

MNCs, NTBs, and “New Protectionism”: Trade Barriers in an Era of Global Capital

by

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DEDICATION

This dissertation is dedicated to:

Prof. D. Michael Shafer, who saw something in me and set me on this path, and to whom I owe immeasurable thanks for a lifetime of inquiry,

George Wesley Hale, likely my family's first quantitative social scientist, whose work — under much tougher conditions — inspired me, and whom I would have loved to meet, and

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ABSTRACT

The post-World War II global economy is characterized by two broad phenomena: liberalization of tariff barriers that restricted trade across a broad swath of industries and countries, and the expansion of global direct investment and the rise of supply chains in goods trade. However, the secular decline of tariffs has not meant universal liberalization. In some industries, tariffs and tariff-like policies still restrict trade. In others, measures that are unlike tariffs have either become more prominent as tariffs fell or have risen to provide alternate protection.

Work in political science and economics has advanced a wide variety of explanations for the transition from tariffs to non-tariff measures generally, or for the presence or absence of specific non-tariff trade instruments in particular. A more limited body of work has examined the substitution across policy instruments, but has not attempted to generalize beyond the policies under consideration. We assert that part of the limitation in this work arises from the traditional dichotomy of tariffs versus non-tariff measures.

To resolve this shortcoming and advance the discussion of trade politics and trade agreements, this dissertation advances a new framework for considering trade-distorting policies that apply both at- and behind-the-border. Policies are categorized according to how they apply costs - according to the location of a good's production, the content in or process of production, or the firm that produces it. Policies that raise costs indiscriminately are also considered.

We explain the logic of this typology and the distributive consequences of each policy. Then, we explain the distributive consequences of imposing these policies in

a single-country and two-country interaction. From these distributive outcomes, we introduce a theory of protection-seeking where firms in a given industry lobby for levels and varieties of protection that serve their interests in light of the preferences of other politically-salient firms. Industry characteristics like foreign investment, product differentiation, industry concentration, and firm efficiency all work to shape the types of trade-distorting instruments which industries may obtain from responsive governments. With this lobbying logic established, we test that theory against data from the United States in 2012. Comparing industry characteristics against the presence or absence of the four types of policies across more than 3000 types of products, we find support for some implications of the lobbying theory, but also find areas for further inquiry.

This dissertation contributes to the wider discussion of evolving protectionism in political economy through clarification, by advancing a new logic of protection- or liberalization-seeking coalitions that considers multinational firms, and through an investigation of the “contours” of protection in the United States, a critical power in the global goods and investment market. In doing so, it moves the discipline closer to understanding the deep links between global investment flows and the politics of global trade and trade policy.

CHAPTER I

Introduction: A Global Economy with National Policies

The second era of globalization, following the Second World War, has been characterized both by an increase in global trade, due in no small part to reductions in tariffs, and an increase in global capital flows as firms have built global supply chains and distributed production across national borders. There has also been a significant increase in intraindustry trade — cars from Europe being exported to the US while cars from the US are exported to Europe, for instance — and intrafirm trade — companies acting as exporter on one side of a transaction and importer on the other — that has made the global goods trade look somewhat different than the “wine for cloth” of classical trade theory. To the same extent, as the nature of trade has changed, so too has the nature of trade protection.

As tariffs across many products have been reduced to zero or near zero, the focus of many recent trade agreements have turned to the non-tariff measures that distort or restrict trade. These policies, which have risen as a consequence of greater domestic regulation and alternative attempts to protect firms have distributive consequences that may be like or unlike those of tariffs. The work that follows is comprised of three papers that examine the issue of non-tariff barriers and their comparison to tariffs. These papers introduce a new framework for considering trade-distorting policies,

develop a new theory of industrial demand for different kinds of policies, and then test that theory using a database on non-tariff measures.

In Chapter II, we introduce a new way of classifying policies based not on whether the policy is a tariff or not, or though identifying each trade-distorting policy as unique, but rather by how additional costs imposed by the policy apply to a product. This new typology considers policies as one of four types: location-discriminating, characteristic-discriminating, firm-discriminating, and indiscriminate.

Location-discriminating policies are those, like tariffs, which impose additional costs or restrictions on a product based on where it is produced. These kinds of policies drive price wedges between goods that are produced in different places. Characteristic-discriminating policies are applied based on how something is made (process) or some element of that good's content. The product standards, environmental standards, and labor rules that are becoming more frequent components of trade agreements, are some examples of this type of policy. These policies drive price wedges between different varieties of good within the same broad category, or restrict sale of some varieties altogether. Firm-discriminating policies are those that add cost on the basis of who makes a product. Targeted subsidies, licensing laws, preferential purchasing rules, and the like, which give benefits to certain firms, add costs to all other firms' products on the basis of the firms' identity. These policies can be persistent costs or can apply in such a way that firms must pay the cost upon entry to a market, regardless of where or how they produce a good. These policies drive price wedges between different firms' goods, regardless of how or where they are produced. The final kind, indiscriminate cost policies, raise the costs for all producers. While these policies may have different effects across products due to differences in firm size, efficiency, or output, these costs apply to all. Policies that require product testing, or specific labeling, or some kinds of broader economic policy like consumption taxes, can have the effect of distorting trade. By moving beyond a discussion of tariffs and

“not-tariffs”, the differences in the trade-distorting effects of different policies, and similarities of policies within the same category, is made clearer.

From this typology, we then consider the distributional consequences when these policies are implemented. First, we consider a single-country case where a government raises a hypothetical policy that applies costs of only one type of cost. For a location-discriminating cost, the winners and losers from the policy divide on where a product is made. For a characteristic-discriminating one, it is the variety of good produced by a firm, and whether or not it is targeted by the policy, which determines whether it benefits or loses from imposition of the policy. For firm-discriminating costs, being targeted for additional cost makes a firm a loser from the policy, but other firms are winners. Indiscriminate cost policies divide industries on how well a firm can absorb the additional costs. Some firms may be forced to exit by the extra costs, while others may bear it.

The more interesting outcomes come from considering a two-country case, where policies of each type are raised by one or both countries. While for some policies, like location-discriminating ones, familiar patterns of winners and losers arise, dividing on exporting versus importing firms, for others there are novel implications. In some cases, when governments raise costs on some varieties or some firms, the winners and losers divide within industries and across national borders. For considering the implications of trade agreements that harmonize standards, or that confer reciprocal access to specific firms, these intraindustry divisions are important. When raising indiscriminate costs, in one or both countries, the effects expected in the single-country case are intensified. By identifying what policies apply different kinds of costs, and what the effects on different firms within and beyond a country should be, we move one step closer to understanding the politics of trade barriers in this era of global capital.

In Chapter III, we use the typology introduced in Chapter II to derive a theory

of protection seeking by firms. A significant portion of existing theory on protection-seeking has considered only tariffs or tariff-like policies. More recent work looking to non-tariff measures has usually considered them an additional fixed cost of market entry. This theory instead considers how firms may choose to lobby for protection across a variety of policies. While each firm would prefer policies that make it an effect monopolist, that is not likely to occur. So, firms consider what policies to demand in light of what other firms in their industry might demand or oppose. Building off familiar endogenous tariff theory logic, we consider how demands for location-discriminating, characteristic-discriminating, firm-discriminating, or indiscriminate cost policies will change in light of industry characteristics.

Different features of an industry will shape demands for policy, such that different firms should demand different kinds of policies, especially in light of competition from outside firms. We assume that a variety of firms — domestic firms producing for the domestic market, domestic exporters, and foreign firms with a domestic presence — all have the opportunity to lobby for policy. This lobbying will reflect the preferences of these firms over the set of potential policies. As a result, when an industry has deeper integration with the global economy, through foreign direct investment, that industry should demand (and obtain) fewer location-discriminating policies. When industries produce homogeneous products, they are unlikely to demand characteristic-discriminating policies, but when goods produced are heterogeneous, politically-salient firms will demand policies that privilege the varieties they produce. Industries where a few firms are large — highly concentrated industries — are likely to be distorted by firm-discriminating policies, and where concentration is low policies may arise to block new entrants. The presence or absence of indiscriminate costs is determined in part by the efficiency of firms in the industry. When the most efficient firms in an industry might benefit overall from these kinds of policies, they will lobby for them. However, when there is not a sufficient mass of compara-

tively more-efficient firms, these sorts of costs should not be demanded, which makes them less likely. Finally, all of these policies, by adding costs to a good, should limit the use of others, to some degree. While they are not substitutes to the same degree that policies within the same type are, governments are constrained such that firms must consider which policy they prefer most (rather than demanding all) when lobbying. This logic reflects some existing theory, but also builds on the new framework to advance new hypotheses for when protection arises and what form it takes.

Chapter IV tests the theory of Chapter III using data from the United States in 2012. We adapt existing data on non-tariff measures from UNCTAD's TRAINS database and examine which industries obtain different kinds of trade-distorting policies. We also use disaggregated data on industry characteristics to identify when producers of different products are more or less likely to demand different policies. Across more than 3000 product-lines, we compare industry characteristics of the producing sector and the number of policies of each type that affect those products.

The results from these empirical models suggest some support for the protection-seeking politics discussed in Chapter III. As expected, the presence or absence of FDI is associated with greater or fewer location-discriminating costs. However, FDI also appears to have significant relationships with other types of costs. Industries that produce heterogeneous goods appears to obtain different forms of protection than do those producing homogeneous goods. Overall industry size also covaries with the number of policies in place. There appears to be consistent evidence that the presence or absence of one form of policy is associated with more or fewer policies of other types. While this was not expected by theory, it does open avenues for further inquiry. These results provide a first picture of the relationship between the characteristics of industries and the kinds of protection they obtain.

Taken together, these papers identify the more complex politics that underlie agreement on reducing trade barriers beyond tariffs. They also clarify when some

policies act as substitutes for tariffs, while others act as complements or imperfect substitutes. As trade agreements like TPP and TTIP focus more on policies that are not tariffs and policies that apply “behind the border,” a deeper focus on these sorts of policies, and the more complex distributional consequences thereof, is warranted. This new framework, then, helps to explain some of the reasons why protectionism in the global economy has taken the form it has, and what areas for liberalization should be possible going forward.

CHAPTER II

A Typology of Trade Barriers: Understanding the Effects of “New Protectionism”

2.1 Introduction

Tariffs today are at or near zero across many products and countries. With the exception of agricultural and textile products generally and some specific products or industries in each country, import duties no longer pose a significant barrier to trade. However, several stylized facts about international trade suggest that the progress made in liberalizing trade through reduced tariff barriers has been offset by new forms of protection. These non-tariff barriers distort global goods flows in a variety of ways. Some of this protection appears to be quite similar to tariffs, while other barriers work quite differently. The change in protection from tariffs to non-tariffs has meant liberalization in some industries, or for some products, and not for others. In explaining the pattern of imperfect liberalization, it is necessary to understand when these policies are substitutes for tariffs and when they are not. The presence or absence of trade protection is motivated by the distributive consequences of policy. Policies that distort markets may divert benefits from consumers towards a protected group of producers, and may redistribute among groups of producers, along factor, sector, or intra-industry lines. Comparing unlike policies or discriminating between

policies with similar consequences obscures the changes in benefits that accompany the shift from tariffs to NTBs that has characterized much of global trade politics since World War II.

The need to consider how domestic policy distorts trade flows is even more important in light of a few general facts about the global goods market today. Trade theory has evolved in light of these facts, which has led to the “new” trade theories of Krugman and Melitz. These theories aim to explain the most striking fact about trade flows in the global economy: significant flows of intra-industry trade. Rather than the “wine-for-cloth” trade of classical (and neoclassical) trade theories, some trade appears to be like-for-like. The United States sends Boeing wide-body jet airliners to European carriers, while Europe sends Airbus wide-body jet airliners in the opposite direction to carriers based in the US, for instance. This intra-industry trade has been a feature of the global economy throughout the past 60 years, rising in volume to its recent levels. In 2011, intra-industry trade was between 25% and 75% of trade flows (in aggregate, not bilateral flows) in various regions of the global economy, highest among the most developed economies (Trade Analysis Branch 2013). The other striking feature of global trade in goods is the degree of intra-firm trade. This kind of trade, where one economic agent is both the exporter from the sender country and the importer in the recipient country, has become an important part of the global economy. These firms sometimes produce multiple versions of similar products for different markets, as well. Global supply chains are a defining feature of multinational firms, and the rise of multinationals has also meant a rise in intra-firm trade.

Traditionally, the main distinction made in the study of trade barriers has been between tariffs and non-tariff measures. Given the historical dominance of tariffs as a means of shaping trade flows (and raising revenues), this distinction may seem appropriate. However, placing all other measures that distort trade flows into a single conceptual category hides important differences among non-tariff barriers and ob-

scures similarities between tariffs and some non-tariff alternatives. Existing research often refers to “non-tariff measures” in general while looking at only one policy in particular, or attempts to create a synthetic measure for “non-tariff barriers” that computes a single at-the-border cost equivalent for the variety of policies that may distort trade beyond tariffs. If we seek to explain the persistence of protection across countries and industries, even in the face of secular tariff declines, we must reframe how we consider trade-distorting policies to clarify, both theoretically and empirically, when policies are substitutes and when they are not. This paper introduces an alternative framework for considering trade-distorting measures that exist at and behind national boundaries. This framework recategorizes policies as similar or different with regards to how costs apply to goods entering a market. In this framework, policies may add cost based on location of production, the process or content of a good’s production, the firm which produced it, or indiscriminately across all varieties of a good.

After reviewing existing discussions of tariffs and NTMs, both in measurement and effect, we outline the Market Access Costs framework and explain distributive implications of policies and liberalization in a single-country and trading-partner context. In introducing this new framework and highlighting some of the differences in distributive consequences of different types of market access costs, we aim to advance our understanding and discussion of trade-related policies in the present era of global markets and national policies.

2.2 Existing Research on Measurement, Effects, and Politics of NTMs

There is a large and well-established literature on the effects of tariffs both in economics and political science. There is also a robust literature on the economics

and politics of non-tariff measures (NTMs), but on the whole it is less prominent than that of tariffs. This is likely in part a consequence of the relative recency of NTMs' importance, but also likely due to NTMs being more difficult to measure and categorize, as well as theorize about, than tariffs are.

Even before NTMs became part of negotiations in large, multilateral trade agreements, these kinds of policies were known to be distortionary. When, in the years preceding the Tokyo Round of GATT, researchers began collecting information - through surveys of member states - on other policies that hampered trade flows, policies were considered individually and grouped into large summary categories that were largely descriptive.¹ Various classifications, with inclusion or exclusion of various policy types, have been used by individual researchers and intergovernmental bodies as data collection and theory have improved.

As "non-tariff" measures are primarily defined by what they are not, there is a wide variety of ways to measure and categorize NTMs. The precise definition of what a non-tariff barrier (or measure) is has generally converged on key components defined by Baldwin (1970). Walter (1972) and Walter and Chung (1972) expand on this with a refinement of Baldwin that focuses on the intent of policy as distortionary, noting that some policies will be distortionary as an "unavoidable spillover effect." While these definitions, generally taking the form of "non-tariff barriers are any policy that distorts the natural flows of goods across national borders" also generally focused on "at-the-border" measures, more recent interpretations have included "behind the border" measures as distortionary and as NTMs (Laird 1997; Staiger 2012; De Melo and Nicita 2018). However, as Deardorff and Stern (1998) note, any taxonomy of NTMs will be incomplete precisely because NTMs are defined by what they are not.

1. In general, these early surveys focused on quantitative and "at-the-border" measures, but collected information on a wide variety of NTMs as individual producer responses. The collection of these measures in 1968 and 1969 produced around 800 NTM notifications, broken into five categories. This collection preceded the creation of the NTM-related codes in the Tokyo Round (General Agreement on Tariffs and Trade 1969, 1970).

In discussing the measurement of specific NTMs or NTMs in general, the comparison has been to the effects of tariffs, either in price or quantity distortions. A general summary of measurement methods is outlined in Deardorff and Stern (1998), and summarized briefly here.²

As NTMs often work differently than tariffs, one common method of evaluating restrictiveness of NTMs is to count the number of policies and/or the degree of product coverage of different measures. By counting the number of policies, initially through producer reporting of these barriers, but later through more comprehensive surveys of regulatory and policy regimes, it is possible to evaluate the degree to which market entry is hampered by policy barriers. However, not every policy acts in the same fashion, and mapping these counts to measures of restrictiveness can be difficult.

Other research has attempted to calculate ad-valorem tariff equivalents of NTM restrictiveness. In general, these measures use a model of trade flows based on models of international trade and/or direct measurements of prices in the protected market versus global prices. Measurement of trade volume distortions, rather than price distortions, are an alternative measure of the effects of NTMs. Kee, Nicita, and Olarreaga (2008a) does this as a first stage for eventual computation of price effects, and later a total trade restrictiveness index across a variety of countries.³ However, Kee, Nicita, and Olarreaga (2008b) looks only to “core” NTMs (quantitative restrictions and tariff-like NTMs) and domestic agricultural support. This is motivated by comparability to tariffs, but also highlights how other NTMs function differently, both theoretically and empirically.

A more general method for evaluating the restrictiveness of NTMs is calculation of a trade restrictiveness index, which may or may not include tariffs in the index. This method focuses on the total distortions of trade for a particular product or across a

2. A more recent update and review of Deardorff and Stern (1998) can be found in Bora, Kuwahara, and Laird (2002), as well.

3. This requires use of import elasticities, which are estimated in Kee, Nicita, and Olarreaga (2008b), where the overall restrictiveness index is also computed.

whole economy, not necessarily the form this protection takes or the specific policies that restrict trade. These are done in one of two ways, generally. One, building off of the work of Anderson and Neary (1994, 1996, 2003) and Feenstra (1995), estimates simplified barrier estimates motivated by the logic of general equilibrium models of trade, but with the general equilibrium feedbacks ignored (Kee, Nicita, and Olarreaga 2008a). Alternatively, a gravity model of trade can be used to estimate expected goods flows across borders, with tariffs, when known, included in the model and the non-tariff barriers derived from model residuals (Hiscox and Lastner 2008; Mayer and Zignago 2005).

Each of these measurement strategies has strengths and drawbacks. Counts are relatively easy to compose, although categorization and comparison can be difficult. However, simple counts of measures do not suggest the *intensity* of protection around particular products within an economy. The calculation of ad-valorem equivalents eases comparison to existing measures of protection (that are largely based on tariff rates, either bound or effective), but require stronger assumptions and sometimes are difficult to compute for NTM regimes that work in ways different from “core,” tariff-like NTMs.

The measurement challenges above have meant that, compared to tariffs, the picture of non-tariff barriers’ effects on the global economy is somewhat less clear. Still, there has been significant research on the political economy of protection through non-tariff means. Some research has focused on one particular kind of NTM, or has used one policy instrument as a proxy for NTMs generally. Other work has looked to substitution across multiple instruments, or from tariffs to non-tariff instruments. An overarching theme of this literature is that the question of whether NTMs, or even individual non-tariff measures, are substitutes for tariffs or not remains unresolved. Both at the theory stage, involving assumptions or arguments about actors’ preferences, and at the point of measurement, examining the level or frequency of NTMs

across countries and industries, there remains a lively debate as to who demands protection in the form of NTMs, what form that demanded protection takes, when governments provide that protection, and what effect that protection has.

In focusing on a single kind of NTM, or comparing NTM politics to that of tariff politics, some progress has been made in understanding how these policies persist or are eliminated. Core to these arguments are assumptions of preferences of different groups over these policies, or ways in which these policies work similarly to or differently from tariffs. What follows is a sample of the literature discussing specific non-tariff trade instruments and NTMs in general.

Much early research on NTMs focused on comparing quantitative restrictions to tariffs. A significant portion of this discussion focused on the equivalence (or not) of tariffs and quotas, in response to seminal work by Bhagwati (Bhagwati 1965, 1968). In responding to some of these arguments about the comparison of quotas and tariffs, Deardorff (1987) introduces the idea that quantitative restrictions are used when actors don't believe tariffs will work. By using quantitative, rather than price, measures, NTMs (quotas) may mitigate some of the short-run and longer-run concerns that arise with price measures like tariffs. A more recent return to the discussion of quotas and antidumping suggests that shift from tariffs to quotas to antidumping measures is a natural progression in some industries, and is driven in part by restrictions placed on trade distorting measures (Anderson and Schmitt 2003).

The use of subsidies to support domestic industry is another means by which governments can distort trade. Rickard (2012) looks to subsidies as an alternative to tariffs for domestic industrial support within democracies. In testing the "protectionist bias" in majoritarian politics of Grossman and Helpman (2005) beyond tariffs, Rickard finds that a similar logic holds for this NTM policy. Looking to the *specificity* of subsidies within EU countries, Park (2012) argues that the sectoral targeting of subsidies follows a different logic than general state aid, and both are associated with

the degree of labor and capital centralization.⁴ This issue of targetability in industrial support is discussed and demonstrated elsewhere in broader discussions of industrial protection and political incentives related to political geography (McGillivray 2004).

The role of geographic concentration in trade politics is another area where comparisons of tariffs and non-tariff measures have been considered. In an effort to examine what industries receive protection and adjudicate a long-running debate in the endogenous protection literature, Busch and Reinhardt (1999, 2000) turn to “hard core” NTM measures across industries in the US, which suggest that geographically-concentrated but politically diverse industries (industries that cover many electoral districts, but are geographically concentrated) obtain protection more than other industries. This finding is corroborated, albeit with additional complexity from considerations of electoral institutions and party strength, by McGillivray (2004) using European country industries.

More general discussions of NTMs as protection have focused on ways in which NTMs in general are similar to or different from tariffs. The interaction of institutional settings and the ways in which NTMs may work differently (or are observed differently) than tariffs is one avenue of inquiry. Two large cross-national studies of political institutions and the provision of protectionism engaged directly with NTMs, but treated them as related (not necessarily substitutes or compliments) to tariffs. In looking to democracies alone, Mansfield and Busch (1995) suggests that NTBs are substitutes for tariffs, and are used when sectoral interests and societal interests align. However, a look beyond just democracies to compare protectionist policy in nondemocracies suggests that overall, tariffs are lower, but NTMs (especially “quality” NTMs like product standards) are higher in democracies, suggesting that the “Optimal Obfuscation” of Magee, Brock, and Young (1989) may have some empirical

4. Specifically, Park finds that sectoral, targeted aid is lowest when centralization is very high or low, but general aid increases with centralization overall, supporting the idea that the logics of targeted vs general support are different.

support (Kono 2006).

