic of the institutional approach is perfectly tailored to this field.

The model of Rogowski and Kayser is based on the Taagepera and Shugart (1989) model of seats and votes, which is based on the premise that legislators in a multimember proportional system can win election without acquiring 51% of their districts' votes while a legislator in a majoritarian system (two parties) cannot. Likewise, coalitions allow for a greater variety of winning Condorcet sets within multimember districts. Finally, these various paths to victory make the "value" of votes differ between proportional and majoritarian systems, with each additional marginal vote less valuable in a proportional system than in a majoritarian one.

It is this last idea of "vote elasticity" that Rogowski, Chang and Kayser view as the primary distinguishing characteristic between these two democratic systems. Their logic relies on the notion that majoritarian (SMD) systems have a higher "vote-seat elasticity" than their proportional (PR) counterparts. According to Rogowski, Chang and Kayser, each legislator is presented with votes (represented by consumers) and money (represented by producer interests). The legislator will attempt to maximize both by selecting a position that satisfies both ends. The "elasticity" of a vote is the relative value that a legislator places on each additional vote. In majoritarian systems, votes are marginally more important to the legislator, and hence her decisions will tend to favor positions that are favored by consumers/voters. In proportional systems, additional votes are not valued as highly and hence we should expect legislator positions that are less favorable or "friendly" to consumers.

There have been numerous in-depth studies on more specific differences between majoritarian and proportional electoral systems. In fact, Rogowski, Chang and Kayser (2008) devote much of their work to defending a myriad of charges that their institutional measurement is too simplistic. There are a number of other factors that distinguish government (regulator type) systems even further such as the increased financial expenditures of coalition governments

(Sebenius, 1983; Daugbjerg and Swinbank, 2007; Bawn and Rosenbluth, 2006) Other factors include the number of political parties in governing coalitions (Huber and Stephens, et al, 2003; Iversen and Soskice, 2006), the opportunities for issue linkage (Schattschneider, 1960) and the effects of related international agreements (Davis, 2004; Sebenius, 1983; Tollison and Willett, 1979). The Taagepera and Shugart model utilized by Rogowski and Kayser is an admittedly simple one, but in this simplicity lies an opportunity to distinguish between the two primary cleavages among democracies. This strategy, while imperfect, helps to remedy many of the problems that immediately arise when trying to compare regulators in proportional systems with the regulators in majoritarian systems. Such a distinction allows an opportunity for a test of the Stigler-Peltzman hypothesis that can be extended to multiple countries.

Agriculture Protection Literature

The literature discussed above has been either theoretical or statistically general (total tariff, price levels, etc;) with few sector specific analyses. However, its approach (Producers +Institutions=Policy) has been applied to agriculture policy many times in the past. Many of these early studies of agriculture protection were primarily a pursuit of economists and their interest in economic and industrial development. This work has since proliferated into the realm of political science and analyzed with our extant theoretical framework.

The so called “Development Paradox” was the first and perhaps the most prominent approach to understanding agriculture protectionism. This “paradox” is that developed countries protect their agriculture sector while developing countries tend to tax agriculture (Timmer, 1991). Explanations of this phenomenon lie in the limited revenue/taxation options of undeveloped countries with large agriculture sectors. This seeming paradox can be explained by

the limited financial ability of the poor country to provide agriculture protection. The tax burden on farmers is compounded by the societal changes that a developing country undergoes, which transfers both labor and capital into large cities. The agriculture sector is taxed (either directly or indirectly through marketing board policies) in order to transfer resources to the fledgling manufacturing sectors and their urban workforce. (Bates, 1984) As economic development continues and income levels increase, government then has more options for tax collection and revenue creation. This government can then afford to offer financial protection to its declining and increasingly endangered agricultural interests (Bale and Lutz, 1979; Honma and Hayami, 1986; Krueger, Schiff and Valdes, 1988).

Anderson and Hayami (1987) and Bates (1984) explain how government policies take hold in countries transitioning from agricultural to industrial economies. The underlying premise of each of these explanations is that, as a country begins to industrialize, labor exits the rural farming communities for the amenities of urban life and the perceived promise of better paying jobs. This demographic shift tends to continue until the urban labor supply far outstrips the demand. As urban labor markets become saturated, the opportunities for each additional urban dweller are decreased and cities face increasing stress to provide basic social services (Harris and Todaro, 1970). This new urban class also finds itself very powerful politically, both because of its newfound ability to organize and act collectively (Olson, 1965), as well as its importance to the economy of the nation—both as a tax base and as part of a broader development strategy. When an urban manufacturing sector is still in its infancy, wages are often determined by the cost of food, so government has an obvious incentive to keep food prices low for this large and powerful new interest group. This is done at the expense of the agriculture sector—which often

serves at the behest of the government through marketing boards and other highly interventionist policies (Bates, 1984; Krueger, Schiff and Valdes, 1988; Timmer, 1991).

Models based on strictly economic or “developmental” rationales for protectionism in agriculture soon found their limits. While a country’s level of development might explain the *existence* of protection, it offers no explanation as to the *amount* of protection, which varies greatly among countries of the same basic development level. The table below illustrates the different levels of agriculture protection among a few such countries.

Table 1: Nominal Protection Coefficients for Similar Development Levels (Mean 1986-2003)

\$2,600-4,000 USD		\$27,000-\$31,000 USD	
NPC		NPC	
Brazil	1.01	Japan	2.27
Russia	2.64	USA	1.12
Estonia	2.52	Norway	3.27
Hungary	1.20		
Latvia	3.26		

Source: OECD Mean GDP and NPC 1986-2003; Range of NPC for all observations 1.01 -3.54

These data are contrary to what the Development Paradox would predict. A glance at this list shows variation where we expect similarity and similarity where we expect variation. Furthermore, the variance among otherwise similar countries cannot be explained by using the binary economic explanations offered by Bates (1984) or Anderson and Hayami (1987). Political explanations for these economic decisions soon became a mandatory component of any analysis. Luther Tweeten (2002), the preeminent agriculture economist of the recent past, summed up the need for further political analysis when he said:

Given that farm policy is an exercise in politics rather than in economics, the time appears to have come for economists to turn over farm policy to political scientists.

As the OECD began collecting agriculture support data in the 1990's, scholars were given the chance to examine these variations in protection levels much more closely. Beghin and Kherallah (1994) were among the first to use the OECD's protection data to a political end. Though their conclusions were limited, their use of developmental and institutional measurements mirrored the state of the literature outside of agriculture. Thies and Porche (2007) investigated additional institutional determinants of protectionism such as district magnitude and "veto players". Their findings (limited by their extraordinary data constraints) were to suggest that variation in agriculture policy conformed to general trade policy variation, though their institutional claims were questionable.

More recently, Kashore Gawande (2008) tested the specific logic of Grossman and Helpman's "Protection for Sale" on United States agriculture policy. His findings, that producer interests "bend" agriculture policy are largely consistent with Olsonian logic and a Stigler-Peltzman framework, but are based solely on US data over a brief time period, and are thus of limited benefit in a more general model.

The most complete and well formulated study of international agriculture protection thus far has been put forward by Park and Jensen (2007). This work combines the lessons learned from agriculture protection literature with a thorough understanding of the general Endogenous Tariff literature and is the appropriate starting point for my own study.

Park and Jensen

Recent research (e.g., Rogowski, Chang and Kayser 2002, 2008; Park and Jensen 2007) focuses on the characteristics of political institutions that induce politicians to favor either consumers or producers. Park and Jensen hypothesize that electoral institutions that encourage politicians to target narrow constituencies are associated with relatively high levels of agricultural subsidies—favoring producers at the expense of consumers.

Their model proposes that the strategies of government officials are based on their expectation of other candidates' positions. As more candidates enter an election, candidates have an incentive to cultivate narrower constituencies. (This is a different operationalization of the same variable used by Rogowski and Kayser—"targeting narrow constituencies"). The "Cox Threshold" is a measurement that reflects how the strategy of a candidate is dependent upon the structure of the competition (voting rule and number of candidates). In a two candidate, one vote system., distributive policies are assumed to approach equilibrium between two disparate interests Distributive policymaking techniques deviate from this equilibrium as more candidates enter a race or the number of non-cumulative votes decreases. The threshold is defined as "the largest minority group that may be ignored by all candidates in the election". Countries with low Cox Thresholds tend to protect small organized interests more than countries with high Cox Thresholds. Put even more simply, politicians in multiparty systems tend to target narrower constituencies than politicians in a two party system.

H1: As the Cox Threshold decreases, politicians, on average, will provide greater amounts of distributive policies that target a small subset of voters (agricultural subsidies).

Park and Jensen test this hypothesis with a multilevel time series/cross sectional model of ten countries with multiple commodities for each (using a weighted total of commodities that controls for outliers). Their dependent variable is the OECD's Producer Support Estimate (PSE), with the Cox Threshold as their primary independent variable—controlling for income levels, production levels, and political constraints.

The PSE was the primary measurement of agriculture protection until 2008 when it was replaced by a very similar measurement from the World Bank. The PSE is expressed as a percentage of gross receipts received by farm producers when they sell their goods—what agriculture economists call “at the farm gate”. For example, if one country has a PSE of 35, 35 cents of every dollar made by that nation's farmer comes from some sort of protectionist policy—be it output subsidy, input subsidy, or market access distortion. A negative PSE means that farmers are negatively subsidized or “taxed” by their governments—usually either through strict price and export controls, or through government operated marketing boards. This type of measurement is superior to a simple tariff, because it captures both tariff and non-tariff sources of price distortions¹. Unfortunately, the PSE is only available for select OECD member nations and the common study using these data could analyze only 10-12 countries.

¹ For further discussion about the accuracy of the PSE and other support measures see Oskam and Meester 2005 and Tangermann, 2005.

The primary findings of Park and Jensen are that institutional incentives to target narrow audiences are, indeed, positively correlated with the level of subsidies (PSE). Many of their control variables showed expected signs, though their comparative advantage measurement (land per labor) and rural population variable did not have a statistically significant relationship with the PSE. This mixed result is more likely due to the small and uniform sample size that they faced, and less likely to be indicator that agriculture producers actually have little impact on agriculture policy.

Jensen and Park have made an interesting and methodologically advanced contribution to the measurement of institutional constraints, but their results offer little nuance regarding the understanding of agriculture protection or its variance beyond the role of electoral institutions. As they state early on, their countries are clustered in two groups “Australia, New Zealand, The US, Turkey and Canada vs. the Rest”. With the exception of Turkey, their verbal correlation of PSE variation maps directly onto their results, even after all of the careful analysis. In short, these are highly detailed variables that thrive in large and varied studies, but lose their nuanced explanatory power in such a small and uniform sample. This same approach could provide far superior results, given a larger sample size and longer time frame. This is precisely what I will do in my own analysis, aided by a new dataset that recently became available from the World Bank.

I am able to pursue these questions in this chapter largely because of a comprehensive new dataset, which alleviates many of the problems faced by previous authors. Kym Anderson and the World Bank recently created this agriculture protection database that provides agriculture protection data for more than 70 countries from the years 1955-2007. These countries account for all but 10 percent of the world’s population and agriculture production. The sample also

represents over 95 percent of global GDP, so we are hard pressed to identify a country that should be included but is not (Anderson et al; 2008). As a comparison, the largest sample size of any previous agriculture study had been only 13 countries and the earliest data had been from 1986. This new dataset uses a revised (though very similar) version of the PSE, called the Nominal Rate of Assistance (NRA).² Additionally, it contains an array of developed and developing countries in contrast to the 13 OECD member nations.