In a broader discussion of the anti-protectionist pressure that accompanied increased economic interdependence, Milner (1988) highlights the rising importance of NTMs, although NTMs are not discussed independently of broader anti-protectionist pressure that comes from firms with export or multinational interests. However, the arguments therein are consistent with some of the more recent arguments on anti-NTM pressure among multinational firms. Specifically, Milner highlights intra-industry divisions over protectionism, which have become an important part of the NTM discussion as well. This firm-centric logic of NTM preferences also arises out of political economy models based on “new-new” trade theory, which highlight how industries divide over barriers to trade, both fixed and variable costs (Osgood 2016).

Although they are not always as clearly perceived as barriers to trade, intellectual property rights (IPR) policies have become part of the NTM discussion. (Shadlen, Schrank, and Kurtz 2005) Osgood and Feng (2017) build off of existing literature on the role of IPR harmonization in trade agreements in the US and the economics of IPR in trade. These policies generally change standards in US partner countries. Industries in the US, where firms are generally producers of new IP, are in support of or indifferent to new IPR policies. There is some evidence that consumers of IP-intensive goods abroad may oppose these policies, but these appear to have different distributional consequences (and thus political consequences) than some other NTMs.

Technical standards can also act as barriers to trade. Evidence from the use of standards as protection in agriculture suggests that these regulatory rules function as substitutes for other forms of protection, appearing more prevalent when other forms of protection are lower (Long, Kastner, and Kassatly 2013). Another way of viewing technical standards is as fixed costs of market entry. If these policies act as a fixed cost of market entry, one might expect them to redistribute across firms. Recent research, expanding on models of trade with heterogenous firms from Melitz

(2003), suggests that it should be the most productive firms that prefer this form of protection (Gulotty 2014; Abel-Koch 2013).

The use of policies that privilege domestic producers, sometimes called “buy national” policies, also distort trade. D.-H. Kim (2010) suggests that, compared to tariff barriers, where intra-industry trade may lead to lower trade barriers, the demands for protection in public procurement are higher in cases of intra-industry trade, as firms have fewer free-riding incentives in lobbying. In the context of international agreements and trade liberalization, it also appears that these public procurement policies are commonly used, in part because they are more opaque, making enforcement of international agreements more difficult (Rickard and Kono 2014). This relative opacity also appears to make these policies more prevalent in democracies (Kono and Rickard 2014).

Others have used the topic of NTMs to examine questions in other areas of political science. Grieco (1990) uses the negotiations over NTMs in, and evidence of subsequent compliance following, the Tokyo Round of GATT as evidence of neorealist politics in the international system. In focusing on each of the six codes on NTMs introduced and examining the relative national gains or losses from different potential outcomes (and eventual compliance), this at once treats NTMs much like one might consider tariffs - as barriers at the border for protection of national interest - and very different than tariffs, as each type of policy (national preference, subsidies, pricing rules, etc.) was used to protect vital interest groups within the respective countries in different ways. The differences in compliance (and the logic for complying) across the codes suggests that not all NTMs worked the same ways, and states complied with those that suited their national interest (Grieco 1990).

More recent research has focused on the differences between different kinds of NTMs and the politics related to instrument selection. Evidence from Japanese trade policy suggests that electoral competition and electoral incentives drive the choice of

trade instruments among subsidies, voluntary export restraints, and GATT/WTO legal measures. This look to multiple measures, “protectionism by other means,” focuses on the politics behind using unilateral versus bilateral or international legal protectionism. Naoi (2009) takes particular note of the issues that arise when looking to only one measure, framing it as a selection bias, suggesting a degree of substitutability. In particular, Naoi argues that import-injured firms are indifferent to the method of protection among the 3 discussed options, but that exporters disprefer subsidies because of retaliation risks. The difference among the three is in the institutions that shape their implementation, and the political incentives that arise therefrom.

Existing research on NTMs has opened many avenues of inquiry. In examining this literature, it is clear that there are some NTMs in particular that appear to be substitutes for tariffs. But, there are also ways in which they are not. The work discussed above makes a variety of different assumptions and arguments about how NTMs divide winners and losers. There are also disagreements over whether NTMs represent public or private goods for those seeking protection. In some cases, it appears to be the most competitive industries that seek out protection through NTMs. In other cases, it is the less competitive producers who seek support. In considering NTMs as a whole versus tariffs, it seems sensible to consider NTMs as imperfect substitutes for tariffs.⁵ With this in mind, it may be time to change the framing of the discussion and move beyond a logic of tariffs and “everything that is not tariffs.”

5. This imperfection recalls Bhagwati’s “Law of Constant Protection” and discussions in the literature cited above (Bhagwati 1988).

2.3 Conceptualizing Non-tariff Measures

While considering matters of measurement is critical for empirical analysis of trade and trade politics, measurement issues alone do not motivate a rethinking of trade policies. The state of current theory on non-tariff measures highlights the more important motivation for looking at NTMs in a new way: attempts to use the existing tariff/non-tariff framework require assumptions that are imprecise and that distort our understanding of the political dynamics behind the new debates in trade liberalization. Discussions of fixed versus variable cost, particular idiosyncrasies of how an specific NTM is implemented, at-the-border versus behind-the-border costs, and how NTMs cover or are observed skirt a real problem: some measures that affect trade flows are very much like tariffs, while other measures are clearly not.

Theories about trade-distorting measures rely upon assumptions about how policies apply costs to certain goods within a market. Therefore, we must consider how these assumptions drive our theory towards or away from a better model of trade politics. For the study of tariffs, the assumption that import taxes applied some additional cost to imported varieties, while domestically-produced varieties are exempted, is quite reasonable. Tariffs are clearly a policy that adds costs to a good once it crosses a border. But, the same logic does not clearly apply to other policies that are considered to be trade-distorting measures. The compromises to our assumptions that must be made to accommodate both regulatory barriers, like safety standards, and targeted policies, like export subsidies to certain firms, obscure our understanding of both. The ways in which supporters and opponents of each policy should divide within industries will be different, and furthermore will be different from how industries divide on tariff measures.

Improvement of our theories of trade politics requires a rethinking of how governments can distort markets, and therefore can influence trade flows. Policies that appear to be barriers in some cases, but not in others, may be so because real-world

markets, which are structured differently in different economies, do not neatly reflect the assumptions of our models.⁶ One knows a tariff is a trade-distorting measure because it affects a foreign producer's access to a market, but does not apply to domestic production. One need only look to tariff schedules to know that a good, even one that does not actually cross the border, would have restricted access to a given market. There is no line in a tariff schedule or roughly-analogous metric that applies for many other measures. The ad-valorem equivalent cost of a requirement to pasteurize milk that is used to produce cheese, or government policy that privileges domestic firms in the distribution of market licenses is not always clear. Yet, differences in pasteurization rules, or limits on which individuals or firms obtain licenses for sale in a given market still distort cross-border flows of goods. It will alter both the composition of - eliminating import of some goods - and volumes of - reducing imports of prohibited varieties with incomplete substitution - trade between two, or among many, countries. They also distort production and sale of goods within that market.

Attempts to force all other measures at once into a "like tariffs" or "not like tariffs" framework ignores important distinctions among non-tariff measures. Assumptions about other market-distorting policies that frame costs of all other policies in the same fashion, be it as fixed market entry costs for all producers, fixed entry costs for foreign producers, variable costs for all producers, or variable costs for only foreign producers, lead to theories of trade, and thus theories of trade politics, that are critically imprecise. As domestic and international trade politics reflects the new reality of protectionism, that tariffs are generally in decline while a whole host of other policies appear to distort trade, this inaccuracy prevents productive discussion of the issues at hand.

6. This is not to say that models do not have an important place in our understanding of trade politics. Simplifications are necessary. However, we must take care to consider which simplifications clarify and which obscure.

2.4 Motivating a New Typology of Trade Barriers

Each product in the market is defined by a variety of characteristics. Individual products can be defined by size, aspects of quality, what materials were used in their manufacture, country or region of origin, the firm that produced them, how they are packaged, and other intrinsic features. Taken together, these characteristics are what make an orange grown by Tropicana-affiliated growers in Florida different from ones grown by Tropicana-affiliated growers in Brazil, and also different from oranges grown by independent growers in either Florida or Brazil. Although these oranges may be comparable, they are different from each other in location of production or firm associated with that production. In the eyes of some laws, and in the eyes of consumers, these differences may matter. Taken to the limit, no two products on the market are identical in every way.⁷

Different theories of trade and trade politics consider some of these product characteristics more or less relevant to understanding goods flows. For most discussion of trade barriers to date, the salient characteristic has been country of origin: whether a good is produced locally or beyond a territorial boundary. In most models of trade, trade barriers have been costs applied “at the border” only as a market entry cost imposed on products produced outside the border.

Consistent with that “at the border” logic, the primary mode of comparison between tariffs and non-tariff measures has been through the use of ad-valorem tariff equivalents. This works well for trade-distorting measures that function in a similar manner to tariffs, restricting net imports in favor of domestic alternatives or substitute goods by creating price wedges between imports and domestic alternatives. However, for other kinds of measures, especially those that create differences within categories of goods, this comparison misses essential within-industry redistributions. For instance, while restrictions on the sale of consumer electronics that create certain

7. This may be considered an extreme interpretation of monopolistic competition, in a sense.

kinds of electromagnetic interference⁸ may raise prices or reduce trade by a certain level for the industry as a whole they do not affect all products in the market evenly. If some varieties in the global market already meet the standard, they would enter with effectively zero additional cost.⁹ Other products not meeting that global standard would require costly modification before sale.

Existing measurement of trade barriers does allow for fine-grained analysis of tariffs. The Harmonized System, the common baseline for many countries' tariff schedules, contains narrow categories (USITC 2018; World Customs Organization 2017). For home internet routers (wired and wireless), the specific tariff line – 8517.62.00.90¹⁰ – covers a wide variety of products that handle the transmission of digital data. Certainly it would be possible to further divide the category into “Wireless Routers,” then “Transmitting and Receiving in the 5 GHz band,” then “Producing RF Emissions Above FCC Standards” or “Producing RF Emissions Below FCC Standards,” but the logical limit of this exercise is uniquely coding every potential variety of every potential product that may be included in a tariff schedule. However, these hypothetical additional classifications are based on another policy: the FCC standards.

The way that RF emissions rules affect the relationship between the US (or EU)

8. For instance, in the US and EU, consumer electronics must not generate more radio frequency noise than a specified standard. The frequency ranges and maximum noise levels differ in each market, which requires manufacturers to change the characteristics of RF shielding to suit each market's rules or surpass both standards. Further, it prevents some products from entering the markets altogether, as modification is not economically feasible. For example, for the production of IT equipment power supplies, products sold in the EU must conform with CISPR 32/EN 55032, while US products must comply with 47 CFR 15.109. Both regulations concern RF emissions, but have different frequency ranges - CISPR 32 has two ranges, Part 15 has 3 - and emissions levels as specified at different distances across product classes (Hegarty 2018). A product may be designed to exceed the noise limits of both standards, but those standards would restrict different non-compliant products.

9. Additional testing to demonstrate this compliance to local authorities may add cost to imported varieties, but it is likely this is a cost faced by locally-produced varieties, as well.

10. The full description of this 10-digit HS code is: Telephone sets, including telephones for cellular networks or for other wireless networks; other apparatus for the transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network), other than transmission or reception apparatus of heading 8443, 8525, 8527 or 8528; parts thereof: Telephone sets, including telephones for cellular networks or for other wireless networks: Machines for the reception, conversion and transmission or regeneration of voice, images or other data, including switching and routing apparatus: Other

markets and the global market for goods is complex. The requirements effectively prohibit the sale of some (non-compliant) varieties. This prohibition reduces trade by the volume of modems not imported because of non-compliance. Some of that is offset by increased imports of compliant modems, even beyond what might have been imported in the absence of the regulations.¹¹ While in the aggregate, this may be equivalent to the effect of a modest ad-valorem tariff, two issues arise. First, an increase in some imports is not generally consistent with the logic of how tariffs affect markets. Increases in cost of market entry for imported goods should shift demand towards alternatives unaffected by that additional cost. Second, the ad-valorem tariff equivalent would not necessarily divide the market in the same way as the regulation does. Even when considering trade theory that focuses on the differential effects of trade barriers on firms of different size or heterogenous productivity, the distortions in the market for goods affect firms based on the characteristics of the firm, not of the product.¹² This illustrates a problem with the division of all trade-distorting measures into two groups: tariffs and not. In some cases, non-tariff alternatives have the same kinds of market-distorting effects as import tariffs do, and so computing an equivalent tariff is a reasonable exercise. When onerous import rules on certain goods slow time-to-market, or require importers to pay additional costs (either directly in customs fees or indirectly to staff or agents to administer the customs process), the way it distorts markets works the same way as would an import tax of the same magnitude. But for many of the non-tariff barriers to trade used in the global goods market today, measurement on the basis of a tariff equivalent is at best imprecise and at worst obscures important distributional outcomes, especially within industries.

Attempts to compare trends in non-tariff barriers to trade to trends in tariffs

11. This is dependent on the degree to which consumers substitute between the non-compliant alternatives and the compliant ones, given price, etc.

12. In these models, the heterogeneity comes from differences in productivity of the firms - their ability to turn the labor stock into the goods they produce, which they observe after an initial investment. Melitz 2003

have been sidetracked by the simple fact that non-tariff measures are neither pure substitutes nor pure complements to import duties. Some alternatives function in much the same way as tariffs, cleanly dividing winners and losers along geographic lines. Others, however, like the RF standards mentioned above, do not necessarily have that effect. There are wireless routers produced in China or Malaysia that meet the standard and others that do not. It is not the fact that those routers are produced in China or Malaysia that makes them subject to the standard. If they were produced within the US or EU, they would still need to meet requirements. What follows is an attempt to refocus the discussion of the political economy of trade-distorting measures on the politics. To better understand the politics of demands for different kinds of policies, one must first understand how different kinds of rules distort markets differently.

The extensive and mature political economy literature on trade politics has built off economic theory to explain interactions between groups, the effects of institutions, and the role that global forces have played in shaping demands for and supply of trade policy. Rogowski's seminal work on the factor-based political cleavages that arise when exposure to trade changes relies on the economic theory of Stolper and Samuelson¹³ (Rogowski 1987; Stolper and Samuelson 1941). Later work by Gilligan (1997a) brought the Ricardo-Viner specific-factors model to bear on questions of political coalitions around RTAA. Other significant work in economics, including on endogenous tariff theory and some work on non-tariff barriers, also uses the specific-factors framework to generate hypotheses about when protection should arise. (Ray 1981a, 1981b; Magee, Brock, and Young 1989; Grossman and Helpman 1994) Subsequent work by Gilligan (1997b) turned to models of intra-industry trade, building off the model of intraindustry trade under monopolistic competition introduced in Helpman (1981) and Krugman (1979) to explain how lobbying for intraindustry protection

13. Stolper and Samuelson's work is, in turn an extension of the Heckscher-Ohlin model, discussed widely and by many. See Leamer et al. (1995) for a widely-read treatment and review.

is a private good, significantly changing the dynamics of firm-level trade preferences. A recent wave of research in both economics and political science has looked to theories of firm behavior over trade policy when firms are themselves not identical, and the subsequent intra-industry cleavages over trade policy. Related work has focused on the stark heterogeneities in tariff protection across products of a single industry or sector (Bombardini 2008; Bombardini and Trebbi 2012; Osgood 2016; I. S. Kim 2017). This work builds off the work of Melitz and others and models of firm heterogeneity and gains from trade (Melitz 2003; Melitz and Ottaviano 2008).

Indeed, as Rodrik (1995) suggest, any political-economic model of trade policy must explicitly specify individuals' (or actors') preferences over policy options.¹⁴ Looking to models of trade for these preferences is natural. However, it was not always so. Schattschneider (1935) focuses directly on interest group politics at the industry and firm level and explains the pressure politics and coalition-building around the Smoot-Hawley tariffs, laying the groundwork for future study of interest group politics in trade. However, the work above has largely considered only tariffs, or tariff setting. As existing work has suggested the politics of NTBs is more complex, with more complex distributional considerations, there is value in considering whether adopting existing trade logic is the best avenue for considering the politics of NTMs, of NTMs and tariffs together, of both in the presence of a complex, interconnected global economy. Perhaps it is time to take a fresh look at trade-distorting policies and derive assumptions about actors' preferences from there.

Acknowledging the progress made in political economy to date, but also the difficulties in developing theory on NTMs in the same consistent way as with tariffs, it seems one way forward is to reconsider how we codify barriers to trade. Instead of the dichotomy of "tariffs" and "not tariffs," or specific theories (with attendant preference

14. See also Alt et al. (1996) for a discussion of S-S and R-V models in political economy and an introduction to the economics of, but not the political models using, Krugman's Increasing Returns to Scale models.

assumptions) for each particular kind of non-tariff policy, it may be more productive to focus on how different kinds of trade distorting policies divide industries, putting the cleavages at the center of the discussion.¹⁵

2.5 A Typology of Barriers to Trade

Governments use many different policies to influence trade flows and shape access to their markets, often for the benefit of groups of domestic actors. Referring to these as either tariffs or “not tariffs” ignores key differences among the latter group, and ignores what all such policies have in common: they are all barriers to trade. Whether their primary intent is distortion of trade flows, or the diminution of trade is a secondary outcome, policies that prevent trade in goods that might otherwise have flowed between markets are a barrier. This section introduces and describes a typology of trade barriers based on the manner in which they discriminate, rather than whether they are import duties or not.

Some non-tariff policies work very much like tariffs, imposing at-the-border costs on a product that generate revenues for the imposing government. Even policies that do not yield similar rents to governments work in the same manner as tariffs do, by creating a price wedge between imports and domestically-produced alternatives. The winners are defined by the location in which they choose to locate production of their good. But, not all policies work in this manner. Trade can be distorted by policies that restrict market access on any basis, as long as those goods cross borders to enter the market. Tariffs and tariff-like policies are the most straightforward kind of trade distorting policy, but they are by no means the only policies that can, intentionally or incidentally, distort trade flows.

To simplify comparison of policies and place tariffs within a single framework of

15. It is also possible that this change in perspective may help with measurement and modeling of trade flows, by indicating how trade flows may be distorted, either in volume or composition.

trade-distorting policies, it is necessary to focus instead on how the policy adds costs to the production of a good. Recall from above that each variety of good in a market can be defined by where it is made, how it is made (or what it contains), and who makes it. These three dimensions cover the ways in which policy can be used to raise the price of some goods (but not others) on a market. This increase can come about because of increased cost of production, to comply with a policy or absorb fees, or increased price to market because of policies which directly affect final prices. By raising the price of some varieties, inducing consumers to change their consumption behavior, governments can improve the fortunes of some producers, at the expense of others.¹⁶

When those policies privilege varieties produced domestically, the effect is the expected decline in trade, specifically imports. Compared to a free-trade scenario, the overall volume of trade is lower. Some goods may be more or less affected by the policy, but the policy is clearly a trade barrier. However, trade can also be distorted through changes in the composition of trade flows. Policies that privilege certain varieties of goods¹⁷ can lead to patterns of trade where overall volumes are not significantly distorted, but where the variety of goods traded (or, more specifically, imported) is reduced. Compared to that same free-trade scenario, the goods that enter that market are qualitatively different. Some varieties are blocked, in the same manner that a tariff or an import quota might block imports.

All of these policies can be trade barriers, if the additional costs prohibit trade (goods flows across borders) that might otherwise have occurred. The “winners and losers” from barriers in each of these categories can be more difficult to identify than in the simple tariff (or tariff-like) case, but they do exist. Despite the additional complexity, placing trade barriers in this larger framework has some advantages. The

16. The degree to which the winners and losers are politically salient depends on a number of factors, including whether a producer is a firm located – either as a producer or with headquarters – within political boundaries.

17. For instance, a ban on the sale of all electronics containing lead-based solder.

distributive consequences (and thus the distributive politics) of trade barriers and other market-distorting policies have the same logic: the profits and losses of affected firms. Firms are not swayed by aggregate, economy-wide gains and losses in welfare when making decisions about political pressure. It is the gains or losses to that firm that are salient, and that drive those firms to pressure governments for relief through policy changes. Competitors in a market are still competitors, regardless of where their product is produced or how similar it is to a firm's own.¹⁸

This new typology divides trade barriers into groups based on how they raise the market price of goods. There are four types of barriers:

- those that impose additional costs based on the location of production of a good,
- those that impose costs on a good based on its innate characteristics or methods of production,
- those that impose additional costs for some producers (firms) of a good, and
- those policies that impose additional costs on all goods sold in a market.

In the subsequent sections, we introduce the types of barriers with examples. we then explain some of the consequences of each type of barrier when they are imposed (or removed) as unilateral changes, then as changes in the context of a bilateral relationship.

2.5.1 Location-discriminating Costs: Where it's Made

The most clear example of a trade distorting policy is one that imposes additional costs that depend on the location of production of a good. By driving a wedge between international and domestic market prices, these policies divert some consumption

18. While these characteristics may affect competitors' costs, there is no reason to suspect that firms have a particular preference for domestic competitors over foreign ones.

away from foreign-produced goods towards domestic alternatives, when they exist. Location-discriminating costs create a protected market within the boundaries of a geographic area, and goods that are traded across that border arrive at a market at a higher cost than they would otherwise.

Tariffs are clearly location-specific barriers, as they impose an additional cost on each imported good. Whether calculated as a portion of an import's stated value or as a specific cost on each imported unit, tariffs raise the cost of the good for consumers.¹⁹ There are a variety of tariff-like policies that have been used in place of tariffs, often when tariff protection has been prohibited by international agreement. Quotas, by restricting access to markets and, in some cases, charging importers for quota licenses, also increase the cost of a product traded across a border. Voluntary export restrictions work in the same way, but are administered by the government of the exporting market. Other policies look quite different, but also discriminate based on the location of production. Policies requiring a minimum of local (within the customs area) content discriminate between products based on location of origin. Onerous customs procedures, or special inspections for imported products only, are also ways of imposing costs on only some products in a market: those produced outside the borders.

Similarly, policies that indirectly raise the cost of goods originating outside national borders, such as currency manipulation, can generate location-discriminating costs that act as barriers to trade. If, by distorting the local-market price of a product, these sorts of manipulations make goods manufactured abroad more costly for consumers, currency manipulation can impose location-discriminating costs, and thus shape trade flows. Other currency and capital controls, such as limited currency convertibility, restrictions on repatriation of profits, or measures that impose additional

19. It is also possible that producers may accept lower profit margins on each unit, such that imported varieties sell at the same price, but this is not necessarily the case for all producers. At the margins, some producers will have profit margins too small to absorb the additional costs imposed by the tariff.

costs on the conversion of one currency into another, are another form of location-discriminating cost. To access a market that is behind a barrier of this kind, producers who manufacture outside that currency area (and therefore in terms of a different currency) face additional costs that local competitors do not.

In addition to costs imposed by policy, other natural barriers to trade, such as transportation costs, are a location-discriminating cost. In the same manner as tariffs, import regulations, quotas, or location-specific import restrictions, transportation costs can prevent goods from entering markets where they might otherwise find buyers. Although these are not costs that governments can impose on goods, they can act as natural barriers, reducing the need for policy-based protection of local producers.

In all of these cases, market access is restricted is through increased product costs applied differentially based on the location of origin. In thinking about trade barriers this way, tariffs and some other non-tariff barriers are clearly substitutes. A tariff can be replaced by a quota, or an import inspection, or currency manipulation that generates similar costs on imported goods. In this case, the net effect of the change in policy should be minimal, as long as the magnitude of the cost increase on foreign-produced products is largely the same. As will be explained in the next section, the producers who benefit from the protection afforded by the tariff will be the same who benefit from these location-discriminating alternatives.

2.5.2 Characteristic-discriminating Costs: How it's Made

A second manner in which policy can discriminate is on the basis of a product's characteristics.²⁰ These types of policies raise the market entry cost of some varieties and not others, depending on how a product is made. Also, characteristic-discriminating barriers impose costs that apply to varieties of goods with certain

20. These characteristics can be both the content of the product or the methods used in its production. In the same way that a prohibition on a chemical in a particular product may be the basis for a market access cost, so too may the use of a particular technology, or laws on the labor used to produce a good add cost based on "how it's made."

defining features. Characteristics-discriminating barriers can affect only products considered to be “low-quality” varieties, only those considered to be “high-quality” varieties, or a set of goods where quality ranking is not obvious.

Although canonical examples of these sorts of barriers take the form of safety standards (and thus, exclude what might be considered low-quality varieties by some), the defining feature of these kinds of policies is that they separate market access on the basis of a good’s characteristics. Prohibiting the sale of certain kinds of cheeses made with unpasteurized milk on safety grounds, for instance, may eliminate varieties that are considered by some consumers to be high-quality varieties. It is not the case that quality and characteristics are the same concept.

Other characteristic-discriminating policies may relate to the factors used in production or the externalities generated in production. Labor standards, which are regularly part of trade agreements, create restrictions on how a product is produced. These policies, which often require standards in an exporting country to meet those of the importing country, divide markets based on the process of production, and the inputs used in production. Environmental standards, whether legislated or adopted as an industry code, have similar effects. When products produced in a manner inconsistent with the standard face additional barriers, it is that manner of production, not the location of production or who produced it, which matters. Usually, these standards are implanted with the expressed aim of mitigating harmful behavior, but the way they divide industries is primarily along lines of how the product is made.²¹

As these policies restrict market access based on product characteristics, they apply equally to locally- and foreign-produced goods. For example, a variety of fireproof door that does not meet a country’s minimum safety standards will not be permissible for sale whether it is produced within that country’s borders or abroad. Regulations that require that a food product be refrigerated from harvest to market apply to all

21. Put slightly differently, differences in production technology matter in these cases.

varieties of that product, not just to those produced outside the country's borders.²² Characteristic-discriminating costs often take the form of finished-product standards, but can also include policies restricting the sources of a product or the manner in which it is produced, even if that has little or no effect on the content of the final good.²³ In addition, some forms of labeling standards – for instance, restricting the use of the label “ice cream” to only desserts made with cream from cows milk – create differences between products in consumers' minds on the basis of quality and comparability, effectively changing the value (or, inversely, the price) of the good to the consumer.

Characteristic-discriminating costs distort markets by either raising the final cost of some varieties of a product (the non-compliant ones), making them less appealing than other varieties, or blocking some varieties from reaching market (effectively, raising costs sufficiently to ensure no consumer would ever purchase it) altogether. When these varieties are unavailable, consumers will substitute among whatever alternatives are available to them. “Alternatives” includes products within the same category of goods (but of a different variety) and all other goods and services.

The effect of these kinds of policies, and the characteristic-discriminating costs they impose, is somewhat more complex. When some varieties of a product bear a policy-related cost before entering the market, the total cost of that variety increases. Facing that increased price, some consumers will shift their consumption to other, less costly varieties. Indeed, this very consumption-shifting behavior is sometimes the goal of policy. If policymakers wish to discourage behavior, targeting products (or varieties of products) with differential costs is one way of changing consumer

22. There are some regulations that are characteristic-discriminating, but directed towards imports only, or imports of only some countries. These policies impose location-discriminating costs in addition to characteristic-discriminating costs.

23. This is not to suggest that these differences do not matter, but rather to suggest that the content of a final good may be produced in more than one way. GATT does consider standards which regulate content differently than those which regulate processes, with respect to considering trade barriers. However, in this framework, the process and the content both make up the characteristics of a good.

behavior. However, not all producers (if each producer makes only one or a few varieties) will be affected in the same way by these costs. This division will arise within industries and regardless of location of production.

Producers facing characteristic-discriminating costs in a market cannot avoid them by changing the location of production. Instead, it is the product itself that must change. If firms can alter their production to meet local-market requirements, and thus avoid these characteristic-discriminating costs, then they are likely to do so. However, the natural characteristics of the market (homogeneity of the product, possibilities for technological/product innovation), the legal framework around adapting to new varieties (intellectual property law/patents, etc.), and the firms own ability to change (capital necessary to change production, sunk costs, etc.) all contribute to determine whether a firm can effectively adapt to avoid characteristic-discriminating costs. If they cannot, they may still attempt to enter a market with a non-compliant good, and bear the costs thereof. However, that good's market cost will reflect the non-compliance, and is likely to make the variety less attractive to consumers.

2.5.3 Firm-discriminating Costs: Who Makes It

Other characteristics of the policy environment create costs that apply only to goods produced by certain firms or costs that apply to all producers except some excluded firms. These policies create differences in market access based on who produced a good. Alternatively, these policies may impose costs, or exclude from additional costs, products that are sold by or marketed by certain firms.

Firm-discriminating costs can take a variety of forms. Policies on import licensing that provide specific importers with authorization to import, or to sell, are a common one. Were two different firms to attempt import of otherwise-identical products (for instance, shoes made from man-made materials in China), the firm with an existing import license would have an advantage over their competitor. Obtaining import

licenses can be a costly and time-consuming process, which creates additional costs for new entrants. Government procurement policies that require that the contractor be a domestic firm, or that privilege the bids of domestic firms, set a price wedge between different producers. This kind of policy works differently than a location-discriminating cost, as it is the firm, not the location of production, to which the privilege or cost is tied.²⁴ Alternatively, policies to support “national winners” or to provide financial assistance to certain firms (in the form of loans or subsidies) also create firm-specific costs by lowering the effective price-to-market for one firm. In some cases, intellectual property laws can create firm-discriminating costs, restricting market access on a particular variety of good to one or a small group of producers, forcing others to either pay fees to license the IP or find ways to produce a different variety which is not affected by the IP rights.

When costs apply only to the goods of certain producers, the effect on sales and profits is as expected: consumers will change their purchasing behavior to reflect the cost differences, or firms will absorb some of the costs in the form of reduced profits. In either case, firm-discriminating costs can create differences in market competitiveness between two firms producing identical (or nearly-identical) products in the same place. The firm facing the additional costs cannot escape them by changing the location of production or the characteristics of their goods. The costs of firm-discriminating policies are tied to the identity of the producer.

2.5.4 Indiscriminate Costs

The final category of costs are those that apply to all products within a given category. These are costs, either fixed or variable, that apply to any good entering a market. These can be considered “indiscriminate” costs because they impose

24. A simple example of this is US military aircraft purchasing, where the supply chain for some aircraft produced by US firms include foreign suppliers and subcontractors, while aircraft produced by foreign competitors may include US firms in their supply chain. Some policies also require domestic production, although this varies from case to case.

additional requirements on producers without conditions on location, the quality or characteristics of the good produced, or the identity of the producer.

Labeling requirements, where goods sold must include additional documentation on the packaging to inform the customer of the content and characteristics, are one example of this kind of market access cost. If all varieties and producers must undertake the same labeling process, it is a cost that applies without discrimination. Certifications/inspections requirements that apply to all products within a category of goods work similarly. If the certification process is the same for all potential entrants, then the cost of testing and certification is an indiscriminate cost. Other policies, like consumption taxes, can act as an indiscriminate cost, as long as they are applied equivalently across all permutations of producer, quality, and location of origin within a given category of goods. Consumption taxes make goods more costly for consumers by raising the effective cost of all goods (usually, in proportion to their sale price or value-added).

These indiscriminate costs can take the form of a single, fixed cost of market entry - such as a testing requirement - or a per-unit cost paid by all varieties, like an excise tax. In either of these cases, it is the application of the cost to all varieties that matters. Indiscriminate costs of market access cannot be avoided. They apply to all firms and varieties, and without regard to location of production. While the exact nature of the requirements that generate the costs (testing, labeling, etc.) may vary from market to market, for all producers seeking to enter a given market, those costs must be paid. Whether the cost applies before the good reaches market (testing, certification, labeling) or at the time of sale (consumption taxes), the effect on the price of the good to the consumer is the same. Indiscriminate costs raise the price for all consumers of all varieties, although not necessarily equally across varieties, and affect their consumption decisions accordingly.²⁵

25. With fixed costs, scale effects are an important consideration, as a single, indiscriminately applied testing cost adds a smaller cost to each of 1000 units sold than to a single unit sold.

2.5.5 Limitations of this Typology

The four categories above span the variety of manners in which costs can be imposed on goods that might enter a market. The typology does, however, have some limitations. Some policies appear to impose costs in a variety of ways, or impose costs that are conditioned on more than one aspect of a product's characteristics. For instance, a temporary import restriction for sanitary and phytosanitary reasons may be considered to apply both a location-discriminating (based on where something is made) and a characteristic-discriminating (based on the process used to produce the goods) cost. While this makes sense if conceiving of these costs as orthogonal dimensions of a policy's total cost profile, for simple categorization it can lead to disputes or uncertainty about how a policy should be considered.

Similarly, this typology is generally agnostic with respect to two important features of policy-induced costs: whether costs are a fixed or variable cost and whether the costs are revenue generating or not. For some models of trade, the distinction between fixed and variable costs of a given policy matter. If a cost applies only at market entry, and not on a per-unit basis, then there will be important scale or productivity effects that are ignored here. A one-time cost of obtaining an import license or adjusting a product's characteristics to meet safety or content standards is a relatively greater per-unit cost when expected sales are low. In contrast, a variable cost will have the same effect on prices no matter the size of the firm or the volume of sales. Similarly, for the study of tariffs vs non-tariff barriers, the fact that tariffs generate revenue (although the overall importance of these revenues has declined for some countries in recent decades) is a key difference between them and many non-tariff policies that distort trade. When considering government incentives to implement different kinds of market access costs, this distinction may matter.

Despite these limitations, this new framework does what it aims to do. It clarifies when policies are similar in their effect on markets - tariffs, quotas, export subsidies,

and currency manipulations all distort on location of production - and when policies are different in their effects - tariffs and product standards create different cleavages - in a systematic way. In doing so, it puts the distributive politics at the center of the framework, and highlights where changes in industries over time may lead to differences in preferences over various kinds of trade-distorting policies.

2.6 Considering Winners and Losers from Market Access Barriers - Single-Country/Unilateral Policy Change

Each of these kinds of market access barriers has distributive consequences: some actors win while others lose. As it is the gains and losses from policy changes that motivate political action (lobbying, supporting candidates, etc.) by market actors, understanding the changes in distributive outcomes caused by each kind of market entry cost is essential to motivating the explanation of the politics of this new protectionism.

Before moving to an explanation of the effects of market access barriers when raised or lowered reciprocally, we consider the effect of each kind of barrier on a domestic market when used unilaterally. These outcomes assume that, at least in the short run, firms cannot change location, variety of production, or ownership/firm structure. When these assumptions are relaxed, the complexity of tradeoffs increases quickly. Further, the effects discussed below are partial equilibrium outcomes. The effect of barriers on factor cost and quantity is not considered here.

When applied unilaterally, each kind of barrier has the effect of dividing industries into groups of losers (who see market access barriers negatively affect their sales) and winners (who gain some of the losers sales through substitution by consumers). These winners and losers include firms headquartered within the boundaries of the protected market, firms producing goods within the borders of the market, and firms that are

located completely outside the protected market.

2.6.1 Location-discriminating Costs

When the market entry costs are applied according to the location of production, winners and losers divide based on where a firm's products are made.²⁶ This reflects the classical understanding of the effect of tariffs and the location-discriminating costs associated with import duties. When location-specific barriers raise the market price of foreign-produced goods, consumers will shift consumption away from the costlier varieties (the foreign-produced ones affected by location-discriminating costs) towards less expensive alternatives (those not subject to the location-specific costs) produced within the market or in other foreign markets.²⁷ Producers in the domestic market will, at worst, see no change in their sales/profits, and may see an increase in sales due to cross-variety substitution. Even if other foreign-produced alternatives exist that are unaffected by location-discriminating costs, local firms are likely to be better off when some foreign competitors' goods are made costlier.

2.6.2 Characteristic-discriminating Costs

Characteristic-discriminating costs apply costs (fixed entry cost or a per-unit variable cost) to the production cost of some varieties. Recall that Characteristic-discriminating costs can be applied to any subset of varieties of a good. Thus, for any policy that imposes costs on some varieties based on quality, there are winners and losers among firms in that industry. Producers of varieties affected by the policy lose, as the increased cost of compliance or outright block on sales in the market leads to

26. Production discrimination is the goal for many location-specific costs, but some costs are assessed based on the foreign location from which the product is shipped. Firms or importers use this as a means of jumping the market access barrier by shipping the product through an intermediary market, but governments often use more sophisticated rules of origin to prevent this kind of chicanery.

27. This substitution depends on cross-elasticities of varieties. When no locally-produced alternatives exist, consumers will simply consume less overall.

lower profits and fewer sales. This occurs regardless of the firm's location (domestic or foreign), the location of production (local or foreign), or the identity of the firm. Other firms, producing varieties not affected by the policy, will see gains in sales or profits as consumers alter their consumption and substitute unaffected varieties for the more expensive, policy-restricted, alternatives. As with location-discriminating costs, the cross elasticity of the varieties will determine the degree to which producers of other goods will see sales and profits rise. At worst, the exclusion of some varieties from the market will not prevent consumers from buying the non-excluded ones. Thus, firms whose products are not affected by the Characteristic-discriminating policy will, at worst, see no change in profits.

2.6.3 Firm-discriminating Costs

Policies that discriminate with respect to the firm's identity create clear winners and losers. When some firms must pay an additional cost to access the market, their goods are more expensive, and they lose sales. The firms that are excluded from those additional costs may gain additional sales or profits from consumers' substitution. At worst, their sales and profits are unaffected. Although they work indirectly, and through more inefficient means than a direct transfer, market access costs that discriminate based on firm identity work the same way as a direct payment to the "winners." Alternatively, if some firms are privileged through subsidy policies or other policies that provide special access, that ease of accessing the market or direct payment to the firm represents a cost on all other firms. The effect is the same as imposing a market access cost on all non-supported firms, creating a cost difference between the supported/privileged goods and those that are not. The resulting difference in profits or sales (as costs are passed on through prices) yields the same firm-versus-firm division of winners and losers.

2.6.4 Indiscriminate Costs

When a policy raises the price of all goods in a market, all producers will see sales and/or profits decline. However, the degree to which these indiscriminate costs affect firms varies. For some firms, the additional cost pushes the cost of their product above the price where consumers will purchase it. For these firms, the indiscriminate costs lead to their exit. For other firms, the increased price of their product on the market simply reduces sales or profits.²⁸

If the indiscriminate cost applies only to one kind of good (is applied indiscriminately across an industry, such as luxury taxes on all boats sold, regardless of size or cost), then consumers may shift their consumption to other goods, with some loss of utility. Alternatively, consumers may simply choose to consume less, diverting more of their resources to leisure. In either case, as the costs of the goods increase because of the market access cost, demand will fall. The impact of this cost on producers depends on how close their market price is to the indifference point of consumers in the market. Thus, costs of market entry that apply indiscriminately mean all producers are “losers,” but it is possible (and in fact, likely) that the effect on each firm is different.

2.7 Considering Winners and Losers from Market Access Barriers - Two/Multi-country Policy Changes

The explanations above focused on the economic effects of a policy change in only one country in a hypothetical global economy. However, many conventional treatments of trade barriers (and actual trade negotiations) focus on reciprocal changes (usually decreases) in market access barriers. Consider a simplified world with two

28. In some models of trade, these indiscriminate costs can raise the profits of some high productivity firms as lower productivity firms exit and consumers reallocate their consumption basket. Also, for some producers of inelastically-consumed goods, higher consumption taxes may lead to increased sales, as consumers reduce consumption of other goods and reallocate.

countries, Country A and Country B. The effect of each kind of market access barrier depends not only upon the dimension along which goods entering markets face additional costs, but also whether those costs are applied on both sides of a trade dyad. To illustrate the effects of different market access costs within a trade dyad, we consider the distortionary effects of a policy change compared to a hypothetical “free trade” counterfactual with no market-distorting policies. This discussion focuses only on the effects of policy changes, not on how they might arise. The focus, again, is on the distributional effects of policy changes.

2.7.1 Location-specific Costs

When the market access policies used by governments to regulate their domestic markets impose location-specific costs, the effects on domestic markets and on trade are consistent with those suggested by existing theory of tariffs. Because these measures divide market access based on location, the winners and losers in each country will divide on the basis of location of production relative to location of sale as follows.

2.7.1.1 One Country Raises Location-specific Costs

If, in a particular country pair, one country (Country A) imposes market entry costs on the basis of location against goods produced in Country B, firms within the protected market and firms in the market that remains access cost-free (Country B) will experience different distributional outcomes.

In Country A, the policy that raises costs of non-Country A varieties will affect both consumers and some producers. For consumers, the increased cost of Country B-produced varieties will lead some to switch to Country A-produced alternatives. For firms producing in Country A, that substitution brings the benefits of increased sales and the potential for increased margins. This may also have the effect of bringing new entrants producing substitutes for foreign-produced alternatives into the market. For

firms that produce in Country A and export to Country B, those sales are relatively unaffected, while domestic consumption may increase. In total, the location-specific cost has the effect of improving sales for those firms that produce in Country A.

In Country B, domestic consumption is relatively unaffected. As goods in Country B do not have different costs dependent on location of production, imported varieties and domestically-produced alternatives remain at the same relative cost. Therefore, no substitution across varieties should occur. Firms that produce only for domestic consumption in Country B should see no change in their sales.²⁹ However, firms in Country B that produced varieties that were exported to Country A for sale in that market will bear the effects of the policies in Country A. These exporting firms will see reduced profits either because of reduced margins on their goods sold to Country A or because of consumer substitution away from their varieties in Country A. In either case, the net effect for those firms will be negative. For some firms, it is possible that the new costs for reaching Country A's market will lead them to exit, if they can no longer sell profitably in that foreign market.

2.7.1.2 Both Countries Raise Location-specific Costs

The case of two countries raising location-specific costs reflects the familiar “reciprocal tariffs” case discussed in existing theories of trade barriers.³⁰ The winners and losers within Countries A and B will divide on familiar factoral, sectoral, or firm-specific lines, depending on factor mobility and product differentiation assumptions. The specific form of the market access costs can vary. One country may use tariffs or quotas, while the other uses exchange rate policy or import-only restrictions. If both countries use policy to raise the cost of some varieties based on location of production,

29. In some cases, it is possible that goods produced in Country B for export to Country A will instead be diverted into the Country B market, potentially displacing sales of the domestic-only Country B producers' goods and Country A's exports to Country B.

30. While the discussion of reciprocal tariffs is usually in the context of tariffs on different products, those discussions also generally ignore intraindustry trade. In models of intraindustry trade with heterogeneous firms and monopolistic competition, tariffs are a general variable cost of import.

the effects are symmetric to the degree that the countries are similar. The winners and losers among firms in both countries divide on the degree to which the policies reduce their export sales (if they export) versus increase their sales in the market of production, where access costs do not affect total cost of their goods, but do affect the cost of imported alternatives.

2.7.2 Characteristic-specific Costs

When market access is restricted through increased costs for products with certain characteristics, the logic becomes a bit more complex. In a given trade flow dyad, it is possible that costs are applied to the same (Countries A and B both raise barriers to widgets made with material containing lead compounds), somewhat overlapping (Country A raises costs on goods made with lead in any form, while Country B only raises costs on varieties with more than a certain concentration of lead), or completely different sets of goods (Country A raises costs on lead-containing varieties, Country B raises costs on varieties that contain arsenic). It is also possible that one country may impose costs on certain varieties of goods, while the other does not (Country A raises costs on lead-containing varieties, Country B imposes no additional costs). In each of the markets, the additional costs will affect the at-market cost of only certain varieties, a subset of the potential varieties of the good. Consider two “types” of a certain good: Type J and Type K. When governments raise market access costs on one variety (for instance, restricting the sale of certain kinds of antihistamines to prescription-only, or requiring that all tires meet a content standard), it has the effect of dividing winners and losers along lines that cut across industries, not across geography.

2.7.2.1 One Country Raises Costs on Some Characteristics

If Country A implements policy that raises costs on some varieties of a good based on its characteristics or how it is manufactured, it will have effects in both countries. Consider a policy that raises the cost of Type J varieties. In Country A, consumers, faced with higher prices on Type J goods (those affected by the policy), will reduce their consumption of Type J varieties. Some may substitute consumption of Type K varieties, depending on the degree to which substitution is possible. In Country B, consumer's choices will be unaffected by the new policies in Country A.