Research Design

I test the producer-institutional hypotheses of Park and Jensen using the Nominal Rate of Assistance as the dependent variable and variations of the independent variables from Park and Jensen (2007). I do not deviate from the underlying theoretical assumptions of Park and Jensen. I also follow the assumption that regulators balance the interests of farmers (narrow interests) against consumers (broad interests) and that there are institutional (regulator), and producer based factors that affect that “balancing” process, and hence create variation in policy outcome among countries. I moderate their hypothesis only by restating the importance of their producer-oriented control variables that were not statistically significant in their OECD study. Furthermore, the independent and control variables that I choose are conceptually similar, though the specific measurements may vary due to the nature of the new agriculture protection data set. I tend to use variables that are more widely available for non-OECD countries and for longer time frames. Finally, I introduce a slightly different strategy to control for effects of the European Union’s standard of agriculture protection. The approach and hypothesis of this test are

² These new measurements were created in concert with Dr. Tim Josling—creator of the CSE and PSE measurement. See appendix III for further discussion.

otherwise identical to Park and Jensen. This institution-centered design will test the following hypothesis:

H1: Controlling for the political power of farmers (land per labor, agriculture share, rural population), institutions that encourage candidates to target narrow audiences at the expense of broad ones will have higher levels of farm-producer transfers (NRA).

Dependent Variable: I use the Nominal Rate of Assistance as the measurement of agricultural protection. The NRA is very similar to the PSE used by Park and Jensen. The primary functional difference is that the NRA is the unit value of production less its value at the undistorted free market price expressed as a fraction of the undistorted price while the PSE is expressed as a fraction of the distorted value. The only functional difference is a measurement that is not necessarily less than one and is expressed in values ranging from -.86 to a positive 4.32. (Anderson, et al 2008)

Institutional Independent Variables

Majoritarian

Park and Jensen use an interesting variable to measure institutional differences in their article. The Cox-Threshold is a theoretically continuous variable between zero and one that is generally interpreted through its distance from 0.5 which represents the largest minority group that could be ignored by all candidates in an election. The Cox-Threshold number is subject to the number of candidates in an election as well as the electoral rules. Unfortunately, the Cox

threshold is continuous only within a certain data set and although Park and Jensen went through a great deal of trouble to come up with their measurements for this variable, the strengths of the Cox-threshold as a measurement do not translate in this significantly larger dataset. Beyond the difficulties associated with such an approach, there are concerns with the necessity of this adapted institutional variable. This concern is particularly salient in light of the almost identical results of Park and Jensen between ranking high and low Cox scores and simply distinguishing between majoritarian and proportional systems. Like Rogowski and Kayser, I will simply use this dichotomous measure of electoral systems in order to capture the sense that proportional systems are associated with candidates who target narrower concentrated interests (farmers) and majoritarian systems are associated targeting broader, centrist interests (consumers) (Rogowski, Chang and Kayser, 2008) .

Though I acknowledge far more intricate differences among and within these types of electoral systems, the intent of this model is to isolate those institutional differences most associated with differences in protectionist levels. In the future, a more detailed analysis of this institutional variable should be studied in order to create a more continuous variable—or at least a greater number of categorical ones.

Producer Independent Variables

Land Per Labor, Rural Population, and Industrial Share: Park and Jensen choose these variables to control for the relative *size, importance, and productivity* in agriculture production in a given economy. It is these variables that determine the existing political power of the agriculture producers in each country—before addressing institutional factors.³

³ Each of these measurements is available in the 2008 Distortions to Agriculture Trade Data Set.

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Land Per Labor: is one of many variables that attempt to capture the comparative advantage of the industry and its competitiveness on the world markets. Less competitive industries generally require, lobby for, and receive more protection. Countries with a great deal of land relative to the amount of available labor are expected to receive less protection than those countries with a relatively disadvantaged agriculture sector. Land per Labor is calculated by dividing the total area of arable land per country by the total labor force. (LANDPERLABOR)

Rural Population: is a proxy for the importance of those receiving protectionist payments to their surrounding communities. Larger rural populations suggest higher payments to those employers and agribusinesses in those rural areas. I have the benefit of an even more effective variable from the World Bank that measures the percent of the population that is “economically active in the agriculture sector”. This would cover anyone who benefits economically from gains to the agriculture sector. (POP_AGECACT)

Industrial Share: measures the importance of agriculture within the national economy as a percentage of GDP. The logic is that where agriculture is more important to the national economy, it will be more likely to be targeted for government intervention/protection. We should expect, *ceteris paribus*, less “important” agriculture sectors to receive lower levels of support. (AGVADD)

Development Level: GDP per capita is almost always used due to the initial claim of Anderson and Hayami that the level of economic development is the most important predictor of the

presence or absence of agriculture protection. This is an indicator of relative development, with the logic that poorer countries tend to tax their farmers while richer countries protect them.

(GDPPC2000)

European Union

Because of the similarity of agriculture protection for each of the countries under the Common Agriculture Policy (CAP), data for European countries over represents the dependent variable within any agriculture oriented analysis. The CAP not only over represents similar data points, but over represents systematically higher levels of consumer taxes under CAP programs due to the historical development of the program. No other agriculture policy has been so explicitly geared toward *creating* and then maintaining an industry by supporting prices above both domestic market clearing and international prices. Though these policies have been slightly moderated by WTO intervention, they still remain preternaturally high due to the nature of the CAP and its role in the formation of the European Union.

When scholars encounter this issue in agriculture policy, they can respond in many different ways. First, if the sample size is sufficiently large, they may choose to use the EU as only one observation and not attempt to disaggregate out into individual countries. This luxury is rarely applicable to those using small data sets that rely heavily on European member states. Park and Jensen (2008) have done just this in their study as the PSE/CSE dataset they used made disaggregating each European country very difficult--if not impossible. While this was an austere and appropriate way to model the situation, it left the authors with only 11 countries to analyze and severely limits the degrees of freedom in which they can operate.

Second, one could simply disregard the complexities of the matter and determine that if one country belongs to the EU, they take on all the characteristics of the Union—creating 27 identical observations. While this may be the case for some matters, it certainly does not apply to most. This strategy was followed by Thies and Porche (2007) in which they measured each independent variable at the national level and then simply ascribed the EU measurement for PSE or CSE to each of those countries equally (EU=1.3, Spain=1.3, France=1.3, Greece=1.3, etc;). While this greatly increases the sample size, it can cause more problems than it solves. By artificially increasing the sample size with highly correlated (identical) observations we become overconfident in our results.

Furthermore, because of the EU's extremely high co-linearity with the proportional electoral system, it is nearly impossible to determine which of those variables is exerting influence on the dependent variable within an institutional study. Previous institutional analyses commonly use OECD data only. Making any statement about electoral systems from this small sample becomes dubious when it is observed that the vast majority of proportional systems are, in fact, the European systems. The conclusions to be drawn then are that either A) proportional systems differ from majoritarian systems in a systematic way or B) that European systems differ from non-European systems in a systematic way.

The final possibility is to attempt to disaggregate the individual nations based on some rigorously applied logic. These attempts can be quite thoughtful and well crafted, and need not be as blunt as simply dividing each European figure by 27. In the Anderson et al; dataset (2009) EU protection levels have been disaggregated based on national level price data collected locally and additional controls for each country's share of EU level production. While this is not a perfect approach, it is an improvement over the approach of Thies and Porche, as it

acknowledges that food producers and consumers have different experiences in Spain, Germany, Portugal, and Greece—despite their shared EU policy. As data begin to come in from the EU on national receipts and payments to the CAP, these disaggregations could be improved upon even further.

Methodology

The following results are from a cross-national time series regression analysis of 59 developed and developing democracies from the years 1980-2007⁴. After coding each country that was a member of the EU either at the time of observation or within two years of joining, I decided against simply entering an EU dummy variable into the equation. While there is nothing inherently wrong with dummy variables, it would be an oversimplification of the processes that are going on within the European Union. It is not simply that there are different *amounts* of agriculture protection in Europe, but that agriculture policy formation happens by a different process than in most nations, and therefore cannot and should not be grouped in with the others. Therefore, I have chosen a strategy of interacting the EU dummy variable with each of the independent variables to—in essence—create two separate analyses. If I simply include a dummy variable in each analysis, I only acknowledge that the intercept of the dependent variable (in this case, level of the Nominal Rate of Assistance) is higher. By interacting the dummy variable, I am acknowledging that the independent variables actually have a different effect on European outcomes than they do in countries where policy is made at a national level. This is

⁴ www.worldbank.org/agdistortions: **Countries in sample:** Argentina, Australia, Austria, Bangladesh, Benin, Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Chad, Chile, China, Colombia, Cote d' Ivoire, Czech Rep, Denmark, Dominican Republic, Ecuador, Egypt, Estonia, Ethiopia, Finland, France, Germany, Ghana, Hungary, India, Indonesia, Ireland, Italy, Japan, Kenya, Korea, Latvia, Lithuania, Madagascar, Malaysia, Mali, Mexico, Mozambique, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Pakistan, Philippines, Poland, Portugal, Romania, Russia, Senegal, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Taiwan, Tanzania, Thailand, Togo, Turkey, Uganda, United Kingdom, Ukraine, United States, Vietnam, Zambia, and Zimbabwe

the most important characteristic of the EU in this study and I am fortunate enough to have a large enough sample to accommodate this form of analysis. Below are the results of the cross-national time series regression analysis.

Table 2. OLS estimates for Nominal Rates of Assistance (NRA)

	All Countries	EU Omitted
Land Per Labor	.0148 (.183)	-0.108 (0.239)
GDPPC	-.000021*** (.000007)	.0000067 (0.00001)
AGECONACT	-.00000008*** (0.000000001)	-.0000000008 (0.0000000008)
AGVADD	-.013*** (.004)	-.0112*** (.005)
Majoritarian	-0.122 (0.205)	-0.191 (0.184)
R ²	0.1473	0.14
N	911	675
sigma_u	.37644	.34580
sigma_e	.26364	.26742

*** p<0.01 ** p < 0.05, * p < 0.10. OLS coefficients with clustered standard errors). The models were estimated with random effects for intercepts.

Results

Like Park and Jensen, these results are far from compelling evidence for a producer-based explanation for variation in agriculture protection.. Park and Jensen's primary findings are that the institution type (Cox Threshold) is negatively correlated to the level of subsidies (PSE). Many of their control variables showed expected signs, though their comparative advantage measurement (land per labor) and rural population variable did not have a significant relationship. The results above are very similar.

In this model, GDP, AGECONACT, and AGVADD were the only significant independent variables in this analysis and while GDP and AGECONACT are signed consistently with the producer model's expectations, AGVADD had a slightly negative effect when a positive effect was expected. Interestingly, when controlling for membership in the EU, AGVADD is the only significant variable remaining.

There are a few possibilities for these outcomes and their slight difference from those of Park and Jensen. First, the outcomes of Park and Jensen were modeled on a much smaller sample of only developed countries. Though their institutional measure was significant, their much smaller sample size negates many of the differences that arise in this larger sample. In this particular case, we have every reason to expect that government type has a significant effect on producer and consumer interests. However, since producer support (NRA) is an incomplete measurement of which interests win and lose within a country, it makes sense that models that use this institutional argument to predict only producer support will not achieve the results they desire.

The inverted sign on agriculture share (AGVADD) is not as surprising as it might look—and in fact, there is reason to believe that this positive “effect” might be the more appropriate expectation to have. Agriculture’s industrial share presents a difficult measurement problem, because it is difficult to ascertain the nature of the relationship between protectionism and industry share. One argument is that the size of the sector influences decisions about levels of protection. Conversely, one could also argue that levels of protection influence the industry share. It cannot be said with any certainty that the international agriculture industry receives protection because they represent a large share of the industrial output (as they would in, say, Zambia) or whether that industry represents a large share *because* they receive protection (as they would in the European Union). Furthermore, variables that are meant to measure comparative advantage cannot be measured accurately *after* protectionist barriers have been erected, because they cannot be disassociated from the policies that they are intended to affect.