Producers within both countries will see benefits or losses depending on whether their goods face additional costs based on the characteristics that are targeted by the policy in Country A. For producers of Type J varieties, higher costs mean lower profits or lower sales (as prices rise). If there are firms producing Type J varieties in both countries, then the losers are not confined to just those located outside Country A. As consumers in Country A move away from Type J products, firms in Country A selling only within Country A will be negatively affected. Depending on the degree to which the additional costs distort consumption, these firms may be forced to exit the market. Firms in Country A that produce Type J products both for local sale and for export will see their domestic sales fall, while export sales to Country B will be unaffected. This can, in some cases, lead to firms producing only for export. Firms in Country B that produce Type J products will see the opposite, where domestic sales are unaffected, but export sales fall as costs distort Country A's market. For producers of Type K products, the benefits reflect the other side of the cross-Type substitution. Firms in Country A that produce Type K goods and sell within Country A will benefit from the increased sales of their variety. Firms in Country B that produce Type K goods will see some gains as well. For those firms that already export to Country A, this means increased sales or profits. For firms in Country B that produce only for domestic consumption, there will be little effect on sales, unless the new market

conditions in Country A make exporting a viable option. In the aggregate, Type K producers in Country B benefit from the policy change in Country A, just as similar producers in Country A do.

2.7.2.2 Both Countries Raise Costs on Different Characteristics

If each of the countries implement policies that impose additional costs on different varieties, the difference between characteristic-specific and location-specific costs becomes clearer. Consider a scenario where Country A raises costs on Type J goods, while Country B raises costs on Type K goods.³¹ Under these conditions, the markets in each country will have different varieties of products in the same category of goods. In Country A, the increased cost of Type J goods drives consumers to substitute to alternatives, including Type K varieties. In Country B, the increased cost of Type K goods drives consumers to do the opposite, substituting to Type J varieties. The effect on firms will reflect this differential substitution.

Producers of Type J varieties will see lost sales in Country A, while Type K producers will see an increase in sales. For Type J producers in Country A, those lost domestic sales are the cost of the policy change. If those producers do not export to Country B, the reduced sales may lead them to exit. If the producers do export Type J goods to Country B, the substitution behavior there will offset some of the losses. For those producers in Country B that export goods of Type J to Country A, the new market entry costs will reduce profits or sales, and the reduced exports may lead them to exit the Country A market as well.

Producers of Type K varieties will lose sales in Country B. For producers of Type K goods in Country B, access to the domestic market is restricted by policy changes. If a firm only produces for domestic consumption, the lost sales in Country B may mean exit, unless increases in sales in Country A (where consumers substitute to Type

³¹. This reflects a market where two countries have two different standards for a given kind of good.

K varieties) are sufficient to lead them to export. For those producers in Country B that produce Type K products for both local and export sales, the losses will come from a reduction in local-market sales, with some relief from increased export sales. For those producers in Country A that export Type K products to Country B, the increased market access cost will have the effect of reducing those export sales, as expected.

Because of the way that these policies restrict market access in each country, the division of winners and losers from this policy environment do not fall along neat geographic divides. Within segments of a given industry (Type J and Type K producers), firms have both domestic opponents and foreign allies.

2.7.2.3 Both Countries Raise Costs on Same Characteristic

If policies in both countries raise costs on the same Type of goods, the trade dynamics look somewhat different from the examples above, and become more dependent on the distribution of producers in each country. An example of this is if both countries adopt the same product standards, thus preventing sale of (or at least raising costs on) goods of Type K. In Country A, the increased costs on Type K variety goods will drive consumers to substitute Type J variety goods and other alternatives. Consumers in Country B will make similar substitutions, moving away from Type K goods as prices rise due to the new policy-related costs. In each country, consumers' behavior depends on their cross-price elasticity of demand, which may differ in each country. Given this simultaneous change in both markets, the winners and losers in each country will be similar, although not necessarily identical.

Producers of Type K varieties in both countries will see lost sales or profits as consumers move away from their varieties to other, less costly varieties. These losses will occur in both domestic-only sales and trade sales. For producers of Type K goods in Country A, lost sales in Country A, combined with lost sales in Country B (for

those producers who were exporters to Country B) may lead them to exit. Unlike in previous examples, export sales will not provide an opportunity to mitigate some of the lost sales in the home market. Similarly, producers in Country B will face the same pattern of lost sales both foreign and domestic.

Producers of Type J varieties in both countries will see benefits from the new policy. These producers see gains both because of substitution towards their goods in their home markets and because of potential gains from sale to the export market, where consumers are making the same substitution. For Producers of Type J goods in Country A, when consumers in Country A increase consumption of Type J varieties, sales will increase. For those Type J producers in Country A that export to Country B, the change in consumption patterns in Country B will bring additional benefits. The increased demand may also induce some firms to begin exporting, as well. A similar pattern will occur for Type J producers in Country B. However, the degree to which sales increase for producers in each market depends on how consumers divide their increased consumption of Type J varieties between domestically-produced goods and foreign-produced varieties. At the least, the substitution from Type K consumption to Type J consumption will not decrease sales of Type J varieties for individual producers.

Since both countries impose market access costs on the same type of goods (Type K), consumption of Type J-variety goods in both markets increases while consumption of Type K-variety goods decrease. This leads to a division of winners and losers cleanly along lines defined by which varieties a producer makes. Within each country, the winners are those whose varieties are unaffected by policy-induced market access costs, and they have allies among producers of similar varieties in the foreign market. The same division holds true for the losers among producers.

2.7.3 Firm-specific Costs

Governments may also implement policies that privilege certain producers over others. In this case, it is useful to think of a highly-simplified competitive marketplace where each country has only two producers.³² In Country A, Firms F and G produce goods within a given industry, while Country B hosts Firms Y and Z in that same industry. For these examples, we assume that all four firms, in a free-trade counterfactual, produce both for the domestic market and for export to the other country.

2.7.3.1 One Country Raises Costs of Some Firms

If Country A implements a policy that raises market access costs for some firms, the distributive effects of the policy will split on which firms' goods enter the market with additional policy-imposed costs. These costs can be imposed through preferential government purchasing rules, targeted production subsidies for some firms, restrictions on business activities, or requirements on financing for import or sale that are tied to the firm/producer, among others. Consider a policy where Country A raises costs on all goods produced by firms G, Y, and Z.³³ In this case, the market in Country B will be largely unaffected, while the changes in market access in Country A will be significant.

In Country A, the policy that imposes costs on good from Firms G, Y, and Z will pass through to prices or reduced margins. Meanwhile, Firm F will have privileged access to the market. The consequences are as expected. Some consumers will shift consumption from Firm G, Y, or Z's products to Firm F's goods, with the commensurate effects on the firms' overall welfare. This will lead both to a reduction in trade between Country A and Country B, as exports from Country B (host of Firms Y and

32. In some cases, the same firm may produce goods in both markets, but we set aside this feature for now.

33. This could also be considered a domestic subsidy or preferences for Firm F.

Z) decline due to higher costs and prices, and an intra-industry redistribution within Country A, as Firm F gains sales at the expense of Firm G. In this case, it is notable that the losers from Country A's policies cross national boundaries and divide within the industry. Also, had Firms Y or Z relocated production to Country A, the effect would have been the same. Consumers in Country A will also experience some utility loss through substitution or reduced consumption of their preferred varieties.

In Country B, where there are no additional costs levied on firms, the effects are relatively benign. Firms Y and Z, facing higher costs to export, do not sell as much abroad. However, their access to their home market is unaffected, and thus prices in the home market should be unaffected. Imports of goods produced in Country A by Firms F and G are similarly unaffected, and so sales should remain constant there, as well. For consumers in Country B, there is no meaningful distortion that would move them from their preferred consumption pattern.

2.7.3.2 Both Countries Raise Costs of the Same Firms

If, for some reason, both countries raise costs on the same firms, the single-country effect discussed in the previous paragraphs is intensified. Assume now that both Country A and Country B raise costs on Firm F, rather than lower them through subsidy or the like. The effect on Firm F will be significant. There will also be effects on consumers in both markets, as expected.

In Country A, as costs rise for Firm F, they will either incur loss through lower profit or pass on those costs to consumers as higher prices. If prices are raised, some consumers will change their consumption to varieties produced by other firms (Firms G, Y, and Z), which will have a similar deleterious effect on Firm F. Also, consumers in Country A will experience some disutility from the substitution away from their preferred variety or the reallocation of their budget to continue consuming goods from Firm F. In Country B, the same also happens. Firm F, if they are to sell in

that market, must bear the costs of the firm-discriminating policy or pass them on to consumers as higher prices. In the former case, the lost profits hurt the firms. In the latter, the familiar substitution occurs across varieties produced by different firms.

For Firm F, there is a loss in both the domestic and export markets. For all other firms, the opposite is true. For consumers in both countries, there is some loss of utility from cross-Firm or cross-product substitution. The overall effect on trade is to reduce exports of Firm F's goods from Country A to Country B. While it is likely that Firm G will export more from Country A to Country B as a result of the substitution of consumers in Country B, it is unlikely that this substitution will be of sufficient magnitude to fully offset the loss of trade in Firm F's goods. This increases asymmetries in trade within the industry, as well as altering the composition of goods traded within the dyad.

2.7.3.3 Each Country Raises Costs of Different Firms

If each country raises costs on different firms, perhaps by selecting national winners³⁴, this will have a different effect on the market. In this case, firms may find they can sell in one market without bearing additional market access costs, while in the other market, entry requires fulfilling requirements or overcoming policy-induced access barriers that add additional cost to goods sold in that market. Consider the scenario where Country A raises costs on Firms G, Y, and Z, while Country B raises costs on Firms F, G, and Z.³⁵ Since the additional costs apply to some firms in both markets and other firms in only one market, there will be market distortions in both domestic and international terms.

In Country A, the additional costs imposed on goods produced by Firms G, Y, and Z will lead consumers to change their consumption towards goods produced by

34. Subsidizing national winners is analogous to raising costs on all non-subsidized firms, from the perspective of intrafirm competition.

35. This is analogous to Firm F being given some subsidy in Country A, while Firm Y is subsidized in Country B.

Firm F. If the firms can absorb some of those additional costs as reduced profits, the effect on firm profits is largely the same. This substitution leads to the expected outcome: Firm F sells more goods in Country A, while Firm G sees losses, creating a redistribution among Country A firms. For Firms Y and Z, the additional costs of market access mean lower sales, fewer exports to Country A, and may lead those firms to exit the Country A market.

In Country B, it is goods produced by Firms F, G, and Z that are more costly in the market. Again, if those firms can absorb the additional costs as reduced profits, they experience disutility. If they pass along costs to consumers in the form of increased prices, there will be substitution away from those varieties towards those of Firm Y (the privileged firm), with the related lost sales for the firms and loss of utility for consumers.

In this situation, where a subset of firms have preferential access in certain markets, there are cross-cutting effects for each of the firms. While Firm F may gain from its privileged market position in Country A, it loses in the export market of Country B. The same holds true for Firm Y, which gains sales in Country B, but loses them in Country A. Firms G and Z, which face additional costs both home and abroad, lose twice. Consumers in both countries also lose out, as the firm-discriminating market access costs will push them to consume less-preferred alternatives as a function of increasing costs on their more-preferred varieties.

Overall trade flows should decrease, as the shipment of goods to Country B produced by Firms F and G in Country A should decrease, as should the shipments of Firm Y and Z goods to Country A from Country B. This will occur across differences in characteristics, and would even occur if those firms relocated to a third country (assuming similar underlying production costs). However, the balance of trade flows is likely less distorted than in the cases where the same firm was targeted by both countries or where only one country raised firm-discriminating costs.

2.7.3.4 Costs that Apply to Firms as New Entrants

Another group of policies that distort market access applies to any firm wishing to enter a market. These often take the form of a registration process or a licensing rule that ties market access to the identity of the firm selling the product. In these cases, a firm wishing to enter a market, regardless of location, may be forced to pay an additional fixed cost in order to sell goods there. These kinds of costs have the effect of suppressing market entry among firms that may only sell a few units, or that make little profit off each unit sold, as the fixed entry cost makes the total cost of production prohibitively high. In the context of firm-specific costs, these work somewhat differently than those discussed above. The intraindustry division is between legacy firms and new entrants as winners versus losers in this case, assuming the policy is implemented in a way that exempts existing firms from paying the cost. If applied as a new cost to all firms in a given market, these kinds of policies can have the additional effect of distributing benefits towards firms that are better able to absorb those costs for market access, much in the same way as indiscriminate costs do.³⁶

2.7.4 Indiscriminate Costs

When governments implement policies that raise the cost of all goods in a market, regardless of origin, characteristics, or producer, through consumption taxes or procedural costs like labeling, for example, the effect of these new costs will cut across all those divisions. These indiscriminately-applied costs will affect firms differently, but those differential outcomes are a matter of firm heterogeneity, not overtly discriminatory policies. The salient difference among firms is the degree to which the costs can be absorbed before changing prices to market or, in the extreme, before market exit.

³⁶. This occurs as consumers substitute existing varieties in lieu of potential new varieties or those produced by more efficient firms in lieu of those produced by less efficient firms.

2.7.4.1 One Country Raises Indiscriminate Costs

If one government implements a new policy that raises costs on all goods sold within a market, it will have the effect of raising all costs at once. For the most inefficient producers, these additional costs will likely be too great to bear, leading to market exit. This affects both imported and locally-produced varieties. Thus, some importers, faced with total costs that exceed the price that the market will bear for their variety, will exit. Similarly, some firms engaged only in domestic production for the domestic market will exit for the same reasons. Consumers will move away from these varieties towards near-substitutes produced by firms that remain in the market, incurring some loss of utility from the substitution. For these more efficient firms, the increased sales will partially offset the decreased margins on each sale that are the result of the additional indiscriminate costs.

These indiscriminate costs will also affect trade, if some imports to the market are produced by firms that are efficient enough to export when market access is costless, but that cannot economically sell those goods in the now higher-cost market.³⁷ Exports from the market where indiscriminate costs are raised should be relatively unaffected.

2.7.4.2 Both Countries Raise Indiscriminate Costs

It is also possible that both governments implement policy that raises indiscriminate costs on goods sold within the respective markets. Perhaps both governments raise excise taxes or labeling costs that apply to all goods. What is consistent is that, thanks to increased costs and potential substitution of consumption, consumers in each market will have lower utility from consumption than in the alternative where such costs were not imposed. The effect on firms is from both domestic and inter-

³⁷ There may exist firms that can continue to access the market with foreign-produced goods produced efficiently enough that the additional costs do not lead to market exit.

national distortions. In this case, the winners and losers still divide along efficiency lines as expected, but across more complex groupings of firms.

The most efficient firms, whose cost structure can absorb the additional policy-induced costs and who were likely both domestic producers and exporters, will see the least negative effects of those new policies. For these firms, the effect of indiscriminate costs in both reducing the number of foreign entrants (who find total costs of market access now too high to be economical) and some domestic competitors (who are too inefficient to absorb the additional costs) will offset, in part, their own losses in margins or sales from the additional costs. For these firms, additional indiscriminate costs in both markets will have a modest effect on their profits.

For firms who are moderately efficient, such that they would export to markets without the indiscriminate costs, but not to markets with the additional costs, the loss of access to an export market is clearly a loss. However, there are likely firms exporting to their home market in the same situation. Thus, while these firms lose on the international market, the effect on the domestic market is more modest than for less-efficient firms. It is even possible that, with enough exits by foreign and domestic competitors in their home market, those firms may see a small increase in sales volume (albeit with more modest profits) at home. These firms, despite reverting to domestic-only production, fare better than some.

For the least efficient firms, it is the domestic effect, not the international, that matters. These firms were never going to export to the foreign market where the new costs apply. Thus, there is no direct gain or loss from the foreign market costs. The effect on competitors in their own market is likely indeterminate, as some foreign firms exit and some domestic firms who exported return to the domestic-only market. However, the direct effect of new indiscriminate costs in their own market will be negative. If these firms are unable to absorb the cost in some way, either by reducing profits or raising prices, it is likely they will exit the market. In any of those cases,

the least efficient firms suffer to a significant degree.

Overall trade flows here will be reduced as a consequence of firms in both countries reducing their exports to the other. While the exact degree of this reduction will vary according to firm-specific characteristics, net trade flows will decrease as flows in each direction decrease.

2.8 Summarizing “Winners and Losers”

The policies that distort markets can have complex distributional consequences. For those actors that are most directly affected by these policies (firms), ending up on the winning side or the losing side of a policy change depends on a number of factors. If the policy is one that discriminates on the basis of location of a goods production, then the lines are drawn along familiar geographic lines. If the policy discriminates based on the characteristics of a good, then the benefits divide within industries, along differences in technologies or techniques. If the policy divides on the identity of the firm producing a good, the winners and losers divide according to which firm or firms are targeted by the policy. For indiscriminate costs, it is producer efficiency, and the ability to absorb cost increases, that determines who loses most.

These divisions become more complex when the policies are changed in reaction to the policies of another government, or when policies are harmonized or made reciprocal. In each of the markets where market access costs change, both the domestic effects and changes in trade flows and composition apply. Firms may find that, with reduced location-discriminating costs in both their home market and a foreign market where they sell their goods, they face increased international competition at home but also have easier access to foreign markets. A firm whose goods previously faced characteristic-discriminating costs both home and abroad may be a clear winner from changes in policies, but if it also opens the door for other competitors with similar varieties of goods, those gains may be moderated, or another market access cost may

become a binding constraint on production and sales.

Policies can be quite targeted or quite general, depending on the features of an industry. Location-discriminating policies may be crafted in such a way as to only affect some varieties of a good (perhaps by targeting a narrowly-defined subcategory of goods), or can take the form of broadly-defined quotas or tariffs that cover many varieties of a good. In the same way, policies that impose restrictions on certain varieties can allow a wide variety of goods to access the market unaffected or can impose costs on all but a few varieties.³⁸

2.9 Conclusions and Moving Forward

This paper introduces a new framework for looking at domestic and international policies and their effects on trade, both in volume and composition. It is an attempt to resolve some points of difference in the evaluation of non-tariff barriers to trade, which we argue arise because not all non-tariff barriers are alike, and some are more like tariffs than other non-tariff measures. In moving to considering policies according to how they divide a goods market through the raising of costs, we hope to clarify the discussion not only of the effects of these policies, but also the politics that support their raising. Each of these types of policies will create different cleavages of winners and losers, and actual firms will have expectations of these policies effects that motivate political action. Sometimes this will occur in ways quite similar to our understanding of tariff policy creation, as with most location-discriminating policies, but often will occur in quite different ways. Further, the types of policies that firms should demand to protect their market position will reflect the manner in which each type of policy will affect them and their competitors. This will often mean intra-industry cleavages that span foreign and domestic producers, producers of competing varieties, and producers of different size and identity.

38. In some cases, this highly-targeted policy may have the effect of privileging a single firm.

This paper does not examine the politics of how these policies come about, nor does it examine the presence or absence of these policies in different markets. A theory of market access barrier politics, which involves both trade-focused policy and simple domestic regulation, should follow from combining this typology and existing theories of lobbying or pressuring for distributive politics. It is also possible that such arguments would lend new insights into how markets are regulated in light of international markets. Similarly, if one were to apply this typology to existing classifications of NTMs (such as UNCTAD's TRAINS data), it may be possible to measure the differences in the types of market access costs across industries and countries, to examine when these policies are applied and how they distort markets. It may also be possible to determine how these policies distort markets (in ad valorem tariff-like terms) by examining price or sales differences across salient dimensions (for each type of market access cost) across goods in a given market.

Despite the limitations of this paper, the framework introduced herein does provide some advantages for understanding trade-distorting policy. Compared to dividing on "core vs quality" or "at-the-border vs behind-the-border," or any of the simplifying assumptions about non-tariff policies as permutations of tariffs, a focus on how costs apply clarifies the similarities among tariffs and some non-tariff policies and the differences between those policies and the wide variety of market-distorting policies currently considered under the broad umbrella of "non-tariff barriers to trade." Further, this framework puts the distributive effects (and thus the distributive politics) at the core of the discussion and subsequent theories. To understand the politics of trade in an era of global firms, global supply chains, and a global goods market under mobile capital, we must revise our conception of how different policies affect markets, within and across national borders.

CHAPTER III

Market Access Barriers and Formation of Protection-Seeking Coalitions

In recent years, bilateral and multilateral negotiations on trade have shifted from focusing on tariffs and tariff-like measures, such as quotas, towards negotiations over other trade-distorting measures, such as product standards, licensing rules, intellectual property rights, and government support of local firms. This shift in negotiation reflects the new reality of protectionism in the global goods market: tariffs are no longer the primary means by which governments regulate access to their domestic markets. The “New Protectionism” that Baldwin discussed in 1986 has become the new normal, with non-tariff measures and domestic market interventions now more prevalent than ever (Baldwin 1986). The essential boundaries in the global market for goods are no longer strictly at the border.

The politics surrounding modern free trade agreements, especially multilateral ones, reflect the complex distributive consequences of the kinds of market integration that these agreements entail. As negotiations move from policies that apply at the border, like tariffs, to policies that are part of the domestic economy, like product standards, testing and labeling regulations, government support of individual firms, or licensing and intellectual property rules, the groups of political actors who rise in support (or opposition) to those agreements also changes.

Some industries in some countries remain protected behind tariffs or other measures that look similar to tariffs. Other industries are liberalized with respect to tariffs, but are otherwise protected by regulations or policies that restrict market access, thus reducing trade by deterring market entry. Despite relatively low tariffs, trade flows do not always reach expected levels, or the goods traded are not of the varieties expected by neoclassical models. Taken together, these features of policy and trade flows raise questions: Why are some industries protected with policies like tariffs, while others are not? What explains not just the level, but the types of protectionism different industries are able to obtain? When will agreement on lowering barriers between markets, of the tariff or non-tariff variety, be feasible?

Answering these questions requires one tackle the similarities and differences between tariffs and non-tariff policies, then explain the logic of protection-seeking in light of those similarities and differences. This paper advances a theory of politics of industrial protection that builds off a new typology of market access barriers. Rather than tariffs vs. NTBs, this typology compares policies that increase or reduce costs of goods based on the good's location of origin, process or content of production, or producing firm. That typology helps clarify when different policies are complements or substitutes, and thus when the politics of demand for those policies should be similar or different.

This theory argues that features of an industry — how much FDI is present, the degree to which products are homogeneous or differentiated, firm concentration, or the relative efficiency of producers — determine what kinds of protection are politically feasible. The logic of industrial protection reflects tradeoffs among these kinds of policies. Protectionism is the result of a political process where firms demand protection that benefits them and oppose protectionist policies that harm their interests. In this process of lobbying and counterlobbying, firms' success at obtaining protection of different types depends on how other firms in the industry will lobby, and how the

policies they demand will affect consumer welfare. It is not feasible to implement policies which raise all kinds of costs at once; the degree of market distortion would lead to political backlash. How policies affect consumer welfare depends on how significantly the policy distorts markets, or how much protectionism there is. How other firms in an industry lobby depends on their characteristics, and thus the characteristics of the industry overall. The form of protection — location-discriminating, characteristic-discriminating, firm-discriminating, or policies that impose indiscriminate costs — will reflect a compromise among firms and between firms and government.