Rather than expecting that larger agriculture industries will elicit more protection because of their importance, one might assume that the smaller industries could just as easily be the targets of greater intervention based on their small, concentrated interests vs. larger and more diverse interest. The fact that this is the only variable that remains significant after the EU is removed suggests that the European Union and its highly correlated NRA’s are driving many of the results of the first model. Using so many similar observations, even though they are not identical, over represents these interests and can make us overconfident in our results. With one similar group exerting such influence on the results, these results can be inconsistent and not recoverable in a full population. When the EU is omitted from the analysis, many of these producer relationships disappear. Park and Jensen may also have found that the relationships

between their variables would diminish in a larger sample with more variety in economic and institutional characteristics.

Conclusion

This chapter supports the logic that political institutions and economic characteristics of the farm sector are important components of agriculture trade policy formation. Unfortunately, this chapter also demonstrates that models which rely solely on producers and institutions cannot explain the variance in agriculture protection among countries. Variables such as income, industry size and comparative advantage are certainly key determinants of protectionism. Endogenous Tariff Theory suggests that at least some of the variance in NRA that these variables fail to explain most likely lies in additional control variables that reflect consumer characteristics. However, it is unlikely that any number of additional control variables could explain all of the variance in protectionism in this study because NRA is simply not an accurate measure of protectionism. Additional independent variables could explain more of the variance in NRA, but these results speak only to one side of protectionism—producer gains. In a model that produces winners and losers, testing only the NRA can only present conclusions about the amount of winnings. The benefits to these producers can only be interpreted in concert with the effects of that policy on the consumers of their product. To do otherwise would be like predicting the outcome of a baseball game based only on the home team's score. One could interpret all manner of causes for that one team's score, but unless there is also a tally for the other side, we cannot determine who won the game. Similarly, we cannot say that majoritarian systems target narrow audiences *at the expense* of broad ones simply because they have a higher level of NRA. This does not give us a chance to view the full impact of those policies.

The underlying problem with any model that measures only producer interests as a policy outcome is that they are not accurately modeling the theories upon which we have based this work. The basic Stigler-Peltzman framework explains that regulators weigh producer interests against consumer interests to make their decisions, yet these producer-oriented models only model the interests and outcomes for one of those parties. No stable balance can be achieved with such an approach.

When these empirical analyses are compared to the tripartite theories of endogenous protection, it should be unsurprising that producer-oriented models have not had great success at predicting levels of agriculture protection. This experiment, like many others before it, supports motivation for an alternative route to explaining agriculture protectionism.

Chapter 3: Determinants of Agriculture Protection Variance--Consumer Support as Protection

Problems that exclusively concern consumers cannot be said to exist in any society. This, however, does not make it less relevant to develop concepts and theories which make it possible to analyze and understand societal problems from the particular viewpoint of the consumer

-Hans Rask Jensen (1986)

The question posed at the beginning of Chapter Two was this: “Why is there so much variance in agriculture protection among countries?” Those who attempt to answer this question had looked to the same place when posed with this question, the Producer Support Estimate. After all, the variance in farmer support is and has been widely varied. Yet the function of the PSE (NRA) cannot be reconciled with the theories of preference formation and the realities of protectionist applications. This chapter takes a different tact. Rather than modeling protection as an accumulation of producer benefits that may harm consumers, I model protection as those costs that are passed on to the consumers. The Consumer Support Estimate (CSE) has been as widely available as the PSE though have never been used in an empirical study. It too, varies greatly among countries⁵. The rationale for avoiding this measurement is not immediately clear, but the benefits of testing these data are clear. First, the primary concern that most citizens have with farm subsidies is that they increase the costs of food for the rest of us who do not farm. These costs, then, are the more politically salient issue of protectionism. The second issue is perhaps a methodological oversight on the part of my predecessors but nevertheless, the CSE actually represents a more complete measure of protection insofar as it measures both farmer

⁵ In 1998, Japan had a -50 CSE, while the United States had only a -1 and China a positive 2.

benefits and any additional side payments made to consumers. I will discuss these two issues at greater length below.

The primary theoretical concern with the producer-oriented models is the willingness of each to test an incomplete version of a complete model (Stigler-Peltzman). At some point, the original intent of a producer, consumer, and regulator model became solely a producer and regulator model. Therefore, inclusion of consumers into these models is not a new idea; it is actually a very old one. This does not suggest that producer concerns are somehow lesser than consumer concerns in the determination of trade policy. Quite to the contrary, I acknowledge that (especially in the United States) producer concerns *usually* outweigh consumer concerns in the minds of politicians. In this sense, one could say that protection is *usually* “for sale”. The key to the consumer argument—which speaks to the broader trade literature—is that simply because something *usually* happens, does not mean that it will *always* happen. Therefore when encountering an empirical situation that the formal models cannot explain, it is best to look at some of the assumptions of that formal model.

I argue that the consumer has not been intentionally omitted from the study of trade policy as much as it has slowly fallen by the wayside due to complacency. Most of the time, the consumer is unable to exert much visible influence. At some point, this tendency was transformed into a misinterpreted fact, whereby scholars simply assumed that they were not germane to policy formation. The primary reasons for this gradual decline lie in our understanding of the collective action problem as well as the lack of empirical testing in the endogenous tariff literature.

The purpose of this chapter is to pursue the idea that protection can best be explained if it is defined as a cost to consumers—rather than as a benefit to producers. I will revisit the

Endogenous Tariff literature to ground these assertions, and then present some guidelines to understanding consumers that may disconfirm some generally held suspicions about their efficacy. Finally I perform an empirical test similar to the one in chapter two, though with Consumer Support (CSE/CTE) as the dependent variable, rather than PSE.

Literature Review

There is little extant literature that measures protection in terms of consumer interests; though any that would be applicable has been included in the previous discussion in Chapter Two. In this chapter, I am more concerned with *why* the consumer has been omitted from our literature, both theoretically and empirically. The answers to this question lie in the popular literature on collective action and the adoption of producer based explanations into many of our popular formal models. I review many of these works and then look at a recent work by Rogowski, Chang and Kayser (2008) that is one of the few empirical studies that focuses on consumer interests. I combine this approach to the previous approach of Park and Jensen to create fuller hypotheses to test.

Collective Action and the Consumer

The Collective Action model of Mancur Olson (1965) and George Stigler's Theory of Regulation (1971) each address consumer interests very specifically. Unfortunately, neither offers a dynamic role to the consumer—though they offer specific reasons that suggest a rationale for the consumer's omission. According to Olson, consumers are the large group in a partial equilibrium model—attempting to provide a public good (lower prices) and large groups have trouble providing collective goods because

1. Each group member has a lower share of the benefits
2. It is less likely that any single person's benefits of helping provide the good exceed the costs, and
3. Organizational costs rise with group size.

These are not controversial statements and when formulating a model of trade policy formation it is easy to see why the focus of attention has been on producers and their interests, rather than these unorganized, unmotivated, rational consumers. Grossman and Helpman take this logic a step further, stating:

“In reality, the most serious political competition to protection arises when higher prices stand to harm other producer interests downstream.” (1994)

What they are suggesting takes the logic of producer-oriented studies to a troubling extreme—suggesting that consumer interests are so difficult to defend, that the only real danger to producer interests “buying” protection is *other* producers. While it is true that producers often find themselves at odds with other producers, there are numerous political leaders who have recently had troubling experiences with dissatisfied consumers and might feel differently about Grossman and Helpman's suggestion.⁶

The reality that these authors speak of is, in fact, only one narrow slice of a fuller picture. Other realities do not present the collective action problem as this sort of *fait accompli* for consumers. When looking at farmers, those who espouse the collective action problem are

⁶ In 2008 alone, the Prime Minister of Haiti was removed from office over the price of rice and the President of Cameroon faced bloody anti-government riots in response to spiraling food prices.
<http://www.reuters.com/article/idUSN1228245020080413>

correct that in the United States, the consumers of food are far more spread out and generally unconcerned about marginal increases in food costs to become politically activated. They also, by definition, outnumber the producers as food consumers consist of every living human within this country. However, this theory can be turned on its head if the farmer is Nigerian rather than American.

In the developing world, farms are small, plentiful, and spread out over huge areas of land with little or no transportation or means of communication. In contrast, food consumers are often concentrated into a single large urban area--such as Lagos—where consumers have both the organization, interests, and ear of the government to make their voices heard. This simple idea is the root of the “development paradox” that we discuss in agriculture policy as well as a good way to isolate my main contention against the collective action logic for omitting consumer interests.

Grossman and Helpman had no intention of providing an international model when they began their work, but it is necessary to compare multiple countries in order to fully accommodate the effects of consumer influence. The exclusion of these interests could have been avoided earlier if these studies had focused on multiple countries (in which the collective action problem might favor different groups) or if it had been tested on a variety of economic sectors. Any general economic sector would probably recover the usual results for the producer, but if a variety of different economic sectors could be tested, the different characteristics of the goods would become more apparent. Just as there is no one “international farmer” that shares traits across the world, there is no one “domestic consumer” that shares traits across each consumer good. Similarly, there is not one general type of good. Keeping in mind Olson’s three problems

associated with large groups (consumers) we must ask: Given these limitations, under what circumstances *might* the consumer overcome these problems?

There have been plenty of suggestions on how to overcome the collective action problem for various groups. However, there is not a specific policy innovation or social networking strategy that needs to be applied to this case. Rather I posit that each economic sector and each consumable good is bestowed with certain inherent characteristics that can moderate the collective action problem.

The Dynamic Consumer: Typologies

Three factors help us determine what type of consumer is involved in any specific policy issue: Economic traits of the consumer, demand/price elasticities of the consumable good and spatial distribution of the consumer.

Here again, agriculture is helpful in elucidating these differences, if only by way of example. There is no reason that these same traits would not apply to any economic sectors. These issues can be briefly explained in a series of scenarios.

How important is this good? Costs of action vs. Costs of protection

When government protects one industry from imports, we expect an increase in the domestic price of that good. This price increase is absorbed by the consumer. *Usually*, this increase is small for each individual as it can be spread out over a large number of consumers. Even if it is troublesome to that consumer, the costs to mobilize against it outweigh the price increase. I maintain that this depends on the consumer and the commodity in question. For

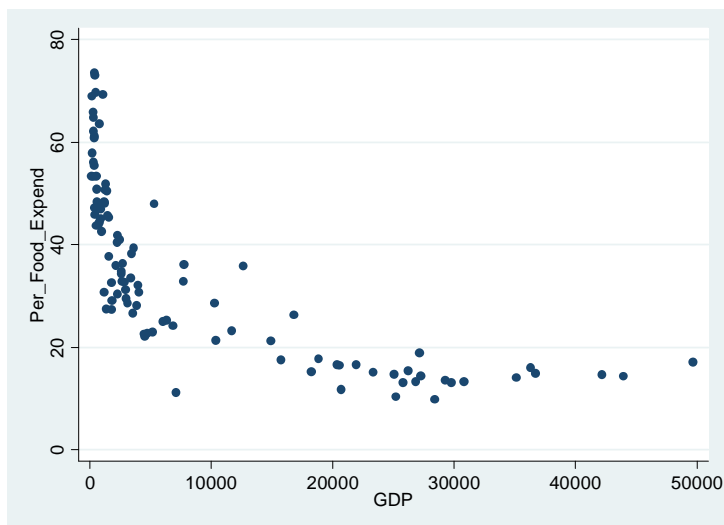
example, if my government decides to protect the makers of something I rarely use or rarely need to use, this theoretical explanation is accurate. It is not worthwhile for a consumer to travel to Washington to demand that her drums be released from government control so that she may buy cheaper European imported drums⁷. However, a price increase in a good that this consumer used more often, or had fewer substitutes for (such as food, clothing, heating oil) would make the costs of political action more worthwhile.