The logic of protection-seeking industry coalitions suggests that the presence (or absence) of foreign investment or multinational firms should lead to less (more) location-discriminating barriers to market access. In heterogeneous goods industries, characteristic-discriminating policies are politically feasible, and thus provide an (imperfect) alternative to location-discriminating costs. When an industry is concentrated, with one or a few large firms, those firms may successfully lobby in favor of policies that create costs for other firms, thus dividing the market with firm-discriminating costs. When enough firms in an industry are relatively efficient, or otherwise able to bear costs while still remaining profitable, there may be sufficient political support for policies that levy indiscriminate costs on goods within that industry, harming inefficient firms more than efficient ones.

As features of an industry change due to investment, technological change, or natural firm growth, death, or merging, the demands for protection from firms within that industry will change. As foreign multinationals enter a market or domestic multinationals invest abroad, incentives for location-discriminating barriers fade. Where possible, firms will lobby for other kinds of policies — characteristic-discriminating, firm-discriminating, or indiscriminate costs — that protect their economic interests and those of a sufficiently-large coalition of other firms. As technological change creates new differentiation possibilities within an industry, characteristic-discriminating

costs may become the most feasible option, and firms will lobby for those policies over other types. As firm concentration increases, the potential for firm-discriminating costs to be politically feasible will change. Finally, as tariffs, a form of location-discriminating costs, become politically infeasible, either because of agreements or because of changes in the nature of industry, the non-tariff alternatives that industry will seek as substitutes will depend on differences among those policies that the tariff/non-tariff dichotomy cannot capture, in theory or in measurement.

3.1 Considering NTMs and Existing Explanations for Trade Barriers

The existing literature on trade barriers and the political incentives that motivate them in economics and political science is extensive. Literature to date has generally treated non-tariff trade distorting policies in one of two ways. In one view, these measures reflect the same kinds of distributive (and thus political) dynamics as tariffs do. Non-tariff policies, then, reflect the same broad logic as do tariffs. The politics of NTMs are treated as largely similar to the politics of tariffs, or are treated as a minor perturbation of that logic. In the other, NTMs are different in important ways from tariffs, and the logic underlying the politics around NTMs are distinct from that of tariffs.

When considering the spectrum of policies that may distort trade, but that are not tariffs, it is not immediately clear why the politics surrounding those policies should be the different.¹ Indeed, some research indicates that, following a decline in tariffs, NTBs are implemented as substitutes. In the same vein, when tariffs are “off the table” because of international agreements, NTMs appear to serve as replacement protectionism during macroeconomic downturns (Mansfield and Busch 1995).

1. Indeed, Jagdish Bhagwati once referred to the substitution of non-tariff measures for tariffs as indication of a “Law of Constant Protection” (Bhagwati 1988, pg. 53).

More recent work on the subject has made efforts to highlight the differences between NTBs and tariffs, even drawing distinctions within the broad category of NTBs (“core” vs “quality,” where the former captures quantitative restrictions and other “tariff-like” measures while the latter focuses on safety and technical standards, for instance) (Kono 2006). These arguments have usually been focused on one specific feature of non-tariff measures, distinct from tariffs. The result has been a body of theory on NTB that raises many plausible arguments for why the politics of protectionism through non-tariff means is different from tariffs. Some arguments over the politics of tariffs vs non-tariff measures focuses on the degree to which governments can “get away” with distributive policy via each mechanism. Tariffs are relatively transparent, while many non-tariff measures are more difficult to understand. This lack of transparency incentivizes a switch from tariffs to non-tariff measures, because voters observe non-tariff policy only imperfectly and don’t punish governments for redistributing using NTMs, especially “quality” NTMs (Kono 2006; Magee, Brock, and Young 1989).

Research that leverages insights from “new new” trade theory (NNTT) of heterogeneous firms has identified patterns in trade politics that previous work focusing factors and sectors could not. An early insight from political economic analysis of lobbying for trade protection in heterogeneous goods industries (new trade theory) suggests that such lobbying follows the logic of private goods. As each firm is a monopolist, any lobbying effort represents a benefit solely to the lobbying firm. Thus, in differentiated goods industries, where IIT occurs, firms are more likely to lobby for protection (Gilligan 1997b). However, more recent research suggests that when firms are heterogeneous, the preferences over protection within a given industry will vary. When firms are heterogeneous, this comes from differences in competitiveness and the potential for reciprocal liberalization (Osgood 2017). An alternative view posits that industry-level demand for protection moderates as IIT causes importing

interests within industry lobbies to grow, and thus lobbying on trade becomes firm-specific (Madeira 2016). In some cases, these intra-industry cleavages can manifest as highly-variable tariff schedules across tariff lines within single industries, where individual firms lobby for protection of just their varieties (I. S. Kim 2017).

Recent discussion of non-tariff measures, specifically technical barriers to trade, in light of NNTT, highlights intraindustry divisions. Here, when non-tariff measures create fixed costs for all firms then highly productive firms, including multinationals, should seek and obtain NTBs — specifically technical regulations, as these entry costs disproportionately benefit them (Abel-Koch 2013; Gulotty 2014; Osgood 2016). The demanded level of these NTM policies again varies with respect to a firm's productivity, and may arise under certain conditions. However, there is still some disagreement on the degree to which NTMs, as fixed costs, serve as substitutes for tariff measures.

While the existing literature has yielded many insights, an area for further theory remains. While broad factorial and sectoral theories of trade preferences explain liberalizing and protectionist pressures in general, they have less to say about change in policy across varieties of trade-distorting policies. Existing work on NTMs that focuses on transparency and the relative opaqueness of NTMs explains only why tariffs are replaced by NTMs, not why the substitution varies, or why some industries retain tariffs or tariff-like policies. New theory based on theories of heterogeneous firms has moved our understanding forward a great deal, but these tend to consider only one type of policy (tariff or NTM) at a time, focus on variation within a kind of policy, or consider all NTMs as all similar — usually as universal fixed costs for market entry — to ease inclusion in the Melitz (2003) model and its extensions. To explain the variety of policy changes across industries over time, new theory that examines the politics of protection, in light of alternative policies, is necessary.

3.2 Motivations for Demanding and Supplying Protection

The politics of trade barriers and the politics of industrial protection are, at their core, interactions among firms and between firms and government. The actors that drive the demand-side politics of trade protection are firms. To understand the logic of lobbying and the provision of protection, we present a theory of the interaction that engages in some necessary simplifications. However, from these relatively simple assumptions (actors are self-interested, preferences are shaped by characteristics of the firm, etc.), it is possible to describe the politics of protectionism with some detail. This theory is a partial equilibrium one, focusing only on a single industry, and the discussion here focuses on politics within one country. Further, while each firm is a producer of its own unique variety, no firm is assumed to be large enough on a global scale to directly affect world prices of other varieties to a significant degree, so this may be considered a “small economy” example.

Individual firms are assumed to be monopolistic producers of their particular variety of good. Although other firms may produce goods with similar characteristics, those alternatives are distinct by virtue of producer identity, at minimum. Within each broad market category (cars, shoes, sweatshirts, wheat), one can assume an infinite number of varieties. Firms are endowed with firm-specific technology to produce their good, using a single factor that, for simplicity, is assumed to be perfectly elastic in supply at fixed relative prices. Thus, the determinant of a good’s cost of production is that firm-specific technology, which may differ across firms. These assumptions are generally consistent with the logic of new-new trade theories of heterogeneous firms and intra-industry trade (Melitz 2003). It is within this modern trade theory framework that this discussion of trade politics resides.²

Building off the Grossman-Helpman model and the logic of menu auctions, these

2. This firm-centric approach is also consistent with approaches from Gilligan (1997b), I. S. Kim (2017), and others.

firms propose bids across the varieties of market access restrictions (Grossman and Helpman 1994). In the original model, Grossman and Helpman assume lobbies arise exogenously, and their bids merely represent the interests of that lobby's membership. Here, we assume firms have the opportunity to lobby at all times, and lobbies — groups of like-minded actors working in concert — arise naturally.³ These bids represent promises of political support if a certain policy is implemented. The support can take many forms, and the details of that support are largely unimportant for this discussion. As in the original Grossman and Helpman model, firms provide complete bids for each level of protection that Government may provide. However, each bid now covers all levels of each type of market access restriction. The complexity of the firm's bidding is greater than in Grossman and Helpman, as the policy space is more complex. In the original model, lobbies bid on levels of protection that act as ad-valorem increases in the price of imported varieties.⁴ In this theory, some policies work in that fashion, while other policies create costs (fixed or variable) that divide the market in other ways.

This theory of protection-seeking considers lobbying when government has access to policies which discriminate on location, product characteristics, or producing firm, or that apply indiscriminately. It is analogous to the original Grossman-Helpman model in one way: location-discriminating barriers are costs that apply to imported varieties, similar to the instruments in the original model. Other variations of the G-H model, applying additional fixed costs to foreign firms or fixed costs to all producers, reflect other kinds of location-discriminating costs and indiscriminate costs, respectively (Gulotty 2014; Abel-Koch 2013). This necessarily complicates the bidding, but the core logic remains the same. Governments make policy decisions in light of promised support from industrial coalitions seeking protection. In addition,

3. This endogenous lobby formation is discussed in other work, including Abel-Koch (2013) on the subject of NTMs.

4. Grossman and Helpman restrict governments' policy instruments in their original model to tariffs and subsidies.

the insights provided by other variations of the original “Protection for Sale” model apply here.

The interaction discussed here diverges from Grossman and Helpman’s model in two other ways. First, lobbies may contain firms with interests in importing. These firms could be importers conducting business at arms-length with foreign partners or could be multinational firms with supply chains that cross borders.⁵ This also includes firms that might be considered “foreign” firms (because of home location), but that have influence or political power within the country because of production location or other investments. This change reflects the realities of trade and industrial politics in an era of global capital: domestic firms may have strong interests in importing if their supply chain crosses borders. Second, the policy eventually adopted may have a combination of costs from each of the categories discussed in Chapter II. The government must still set a single policy for the market, but it now has 4 “dimensions,” and the policy is a complete set of costs for each category.

3.2.1 Who Can Lobby for Protection?

In discussion of the logic of lobbying for protection, it is necessary to clarify which firms have the ability to lobby government for policy in their favor and which ones do not. A firm’s “domestic salience” is the degree to which that firm is a politically-relevant actor in domestic politics. In some classic models of trade politics, firms are clearly divided into “domestic” and “foreign” firms. The former have political voice, while the latter do not. In an era of global capital flows, the division of firms into “domestic” and “foreign” is no longer as clear. Firms founded in the US play a significant role in the domestic economies of countries all over the world. Firms founded in Europe, Asia, and the Americas play a significant role in the domestic economy of the United States. These multinationals have a degree of political influence within

5. The preferences of consumers of imports remain part of the social welfare function, as in Grossman and Helpman.

markets that firms who do business at arms-length do not (Lee 2018; Lee and Osgood 2018; Stoyanov 2009; Gawande, Krishna, and Robbins 2006; Drope and Hansen 2004).

Political salience within a country can come from two sources: capital investment/presence and employment. The dependence of the state on capital motivates the first, and the political voice of workers in a given firm motivates the second. For multinationals, political influence in another country can come from either source. As firms invest in new markets, they gain some degree of political access, which gives them the power to lobby government for policy.⁶ The welfare of the firm affects the welfare of workers, and thus governments that are responsive to the public will respond more to firms as they expand and employ more workers.

In general, firms that are “national” firms have more salience. Domestic-only producers (firms with no foreign investment) and domestic multinationals (MNCs in their “home” country) have the most political voice with their own government. Firms that are located and produce domestically have the most political salience for their size, as all of their investment and all of their employment is domestic. Multinationals with global supply chains generally have less influence, given firm size, as some investment and employment is domestic, while some is foreign. Multinationals that produce mostly outside the borders of their “home” markets will still have some political voice in their home market, but it will come via the influence that comes from capital, not from labor.

Foreign multinationals have some domestic salience in their “host” markets, and that influence increases in the degree to which they invest in their host market. Foreign multinationals with large production facilities (or other facilities relevant to their business) will have more political influence than those with little investment in

6. This is often examined in the context of foreign firm access in developing economies, but both anecdotal and empirical evidence from industrialized economies, specifically the US, suggests that foreign multinationals lobby and affect policy in the countries where their investments are made. (Desbordes and Vauday 2007; Hansen and Mitchell 2000)

a given market. Whether they import for further production or export, these firms are an integral part of the domestic macroeconomy. As a foreign multinational's employment and investment footprint grows or shrinks, so too will its political power. Foreign firms who only sell in the market through arms-length exchange, and thus have no direct investment or employment interests within the domestic economy, have no (or very little) political influence.⁷

In discussions of firms with “domestic political salience” to follow, we consider a rough ordering across types of firms that follows the logic above. Domestic firms that produce domestically are the most salient, followed by “home” multinationals, then foreign multinationals with significant investment. Foreign MNCs with little investment or employment within a market and firms that do business at arms-length can be considered to have little domestic political salience, and therefore do not play a major role in lobbying for industrial protection within an economy. Other characteristics of firms, like size and employment, work in the familiar ways. This expansion of “domestically politically salient” is necessary for discussing the politics of industrial protection in the presence of global capital flows. Without considering the interests of firms that do not fall cleanly into the “domestic” versus “foreign” binary, any theory of trade-distorting policy would be incomplete, at best.

3.2.2 Revisiting “A New Typology of Market Access Barriers”

Rather than dividing trade-distorting policies into “tariffs” and “not-tariffs,” the market access restriction framework situates all trade-distorting policies within a broader discussion of policies that, by adding costs to certain goods and shaping consumer choices, redistribute to certain groups within and across industries. Trade politics is redistributive politics, just as domestic industrial politics is redistributive politics. This market access-focused approach integrates the two, which is essential

7. Whatever influence they have may take the form of domestic groups with interest in continued import of that firm's goods.

for understanding not only the politics surrounding modern trade negotiations and agreements but also for understanding why the nature of protectionism has changed as global capital flows have created firms with interests that span borders. This new framework considers industrial policy as imposing costs in four different ways.

The first kind of policies, those that are location-discriminating, impose additional market access costs on goods that are produced outside the market's borders. One might consider these policies that apply (or not) based on "where it's made." The second kind, characteristic-discriminating policies, impose additional costs on goods of a certain variety, or that are produced in certain ways. These policies apply based on "how it's made." The third kind of policies create additional costs for some producers, but not others, even if their goods are produced in the same manner and in the same location. These firm-discriminating costs can take a variety of forms, but all apply in a manner that divide goods market access based on "who made it." The final kind of policies impose additional costs on all goods in a particular industry. These indiscriminate policies add costs to all varieties, from all places, made by all firms. With these sorts of policies, "everybody pays." All of these policies add cost to varieties of goods, thus changing the quantities that are consumed. Together, these four types comprise a typology of policies that spans all kinds of potentially-trade distorting policies, but that also separates them into groups where policies within the same category are comparable and policies in different categories are not.⁸

Each of the types of policy adds costs to some or all varieties of a good in the market. These costs are additive, as well. For instance, if Government chooses a policy profile for an industry that includes a low level of indiscriminate costs, a low level of location-discriminating costs (for instance, a small ad-valorem tariff), and a

8. An important omission from this framework is whether these policies raise fixed or variable costs. The use of fixed versus variable costs will have important implications for the effect of these policies on firms of different size, or with different levels of sales. However, that scale effect should be roughly consistent across the four types of policies, where fixed costs of a given type affect small firms more than large firms and variable costs have similar effects across firms size, so are relatively better for small firms.

policy that imposes moderate costs on some varieties, then different firms will face different costs for entering the market. Foreign firms manufacturing policy-targeted varieties will face the highest costs of market entry, while local firms producing varieties unaffected by the characteristic-discriminating costs will face the lowest, only the indiscriminate costs. For some producers, the higher costs, and thus prices, will drive consumer demand low enough to force them to exit the market.

3.2.3 Consumers, Government, and Firms

For consumers, the additional costs of market access-restricting policies manifest as higher final prices for different varieties in the market. The exact composition of Government-provided protection with respect to type of discrimination is not important for consumers. It is merely the effect that said protection has on prices of each variety in the market that affects consumer choice. Faced with higher costs for some varieties, consumers reallocate their consumption to other varieties of goods. It is this reallocation that is critical. Consuming less or consuming less-preferred varieties due to increased cost of more-preferred varieties means a loss of welfare.⁹

For government, the key decision is what, if any, additional costs of market access to impose as part of a policy. The benefit of imposing costs is the political support that firms provide to government in exchange for policy. However, the cost of enacting policies that distort markets is borne as consumers (who also support the government politically) experience a reduction in welfare. Their support for government decreases, which makes government worse off.¹⁰ As in other theories of lobbying

9. While other arguments regarding non-tariff barriers and the politics surrounding their provision may focus on potential welfare-improving features of these policies, that discussion is set aside here. It is difficult to conceive of a way of categorizing policies as “welfare improving” that is both consistent across markets and static over time. These sorts of “welfare improving market restrictions” generally reflect changes in tastes within communities over time, often over matters like the environment or some normative concerns. This makes the effects of such a change difficult to measure and difficult to theorize. However, it should be clear that, if a market-distorting policy has some kind of welfare-improving effect, it will be more appealing to consumers. This means that government will be more likely to implement those policies, all else equal.

10. This can manifest in a number of ways. Democratically-elected governments may face higher

for protection, it is the government's desire for political support from lobby groups versus its consideration of consumer welfare that determines the level of protection and the price lobby groups must pay to obtain it.

For firms, whether one views a particular policy as beneficial or detrimental depends on whether consumers divert consumption towards or away from the varieties of goods they produce.¹¹ Firms would prefer to have policies that increase consumption of their goods. For protection-seeking firms, the critical decision they face involves lobbying in an effort to obtain profitable protectionist policies or to prevent costly protectionist policies from being implemented. This decision requires the firm to decide how much to commit to lobbying/political support and towards which policies to commit those resources. They make this decision in light of their own preferences, and with expectations of what other firms in the industry may demand.

The process by which market access policy is made or reformed can be simplified to a number of steps, which reflect the logic of Grossman and Helpman's "Protection for Sale" model. First, firms submit bids, promises of political support that map to each combination of policies that government may adopt. Firms truthfully reveal their preferences over market access-restricting policies in these bids. Government then considers the offers of support in return for setting protectionist policies at a given level, considers its own loss in welfare from the political backlash from consumers, and sets policy at some combination of market access-restricting policies. After policy is set, consumers make purchasing decisions in the newly regulated market to maximize their utility. The government's utility is a weighted function of the political contributions from firms, consistent with the offers related to the implemented policy, and consumers' utility.

risk of removal, or must expend more resources to maintain voter support. In autocracies, widespread unrest can lead to instability, but it is much less likely to affect leader/government survival. As in Grossman and Helpman's original model, one can consider the relative weights government places on benefits from lobbying groups versus public/consumer support to vary. More specifically, one can expect these weights to vary with the form of political institutions.

11. This is discussed in greater detail in the previous chapter.

In this interaction, information is common. All firms know how others will offer support for each combination of policies. The government's weighting function on political contributions versus public/consumer welfare is also commonly known. The effect of different policies on consumer welfare is well understood by all parties. It is characteristics of industry and political institutions that motivate the interaction, not asymmetries of information. Also, when firms submit contribution schedules, they credibly commit to providing support once policy is set. It is these contributions that sustain government once market-distorting policies affect consumer welfare, and withholding them (or even the possibility of withholding them) would negate the incentives that cause government to implement consumer welfare-reducing policy in the first place.

3.3 Lobbying for Protection

With the basic framework of the political-economic interaction surrounding market access policy established, we can turn our attention to the way in which contribution schedules – the support bids – are generated. At the core of the political-economic interaction of firms, consumers, and government is the process of industrial lobbying. Individual firms or groups of firms demand policy from government and provide support and resources necessary to make policy change feasible and desirable for government. In the absence of industrial lobbying, one can assume government would adopt policies that privileged consumer welfare to a greater extent.

It is not, however, the case that industries lobby as a homogeneous group. As discussed above, different sorts of policies have different effects, even on firms within the same industry. There is an intra-industry tension of lobbying and the potential for counter-lobbying for certain kinds of protection that comes from the distributive consequences of different kinds of policies. As organized, politically-salient actors, firms with a domestic presence have the ability to influence industrial policy through

lobbying behavior. In comparison, consumers face significantly higher coordination problems and experience the costs of protectionism as more diffuse costs. Foreign firms may be more organized interests, but without legal or institutional access to government or political salience, do not have a seat at the table. Because of this, both are less significant in the creation of trade and industrial policy.

For clarity, we first consider lobbying over each type of market access barrier separately. Simplified examples of each type of policy are used to explain how divisions within industries arise, and how lobbying for protection within industries will manifest. Then, we introduce the logic of lobbying over a basket of policies (of multiple types) at once and summarize the hypotheses from this theory.

3.3.1 On location-discriminating policies

Tariffs, quotas, countervailing duties (CVD) and the like are examples policies that add costs to goods in a market produced outside that market.¹² While tariffs are the most obvious form of location-discriminating cost, other policies, like temporary geographic restrictions on import of certain agricultural products, also impose costs based on where a product is made. For consumers of French cheese, it is irrelevant whether the additional cost on a wedge of authentic Camembert comes from a duty schedule or from the expense of the customs procedure at the border. What is relevant is that the cheese costs more because it was produced outside the boundaries of the country. When weighing a purchasing decision, French cheese entering without duty

12. Broad, industry-wide subsidies are another location-discriminating policy which have been used more frequently as trade agreements have restricted the use of tariffs and quotas (Rickard 2012). Subsidies can be targeted, even down to the firm-level, and the difference in use of general versus specific tariffs, which might be considered location- versus firm-discriminating costs, is examined in Park (2012). CVD and antidumping duties are policies which have grown out of these agreements, and have received attention in the political economy literature (Wruuck 2015; Naoi 2009). Also, it is theoretically possible for a government to implement location-discriminating policies that make locally-produced varieties more expensive, but those policies are not considered here. Deardorff (1987) considers quotas against other location-discriminating policies, like tariffs, but argues that the quantitative limits on imports offers political benefits that the others do not. The price versus quantity measure discussion is set aside here, but bears future study.

and low or no customs cost and a subsidy on locally-produced variety is similar to duty on the French cheese. What matters is that the difference in price is due to where the cheese was produced.