How wealthy are these consumers?

Income becomes an important factor when considering the political impact of consumers on price increases. Highly elastic goods, such as luxury products, may see an increase in demand when consumers become wealthier, whereas highly inelastic goods, such as food, see no such increase. This phenomenon happens in reverse as well, such that lower income people will buy fewer luxury watches, but need no less food than wealthier people. The relative importance of the good, as discussed in the example of sugar—is also subject to income or wealth discrepancies. Agriculture provides an excellent example of how personal wealth impacts choices and responses to price changes in different goods. Figure 2 below displays the relationship between income (GDP) and the percent of household budget spent on food.

Figure 2. Relationship between GDP and % of Household Budget Spent on Food.

⁷ The United States levies a 2.5 % tariff on all percussion instruments entering the United States.



$R = -0.73$ $N = 105$. Based on GDP per capita in USD in 1996.

The increased importance of food within poorer households can be explained by Ernst Engel's law, which posits that with a given set of tastes and preferences, as income rises, the proportion of income spent on food falls, even if actual expenditure on food rises. This simply means that the personal budgets for food remain relatively fixed—even as household income increases. Therefore, wealthy consumers will be affected less by higher food prices than poor consumers. The absolute costs, of course, remain the same, whether a consumer is rich or poor but the relative costs change drastically. The difference between absolute and relative costs is due to the extreme income elasticity of demand for food. The impact of a five dollar increase on basic food stuffs is going to resonate far more with a poor consumer (to whom this might represent 50% of their total budget) than to a rich consumer.

Ironically, this tends to skew consumer power toward the poorer consumers (another reason why it is rarely seen in the United States). When consumers are poor and spend large percentages of their income on food, they pursue policies that will lower the costs of food, but as

their incomes improve, the pressures to keep prices low will decline. (Bates and Rogerson, 1980; Anderson and Hayami, 1986; Lindert 1991)

Who consumes this good?

We must also consider who is consuming each of these goods. It is here that Grossman and Helpman were quite insightful with their “producer vs. producer” prediction. Take, for example, sugar—one of the United States’ most heavily protected products. I am relatively accepting of sugar that costs around two dollars for a five pound bag, when I could easily be purchasing Cuban sugar for (at most) one dollar for the same product. I will only use one of these bags every year, so the extra costs are not that important to me. My use of sugar is not limited by cost, merely by my personal need for sugar. However, when a different consumer uses hundreds of tons of sugar every day, like those at the Mars and Hershey corporations do, paying double the price can become a real problem. According to the US Sugar Alliance, the top cereal and candy corporations in the United States consume nearly 72% of all the sugar produced within the United States. These consumers are neither geographically isolated nor politically irrelevant. Hershey, for example, recently moved a major part of its operations to Mexico in response to government’s failure to control domestic sugar prices⁸.

Where are these consumers located?

⁸ <http://www.reuters.com/article/idUSTRE57C0Q220090813>

Finally, we must consider the spatial distribution of the consumers of each product before determining how the political process might unfold. In the case of food consumers, this can be narrowly defined by the geographical space that exists between each consumer—measured by urban or rural populations. Just as having a large number of farmers that are geographically dispersed inhibits their political power, a large number of geographically concentrated consumers will increase theirs (Bates and Block, 2009). In the case of other goods with more targeted consumers such as medical professionals, golfers, AARP members, etc., it is equally important to determine where these consumers might be located or otherwise affiliated with one another.

I give these examples, not necessarily to generate a new model of protectionism, but merely to point out how applying these producer-oriented formal models to a specific industry (rather than a theoretical one) elucidates some flaws within that model. This is less a shortcoming than it is a product of the little data available to study these phenomena. Tariff data is available for many sectors, but in reality, tariffs represent an almost negligible amount of protection in most industries that are generally protected through countless Non-Tariff Barriers (NTB's).

I propose that the assumptions of consumer complacency must be made on a case by case basis taking into consideration

- 1) The income level of the consumer in question

- 2) The location of that consumer in relation to similar consumers
- 3) The value of that good to each consumer.

This is simply an acknowledgement that there is no such thing as a monolithic “consumer” who has an equal interest in the price of two very dissimilar commodities.

If the expectations of consumer, producer and regulator interests are moderated in this way, the inability to explain levels of agriculture protection across different countries then becomes more apparent and less troubling. It is not that agriculture has some mythical or unique quality that makes it incomparable to other goods. It simply has a more varied consumer base, and low income elasticity of commodity. If we measure protection only in terms of producers, we will not recognize this difference and our results will suffer. To omit the interests of consumers in any model is problematic, but given classic assumptions, one might *usually* assume little effect on analytical outcomes. A more vigilant approach would be simply to consider some of these traits when testing the Stigler-Peltzman framework. Rather than attempting to measure the precise income elasticity of every consumer good to determine if the consumer might be more or less powerful, let me simply suggest that we include consumer interests in our models—regardless of the sector in question. There is truly nothing to lose and only increased explanatory power to gain.

Consumers and Institutions

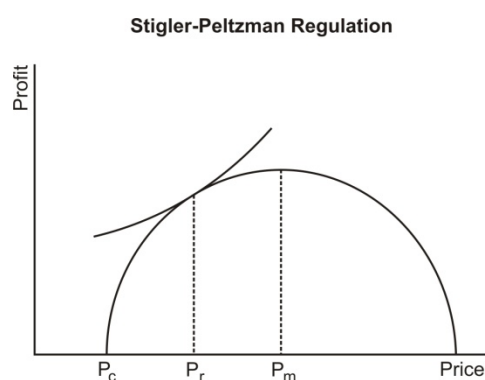
There are few empirical studies that specifically concern consumer interests. Rogowski and Kayser (2002; Rogowski, Chang and Kayser, 2008) present one of the few consumer-

oriented empirical studies of recent years. Similar to the narrow/broad constituencies of Park and Jensen, Rogowski and Kayser propose that Single Member District electoral systems are systematically more “consumer-friendly” than proportional representation systems. Although these articles are not about trade policy formation, per se, the logic of the institutional approach is tailored to this field perfectly.

The model of Rogowski and Kayser is based on the Taagepera and Shugart model of seats and votes, which centers on the underlying logic that legislators in a multimember proportional system can win election without acquiring 51% of their districts’ voters while a legislator in a majoritarian system (two parties) cannot. Likewise, coalitions allow for a greater variety of winning Condorcet sets within multimember districts. Finally, these various paths to victory make the “value” of votes differ between proportional and majoritarian, with each additional marginal vote being more valuable up to a certain level in proportional systems and vastly more valuable to winning election majoritarian systems.

It is this last idea of “vote elasticity” that Rogowski, Kayser and Chang use as the primary characteristic that distinguishes different systems. Very simply put, their logic relies on the notion that majoritarian systems have a higher “vote-seat elasticity” than their proportional counterparts. According to Rogowski, Chang and Kayser, each legislator is presented with votes (represented by consumers) and money (represented by producer interests). They will attempt to maximize both by selecting a position that satisfies both ends. The “elasticity” of a vote is the relative value that a legislator places on each additional vote. In majoritarian systems, votes are marginally more important to the legislator, and hence her decisions will tend to favor positions that are favored by consumers/voters. In proportional systems, additional votes are not valued as

highly and hence we should expect legislator positions that are less favorable or “friendly” to consumers.



Working within a Stigler-Peltzman curve, it is easy to identify positions that are more or less consumer-friendly. The figure above demonstrates the equilibrium positions for consumer, producer, and regulator. Rogowski and Kayser’s claim is that a consumer friendly position would have the regulator’s position (P_r) moved slightly to the left—hence lowering prices. However, this distinction becomes less clear when applied to real world situations. Without the benefit of the diagram, it becomes more difficult to identify if one nation is friendlier to their consumers than another. It is harder still to measure this friendliness on a continuous and comparable scale. Rogowski, Chang and Kayser use their framework to predict what they call *price levels*—a simple variation on Purchasing Power Parity (PPP). Therefore: the lower the prices, the more consumer “friendly” the country. This measurement is serviceable, but as discussed in their 2008 work—it presents many problems as well.

Price levels, more specifically Purchasing Power Parity, can be affected by a number of outside factors such as personal wealth (Penn Effect)⁹, natural and unnatural barriers to arbitrage and differences in market size. They attempt to remedy these problems with a comprehensive list

⁹ Or Balassa-Samuelson effect (1964)

of control variables. In Rogowski, Chang, and Kayser (2008) the authors revisit their 2002 work and respond to their many critics. As they mention, few of their critics disbelieved that majoritarian systems and proportional systems might offer different regulatory outcomes, but many questioned their analysis. Common criticisms included their rather small dataset and time period, while others offered additional control variables for the main dependent variable.

I maintain that careful selection of a dependent variable that speaks directly to causality will always yield better results than even the most rigorous attempts to imitate such a variable through numerous controls. The primary concern with “price” is not that it is statistically problematic, but that it is functionally problematic. Prices or PPP are too far removed from the Stigler-Peltzman framework of regulator choice to be a testable measure of such a hypothesis. Certainly legislators and legislatures may be able to marginally affect general price levels, but it is hard to imagine a US senator *deciding* to lower the national price levels in order to exchange money for votes. Even less likely is the *ability* of that senator to have the opportunity or power to make those changes.

This is not to say that price levels are invalid measurements of consumer/producer preference, they are simply too broad. There is no suggestion in this work that majoritarian systems are “pro consumer”, but only for a certain subset of policies. If the logic of Rogowski and Kayser holds—that institutional differences can skew the interests of legislators from producers to consumers or vice versa—then that logic should hold regardless of what decision or sector is in question. The more exchangeable the issue in question, the stronger the underlying theory becomes. The challenge is to find an issue that more directly represents the regulator’s decision making process. Since the Stigler-Peltzman framework is predicated on the ability of the regulator to select a position and make a choice that enacts this position, it is necessary to

select a dependent variable that more closely represents this specific decision. It is highly unlikely that the average US Representative would ever find herself voting on US price levels. However, it is far more likely that the same representative will be presented with a specific issue and a range of options from subsidizing to taxing their consumer base and pick a continuous and measureable level at which to do either. Such an issue specific decision allows for a direct and measurable way to test the Stigler-Peltzman framework and associated theories. The Agriculture sector provides just such a variable in the Consumer Tax Equivalent.

Consumer Tax Equivalent

Rogowski and Kayser most likely tested the traditional hypotheses against Purchasing Power Parity and other broad indicators because policy specific data are very difficult to obtain. In the rare instances that reliable data exists, we must exploit those sources to put our theoretical models to the test. Fortunately, there is a large and high quality data set for consumer interests in agriculture. The same World Bank dataset that provided the producer-centric NRA also includes a measurement of the Consumer Tax Equivalent (CTE)¹⁰.

The CTE specifically measures the *costs* of government market interventions on consumers. This is in contrast to the NRA, which measures only producer *benefits* of these government interventions. For some, like American consumers, the consumer tax is usually quite low and sometimes even negative (a consumer subsidy). This effect could be attributed to the U.S. Department of Agriculture surplus food programs, commodity target prices, and subsidized storage programs—all of which have price depressing effects beyond the farm gate (after the producer receives his or her money for the product). For others, like European consumers, the tax

¹⁰ The CTE is functionally identical to its predecessor CSE of the OECD dataset

is often quite high. This is caused, in part, by domestic price supports at the farm gate and other non-tariff barriers to trade. In either case, this measurement presents a clear picture of a legislature that weighs consumer interests (low food prices) against producer interests (protection from imports) and decides exactly how much their decision will cost their consumers. With few outside factors confounding these readings, we are left with a simple equation wherein higher CSE/CTE's represent consumer unfriendly policies and lower CTE's represent consumer "friendly" policies. The CTE represents therefore represents an improvement over Rogowski and Kayser's price levels or the World Bank's NRA for conceptual and methodological reasons alike.