Positions on these policies broadly fall along expected lines – domestic-only firms will prefer higher location-discriminating costs. Firms that import, either for final sale or as part of a supply chain, will prefer lower location-discriminating costs. Each firm within the lobby has an ideal level of protection: for importers and MNCs it is low — at or near zero¹³ — while for domestic-only firms it is higher, to drive consumers to substitute locally-produced varieties (which don't face the location-discriminating cost) for imported varieties.

The benefits from location-discriminating policies accrue to all domestic firms, although not necessarily equally. As consumers reduce consumption of higher-cost imported varieties, they substitute post-policy lower-cost alternatives produced domestically, with some loss of utility. Firms who produce their goods domestically, thus avoiding the additional costs, will earn profits as good as or better than in the market without the location-discriminating policy. Firms that produce abroad will earn less profit as a result of those policies.

The lobbying around location-discriminating policies takes two possible forms that reflect those benefits and costs. On the pro-policy side, firms that produce their goods domestically will be willing to provide support to government if the profits from increased sales exceed the costs of that political support. On the other side, firms with importing interest will provide political support if the foregone profits from higher market access costs outweigh the costs of the political support they must provide to outbid those who seek location-discriminating costs.¹⁴

13. Or, if possible, negative, such that imports are subsidized.

14. The free trade interests (where free trade means lower tariffs, in particular) of firms with global supply chains are well understood. As an example, Milner (1988) establishes the power of these interests in case studies focusing on comparable industries in the 1920s and 1970s. In the latter case, industries were divided, conditional on some degree of global intrafirm trade.

There can be only one set of government policies at a time, and so the political support that government obtains is the combination of committed support of all firms for that particular level of location-discriminating costs. For each level of location-discriminating costs, the government benefits both from the support from firms and from aggregate welfare of consumers, which passes through as mass support for government. Government sets policy to maximize the combination of the two, given the relative importance of each in the government's utility function.

For location-discriminating barriers, the essential feature of the domestically-salient firms in an industry is the degree to which those firms are domestic producers. While domestic producers will increase political support of government as the level of location-discriminating costs increase, aggregate consumer welfare, and thus that portion of the government's utility, will fall. In an industry with only domestic producers, the level of location-discriminating costs will be set at some positive level, where the combination of political support gains and consumer welfare (which is declining) is at its maximum. This is the canonical "protection for sale" logic: Domestic firms who produce for the domestic market will seek protection that keeps out imported varieties of goods and will transfer some of the profits to government as political support.

However, if there are firms within the industry with interests in importing in their own industry, the portion of government's utility function that comes from industrial support will be higher at lower levels of location-discriminating costs.¹⁵ Those importing firms will (credibly) support the government more at lower levels of location-discriminating costs. The portion of government's utility function related to political support conditional on policy is no longer as simple. Now, government can expect

15. A third group of firms, apart from domestic-only producers and producers with importing interests within their own industry, are firms in other industries that use imported goods as inputs. Higher (lower) location-discriminating costs mean higher (lower) production costs for these firms if they produce in the protected market. However, these firms are excluded from discussion here because of the focus on intra-industry differences in lobbying behavior. Those input-importing firms play an important, but secondary, role in debates over protection in a given industry. This relationship is examined in greater detail elsewhere, including in Schattschneider (1935).

some positive support from industry, even if it removes all location-discriminating costs. In industries where importers are an organized interest, location-discriminating barriers will be lower, as the government's maximum utility is obtained at a lower level of location-discriminating costs. Some combination of political support from importing interests, support from domestic producers and higher consumer welfare will yield maximum benefits for government.

3.3.2 On characteristic-discriminating policies

Although often not framed explicitly as trade policy, other market-access restricting policies that discriminate by adding costs to some varieties of goods on the basis of product characteristics or production process can have trade distorting effects. Among firms with political voice, each would prefer the variety it produces (or is best at producing) to enter the market with no additional costs. They would prefer other varieties, with different characteristics, to face additional costs, thus making them less attractive to consumers.

For simplification, consider a characteristic-discriminating policy that works in one of three ways. For an arbitrary ordering of varieties according to characteristics¹⁶, a policy may add costs to all varieties above some point in the ordering, to all varieties below some point in the ordering, or to all varieties between (or outside of) two points in the ordering.

This policy may be a set of rules dictating a product standard, or one that limits the use of certain products in a goods production. The policy may be a luxury tax or a use tax that applies to some varieties but not others.¹⁷ Regardless of the specifics of the policy, characteristic-discriminating policies have the effect of adding

16. Note that "characteristics" is a distinct concept from "quality," which is used elsewhere in the literature and generally connotes greater or lesser value. "Characteristics" is used here to describe an ordering which does not necessarily correspond to quality.

17. In the auto industry, "gas guzzler" taxes in the US and CO2 emissions-indexed road taxes are two examples of this.

cost to certain varieties of goods, regardless of location of production or identity of the producer. Policy that generates characteristic-discriminating costs determines both the subset of varieties that face increased costs and the magnitude of those additional costs.

The benefits from characteristic-discriminating policies accrue to producers of goods unaffected by those policies which raise costs on other varieties.¹⁸ As consumers reduce their consumption of higher-cost varieties, producers of goods with characteristics unaffected by the policy see increased sales and higher profit. The costs of these fall on producers who are best at producing varieties of goods with characteristics that are targeted by policy. Note that these kinds of policies create a group of winners and losers that spans the geographic boundaries that define national markets. Foreign producers of varieties targeted by these policies are affected in the same manner as domestic producers of similar varieties. Foreign produced varieties that are within the subset of varieties that access the market without additional cost are winners just as domestic producers of varieties within the same subset are. These costs apply regardless of where the product is produced, or by whom. Thus, characteristic-discriminating policies create coalitions of foreign and domestic producers of protected varieties against foreign and domestic producers of affected varieties, and industrial politics reflect those coalitions.

Domestically-salient firms that produce goods varieties affected by characteristic-discriminating costs lose out from those policies. Consumers, too, experience losses as their domain of product choices is limited or their ability to purchase certain varieties reduced due to increased costs. Being forced to choose a second-best variety (based on the consumer's preferences) or pay a higher cost to obtain their most-preferred variety is what causes the loss in aggregate welfare.

Firms promise to provide the government with support in return for policies that

18. For policies which lower costs of some varieties, like tax credits or refunds, being targeted by the policy is beneficial.

add costs to goods with characteristics unlike those in which they have a production advantage. The degree of support they are willing to offer is proportional to the increase in profits from consumers reallocating their consumption. If a policy affects many varieties or induces a large change in consumption habits by adding significant cost to a few targeted varieties, firms who benefit will provide more support to government than they would for a policy that has a smaller effect on their profits. For any policies that add cost to products with the characteristics of their own products, firms will offer no support to government. However, some firms may also offer some support to government that implements policies that have few characteristic-discriminating costs, as a counter-lobby against competitors who offer political support in favor of costly policy.¹⁹

When setting policy that creates characteristic-discriminating costs, government again weighs the benefits in terms of political support from the winners – the firms who specialize in the varieties that enter the market without additional cost – against the political costs of reducing consumer welfare. As government wishes to maximize the combination of political support and aggregate welfare, setting characteristic-discriminating costs at a very high level or over a broad subset of varieties is costly. Unless the group of firms who stand to benefit from reallocation of consumption behavior provide significant political support, government will implement more modest policies.

For the demand for and supply of policy that adds characteristic-discriminating costs, one essential feature of the industry is the degree to which goods in that industry are homogeneous or differentiated. If all producers have expertise in producing goods with similar characteristics, within a tight subset of the universe of all possible varieties, that is a homogeneous product industry.²⁰ This, in part, determines

19. The logic here is similar to the location-discriminating case: counterlobbying in a bid occurs as a response to the pro-cost lobbying in which other firms may engage.

20. This homogeneity can arise from natural differences in the nature of product categories: It is relatively difficult to produce a Cavendish banana that has significantly different characteristics

whether policies can be targeted or will affect many (or all) firms in a given industry.

In industries where goods are largely homogeneous (in terms of these technical characteristics), where characteristic-discriminating costs will have broad incidence, one should expect counterlobbying to deter government from implementing significant characteristic-discriminating costs. Put simply, the net reduction in aggregate welfare will be great, as few varieties will be unaffected by the policy, forcing broad reductions in consumption, rather than substitution. In addition, there will be few firms willing to lobby in favor of these sorts of policies, as they are likely to lead to reductions in their own sales/profits.

In homogeneous good industries, characteristic-discriminating policies should be less frequent and their costs less onerous. It is only if a concentrated and relatively large group of producers, outliers in terms of the variety they produce, promise to provide significant political support that characteristic-discriminating policies should arise. Those policies would significantly reduce consumer welfare while also leading to large increases in profits for those firms who can remain in the market producing unaffected varieties. Thus, for government to implement such policies, the political support transfer must be very large, and this is unlikely to be optimal for both firms and government.

In industries where goods are naturally differentiated, where there are sufficient characteristics to discriminate among varieties produced in a targeted way, a more complex set of promises of political support is offered to government. Firms will still submit offers where they provide no support for policies that add cost to their own varieties of goods, but they may provide some support for policies that impose costs on other varieties with different characteristics. Government can now set policies with

than other Cavendish bananas. It is relatively easier to produce children's toys that have unique, or uncommon, characteristics. An empirically-driven concept of homogeneity comes from Rauch (1999), which looks to the presence of organized commodity exchanges for a particular good as evidence of product homogeneity, and the presence of "reference pricing" as an intermediate between homogenous and differentiated goods.

more modest market distorting effects, excluding some varieties without reducing overall consumption as much as in the homogeneous goods case.

In differentiated goods industries, characteristic-discriminating costs will arise if politically-salient firms all produce varieties with similar characteristics. If this is the case, there are policies that redistribute sales and profits from other firms who have no ability to lobby government (either because they are foreign firms or because the costs of political support are too high) to those firms that have political access. Consumers will experience some loss of welfare from the reduction in goods market choice, which then reduces the government's welfare. It is the political support from the winners, those firms who experience growth in sales and profit and transfer some back to government, which makes this market-distorting policy outcome optimal for government. Alternatively, if domestically-salient firms produce goods with a broad variety of different characteristics, the combination of scarce political support for targeting any subset of varieties and potential counterlobbying against policies that raise costs of this nature will prevent government from implementing policy with significant characteristic-discriminating costs.

3.3.3 On firm-discriminating policies

Firm-discriminating policies, like policies that restrict right of sale in a market to a limited number of companies, or restrictions that raise market entry costs by requiring producers to obtain licenses, create starker intra-industry cleavages. Some forms of these policies, like firm-specific subsidies, bailouts, and oligopolistic/monopolistic market policies are less common. Other policies, like government procurement policies that privilege domestic firms, even if they produce goods outside the domestic market, have similar effect. Some firm-discriminating policies take the form of a firm-specific cost of market entry, such as registration or license requirements that impose significant costs on new firms.

These kinds of policies provide significant benefits to the winning firms, and are likely to drive some firms targeted by the policy out of the market. It is this intra-firm redistribution that drives the lobbying behavior around firm-discriminating policies. However, different sorts of firm-discriminating policies will have different lobbying dynamics. we consider two broad kinds of policies. The first is a policy that consistently and perpetually imposes costs on some producers and not others. This could be a discriminatory government procurement policy or a form of subsidy. The second is a firm-discriminating fixed cost of market entry, such that a firm pays once and is then “in-market” with respect to additional costs. These sorts of policies are analogous to firm-discriminating policies that impose some cost only on firms that are not incumbents. If one supposes an arbitrary ordering of firms in a market, including those firms that may potentially enter a market, an entry barrier is a cost imposed on the subset of firms that are not already in a market.²¹ In this way, firm-discriminating policies follow a consistent logic, but the incentives for each kind of firm-discriminating cost are somewhat different. we expect that in industries with one or a few large firms, those firms will lobby for and obtain targeted protection in the form of consistent firm-discriminating costs, applied to all other competitors (both domestic and foreign). Conversely, in industries with lower firm concentration, the type of firm-discriminating policy sought will bar new entrants by raising firm-specific entry costs. The logic behind each is discussed below.

we consider the “consistent costs” policy first. Each firm would clearly wish to have policies in place that gave it unique advantage in the market. For any firm, the “ideal” policy is one that raises prohibitively high costs on all varieties of substitute goods produced by any other firm. A policy-induced monopoly is very profitable for the monopolist, but not nearly as good for consumers and potential competitors. So,

21. The form the costs take, fixed or variable, is a distinction set aside here for tractability. One may consider fixed costs as being amortized across a firm’s potential sales, and thus equivalent to a variable cost of the same level.

while any firm would likely be willing to pay a high price (in terms of political support) for this sort of policy, it is unlikely that it has the resources necessary to sufficiently compensate government and offset whatever counter-lobbying may occur. Creating a monopoly through policy would significantly reduce the welfare of consumers, as they are forced to change their consumption behavior to reflect the new market conditions. Government pays a political price for significantly distorting markets in this way, in accordance with institutional features. For even moderately responsive governments, creating monopolies must either have significant benefits in the form of industry contributions or modest effects on consumer welfare in order to be a utility-improving choice.

In any industry with more than one firm, counterlobbying will be an important part of the politics around these firm-discriminating costs. Firms may offer some positive political contribution for governments that implement policies that do not impose costs on them. In bidding in this fashion, these firms counteract the pressures that may come from other firms' bids in favor of firm-discriminating policies. The firms most likely to bid in favor of lower firm-discriminating costs are those that benefit most from an undistorted market: those firms who are most competitive/efficient. These firms are profitable in an open market, and so may provide some benefits to governments that keep costs low. Thus, governments compare the utility they derive from higher consumer utility, combined with some targeted benefits from firms who prefer broadly low levels of firm-discriminating costs against the reduction in government utility from lower consumer welfare and some targeted benefits from firms who benefit from firm-discriminating policies.

The other sort of policy, one that imposes costs solely on new entrant firms, will have somewhat different support. It is worth noting that these kinds of policies divide winners and losers along status quo lines: it is as if existing firms have already paid the cost, but new firms must pay costs to enter the market. This will have the effect

of deterring entry, thus preventing newer, potentially marginally more competitive firms, from entering the market. In this sense, firm-entry cost policies create a kind of club good²² among existing firms, and thus the incentives for demanding such policies are somewhat different among domestic firms than in the previous type of firm-discriminating costs. Here, all existing firms benefit (albeit to different degrees) from firm entry costs. It is new entrants and consumers who lose.

Among existing firms, those that face the greatest threat from new entrants are smaller or less efficient firms. Consumers' change in consumption to new varieties produced by new entrants reduce the profits of other firms, as reallocation of the consumption basket moves away from existing varieties. For small or inefficient firms, this loss in sales may be enough to induce them to exit. Preventing new market entry matters more for smaller and inefficient firms than it does for large or efficient ones. However, barring new entry benefits all existing firms.²³ This prevents the sort of counterlobbying that existed when firm-discriminating policies divided winners and losers among existing firms. For these sorts of policies, smaller and more inefficient firms will be willing to contribute more (relative to their resources) to obtain firm-discriminating policies, but larger and more efficient firms may contribute as well to obtain the benefits of deterred market entry, as well. For government, these greater contributions are appealing, relative to lost utility from lost consumer welfare. Also, there is no positive support incentive in the form of firm counterlobbying for low costs against which government must weight their choices. It is only the prospect of significant consumer welfare loss that deters government from creating policy that imposes cost on new entrants.

Firm-discriminating cost policies will arise under different conditions for each kind of firm-discriminating cost. Policies that always impose costs on some firms are less likely to arise in industries with inter-firm competition. When there are many firms

22. One which is excludable but non-rivalrous.

23. Or, at the very least, policies that impose costs on new firms do not harm existing firms.

of similar size, the creation of a sufficiently-large coalition of firms lobbying in favor of such policies is difficult. Counterlobbying against any such policy and the utility loss from market distortions will reduce incentives for government to provide such a policy. However, as an industry becomes less competitive (domestically), a coalition of large firms may be able to overcome the problems of providing sufficiently large incentives for government to implement firm-discriminating policies. As the firm concentration, for instance, within an industry rises, the likelihood that firm-discriminating policies (in favor of the large firms) will arise also increases. The few large firms have resources to lobby for targeted protection, and the smaller firms — with commensurately less influence — cannot counterlobby sufficiently to make provision of that protection undesirable for government.

For policies that add costs to new entrants, the existence of domestically-salient firms with lobbying power significantly increases the likelihood that such policies will be implemented. (Perhaps unsurprisingly, this is common.) However, some variation in the likelihood of such policies being implemented does exist. When all firms in an industry are relatively efficient (compared to potential new entrants), there is less incentive to demand firm-discriminating policy, and it is somewhat less likely to be implemented. Existing firms are unlikely to face significant competition from new entrants, and so devote few resources to obtaining policy that would deter them. When all firms in an industry are relatively inefficient, thus making new entrants highly competitive – bad for existing firms, but good for consumers – it is possible that existing firms will be unable to contribute sufficiently to make these policies attractive to the government. Consumers would benefit from access to a broader market with more efficient producers. It is when the existing firms are relatively similar (on average) to potential entrants that firm-entry-discriminating policies may arise.

3.3.4 On policies that add costs indiscriminately

Other kinds of policies effectively add cost to all goods sold within a market. Consumption taxes, labeling requirements, and testing or certification requirements are all examples of indiscriminate costs. These additional costs shift the price of all goods sold upward, although this price change may differ across products if the cost is a fixed one. By increasing the cost-to-market of all goods within an industry, these kinds of policies redistribute among firms by inducing firm (or variety) exit.

As these indiscriminate costs raise the price of goods, consumers will consume less of each variety, all else equal. For some producers, reduced demand for their goods induces them to exit. The reduced demand makes continued production unprofitable at their particular level of efficiency – total costs exceed the price consumers are willing to pay for their variety. The most efficient ones may be able to absorb some of the costs by taking lower profits, but costs will still be passed on to final prices. The least-efficient producers exit first, and increasing costs leads to more producers exiting the market as demand falls. Faced with higher costs for all varieties, consumers will consume less, or will consume less-preferred varieties, thus reducing their welfare as well. In some circumstances, where consumer demand for a certain class of goods is fairly inelastic overall (and therefore consumers will substitute across varieties more than they reduce aggregate consumption) and some efficient firms can therefore trade off reduced profits per unit for increased volume (from consumer substitution), it may be possible for a segment of the industry to gain from indiscriminate costs.

If these conditions exist, it is the most efficient firms that will lobby for indiscriminate costs, while the least efficient firms will oppose them.²⁴ Among relatively efficient firms, each will have an optimum level of indiscriminate costs, where sufficiently many inefficient firms exit the market to increase sales, but where the costs

²⁴ This follows the same logic as the concept of nontariff barriers in Abel-Koch (2013), Gulotty (2014), and Osgood (2016).

are not so high as to lead to a net reduction in their own sales. In general, a firm's preferred level of indiscriminate costs is increasing in its efficiency. To obtain this higher level of indiscriminate costs, efficient firms will be willing to support the government politically (as long as the required contribution does not exceed the benefits from increased, post-inefficient firm exit sales), and submit offers to government that include positive support for policy with some positive level of indiscriminate costs. On the other hand, inefficient firms may offer some positive support to government for setting indiscriminate costs at or near zero.²⁵

For government, increasing indiscriminate costs can negatively affect its utility by reducing consumer welfare. As consumers either consume less or are forced to choose among fewer remaining varieties (after firms exit), their overall level of welfare declines. Consistent with the effects of other kinds of market-distorting policies, this has a negative effect on government, depending on how much weight government places on consumer welfare. For firms seeking indiscriminate costs, then, it is necessary to provide contributions sufficient to overcome the effects of lost consumer welfare. Additionally, low-efficiency firms may counterlobby, offering government with positive support for implementing low-cost policy. Thus, when government decides what policy to set, it is deciding between the higher political support and lower consumer welfare at higher levels of cost versus some (lower) level of political support from inefficient firms, but a higher level of consumer welfare. It is the distribution of firm efficiency among producers that determines which will be greater and at what level indiscriminate cost policy will be set.

This suggests the conditions under which indiscriminate costs should arise. If all firms within an industry are similarly-efficient, the intra-industry redistribution that motivates lobbying for indiscriminate costs is unlikely to exist. If consumers demand for an industry's goods is relatively elastic, indiscriminate costs are likely to reduce

²⁵. This might, alternatively, be considered as small/inefficient firms lobbying in favor of less regulation.

demand more than it redistributes it, which eliminates the motivation for firms to demand these kinds of policies. However, if there is some firm heterogeneity and demand overall is inelastic, then the level of indiscriminate costs should be higher, and should increase as the number of efficient firms or size of the most efficient firm increases.²⁶ Industries with firm heterogeneity with respect to inefficiency and some degree of inelastic demand should be where indiscriminate costs play a role in intra-industry redistribution.

3.3.5 Considering all policies at once, and government incentives

As discussed above, these policies are not mutually exclusive. It is possible to implement some combination of location-, characteristic-, and firm-discriminating costs, as well as indiscriminate costs, at once. However, the additional costs of these policies are additive. If imported orange juice (from concentrate) from Juiceco (an imaginatively-named subsidiary of ConglomCo) faces import tariffs based on its imported status and additional regulatory costs related to content of concentrate juices, buyers of that juice will pay more than if only one (or neither) of the policies applied.

The process of lobbying over multiple policies at once, then, is one of firms optimizing their offers, and thus their promises of political support, to reflect the status of the industry. Firms would like to be monopolists, bidding for a combination of policies that *just* eliminate all competitors. However, such policy would be incredibly distortionary and would reduce consumer welfare to a significant degree, thus making it very costly. Also, it is clear that every other firm within an industry would bid for a monopoly-creating policies, but ones that met their needs within the market. Thus, offering support for modest levels of policy, which reduce some competition, but not all, is the politically-feasible solution. As one form of policy becomes politically in-

²⁶ Again, this relationship will be non-monotonic. If the number of “relatively efficient” firms increases too much, the effect on consumer welfare will be greater and the number of less-efficient firms forced to exit will decline.

feasible, firms will lobby instead for the next-best option, in order to maintain some degree of protection. This infeasibility arises when the politically-salient firms in an industry have certain characteristics. When FDI means many firms have interests in cross-border trade, location-discriminating costs become infeasible. When goods produced by firms in the industry are homogenous, providing few opportunities for divisions within that industry, characteristic-discriminating costs become infeasible. If an industry is composed of many firms of similar size, targeted firm-discriminating costs will either be counterlobbied or will raise costs on consumers too much for government to support them. Indiscriminate costs are generally unpalatable to consumers (and thus government pays a political cost for imposing them), and when there are inefficient firms among the domestically-salient within industry, these costs will be opposed and thus less feasible.

Faced with increased opposition to one's most-preferred policy, a firm may instead substitute a second-best policy in their offer of political support in order to maintain a sufficiently-large protection-seeking coalition. In doing so, a coalitions of firms within an industry will demand protection that reflects the best feasible compromise among domestically-salient firms. Firms that cannot obtain policy which suits them will simply keep their lobby resources in their pockets. To clarify, an industry with significant FDI, which produces homogeneous goods (or heterogeneous goods where a wide variety are produced by domestically-salient firms), which is composed of many similarly-sized firms, and where domestically-salient firms are not significantly more productive than their competitors is an industry where market access costs due to policy should be low overall.

Demands for protection, and thus the structure of market access barriers, can change over time. Consider an industry that is composed solely of domestic firms (no significant FDI inflows or outflows), where varieties are relatively homogenous, and firms are generally modestly productive and have modest market share. In this hy-

pothetical “baseline” economy, location-discriminating costs are the most likely. The winners and losers from these policies cleave along the same lines as political salience does. Domestic firms will demand protection along the most feasible dimension for creation of a sufficiently-large coalition, where most or all domestic firms are willing to provide government with support in exchange for policy that redistributes to them. This is location-discriminating policy.

This lobbying dynamic changes as the features of an industry change. As new firms enter or existing firms leave, or existing firms change their industrial behavior, the incentives of industry actors also change. The arrival of more firms with supply chains that span national borders will affect the lobbying for location-discriminating barriers. A sudden technological shift that leads to new market entrants with new varieties of goods will change demands for certain kinds of characteristic-discriminating policies. When firms merge or a previously-small firm grows rapidly, the lobbying and counter-lobbying for firm-discriminating policies will change. Changes in productivity within a sufficiently-large segment of a market will alter demands for indiscriminate costs.

In addition to the implications of intra-industry demands for protection, there are general implications of the relative weight that government places on social welfare versus political support from industry. As discussed above, governments that are more beholden to public support will be more responsive to changes in consumer welfare. In general, market distorting costs will be lower overall — or will have lower net effect on consumers — in countries where governments are chosen democratically.²⁷ While firms may wish to demand more protection, in democracies the political costs that government faces for distorting markets “too much” places a limit on the degree of total distortionary policy that is politically feasible.²⁸ All of the action of lobbying, counterlobbying, and determination of type and level of policy occurs within that

27. This also implies that more representative democracies will have lower market access barriers than less representative ones.

28. One may consider this a kind of “distortionary policy production frontier.”

limit, shaped in part by political institutions. The substitution of one policy for another, therefore, is not merely a demand-side matter, but also a practical reality of politics under constraint: governments cannot maximize policies across all varieties, lest they distort markets to such a degree that they face political costs.

If there are no domestically-salient firms within an industry²⁹, there will be no lobbying to support a government that imposes costs on products within an industry. In the absence of this political support, governments of all types should, in order to maximize consumer welfare, keep market access costs low. If there are no domestic producers, any location-discriminating costs would increase costs on imports the only available varieties. Characteristic-discriminating costs would limit the varieties of good that consumers can access, with no benefit to government from firms producing the protected varieties. The same logic holds true for firm-discriminating costs: the beneficiaries are not politically salient, and government bears the costs of lost consumer welfare. For indiscriminate costs, in the absence of producers who benefit from intra-industry redistribution, there are no benefits to lowering consumer welfare. Thus, in the absence of such firms, there is little political incentive for government to create policies that raise market access costs. One notable exception, raised here merely for completeness, is if these policies have revenue-seeking opportunities for government.³⁰ The discussion of incentives for creating costly policy has been discussed with the implicit assumption that any revenues from policy were small, especially when compared to the political costs to government of reducing consumer welfare. In systems where government is relatively unresponsive to mass/consumer interests, revenue-seeking may be optimal government policy. The majority of this discussion, however, has assumed a government that is at least minimally responsive to consumer

29. For example, if there are no domestic producers and all varieties of a good are produced by foreign firms without domestic investment.

30. This, of course, reflects the incentives for imposing tariffs in many countries before adoption of broad scale income and wealth taxation. Tariffs and other duties were essential revenues for government. Other policies that raise revenue for government may have one or more of the cost implications discussed in the theory.

welfare.

3.3.6 Hypotheses for unilateral policy creation

The dynamics of lobbying for protection within a single country suggest a number of testable hypotheses that can be taken to the data to test the theory. These are generated by considering all of the motivations for firms to seek one or another form of protection (as best fits their own preferences and the preferences of others in their industry), and the incentives for government to use different forms of costs to regulate market access. Each of the types of policies requires an industrial coalition to demand protection and the absence or relative weakness of a strong politically-salient counterlobbying group to oppose it. The degree of market distortion possible, and the price firms must pay in political support to obtain it, is determined by political institutions.

In considering the manner in which industry features affect lobbying, and thus the provision of policy that imposes location-discriminating costs, we advance these hypotheses:

H1: Industries with greater degrees of foreign investment, both inward and outward, will face lower location-discriminating costs of market access.

H2a: In differentiated goods industries, characteristic-discriminating costs will be imposed on varieties of goods with characteristics unlike those of politically-salient producers.

H2b: When an industry's goods are homogeneous, or politically-salient firms produce a wide variety of differentiated goods, characteristic discriminating costs will be low.

H3a: When firm concentration is high, politically-salient large firms will obtain firm-discriminating policy that raises costs on other incumbent producers.

H3b: When firm concentration is low and politically-salient firms are, on average, inefficient, firms will successfully lobby for policies that raises costs on new entrants.

H4a: In industries where demand is inelastic and firm efficiency is heterogeneous, the most-efficient firms will lobby for indiscriminate costs policies, which will be provided if efficient firms are politically salient.

H4b: When all firms within an industry are of similar efficiency, and the government will not raise indiscriminate costs.

In recognizing that market access distorting costs are additive, and thus the costs to consumers, to government, and to firms (in terms of offsetting contributions) are the same, we argue:

H5: Higher levels of one kind of market-distorting policy will be associated with lower levels of other policies, all else equal.

Finally, in considering the general incentives that government faces under different economic and institutional conditions, we argue:

H6a: In the absence of a domestic industry to lobby for protection, government will erect few barriers to market access, consistent with maximizing consumer welfare.

H6b: More representative governments, those selected by a larger portion of the population, will set policies that are less distortionary overall.

H6c: Governments that are not responsive to consumer welfare demands may set policies that extract revenues.

These hypotheses link the characteristics of an industry and the features of political institutions to the type of policy that should arise from the lobbying process over industrial policy. Governments have a wide variety of policies from which to choose, as well as the option to reduce intervention in markets. The types of policy chosen, and the way in which policy changes over time, should reflect the hypotheses above.

3.4 Discussion and Conclusions

Understanding and explaining the politics of trade openness and domestic industrial protection in a global economy requires examining trade-focused policies and potential imperfect substitutes for those policies. In practice, no two policies are exactly alike. However, many of the same protections afforded by a tariff can be provided to firms with a quota or a voluntary export restraint. In comparison, it is unlikely that a product quality standard, even if it affects many imported varieties and thus reduces trade to some extent, will provide similar effects. If both quotas and standards are considered under one broad umbrella, it is unclear how we should expect the politics of tariffs to compare to the politics of non-tariffs. Existing literature has generally treated all NTMs as like tariffs, but different in one critical way. By integrating a new typology of market access barriers with core insights about protection-seeking politics, we can improve our understanding of not just why trade appears to have opened as it has, but also from where challenges to other forms of agreement and cooperation may arise.

This logic explains why, in industries where trade agreements limit a government's ability to implement a most-preferred policy (like tariffs), firms will attempt to obtain other market access barriers of similar type that are not prohibited, like "buy national" campaigns instead of tariffs.³¹ Even if the industry does not change — in foreign

31. There are other options, but these are unique to the context of each country's trade agreement obligations. This also means that some location-discriminating policies can be used with some trade partners, but not others. Provisions of GATT/WTO also allow specific location-discriminating

investment, product heterogeneity, firm concentration, or relative industry efficiency — other policies within the same class of costs are an option. In this way, changes in policy from tariffs to other non-tariff measures can be better understood as a substitution of one prohibited policy for another similar, but permitted, policy. But in some cases, the decline in tariffs and rise in non-tariff measures represents a change in the contours of industrial protection, reflecting a change in the demands for protection within an industry.

The theory advanced here is one of unilateral policy change. It does not incorporate incentives that arise from reciprocal policy change, or the logic of cooperation central to some theories of trade liberalization. Indeed, for a comprehensive discussion of trade liberalization, the dynamics of protection-seeking discussed here should be integrated with insights from that research. However, by focusing on the logic of changing incentives for or against different *types* of policy, this theory contributes to our understanding of changes in the use of various trade policy instruments, and by extension trade flows. Much existing work has focused primarily, or solely, on changes in tariff rates and agreements, or has treated non-tariff measures in a manner similar to tariffs. A look to the ways in which these policies may be demanded differently from one another, and demanded differently on each side of a negotiation, may improve understanding when returning to the study of agreement (or disagreement) in trade and market liberalization in bilateral or multilateral contexts.

Critically, the implications of this argument are important for understanding a long-run trend in the global goods market. Tariffs have, through unilateral reductions and bilateral and multilateral agreements, generally fallen. However, other forms of protection have risen both in importance and level. The other major trend of the post-WWII global economy, the rise in multinational firms and growth of international investment, is a plausible cause of this new pattern in trade and market barriers. As

policies — countervailing duties and anti-dumping duties — specifically to disincentivize raising of general tariffs.

more firms with political salience within an industry have global ties, the demand for location-discriminating policies will fall. With less demand (or more counterlobbying) for location-discriminating costs, firms will demand other kinds of policies, like characteristic-discriminating or firm-discriminating, instead. As the characteristics of demand for protection shift, responsive government changes policies to suit.

CHAPTER IV

Industry Characteristics and the Contours of Market Access Restrictions in the US

4.1 Introduction

While tariffs have generally declined and their significance as barriers to trade fallen in the period of globalization following the Second World War, the importance and scale of other barriers to trade have risen. This is due in part to the success of multilateral agreements on tariffs, which have structured a freer-trade system. However, as challenges to deepening cooperation beyond tariffs and oft-repeated claims of trade discrimination behind borders suggest, tariffs are not the sole means of restricting or distorting international goods trade.¹ Global trade today is increasingly intra-industry trade and intra-firm trade, and varieties of similar goods tailored to tastes and regulations in different markets pass each other on the oceans. Adoption of common product standards and common certification measures are two ways trade partners may seek to lower trade costs. Meanwhile, exporters attempting to enter new markets often report regulatory barriers as an important factor in preventing entry. However, larger multinational competitors producing in the same markets ship

1. Trade in services is another critical part of the global economy, and non-tariff barriers of various type are a critical distortion to this trade. Much of the logic of market access barriers which motivates this empirical study applies to services trade, as well, but the focus in this work is on goods trade and data related to goods trade.

goods back to their home markets with ease.

This pattern, where trade appears free and yet not, where intra-industry and intra-firm flows are prevalent, and where access to markets appears unequal both within and across industries, raises questions of how and why market access restrictions vary in this way. Chapter II introduces a framework for considering tariffs, non-tariff barriers, and other policies as “market access barriers,” moving beyond the tariff/non-tariff barrier distinction which is the basis of much of the existing discussion. This framework considers that barriers impose additional costs on goods based on where they are made, how they are made, who makes them, or indiscriminately. This new typology motivates a new theory of industrial coalition politics around market access barriers, as discussed in Chapter III. In this theory, individual firms change the type of protection demanded² in response to features of the firm and of the industry as a whole. This framework provides conceptual and theoretical answers to the questions of which industries receive protection, how they are protected, and why they receive protection, inclusive of a broad variety of policies that may be either substitutes or complements.

To improve the answer to these questions and test the claims of the model of market access politics, we turn to data on extant trade barriers. In this paper, we examine an existing data source on trade barriers, UNCTAD’s Trade Analysis Information System (TRAINS) Non-Tariff Measures database, and adapt those data to meet the market access barriers classification. After a description of the state of affairs in market access restriction, we then turn to analyze some potential causes of differences in both the level and features of market access restrictions. Using industry-level measures of foreign direct investment, firm concentration, industry size, and product heterogeneity, we examine the relationship between some potential “demand

2. For example, a shift from location-discriminating barriers, like tariffs or quotas, to characteristic-discriminating ones, like safety requirements that reflect technologies that local firms have already developed.

side” causes of market access barriers and the contours of market access restriction across a wide variety of products in the United States. The results suggest that the presence or absence of FDI is associated with different market access barriers and differentiated goods face different barriers than more homogeneous ones.

4.2 Some Existing Discussions of Trade Barriers and Causes of Protection

The discussion of tariffs and non-tariff barriers to trade is by no means new. In the wake of the Kennedy Round of GATT, early work on nontariff trade-distorting policies focused on those that appeared quite similar to tariffs or that were applied at a border. Measures of any type that caused goods and services “to be allocated in such a way as to reduce potential real world income” were considered non-tariff barriers, and with import duties, comprised “all types of trade-distorting policies” (Baldwin 1970).³ However, as expressed by Bhagwati (1988), much of the thinking of the time considered NTMs as a substitute for tariff policy — Bhagwati’s “Law of Constant Protection”. As trade economists looked to NTMs and NTBs, the discussion of the politics around these policies largely paralleled that of tariffs, with slightly different economic effects.⁴ However, over time, it has become clear that the politics surrounding non-tariff policies is more complex than that.

Subsequent research focused directly on the politics of NTMs. In an attempt to adjudicate whether pressure politics or a broader “national interest” and institutions drive protectionist policy in a cross-national context, Mansfield and Busch (1995) look to NTMs as a means to better examine distributive politics.⁵ While the empirical

3. Baldwin (1970) does suggest that a broader definition including both domestic and international distortions would be possible, but “in practice such an approach is unmanageable,” likely a warning to the future.

4. Discussions of differences in efficiency loss, compared to tariffs, were common, but the distributive consequences were often considered to be similar, if they were considered at all.

5. One of their claims is that successive GATT rounds constrained tariff policy sufficiently to

models they estimated were designed as ambivalent to whether NTMs were substitutes or complements to tariffs, their argument generally treats NTMs as substitutes, created by the same political pressures as tariffs might be. In contrast, Ray (1987) considers the US case alone, but focuses on the change in protectionist policy from tariffs to NTMs. In part, the motivation for this change, Ray argues, is changes in political pressures and the qualitative differences between tariffs and NTMs. Ray specifically focuses on differences in revenue generation, ability to target protection towards groups where tariff distortions would be too distortionary, the public's relative difficulty of assessing their effect, and the ability of NTMs to be more specifically targeted, thus reducing free rider problems and increasing pressure for NTMs among declining industries. The idea of NTMs as less observable, and thus preferable for democracies where public backlash is a concern, appears in some cases to have broader cross-national support (Kono 2006).

Other work has focused on specific types of non-tariff policies that have trade implications. Research on subsidies has shown some similarities to tariffs in political and institutional causes, but suggests that subsidies may be more "targetable," which can change the political dynamics behind their provision (McGillivray 2004; Rickard 2012). The discussion of how targeting of export subsidies affects success of an industrial support program also suggests that targetability matters, and it affects both distributive and aggregate economic outcomes (Rodrik 1993).

Another body of research focuses on the sources of domestic market regulation, including by private actors, and global trade. The move to harmonization of product and regulatory standards in the 1980s, 1990s, and 2000s, while the body of regulations expanded, was seen by some as an effort to reduce nontariff barriers to trade. Where standards are amended to meet an international standard, reducing barriers between

limit governments' responsiveness to pressure. So NTMs were considered a better measure because they were less constrained by international agreements. This approach, especially focusing on "core" NTMs, like quotas, is adopted elsewhere (Busch and Reinhardt 1999).

markets, this may occur due to domestic regulatory institutions that themselves are consequences of historical events. Here, it is the standards setters — and the degree to which they share information and adapt rules at the international level — that shape regulation, harmonization and the degree to which standards are barriers to trade (Mattli and Büthe 2003). Alternatively, there is some evidence that trade networks, and the pressures of export demand, can shape adoption of new standards to harmonize exporting and importing markets, even if that means more standards/regulation (Prakash and Potoski 2006).

Building off economic models of trade — Heckscher-Ohlin, Ricardo-Viner, Lancaster’s, Dixit and Stiglitz’s, Krugman’s and Melitz’s “new” trade theories — to posit the preferences of market actors and then subsequently which factors, sectors, or industries obtain protection in a microfoundational way, has a long tradition in political economy (Brock and Magee 1978; Rogowski 1987; Gilligan 1997b; Bombardini 2008; Osgood 2016; I. S. Kim 2017).⁶ Most of this work focuses on tariff barriers to trade, as those are the foundation of the economic work on which the political economy work is built. More recently, researchers are adapting these arguments to fit the logic of NTMs by adapting the underlying economic models with cost structures that reflect an interpretation of NTMs’ effects (Abel-Koch 2013; Gulotty 2014).

The discussion of non-tariff trade barriers does leave some avenues for further research. First, whether NTMs are substitutes or complements for tariffs remains an open question. Research comparing use of different trade instruments across industries and time in Japan point one way forward (Naoi 2009). However, the broader discussion contains work based on each assumption, without much sign of resolution. Second, there is some disagreement in the literature over which types of non-tariff measures are indicative of NTM politics generally, and which kinds of policies are unique in a way that makes them less comparable to other NTMs. These two ten-

6. Scheve and Slaughter (2001) summarizes the sectors vs factors discussion.

sions suggest that, both empirically and theoretically, the tariff/non-tariff measure divide has led to some compromises that make inquiry and debate more complicated. The central contribution of this paper, and the larger research agenda in which it resides, is a shift to a “types of costs” framework that makes comparisons between and across different types of trade- (and domestic market-) distorting measures more consistent.

4.3 Hypothesized Patterns of Market Access Barriers

There is no shortage of good scholarship on the matter of trade protection, especially in light of the growth of global supply chains and global capital flows. The shift to a discussion of market-access barriers is meant to reconcile the similarity in findings from the study of tariffs and NTMs that look like tariffs while also clarifying why some studies of NTMs suggest other forces at work. A theory of unilateral policy change in response to lobbying from industry-specific interests is presented in Chapter III. In that paper, individual firms tailor their demands for protection to reflect both their own interests and those of their domestically-salient competitors. As the set of other firms changes — in terms of interest in international supply chains, relative size or firm concentration, and natural product heterogeneity and the similarity of varieties — the nature of individual firm demands and the dominant demands of the industry as a whole will change.

This theory, which parallels the core logic of Grossman and Helpman (1994), generates a set of testable hypotheses that link those industry characteristics to the varieties of protection sought and obtained. For each of the four types of market access barriers — location-discriminating, characteristic-discriminating, firm-discriminating, and indiscriminate — different features of an industry’s composition are expected to lead to more or less demand for a particular form of market access costs. In addition, the level of each type of market access cost for a particular variety of good will

affect the incentives for governments to raise additional market access costs — of the same or other types — on that variety of good. As different industries have different characteristics — more foreign investment or less, greater firm heterogeneity or industry concentration, perhaps a naturally-homogeneous product — the types of barriers each may request (and obtain, in many cases) should vary according to underlying industry features. A main claim of the theory is that the growth in global capital flows drove demands for protection (in the aggregate) away from location-discriminating barriers in some industries (where foreign investment, both inward and outward) is greater, to other kinds of market-access-restricting policies.

This paper will attempt to test some of the claims of Chapter III, using the typology of market access barriers introduced in Chapter II. First, this paper focuses on testing the hypothesis that the level of location-discriminating costs on a given product should be inversely related to the level of foreign direct investment in the industry that produces that good. This is claimed to occur because politically-salient firms with global supply chains disprefer protectionist policies that may raise costs on their varieties of goods, even if they affect other foreign competitors as well. As a result, the policies that a protection-seeking industry coalition will demand from government should include fewer location-discriminating costs, and instead substitute other kinds of costs to protect those politically-salient firms.

This paper also tests a hypothesis about the presence or absence of characteristic-discriminating costs. The theory suggests that, in homogeneous goods industries, attempts to raise characteristic-discriminating costs will either lead to ineffective policy (that doesn't serve the rent-seeking interests of protection-demanding firms) or would raise costs on many or all producers. In either case, the theory suggests that in homogeneous-goods industries, characteristic-discriminating costs should be raised infrequently, if at all, on that industry's varieties of goods.

The theory also generates additional hypotheses about when firm-discriminating

and indiscriminate-cost policies should arise, and those are tested against the data here, as well. The number of firms and the degree of concentration within an industry should affect how many firm-discriminating costs the products of that industry face. In particular, firm-discriminating costs are more appealing when a domestic industry is more concentrated. However, it is the efficiency of politically-salient firms that determines whether policies that raise indiscriminate costs on producers are raised.⁷ When those firms with political access are relatively inefficient, they should lobby less for these kinds of policies, which hurt them more than competitors.

4.4 UNCTAD’s TRAINS Database and Market Access Barriers

Collection of data on non-tariff barriers to trade is complex. The variety of policies that may serve as a barrier to international trade, but that are not tariffs, is extensive. Further, some of the policies are difficult to observe. Some non-tariff measures (NTMs) apply at national borders, while others are applied “behind the border”. It is also sometimes unclear which policies cause negative distortions in trade flows and which do not. It is therefore common for these policies to be referred to as “non-tariff measures,” rather than “non-tariff barriers,” in UNCTAD reporting.⁸ Unlike tariffs, which as a single kind of policy have the benefit of being relatively easy to measure and compare — ad valorem and specific duties can be transformed fairly easily — non-tariff measures must be categorized and coded across a number of dimensions. For this reason, UNCTAD’s own coding of NTMs has changed a number

7. This is somewhat similar to the logic in Gulotty (2014), where NTMs are all generally considered as fixed costs of market entry, paid by all producers.

8. It is the implication that these measures may increase trade flows, or distort them in terms of composition, which makes consideration of the net trade effect of NTMs so complex. Unlike tariffs, which generally result in net trade flow declines, some non-tariff measures may block some trade flows, but also domestic alternatives, resulting in more imports, or merely reallocate import demand among available alternatives. Discussion of these possible effects, in the context of distributive consequences of different kinds of market access barriers, is discussed in Chapter II.

of times in the past 20+ years. The most recent classification system was finalized and released in 2012 (Group 2015). The 2012-coded UNCTAD TRAINS database categorizes trade barriers according to a coding scheme that splits NTMs into sixteen chapters, split among technical measures, non-technical measures, and export-related measures.⁹ These categories are descriptive, and focus primarily on how the policies are implemented or the proximate goals of the policy (anti-dumping versus countervailing duties and technical barriers to trade (TBT) versus sanitary and phytosanitary standards (SPS), for instance).