Conceptually, the leverage of a policy specific data set is that it reduces the external factors that intervene between regulator choice (Stigler-Peltzman) and observed outcome. For example, while changes in the Consumer Price Index or Purchasing Power Parity can be attributed to any number of macroeconomic factors, particular issues—such as agriculture subsidies are issues that legislators can and do make decisions to alter. These individual issues shed light on more direct regulator/legislator actions and their pro-consumer or anti-consumer biases. Protectionism is an obvious starting point to begin a test of Stigler and Peltzman because industry protection clearly pits producer interests against consumer interests (More protection equals higher costs for consumers of those goods). Agriculture, while seemingly an arbitrary issue to look at, is quite useful for a test of Stigler-Peltzman as well as the criteria for consumer involvement in policy making outlined above.

First, food fits the criteria of "importance" as it is one of the few universally consumed products and the only publicly traded necessity. While a regulator might feel confident that she could protect a domestic automobile company without angering too many consumers of that

product, that same regulator must tread carefully when the consumer market represents every single consumer in their district, state, etc. Not every consumer will be buying automobiles, but every consumer will be buying food. Likewise, in nearly every case, agriculture protection raises the domestic costs of food. As food prices increase, food consumers bear the brunt of these increased food costs. When these food costs become unbearably high for the consumer, they will react politically. This is the “balance” that government officials are trying to strike between those who receive benefits (farmers) and those who incur costs (consumers).

Next, for poorer consumers and consumers in poorer countries, food becomes inordinately important due to the extreme inelasticity of demand, and may in fact be the consumers’ *only* expenditure. The elevated importance of food (and food prices) underscores the political salience of food pricing policy—even more so as income decreases.¹¹ It is clear that Rogowski and Kayser were attempting to capture this universality with their “price” measure, but food is a simpler route to the same destination. Indeed, food comprises a large proportion of the Purchasing Power Parity’s “basket of goods” and protectionism is the primary unnatural barrier that makes PPP unreliable and drives much of its variation.

Finally, a focus on agriculture presents a clear and direct route between regulators and consumers in ways that cannot be captured by a broader measurement. The CTE explicitly measures how much the agriculture policies of a given country are costing the consumers of that country. Unlike Purchasing Power Parity (PPP) or other international indicators, the CTE is not dependent on foreign currency or exchange rate fluctuations. Instead the CTE measures only the effects of each country’s agriculture policy on food prices—compared to the international prices.

¹¹ The observation that, “with a given set of tastes and preferences, as income rises, the *proportion* of income spent on food falls, even if *actual* expenditure on food rises” is known as (Ernst) Engel’s law. This merely suggests that the income elasticity of food is less than one.

The CTE is expressed as a percentage—such that a CTE of .45 tells us that the citizens of that particular country are paying 45% more for their food than they would be in the absence of national trade policies—regardless of inflation, pegged currencies, or pre-intervention prices. This measurement is unique to each country of measurement and clearly indicates where consumers would be paying less for their food *but for* the actions of their national government. Only domestic trade decisions can cause fluctuations in these measurements.

Methodologically, the CTE represents an improvement over the NRA because the CTE is inclusive of the NRA, while the NRA is not inclusive of the CTE. The Nominal Rate of Assistance (NRA) and the Consumer Tax Equivalent (CTE) were created for the 2008 World Bank database by the same people who created the PSE, NPC, and CSE for the OECD many years ago. The creators are quick to point out, that “the CTE and NRA will be identical (consumer tax=producer benefit) if the only government interventions are at the border (ie; tariff). Since there are likely domestic production or consumption taxes/subsidies as well, the CTE and NRA nearly always differ”. (Lloyd et al; 2009)

These measurements are clearly different, but the question remains: Is one measurement better than another measurement? The answer is yes, both theoretically and empirically. First, since the CTE represents the losses from producer protection *and* side payments that the government might add in, the CTE is a more complete measurement conceptually. This situation is analogous to the measurements of net pay vs. gross pay. One could investigate institutional effects on people’s salaries, but if those measurements are only of gross salaries, they miss the taxation process that provides the most obvious effect of the government. Similarly if (like Rogowski and Kayser) the goal is to measure institutional effects of “consumer friendliness”, the

goal cannot be achieved through models that rely only on producers without considering additional government intervention on behalf of those consumers.

Hypotheses

Based on the results above and on the logic I have presented, I attempt to explain variation in the Consumer Tax Equivalents using consumer and institutional characteristics.

Based on the discussion above I formulate two hypotheses.

Hypothesis 1: Countries with richer/poorer average consumers will have higher/lower levels of Consumer Support for agriculture. (CTE)

Where consumers are wealthier, increases in food costs are less likely to lead to political action against lawmakers. I base this assertion on an economic concept known as Engel's Law. (Ernst) Engel's Law posits that with a given set of tastes and preferences, as income rises, the proportion of income spent on food falls, even if actual expenditure on food rises. This simply means that the personal budgets for food remain relatively fixed—even as household income increases. As discussed previously, wealthier consumers will be affected less by higher food prices than poor consumers. In a relatively poor country, government officials can keep food costs low to prevent consumer backlash by either taxing the farm sector or merely not protecting it at above market levels. In relatively wealthy countries, governments can rely on high consumer incomes to prevent the same backlash. In the case of food, low prices and high incomes seem to serve the same purpose and hence, consumers are likely to foot more of the bill for agriculture protection where average incomes are higher. Ironically, the poorer consumer is actually the more powerful consumer because he or she is more motivated than the wealthier consumer to pursue political remediation.

Hypothesis 2: Higher/Lower agglomerations of consumers in large urban areas will be associated with Lower/Higher levels of Consumer Support for agriculture. (CTE)

The puzzle of the developed world is how the dispersed consumers of these countries could ever wield power over the concentrated farm lobby. Most assume that farm interests overcome consumer interests simply because of the classic collective action problem. However, in developing countries, the rural farmer is the one with the collective action problem—rather than the food consumer. The more dispersed the food consumer is, the harder it is to collectivize their interests for lower food prices/less agriculture protection (Bates, 1984). Where the population is more urbanized and centrally located, riots, demonstrations, and other acts of civil disobedience are more likely because they are easier to plan and carry out. Likewise, consumer groups, political organization, and even price information are more easily obtained in urban settings. Therefore, it is expected that the organized (if only geographically) consumer is a more politically powerful consumer, and hence will observe more consumer “friendly” policies than the consumer who is geographically dispersed.

H3: Majoritarian systems of government will be more consumer friendly (lower levels of CTE) than proportional systems.

In line with the logic of Rogowski, Chang and Kayser (2008), I predict that majoritarian systems will be constrained by their votes to a greater extent than their colleagues in proportional systems and therefore tend toward more consumer friendly policies. Rogowski et al; used a modified measure of Purchasing Power Parity as their dependent variable in order to determine if a country had a consumer “friendly” or “unfriendly” policy predilection. The CTE is simply another way to operationalize what constitutes a consumer “friendly” policy. Allowing that high

CTE's are consumer "unfriendly" and low CTE's are "friendly", I expect the former in proportional systems and the latter in majoritarian systems.

Research Design

I test these hypotheses with a time series cross sectional analysis of 59 democratic countries in the time period of 1980-2007 to predict levels of consumer food tax among democratic countries. Because this type of analysis tends toward panel (country) induced heteroskedasticity I have clustered standard errors on country. I expect this model to yield more explanatory power than one that measures protection only as producer gains (PSE/NRA) because, as I previously argued, consumer measurements represent a more complete view of protection that includes both producer gains and the moderated losses to the consumer. However, I maintain before I begin that while this is a *better* approach than modeling only the producer, it is still not yet a complete approach.

I model consumer tax using the World Bank's Consumer Tax Equivalent (CTE). The CTE in this sample ranges from -.84 to positive 3.71. (Anderson, et al 2008) Countries are coded either majoritarian or proportional from Matt Golder's "Democratic Electoral Systems around the World" (2005). Consistent with Rogowski and Kayser, I expect that majoritarian countries will exhibit consistently lower CTE's than their proportional counterparts. Other independent variables represent common determinants of agriculture protection as selected from recent agriculture protection literature, most notably Park and Jensen (2007). Three primary determinants of Consumer Support are generally accepted to be:

- 1) Development level of country: (GDPPC2000) Poor countries tend to tax their agriculture sector to the benefit of their consumers while rich countries tend to tax their consumers at the

expense of their consumers (Anderson and Hayami, 1986). I use GDP Per Capita as a proxy for development level using a measure of gross domestic product per capita measured in U.S.

Dollars from the UN Common Database. Though others might select Purchasing Power Parity, GDP is the preferable measurement for agriculture as the variable captures not the ease of buying products within each country, but rather each country's "level" of development *vis a vis* other nations. I expect that as GDP increases, CTE will also increase.

2) Comparative Advantage of the Agriculture sector: (LANDPERLABOR) The Heckscher-Olin theory of international trade predicts countries with an abundance of land relative to labor will have a comparative advantage in agricultural production. Countries (such as the United States or Australia) that have a comparative advantage in agriculture will divert funds away from producers to the benefit of consumers. Smaller or less advantaged sectors (such as Japan) would do the opposite. (Park and Jensen, 2007). For this variable, there are many proxies. I have followed Park and Jensen with a measurement of land per unit of labor—this is derived by dividing the total hectares of arable land by the total labor force in each economy. (World Bank)

3) Level of urbanization: (URBAGG1) Similar to the developmental predictor, countries with large urban populations and urban centers tend to skew agriculture policy toward the food consumer for necessity and because of the collective action made possible by the close proximity of consumers. (Bates, 1984; Bates and Block, 2009) For this variable, I use the World Bank measure of percentage of the population living in urban agglomerations larger than 1,000,000 people.

MAJORITARIAN: Countries are coded either majoritarian or “not majoritarian” based on the Golder data set used in the previous chapter. Countries that are coded either “mixed” or “multi” democracies are coded as PR or “Not Majoritarian”. Because legislators in majoritarian systems have more electoral motivation to pursue broader interests and additional voters, we expect that consumers will be marginally favored in these countries; yielding lower levels of CTE.

EU

A country is coded as a European Union member if it is a current EU member in a given yearly observation or if the observation occurs within two years of its accession.

Given the unique institutional design of the European Union, including the EU in such a study presents a few difficulties. First, because of the similarity of agriculture protection under the Common Agriculture Policy (CAP), data for EU countries over represents the CTE data within the analysis. This same pattern can also affect the analysis of GDP per capita and urban populations, due to the high levels within the EU for both. The CAP not only over represents similar data points, but consumer taxes are systematically higher under CAP programs due to the historical development of the program. No other agriculture policy has been so explicitly geared toward *creating* and then maintaining an industry by supporting prices above both domestic market clearing and international prices. Though these policies have been slightly moderated by World Trade Organization intervention, they still remain preternaturally high due to the nature of the CAP and its role in the formation of the European Union. Fortunately, the World Bank’s CTE dataset provides ample countries and samples so I can simply run the model and omit the EU and still have a testable sample size. I do just this in the second regression model so that there can be only one conclusion to be drawn from the results. I interact the EU dummy variable

with my model because the CTE's are not merely higher/lower in the EU but actually determined by a different process than in other countries that do not share the policies of the CAP.

A brief descriptive summary of these statistics is in Table 3 below

Table 3: Consumer Tax Equivalent (CTE) Summary Statistics

	N	Mean	Std. Dev.	Min	Max
Land Per Labor	1045	.0018377	.0121904	.0000224	.345
GDP Per Capita	1047	11292.55	10997.89	173.8092	40597.04
Urban Agglomeration	879	23.212418	12.24547	3.701	60.7688
Majoritarian	1167	.3007712	.4579	0	1
CTE	1147	.4268	.5891	-.538	3.9133

Based on these expectations I formulate the hypothesis *that majoritarian style democracies will have systematically lower Consumer Tax Equivalents (CTE) than proportional style democracies*. I initially performed a t-test in order to determine if there was any reason to suspect that, indeed, consumer tax levels even differ between proportional and majoritarian democracies. The answer was clear—that the Consumer food tax in proportional countries is 118% higher than majoritarian countries.

The results of the T-test are presented in Table 4 below.

Table 4: Consumer Tax Equivalent: T-Test of Majoritarian and Proportional Systems

System Type	N	Mean CTE	Std. Err.	95% C.I.	95% C.I.
Proportional	798	.511	.023	.465	.556
Majoritarian	349	.234	.018	.198	.270
Difference		.276	.037	.204	.349

In order to assess the other potential causal factors that may affect CTE, I performed a time series cross sectional regression with commonly utilized control variables for agriculture protection determinants. Because of panel (country) induced heteroskedasticity I have clustered standard errors on country.

The results of the regression analyses are in table 5 below

Table 5. OLS estimates for Consumer Tax Equivalents (CTE)

	All Countries	EU Omitted
Land Per Labor	-.011 (.023)	-0.603* (0.339)
GDPPC	.000061 (.000093)	0.0004*** (0.00001)
Urban Population	-.002 (0.005)	-.015*** (0.004)

Majoritarian	-0.171*	-0.251**
	(0.09)	(0.08)
R ²	0.24	0.57
N	825	588
sigma_u	.23838	.22452
sigma_e	.28345	.28779

*** p<0.01 ** p < 0.05, * p < 0.10. (OLS coefficients with clustered standard errors). The models were estimated with random effects for intercepts.

Results:

These results conform very closely to my expectations. The inclusion of the European Union countries yields fewer significant effects than the analysis with only non-EU countries. This effect differs somewhat from the same strategy applied to the NRA primarily because of the closer similarity of the EU countries in farm producer subsidies. However, like any study using only producers to infer consumer costs, any results are susceptible to suspicion.

The development (GDPPC), comparative advantage (LANDPERLABOR), and urbanization (URBAGG) variables are signed in the expected direction, though statistically insignificant in the first model. This result was in line with my expectations of including those countries with a common agriculture policy.

In the second model, each of the independent variables is statistically significant and signed in the expected direction. A one dollar increase in GDPPC2000 results in .0004 increase

in consumer tax. This makes sense based on the declining importance of food within the household budget of the wealthier consumers as well as the changing role of the agriculture sector within post industrial societies. It becomes more interesting when we consider the impact of a 10,000 or 20,000 dollar increase. LANDPERLABOR's negative effect on CTE is consistent with the view that more advantaged agriculture sectors need/receive less protection, resulting in lower consumer food prices. URBAGG1 has a similar effect, which is consistent with simple collective action logic—where consumers are more concentrated, the costs of collective action are reduced and consumer “friendly” policies are more prevalent. More importantly, my institutional variable of interest is negative and significant in both samples. This supports the Taagepera-Shugart model of vote elasticity and the claims of Rogowski and Kayser, who argued that majoritarian systems will trend toward more consumer “friendly” policies (food prices) while proportional systems trend toward more consumer unfriendly policies (higher food prices). The complexity of institutional variation makes it difficult to make a definitive statement about the effects of proportional representation on consumer prices. However, the results of this experiment tend to support a vote-elasticity argument. The robustness of the results after the omission of the EU countries (largely PR) only strengthens these claims.

Conclusion

Although this is a relatively simple analysis, this model is quite successful in a few areas. First, I have clearly delineated the rationale for using the consumer level data as a preferred alternative to the producer level data for agriculture policy. Insofar as the CTE represents the totality of producer and consumer concerns by the government, it is clearly a superior

measurement. Second, by taking this approach, I have explained more of the variance in the totality of national agriculture protection than those using producer measurements using many of the same independent variables and methods. Third, it is my hope that this exercise might cast doubt on any future analysis of trade policy—regardless of the sector or commodity—which would consider only producer entitlements in measuring the costs of protectionism. Consumers of agriculture products clearly have the potential to be quite active and influential in determining policy, though this power fluctuates depending on the particular commodity in question. These are considerations that must be made in any future analysis.

While the CTE is a *better* measurement of agriculture protectionism than the NRA, it is not yet a *full* picture of agriculture protection until we consider the interactions of institutions, producers and consumers. The next and final chapter is an attempt to consolidate a comprehensive analysis of agriculture protectionism.

Chapter 4: Determinants of Agriculture Protection Variance—Consumer and Producer Support as Protection

The question of variance in agriculture protection has now been explained based on two competing understandings of what we understand protectionism to be. I have presented a model in which agriculture variance is the amount of money that governments give to their farmers (NRA). I have also presented a model in which protection is the amount of money that consumers must pay for those government policies that favor the producers (CTE). I have shown the landscape of producer and consumer oriented models of trade protectionism and the theories that inform them. I have also discussed, at length, the improvements that have been made in the measurements of producer power, consumer power, and institutional tendencies. However, these three pieces of the theoretical framework of regulation have yet to be put all together in the same empirical study. The complete story of trade protection includes regulators, consumers, and producers. Therefore, a testable model must include all of these components as well.

This chapter first explains the statistical and theoretical rationale for combining both the Nominal Rate of Assistance (NRA) and the Consumer Tax Equivalent (CTE) into a broader understanding of trade protection. Next, I present an alternative way to view the variation in protection among countries as the net effect of agriculture policies--taking into account the outcomes for producers (NRA) as well as consumers (CTE). Finally, I present an empirical model that incorporates these new ideas to explain the variance in agriculture protectionism.

Regulation: Finding a Balance

As the Stigler-Peltzman framework suggests, trade protectionism can be looked at as a balancing act. Institutional models predict marginally “friendlier” consumer policies from majoritarian systems than proportional systems, tilting an otherwise balanced power struggle towards the consumer. Of course, this assumes a balanced struggle between equally powerful consumers and producers. In actuality, consumers and producers rarely begin as balanced entities, so purely institutional models can only explain partial variance. If the country in question has an extraordinarily powerful producer interest group, it is unlikely that marginal changes in institutions could radically alter the politics of trade protection. Regardless, precautions should be taken to determine the existing balances before introducing an intervening variable to influence that balance. In Chapter Two I mirror Jensen and Park (2007) who use the institutional framework as well as attempting to model existing producer power (likelihood of receiving protection) as a function of each country’s comparative advantage in agriculture. This approach explains more, but not all of the variance in protectionism among countries.

In Chapter Three, I return to the balancing act idea and focus on the “weight” of the consumers, both in economic and spatial characteristics. These measurements allow a determination of the existing power of consumer interests within each country just as chapter two explored existing producer power. However, if protection is a balancing act, then institutions are the tightrope, and producers and consumers are at either end of the balancing stick. In order to predict outcomes, we need to know whether we are walking uphill or downhill, but also in which direction we might fall. This full “balancing act” should be represented by a three dimensional

space in which institutions, consumers and producers all exert pressures and equilibrium can only be established by balancing all three interests. This chapter presents a more cohesive model that takes into consideration the relationships among these three players as well as the relationship between the two previously analyzed dependent variables: the CTE and the NRA.

Producers and Consumers

The necessity of this chapter comes from both general questions of methodology, as well as more specific questions about the choice of agriculture-specific variables. Conceptually, it is necessary to measure protection as both producer benefits and consumer costs. Measurements of the consumer support and producer support estimates elucidate how these two outcomes differ in theory and in practice. Furthermore, the Stigler-Peltzman framework of regulation and the endogenous tariff literature informs all studies on trade policy that producers and consumers are two distinct groups. There is no reason not to include all three players in any analysis, and to do so would be to limit the explanatory power of one's results.

Methodologically, the issue of agriculture protection offers a particular problem as there are two equally well compiled dependent variables that we could choose from—but no attempt yet to test them simultaneously. Since these data are the preeminent measurement of protectionism for any sector, they provide a wonderful opportunity to attempt such analysis. I will address these two issues by suggesting a way to combine the interests of producers and consumers into an empirical study that can simultaneously analyze both consumer and producer outcomes and present a model that fully represents the three-party Stigler-Peltzman framework more than any previous tests. After reviewing some of the common problematic assumptions of

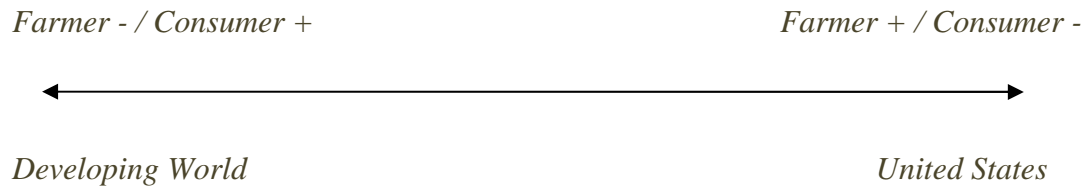
single-variable analysis, I make a case for the combination of NRA and CTE into one model—tested against the same independent variables from chapters two and three.

Thus far, I have presented competing models of agriculture protection based only on the dependent variable. However, I have knowingly done so under the confines of what is arguably, a flawed framework. Instead of looking at a one-dimensional continuum of high CTE/NRA or low CTE/NRA, let me offer an alternative way of looking at and then analyzing each country. I frame this approach in terms of some logical fallacies about agriculture protectionism.

The first fallacy is the common assumption that measuring only producer support OR consumer costs is sufficient to ascertain the agriculture policy of a country. As I have tried to make clear in my argument about the measurement of NRA as protectionism, having a high NRA does not necessarily mean anything on its own. It must be reconciled against consumer costs in order to determine what the agriculture policy is within a country. Likewise, neither does CTE mean much on its own, even though it may be *closer* to modeling the political realities of a situation in which we must consider the goals and interests of two sides. Any consumer measure must also be reconciled with producer support in order to categorize or measure a country.

The next fallacy is that Agriculture producer protection is perfectly proportional and negatively correlated to consumer costs. This logic pervades the extant agriculture protection literature. Put simply, these rates would only be perfectly proportional if the only tool available was a simple tariff with zero deadweight costs. In this case, all of the rent accrued to the producer from the tariff would be passed directly on to the consumer of that product in like amounts. I have also gone to great lengths to drive this issue home with the reader and its empirical implications are clear.

This implies that we cannot confidently place countries along a one dimensional continuum in which high NRA's are at one and high CTE's are at the other.



More simply, we cannot say that there are only *two* types of countries because of the third and most important fallacy, which is that a country can *either* support producers or it can support consumers but not *both* (*neither*). In reality, the multiplicity of protectionist tools available to the regulator allows them to strike separate deals with consumers and producers. In this sense, each government has two separate decisions and at least four possible outcomes. First, it can choose a level at which to support or not support its farm industry through producer protection. Next, it can decide to pass the costs of that support on to its consumers through consumer subsidy, reimbursement, or other protection *from* that initial policy.

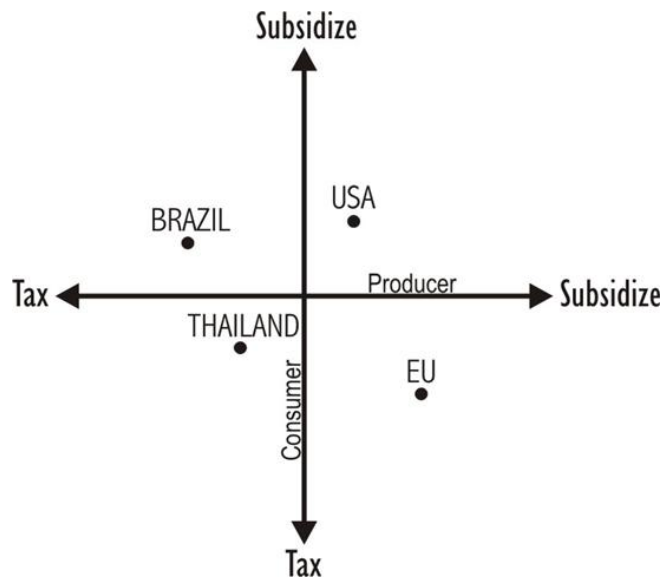
The true political reality of agriculture policy and its determinants lie in the totality of the agriculture policy of that country. We cannot single out higher NRA countries as the protectors of farmers and enemies of food consumers and lower NRA countries as the opposite and then model the determinants of those two outcomes. Instead, we must identify countries by how their policies affect both consumers and producers. In this world, there are not two types of countries, but rather four. Table 6 below categorizes these country types by their average NRA and CTE over the past 30 years.

Table 6: Four-type country categorization by Consumer and Producer Support.

#1) Tax Consumer/Subsidize Producer	#2) Tax Consumer/ Tax Producer (Govt. surplus-deadweight)	#3) Subsidize Consumer/Tax Producer	#4) Subsidize Consumer/ Subsidize Producer (Govt. Shortfall+deadweight)
Austria, Australia, Canada, Chile, Colombia, Czech Republic, Denmark, Ecuador, Estonia, Finland, France, Germany, Hungary, Iceland, Indonesia, India, Ireland, Italy, Japan, Korea, Latvia, Lithuania, Mexico, Netherlands, New Zealand, Nigeria, Norway, Philippines, Poland, Portugal, Romania, South Africa, Russia, Slovakia, Slovenia, Spain, Sri Lanka, Sweden, Switzerland, Taiwan, Turkey, United Kingdom, United States	Bangladesh, Dominican Republic, Ghana, Nicaragua, Pakistan, Ukraine, Thailand	Argentina, Benin, Brazil, Madagascar, Mali, Sudan, Uganda, Zambia	None* *(The following countries have done so for one or more years in the sample: Brazil, India, Madagascar, Romania, Russia, Turkey, United States)

In order to comprehend these categories conceptually, we need a two-dimensional model that looks a bit more like the one in Figure Three below.

Figure 3: Two dimensional agriculture protection scale



Agriculture Protection in Practice

As the United States has shown, it is possible to protect *both* farmers and consumers at levels above fair market price. Among similar countries the more likely result is for the government return a *partial* rebate to consumers in order to offset the costs of protectionism. In this situation, consumers are still paying above market prices for their goods, but at a lower rate than the producers are being supported. The ability to formulate two separate policies is illustrated in the United States through the omnibus farm legislation or “Farm Bill” in which farm payments and food prices initially increase, but then consumers are subsidized as well through surplus food procurement and distribution, direct payments for groceries, etc;. This is the political equivalent of a department store marking up prices and then having a big sale. The inefficiencies of this system are apparent in the data in addition to their less observable and

welfare reducing drawbacks. Furthermore, these practices are not the exception, but rather the rule. In fact, in a sample of over 70 countries, only one (Switzerland) had what could be considered “identical” average gains and losses for both the farm producer and the farm consumer.

Likewise, it is possible that a country could protect *neither* farmers nor food consumers. This type of situation is usually reserved for highly interventionist developing societies. The use of marketing boards and other highly inefficient protection mechanisms can result in producers receiving below market prices for their goods, with the benefits of this savings passing directly to the government, rather than to the consumers. Ironically, similar patterns can be observed in highly non-interventionist countries such as New Zealand, whose slight taxation of both consumers and producers could be chalked up simply to the costs associated with trading in an open market for such a distant and isolated country.

In countries where we know less about specific programs we can simply measure the percentage of their farm transfers that are “decoupled” from production. These types of payments are less trade distorting than “coupled” payments, but are also less costly to domestic society because of lower deadweight costs. To say that a payment (subsidy) is “decoupled” simply means that it is not tied to levels of production¹². Coupled payments not only increase deadweight costs, but they distort world market prices for many goods and are internationally considered against the general interest. Though there are countless ways in which a government can provide protection, there are three primary avenues from which transfers flow: 1) Market

¹² Decoupled payments are fixed income transfers that do not subsidize production activities, inputs, or practices. They are “lump-sum” transfers because no production decision or change in market price can alter the size of the payment due to eligible producers. This program design effectively cuts the link between payments, production, and prices, and makes the payments a direct transfer of income to the farm household. In contrast, coupled subsidies directly affect production decisions by changing the prices received by the producer for commodities or the prices of inputs, either of which change the marginal returns from production. Price signals attract resources into subsidized sectors and lead to higher levels of production and lower world prices. Some types of coupled programs also impose supply controls, which raise commodity prices for consumers.

Price Support 2) Direct Payments and 3) Subsidized Inputs.¹³ The measurement, “decoupled payments” essentially measures the extent to which a country utilizes options two and three in their total scheme.

Among the countries that have traditionally supported their producers over the past twenty years, Table 7 shows the correlation between that initial protection and the cost to the consumers. A negative percentage suggests that the consumer is being reimbursed for some of the costs associated with a protectionist policy, while a positive number suggests a particularly inefficient *form* of protection in which consumer loss is increased or, more likely, producer support is decreased—despite a sizable transfer of money.

Table 7: Nominal Rates of Assistance (NRA) and Consumer Tax Equivalent (CTE) Correlation for selected countries

Country	Consumer Tax Equivalent	Nominal Rate of Assistance	Deadweight Loss (Government Transfer to Consumers)
Canada	0.206237	0.186586	10%
Colombia	0.254673	0.10037	250%
Ecuador	0.156383	0.022009	700%
Japan	1.086164	1.37942	-22%
Mexico	0.145111	0.084038	72%
South Africa	0.074254	0.064802	14%
Russia	0.046286	0.10066	-45%
United States	0.102364	0.107756	-6%

¹³ There are also a 4th and 5th general pathway that for our purposes can be grouped in with “Other”.

It is clear that one variable is insufficient to measure agriculture protection when that one variable can only explain one of the two concurrent choices that regulators face, and only a portion of the possible outcomes of that policy. Therefore, I pursue a research design that can accommodate both the NRA and the CTE into an empirical analysis.

Research Design

The simple heuristic above is a helpful tool in the understanding of protectionism, but it is perhaps not the wisest way to test this theory empirically. It would be possible to pursue multinomial logistic regression to predict the likelihood of a country being a 1, 2, 3 or 4—but such an exercise would be an oversimplification and an unnecessary waste of the continuity of our extant variables. Even though there might be four “types” of countries, these categories are not mutually exclusive or all inclusive. There is no need to induce error by limiting analysis to categorical data, when more complex continuous data are available for each country. Indeed, the reason to model a two dimensional world of protection is to avoid the pitfalls of the development paradox, by which we simply label a country based on categorical (developed/not developed) measurements.

Another approach would be to use a litany of consumer and producer based independent variables to predict *either* the NRA or the CTE and interpret the results of both models. This would be a small improvement, but leaves out the necessary acknowledgement that the CTE and NRA are correlated in important ways.

Instead, I will utilize both the NRA and CTE and analyze them simultaneously in order to capture the correlation between the two measurements and their relationships with the independent variables. I apply this new scheme for the traditional work on the determinants of

trade policy and its variation back into the models that we saw in chapters two and three. The best way to achieve this task methodologically is through a seemingly unrelated regression model. The seemingly unrelated regression is appropriate when two separate models predicting two different dependent variables have correlated error terms. This is the best way to model agriculture protection as it allows for the simultaneous prediction of consumer and producer support levels—with the understanding that one influences the other. More specifically, I am acknowledging that their error terms are correlated. The correlation of these error terms in this sample is about .901. Since these residuals are not independent, the seemingly unrelated regression is more appropriate than running two separate models.

The intent of this design is to consider the effect of key independent variables on the levels of NRA and CTE simultaneously while conceding that the unexplained variance in NRA levels shares qualities with the unexplained variance in CTE levels within that country. If, for example, there is something particularly European about European agriculture policy (there is) or something particularly Zambian about Zambian agriculture policy, we know that this unexplained trait affects both the consumer and producer aspects of that policy. This approach presents a more complete picture of agriculture policy that will not only explain more of the variance between countries, but also more accurately portray what that variance actually is.

The model will not differ substantially from those in chapters seven and eight. The shared data set is the Anderson World Bank Database of Distortions to Agriculture Trade. The shared independent variables are LANDPERLABOR, GDPPC, MAJORITARIAN and AGVADD. Rural population is measured as POP_AGECACT for the NRA and urban population is URBAGG1 from chapter three. The two dependent variables are NRA and CTE. My hypotheses about the independent variables are no different than they were in chapters two or three, only that

the results will be more robust and a better explanation of agriculture protection variance. The results of the regression analyses are in Table 8 below.

Table 8. OLS estimates for Consumer Tax Estimates (CTE) and Nominal Rates of Protection (NRA)

	CTE	NRA
Land Per Labor	-2.20*** (1.02)	-2.70*** (1.20)
GDPPC	.00002*** (.0000093)	0.00003*** (0.000001)
Urban Population(CTE)/Rural Population (NRA)	-.001*** (0.0005)	.000000005*** (0.000000001)
Majoritarian	-0.204*** (0.027)	-0.228*** (0.034)
AGVADD (NRA only)		.001 (.001)
R ²	0.358	0.354
N	736	736

*** p<0.01 ** p < 0.05, * p < 0.10. (OLS coefficients with clustered standard errors).

Results

LANDPERLABOR is negatively signed and significant for both NRA and CTE (this result was expected in the producer-only model, though was not significant in that analysis), GDP per capita is also significant with the expected sign. The positive effects of rural populations (AGECONACT) on producer support and the negative effects of urban population (URBAGG1) on Consumer support reinforce the hypotheses of Bates (1984, 2009) as well as Park and Jensen (2008). The effects of majoritarian systems (MAJORITARIAN) are significant and show expected signs for both NRA and CTE. Majoritarian systems tend both toward lower consumer taxes and lower producer support. This trend is in line with the vote-elasticity model of Taagepera and Shugart and suggests a systematic preference of broad interests in such institutions.

The only unfortunate part of this analysis is the inability to run the seemingly unrelated regression with fixed effects as I have done in the previous two analyses. While the limitations of the seemingly unrelated regression preclude direct parallels to be drawn between the three models, these limitations are outweighed by the benefits of the more accurate representation of the relationship between NRA and CTE.

The results of this analysis do not suggest any additional independent or control variable is necessary to explain the variance in agriculture protection among different countries. Instead, we can observe that more variance is explained when we change the dependent variables. This change is seen first in chapter three, when the consumer replaced the producer and more so in this chapter when both the consumer and producer are analyzed.

Conclusion

Protection consists of two components: producers and consumers. Each party bears the effects of government policies independently of the other party. If one party receives a benefit, it cannot be said that the other receives an equal and opposite cost. Even though the net benefits or costs to each group are correlated, a determination of which party “wins” in each country cannot be made until both measurements are taken. Furthermore, any hypotheses about which variables affect these outcomes must take both parties into consideration before declaring a winner. With this in mind, empirical research must be designed to incorporate both of these measurements. That this simple attempt has been comparatively successful in explaining variance in agriculture protection is unsurprising, given that it more closely models the reality of protectionism. The strengths of the analysis are apparent and an obvious improvement over single variable analyses in explaining the variance in agriculture policies across the international community. This analysis was relatively simple in scope and great improvements can be made in the future in both the agriculture sector and other sectors alike.

The key strength of this chapter is not in the empirical analysis, but in the exploration of what defines agriculture protectionism in previous literature. The tendency to discuss the landscape of agriculture protectionism as a two dimensional world of high protection and low protection is in dire need of an update if we are to glean any meaningful conclusions out of our analyses. The idea that a country *either* protects its consumers or its producers pervades the agriculture protection literature—though it is a misrepresentation both of how protection is applied and of the options available to governments. The four alternatives presented above are a valuable way to view the landscape of agriculture protection for future empirical analysis because they more directly mirror political realities and allow for a dynamic role for each of the players involved in the application of protectionist policies. I was fortunate enough to have

tremendous data, which allowed the testing of this new framework to agriculture policy, but the lessons of protection can and should be applied regardless of the good in question.

Chapter 5: Conclusions and Discussion

Over 60 years ago, the international community began to address the issue of protectionist trade barriers through the General Agreement on Tariffs and Trade (GATT) and later the WTO. Tariffs soon fell on nearly every manufactured product. Some industries were lost, while others held firm and pressured government for their survival. Political scientists joined with economists to examine how this process of protection worked and their collective theories, generally grouped together as the “Endogenous Tariff Theory” sufficed for many as an explanation of how the politics of trade protection operate. As protection in many sectors waned and tariff barriers were replaced with a litany of non-tariff barriers, these theories were increasingly difficult to test—much less falsify—so they continued into the 21st century unabated. Meanwhile, the agriculture sector never took to the reform process like so many other sectors and those who attempted to test agricultural data using the traditional theories found little success. Folk theorists have blamed the political and methodological failures to improve understanding of agriculture to its “special” circumstances.

There is nothing particularly “special” or “unique” about agriculture protection that prevents it from being effectively analyzed or reformed by international organizations. Agriculture is only as unique as each individual sector might be—no more and no less. If similar data were available for the shoe industry or the watch industry, the same problems would exist. The underlying problem lies in the application of our research program. We introduced a framework in which politicians balance producer interests against consumer interests and then failed to test it against anything but producer interests. I have presented a plausible argument for

why the consumer has been omitted, but regardless of the cause, the effects are obvious. Any attempt to model a two party equilibrium model with only one party yields suboptimal results and dubious conclusions. The bounty of agriculture data allows one of the most comprehensive applications of the Endogenous Tariff Theory, and the results are clear. Empirical tests which more closely model the intent of our theoretical models outperform those that do not.

Why Agriculture?

Throughout this dissertation, I have focused on some possible faults of some formal models and the reluctance or inability of recent authors to test these models empirically. The reasons for this lack of empirical evidence are quite simple—there is a surprising dearth of appropriate data. Many national governments are reluctant to report protectionist measures that would undermine their participation in international organizations. Additionally, it is tremendously difficult for outside researchers to observe or quantify the amounts or types of non-tariff barriers to trade. These methodological difficulties are compounded by the general success of international organizations in minimizing protectionism to the point that there exists a general lack of immediacy to gather data on sectors that have already come under the guidance of the WTO. So the first and most hackneyed answer to “Why agriculture?” is because it is there.

The second answer is that the work of the OECD and World Bank on these agriculture data sets (and the relative ease of measuring domestic vs. world commodity prices) make agriculture data a superior test of the theoretical frameworks upon which this work is based. Rogowski Chang and Kayser (2008) presented a rare consumer-oriented empirical study, and one of the most well known empirical applications of the Stigler Peltzman framework. In their work, they model producer vs. consumer interests in an institutional framework using the most

widely available data –“price levels”. This modified measure of Purchasing Power Parity is used in an effort to show where regulators are more “friendly” to consumers—expressed in terms of prices. While this seems perfectly reasonable, the stronger argument would include a specific policy and a specific choice that regulators are making to either be “friendly” or “unfriendly” to consumers.

Agriculture policy provides a more direct test of these formal theories because the effects on consumers from agriculture policy are precisely measured and clearly interpretable. The precision of the measurements leaves no question as to the source or effect of the policy in question—leaving out any of the doubt that may have accompanied the use of general prices as a proxy for consumer preference. The leverage of a policy specific data set is that it reduces the external factors that intervene between regulator choice (Stigler-Peltzman) and observed outcome, and hence allows for more direct tests of hypotheses. For example, changes in the Consumer Price Index or Purchasing Power Parity (PPP) could be attributed to any number of macroeconomic factors and other intervening causes. Particular issues such as steel tariffs or agriculture subsidies are issues that representatives can and do make decisions to alter. The CTE and NRA measurements are almost entirely the direct result of regulator actions. They represent a political choice with few outlying or intervening factors. This more accurately reflects the decision making process of the regulator that we purport to be testing in any of these empirical studies.

Contributions:

There are four primary contributions of this dissertation to the Endogenous Tariff Theory research program : The importance of empirical testing to improve theoretical models, the careful selection of dependent variables to test these models, a better understanding of the economic traits of consumer goods and finally, a deeper understanding of the consumer themselves.

The first issue is the importance of testing of formal models empirically. This is hardly a novel idea, though the examples provided in this paper succinctly illustrate the concerns that others have had and written about this issue. The endogenous trade literature suffered largely due to the inability or unwillingness to test our formal theories. Among the first reactions to the Stigler-Peltzman framework were additional formal applications such as Hillman (1982) Becker (1983) and Grossman and Helpman (1994). In none of these works was there an attempt to test these models. By the time that data became available, the theory had already been firmly—and shortsightedly—grounded in the world of the producer. Had the data been available, Grossman and Helpman, for example, may have observed that in some sectors the politics of protection differ from those in other sectors. The theoretical sector never varies, nor does the theoretical consumer. Real consumers and real institutions, of course, vary greatly.

To some extent, the lack of empirical testing was due to the unavailability of testable data. However, much of the focus of our trade protection literature focused on the United States and suffered from what Green and Shapiro (1994) would call *post-hoc theory development*. When focusing only on one individual country, some variables may seem to be static when, in fact, they are static only for that one observation. Perhaps producers are the most important

political influence in American trade protection, but the reasons behind that (income levels, type of goods in question) are all obscured by the observation itself. When these assumptions are applied more broadly, they can fall apart just as quickly as they were observed.

The second issue is related to the first and specifically pertains to those who would attempt empirical application of these formal models. Drawing on the experiences of Rogowski and Kayser's price levels, the first step for any future researchers should be to select an appropriate dependent variable to test, rather than relying on the collection of additional control variables. When modeling behavior, one must carefully select a measurement that appropriately indicates the behavior in question. In the case of Rogowski and Kayser, a choice was made to measure general price levels as a determination of regulator behavior. Unfortunately, since price levels can be affected by so many exogenous sources, the authors had to include numerous control variables to correct for this broad measurement. Admittedly, data are hard to come by; but in trade studies—as in any other science or discipline—a stronger connection between our theory and dependent variable yields a stronger model with more meaningful conclusions to be drawn. The CTE and the agricultural data have shown how a better dependent variable improves results *and* improves the connection between theory and test.

The third issue speaks specifically to the study of trade policy formation. The economic circumstances surrounding agriculture (high percentage of household budgets, low income elasticity, low substitutability) have clearly impacted how the politics of agriculture policy operate. However, the economic characteristics of *any* commodity will impact the politics of any related government intervention. Issue specific data is not widely available, though the conclusions drawn from the agriculture data can easily be applied to other economic sectors if and when the data become available. General trade studies have their place, but just as empirical

studies help inform our theories, additional studies help to improve our empirical methods. There is no reason to believe that the outcomes of superconductor protection and the outcomes of heating oil protection would be at all similar. Economists and political scientists should look more closely at issues such as elasticity and substitutability in order to determine exactly what characteristics are most important in the determination of how commodity differences can be utilized and applied to broader empirical studies.

The fourth and most important issue is the immediate re-introduction of the consumer into any study of trade politics. Just as Peltzman unpacked the regulator, and so many authors unpacked the producer, so we must continue to unpack the consumer. Each consumer or group of consumers faces a different political situation depending on their economic, political, and social situation. I have presented a basic framework for how these characteristics can affect their political struggles, but much more can be done. As research moves beyond a select sample of developed, western countries for data, the rich diversity of interests—consumers and producers alike—will allow this research to continue. The importance of this acknowledgement upon our empirical research is evident, but so too is the impact upon our political realities where poor consumers overthrow governments while we continue to recommend only stricter campaign finance restrictions for farm producers. We have been told that regulators listen to consumers and it is time for us to listen to consumers as well.

Endogenous Tariff Theory

Endogenous Tariff Theory has not been at all invalidated or “infirm” through this study. We need not be hasty about the demise of this literature, although it is possible that this literature has been guilty of what Green and Shapiro called “post-hoc theory development”. Much of the theoretical literature—whether Stigler himself or Grossman and Helpman--has seemingly built a theory around merely what could be observed by its author. These observations we uniformly made of the US system of government, lobbying, and organized interests. The assumptions made from these observations are not necessarily wrong, but they are myopic and therefore make incomplete assumptions. These incomplete assumption then become the established paradigm or *normal science* in which further puzzles are empirically “solved” (Kuhn, 1962)

I do not think (as some would characterize Kuhn as advocating) that a revolutionary change or replacement of the existing theory is necessary. Instead, perhaps an auxiliary theory program that addresses consumer interests as well as those of producers is needed to enhance *hard core* of our research. I have proposed criteria by which these consumers might be more or less influential, but the only way to improve this knowledge is through further and more varied testing. These tests then inform our initial theory and create auxiliary hypothesis that can be added to, rather than replacing, our current theory. The addition of the consumer, as made clear in Chapter Four, is not a replacement of producer interests. However, this addition could help move the endogenous tariff literature away from what Imre Lakatos (1976) would call a degenerative research program and into a progressive one.

The consumer is one third of our reality, one third of our theory, and therefore needs to be one third of our research. I sincerely hope that the conclusions reached in this paper can spark a

long and serious conversation about the path of our research and the improvements that clearly need to be made.

Suggestions for Further Research

First, the consumer obviously needs to be represented in any trade related research. There can be no specific recommendations for which variables or measurements are appropriate. Those who know their topic and their data should make their own calculations. If the consumer influence is low or non-existent, the results of the research will not suffer at all. But if anything at all can be learned about the effects of consumer interests on trade policy formation, then the research can only be improved.

Next, the effects of the European Union on the empirical results in these chapters are a compelling reason for others to take this matter under consideration. With the similarity of datasets for Comparative and International Relations scholars, EU data representation is an issue that many face on a regular basis. There is currently no generalizable process by which to assess the effects of the European Union in cross-national data analyses—a fact that often leads to untestable hypotheses and unrecoverable data. As the EU expands and takes up a larger percentage of our samples, the choices we make with that data become more important in empirical analyses. Greater attention needs to be given to the options available and the implications of choosing one strategy over another.

Then, I recommend a return to this new data set for all of those interested in trade policy or agriculture. There are far more possibilities for the World Bank data set—including crop specific analyses, regional disparities, and alternative measurements. Until additional sectors become available, this might be the most useful dataset for studies of general protectionism as

well--simply because of its depth and breadth. Additionally, I recognize the weakness of a blunt instrument such as the dichotomous institutional variable SMD and PR. There are many varieties within each of these groups and any number of these alternatives could be pursued in the future in an effort to further “unpack” the institutions that impact these policies as well.

Finally, pursuing any number of alternatives to the current approach to agriculture policy analysis will help improve our recommendations to the policymakers who are currently coping with the harsh economic realities that agriculture protection causes all around the globe. The most troubling of these realities is that many of the decisions that are causing the most damage are simply unnecessary and often unintentional. European farmers do not benefit from food shortages in the developing world; these are the unintended consequence of placing domestic concerns above international goals.

Furthermore, many of these problems are a consequence not of protection itself, but in the way protection is administered. There are more efficient ways to administer this protection that would reduce costs to domestic consumers and international producers and maintain the political support of those producers. There is a way by which both domestic (producer and consumer) and international interests can be assuaged—though it has not yet been deduced. I cannot emphasize enough that if we keep looking only to one half of this problem for our answers the problem will never be solved.

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