The current TRAINS database is constructed by collecting data on legal measures from official sources in each country in the sample. Industry and voluntary standards, which are standards and policies enforced explicitly or through mutual agreement by firms in a given industry, but that are not explicit legal requirements enforced by government, are excluded from this collection effort (Knebel and Rial 2016). International standards are also not considered in the UNCTAD database, unless a government adopts the standard through legislation. These data come from centralized government sources, such as official registers or periodical announcements of regulatory changes, or from decentralized data collection by UNCTAD or UNCTAD-supporting organizations and data collectors. At times, UNCTAD uses data purchased from private companies that consolidate regulations, if official sources and data collected directly by UNCTAD-affiliated bodies are insufficient. After identifying sources, UNCTAD collects and organizes all documents obtained from those sources. Then each document is examined to identify all regulations contained in each document, with an eye to language that identifies products and countries as targets, when possible. Once individual regulations are identified, each is classified according to which measure type, tariff line, partner, and objective applies for each regulation. Particular attention is paid to whether a policy applies in a way that is meant to

9. A complete summary of the codebook can be found in Appendix B.

support some other policy objective — protection of the environment distinguishes an SPS measure from a TBT, for instance — and whether a policy contains multiple measures that must be coded separately.¹⁰

The TRAINS database has grown in scale in a number of ways over its history. In more recent years, more countries are covered by the data collection efforts. Within each country, subsequent years often contain more varieties of policies, as well. Whereas much of the publicly-available early versions of TRAINS contains only tariff-like measures — quantitative restrictions and the like — later years in the database expand into more categories of non-technical measures, some categories of technical measures, and export measures.¹¹ Whereas early country-years in the database — Japan in 1989, for example — are relatively sparse in terms of product and measure coverage, later country years are much more complete. Because of the nature of the data collection, even the best TRAINS country-year databases are likely to be incomplete. Specifically, measures that are more opaque, measures that have older legal origins, or those that are enforced in an informal way will be missed by the data collection effort. However, compared to the alternatives, the TRAINS database remains the best option for comprehensive study of a variety of NTMs.

4.4.1 Translating NTMs to Market Access Barriers

However, TRAINS measures NTMs according to a classification that raises a number of problems for understanding the distributive politics behind trade policy. To use this existing database, it is necessary to transform the TRAINS typology, which categorizes measure by specific type — phytosanitary standards that are temporary versus import licensing requirements, for instance — into something that reflects

10. The specifics of these classifications, as well as discussion of more detailed coding principles can be found in Knebel and Rial (2016), which is official guidance for coders of NTMs.

11. This expansion in data coverage follows increased efforts of UNCTAD, a more developed framework for collecting and classifying measures, and also increased participation in data collection efforts by governments, especially when data collection is explicitly defined as a responsibility in trade and other international agreements.

the typology described in Chapter II. From the typology of market access barriers discussed in Section 4.3, it is possible to map each specific type of policy¹² to its type of market access restriction. We do this by examining the description and coding instructions for each type of TRAINS NTM code, then considering how each type of measure divides a hypothetical global market with many producers, manufacturing goods of different characteristics in different markets. If the policy adds costs to some producers and not others, it is not an indiscriminate cost. If it discriminates in some way, we then consider which dimension of the goods defining elements determines whether the producer must bear additional costs to enter a market.

The measures recorded in the database sometimes clearly identify a particular type of market access barrier. Quotas — code E2 — are location-discriminating costs, for instance — while other measures overlap multiple types of costs. Importer approval or registration requirements for agricultural products for phytosanitary reasons — codes A13, A14, or A15 — captures both location-discriminating costs — only imports are restricted by this policy — and firm-discriminating costs — each firm must bear the costs to obtain a license or complete the registration process if they wish to import. Policies that require testing on certain varieties of goods — A82 or B82 — can be considered to impose both indiscriminate and characteristic-discriminating costs. This is common among policies coded in the TRAINS data. Conceptually, one can imagine this as a policy imposing costs on multiple orthogonal dimensions at once, or a vector of costs through a multidimensional cost space.

There are two options for addressing this issue. In the first, a policy can be categorized as imposing multiple varieties of costs at once. In the second, one can select only one cost — the most expansive in coverage of firms, or the one that benefits

12. The TRAINS database identifies 182 different types of non tariff measures, including categories for measures “not elsewhere specified”. Some of these are quite general, others much more specific. If time and resources permit, it would be possible to code each specific measure contained in the database according to the location/characteristics/firm/indiscriminate costs typology. For the US in 2012, this is 5752 different measures. Each of these is a particular type of NTM that covers one or more product lines with one or more trade partners. This measure-level coding is not done here.

the smallest number of firms, or the cost that “best” matches the general effects of the policy — and identify a policy as representing only one kind of market access barrier.¹³ In this paper, we choose to use the former, “inclusive” coding. This has the consequence of making individual policies count multiple times, albeit across different categories of market access barriers. As many products face a variety of non-tariff measures in the TRAINS data, this choice means that comparing the number of costs per product across products and across types of barriers is roughly equivalent. A product with more NTM lines will appear to have more Market Access Barriers in each category and overall.

The specific coding of every NTM code in the TRAINS data can be found in Appendix B. In general, different sections of the codebook represent similar kinds of market access barriers, although important differences do arise. For instance, in both the TBT and SPS sections of the UNCTAD NTM coding, some measures generally define location- or characteristic-discriminating costs, while other measures in the same section of the codebook — those requiring testing or certification — apply indiscriminate costs that all producers must bear. In the same vein, similar sorts of measures exist in different parts of the codebook, as well. With the TRAINS data translated to a market access barriers framework, it is possible to use the database as a set of outcomes against which the hypothesized causes of different forms of protectionism discussed above can be tested.

4.5 Data and Analysis

The data used in this analysis come from a variety of sources. Testing the presence of hypothesized relationships between industry characteristics and varieties of market access barriers requires a variety of measures at different intra-industry levels of gran-

13. In this case, one may consider the import licenses for phytosanitary reasons discussed above as only a firm-discriminating or only a location-discriminating cost, for instance.

ularity. For many countries and times, the necessary data are either not distributed outside of government statistics agencies or not collected at all. In order to maintain focus on the differences of interest — differences in the kinds of protections provided for different industries and firms — the analysis in this manuscript is restricted to a case where adequate and reliable data are available for many industries.

Testing the potential sources of demand for different forms of protection requires systematic data on industry-level foreign investment positions, characteristics of industry size and concentration, and a measure of the degree of underlying product differentiation within a particular industry.

These data are all available for the United States in a form that allows for intra-industry comparisons of market access barriers to different varieties of goods. The dataset compiled for this paper covers US market access barriers in 2012, and a variety of industry measures in that year and preceding years. we discuss the data in more detail below.

4.5.1 Market Access Barriers

The outcomes of interest are the varieties of protection imposed on different products (and thus granted to different industries and firms). As discussed above, the source for these measures is UNCTAD’s TRAINS database, which catalogs reported and measured incidences of non-tariff barriers to trade at the 6-digit Harmonized System product code level. The 6-digit level is a fairly granular level of product differentiation. For example, HS code 020741 — the meat of whole ducks, either fresh or chilled — is distinct from 020711 — the meat of whole chickens, fresh or chilled — and 020743 — just the fatty livers of duck, again fresh or chilled. Many policies in the TRAINS data cover a variety of product lines, but some cover only one or a handful of lines. In the TRAINS data, this appears as a single measure that applies to a number of product lines.

As data in some years in the UNCTAD database are more comprehensive than others, case selection is driven in part by the availability of data across many varieties of NTMs and industries/products simultaneously.¹⁴ The TRAINS data collection effort requires the presence of organized official reporting on NTMs, so the most complete country-years are those for countries with a robust national statistics and legal archiving framework, or those countries that have been given specific assistance for creation of these data. Although the TRAINS data cover over 150 countries with observations since 1988, there is significant missingness, both at the country-year level and within the country-year level. For many of the 150 countries, only one or two reports are available over the panel's time coverage. Some country-year panels may cover only some products or some varieties of measures. This fact, combined with the need for consistent and broad coverage of the covariates of interest discussed below, limits the set of cases that provide sufficient data for a test of the market access demands hypotheses. Given the variety of data availability issues, we restrict the analysis in this paper to one country in one year: The United States in 2012.

In some ways, the United States is a straightforward choice. As a large economy with significant trade flows, there should be sufficiently large industries with both political power and economic motive to engage in pressure politics. However, in other ways, the United States is an outlier case. Despite the size of trade volumes, the US is nowhere near the global economy's most trade-intensive economy. Future work should examine these patterns in other countries and across time, but for a variety of reasons discussed above, and in consideration of using the most complete case feasible, analysis is restricted to this single country-year.

The format of the TRAINS data lists observations at the product-policy-trade partner-year level, which significantly increases the number of observations per country year. However, many of these are functionally duplicates¹⁵, which requires some

14. This is discussed above, as well.

15. For example, a particular agricultural import licensing policy is the same whether Chile or

initial summarization of the data. To reduce overcounting of the same policies, only a single instance of a policy¹⁶ for a particular product is considered. This essentially collapses the data on the “trade partner” dimension of the database, making all observations equivalent to one where “the world” is the counterparty. Were this analysis cross-sectional or k-adic in nature, this would be a greater concern (Poast 2010). Because this is a case study of one country-year, it is possible to keep this “home v foreign” comparison consistent across other measures in the dataset and mitigate some of the concerns that would be present if focusing on specific bilateral or multilateral trade and trade barrier relationships.

4.5.2 Industry Characteristics

The hypothesized causes of varying forms of market access barriers vary not just at the country, factor, or sector levels, but at the industry and firm levels.¹⁷ As the demands for protection will vary according to features of a given industry, it is necessary to measure those features in a systematic way. In the US case, comprehensive data are available for a broad swath of industries that covers the features in question. The US Census Bureau collects data on industry size and concentration in the Economic Census, and the Bureau of Economic Analysis collects data on the net foreign direct investment positions — both inward and outward — of US industries. The degree of product heterogeneity or homogeneity in a given industry, and therefore for each product, is measured using a 2007 revision of Rauch’s commodity classification scheme (Rauch 1999).

The concentration of an industry, or subsector of an industry, can be measured in

China is listed as the counter-party.

16. The TRAINS database has a specific observation code for each reported policy.

17. Here, a distinction is drawn between sectors and industries. Sectors are larger groups that may include a variety of similar industries, like mining, which contains several distinct industries of ferrous and nonferrous metal mining as well as coal mining and the like. In some interpretations sectors span broad categories of goods or services produced, like “export oriented firms.” By comparison, individual industries are more cohesive and represent the producers of a narrower class of products — just iron mining, for instance — that still often comprise a number of firms.

a variety of ways. The asset value or market capitalization of a firm may represent its size in a way that is meaningful for the ability to invest in political pressure. A firm's employment base may serve as a different measure of political influence. Sales or revenues data reveal the share of a market that the firm commands, and indicates the degree to which a few firms' (or many firms') products dominate the market. Looking to revenues also has the advantage of being roughly comparable across industries, whereas measures of market capitalization or employment may vary according to the capital or labor intensity of a given industry. Every five years, the US Census Bureau surveys firms across the country to obtain measures of business activity in the United States. Their sampling methodology includes a complete sample of all large- and medium-sized firms, as well as all multi-establishment firms.¹⁸ For small firms with only one establishment, summary data from other federal agencies are used in the sample. While this does raise questions about accuracy for the smallest firms, for the firms that comprise the majority of economic activity, the complete coverage gives a good picture of sectors, down to a detailed level.

The Economic Census database provides information on both market value sales (for retail and service industries) and value added sales (for manufacturing industries) for each firm or company in utilities, wholesale and retail trade, services, and manufacturing sectors. From this, estimates of total industry size and the size of the top 4, 8, 20, and 50 firms or companies in each industry are computed. For the analysis in this paper, only firms and industries coded in NAICS Chapters 31 to 33 — the manufacturing section of the industrial classification — are used.¹⁹ For these sections, only the number of establishments and total value added are summarized.

18. According to Census definitions, an “establishment” is a single physical location where business activities are performed. Firms or companies can be composed of more than one establishment, or only one. Also, for establishments performing more than one economic activity, the establishment is coded according to whatever activity comprises the majority of the economic activity at the location.

19. This is a consequence of matching products only to their producing industries, and sections 31-33 cover industrial manufacturing. For many agricultural products, the matching section in NAICS — Section 11 — is not present in the Economic Census data.

The Census Bureau computes a Herfindahl-Hirschman Index for the top 50 firms in the industry²⁰ and the share of industry value added produced by the top 4, 8, 20, and 50 firms, from these data. With these three measures, we know the size and concentration of each industry. The aggregate industry value added sales and number of establishments (roughly the number of locations of business) are included in models as measures of domestic industry size. We use the Herfindal Index of the top 50 companies in each subsector as a measure of industry concentration.

Metrics of foreign investment, both inward and outward, are necessary for estimating the relationship between foreign firms with domestic political salience, domestic firms with international interests, and demands for kinds of market access restrictions. In the United States, the BEA collects data on the US business activity of foreign multinationals (inward FDI) via mandatory surveys completed by all US affiliates of foreign multinationals.²¹ This same mandate also dictates that US firms must report on their economic activity with foreign affiliates, giving estimates of outward FDI activity. From these annual reports, the BEA summarizes the net investment position of a number of industries separately in terms of inward and outward flows. These data are released annually, but have omissions²² and occasionally very sudden shifts from year-to-year. As the analysis is cross-sectional in nature, we sacrifice the time series coverage for completeness of observations and some degree of smoothing by taking the average of years leading up to 2012. In addition, this averaging moderates some of the time trend present in this measure following the 2008 global financial crisis. For FDI inflows, this is 2008 to 2012, while for outflows years 2009 to 2012 are averaged.²³ These two variables, average FDI inflow stock and average FDI outflow

20. $HHI = \sum_1^N s_i^2$, where N is number of firms and $s \in [0, 100]$ is a firm's market share, and $HHI \in [0, 10000]$.

21. This authority comes from the International Investment and Trade in Services Survey Act, the present iteration of the International Investment Survey Act of 1976. More information on the history of BEA statistics of this nature can be found in Mataloni (1995).

22. These are often from specifically-censored reporting to protect information about individual firms in industries where few firms are engaged in FDI.

23. This difference reflects differences data availability for the two series.

stock, are then used to capture the degree of multinationalization in the industry that produces a given product.

The coding of products as differentiated or homogeneous comes from Rauch's commonly-used classification of global commodity markets. This measure classifies goods as differentiated, reference-priced, or traded on an organized exchange. From the first to the last category, goods are increasingly homogeneous, even at the same product code level (4-digit SITC v2 code). While many products' heterogeneity reflects that of their codebook neighbors, variation within broad product groups does exist. The Rauch coding is cross-sectional and time invariant²⁴, but for this inter-industry cross-sectional analysis the time-invariance is not a concern. For use in these models, the Rauch coding is transformed to a zero-to-one scale, where homogeneous goods are coded zero, reference-priced goods are coded at $\frac{1}{2}$, and differentiated goods are coded as one.

4.5.3 Product/Industry Coding and Concordance

One challenge of integrating data from these varying sources, collected and coded for different purposes, is that economic activity is divided differently and coded with different goals in mind. The TRAINS data, primarily meant for comparison to tariff data, codes policies according to how they apply to particular products using the UN Harmonized System (HS) coding. These 6-digit codes classify goods from broad categories down to variants on similar products. Consider the HS code for Vegemite — 210690. It falls in Chapter 21, "Miscellaneous Edible Preparations," Heading 2106, "Food preparations not elsewhere specified or included," and subheading 210690, "Other". Vegemite's place in a tariff schedule is defined almost by exclusion, but the grouping narrows as other, different, potentially substitute products are partitioned

24. The initial classification was devised for a 1999 paper, and the codebook was revised in 2007 to match the revised SITC coding scheme.

off into other product codes.²⁵ These are the codes used by many customs agencies to levy duties, and are the basis of duty schedules for many trade agreements. The focus of this coding scheme, therefore is on grouping products in a way that makes the process of customs and duty as consistent as possible. This is not the case for other coding schemes in the data used here, and those codebooks reflect different goals.

Measures of industry size and concentration are generated according to the North American Industry Classification System (NAICS) codebook. NAICS is primarily designed for collection of economic data at the firm and industry level. These divisions do not always align with product codings like those in the HS system. The measures of US inward and outward FDI are coded according to the International Surveys Industry (ISI) codebook, an adaptation of the NAICS codebook for the task of surveying both US firms and foreign multinationals.²⁶ The Rauch product homogeneity/heterogeneity measure is developed for the SITC Version 2 codebook. Each of the measures in question — market access barriers, industry size and concentration, foreign direct investment positions, and measures of product heterogeneity — are collected for slightly different partitions of the US economy, as defined by different codebooks for industry classification. This prevents easy comparison of these measures in an empirical model.

Given these different coding schemes, it is necessary to link the data according to a set of concordance rules. Data merging is done in a number of steps. First, the 6-digit HS code for each product serves as the base for all observations. Market access barriers are summarized for each of the HS codes in the TRAINS data.²⁷ All other data are then linked to the market access measures by matching them to the

25. We thank Marta Bengoa for bringing this particular example to our attention.

26. This adaptation is largely straightforward, but sometimes splits individual NAICS codes across multiple ISI codes, or vice versa. This requires one first translate data from ISI coding to NAICS coding before taking steps discussed below.

27. It should be noted that every code in the HS codebook is present in the 2012 United States NTM data; there are no products at the 6-digit level with no market access barriers of any kind. This also means that there is no missingness at the product-code level, although missingness within product codes — policies missed, for instance — may exist.

HS codes. As most of the additional data used here come from US Census sources, we use concordance tables from the Census to make these connections. With every major release of the Economic Census, an updated concordance table is created to use the most recent versions of other codebooks for linking. We use the concordance tables prepared for the 2012 Census data release for linking across the four coding schemes in the data.

To bridge industry and product data and create single observations, we first find the highest level of granularity for each of the independent variables for which data is consistently available.²⁸ For the FDI measures, this is the 4-digit NAICS coding level. For measures of industry size and concentration, this is the 5-digit NAICS level. For Rauch’s product heterogeneity measure, we match at the 4-digit SITC classification. The merging of these data require overcoming two more matching problems. There are instances in which multiple codes in one of the source classifications match a given product code — for instance, if two or three SITC codes match a single HS product code. In this case, a simple average of the values for each of the matches is used.²⁹ In other cases, a single industry in the FDI or concentration data maps on to a number of different products within a certain range. In these cases, those observations apply to all of those products, a one-to-many merge with repeating values across multiple products. For each of the variables in the data, the level of aggregation in the data is consistent across all observations, which requires these transformations.

4.5.4 Data Summary

With these concordance issues addressed, we have a dataset ready for analysis. We are unable to match some products to complete industry-level data due to missing

28. The “highest level of granularity” represents the measurement level with the least aggregation from individual observations to sub-industry or industry totals.

29. There are a number of ways this matter could have been resolved, but we believe a parsimonious method like this maintains clarity while also acknowledging that, for some products, industrial interests have characteristics which reflect multiple groups’ preferences.

observations in FDI or industry concentration data. There are 5207 product-line level observations, of which 3080 are complete. These data present both the number of policy barriers identified as additional costs imposed on some varieties of goods and the underlying characteristics of the industries that produce those goods. Those 3080 products represent a sample of the total US goods market, but are the most complete sample possible with these resources.

A summary of the variables can be found in Table 4.1. The outcome variables, the number of market access barriers, differ somewhat in the full sample versus the sample used in the analysis. For the measures of industry characteristics, the full sample and the complete-case sample used in analysis differ somewhat, as well. The measures of market access barriers are strongly correlated.³⁰

Statistic	N	Mean	St. Dev.	Min	Max
# Loc-Disc Barriers	5,207	18.061	13.909	3	344
# Char-Disc Barriers	5,207	24.297	21.629	4	413
# Firm-Disc Barriers	5,207	9.887	8.776	1	182
# Indiscrim Barriers	5,207	9.702	8.418	0	139
Avg. FDI Out	3,660	10.849	11.517	0.020	53.532
Avg. FDI In	3,601	12.922	17.733	0.009	106.962
Rauch Diff Good	4,674	0.741	0.326	0.000	1.000
Herf. Index, top 50 firms	4,552	535.971	515.844	18.000	3,755.100
Establishments	4,552	1,642.822	2,480.778	24.000	24,707.000
Value Added	4,552	21.006	25.385	0.246	129.479

Table 4.1: Summary Statistics, Full Sample

	# Loc-Disc	# Char-Disc	# Firm-Disc	# Indiscrim
# Loc-Disc Barriers	1			
# Char-Disc Barriers	0.889	1		
# Firm-Disc Barriers	0.911	0.769	1	
# Indiscrim Barriers	0.616	0.642	0.735	1

Table 4.2: Correlation of Barrier Count Across Measures

30. The correlation table is presented in Table 4.2.

4.5.5 Model Design

The design of the measures of market access restrictions — counts of number of barriers per product code — motivates the empirical model design. Models are estimated using both ordinary least squares and negative binomial regression.³¹ The former is chosen for parsimony and ease of interpretation, but is not strictly appropriate for these data, where negative values are not possible. In the OLS framework, we estimate two sets of models. In the first, the count variables of market access barriers are included as the count measures explained above. Then, the market access barriers count is log-transformed³² to address the long right tail in the distribution of the measure count variable.

The negative binomial model is presented as it is a more appropriate model for count data, but brings additional restrictions on model specification and a more complex interpretation. By presenting all three, we aim to demonstrate when the results are consistent and ease interpretation of the direction and magnitude of the results. All models are estimated with and without the count of other kinds of market access restriction as covariates, to capture the hypothesis that an increase in one variety of costs ought to lead to a decrease in other varieties of market access costs.

Aside from substitution of different varieties of market access barriers as outcome variables and control variables, the models are structured in the same way. The models are estimated with clustered standard errors to address concerns of heteroskedasticity across larger product groups due to legal or industry frameworks that lead to differences that divide on larger product group lines. The clusters are defined on the 2-digit level product code to address concerns about correlated errors within

31. Negative binomial regression is chosen over Poisson regression because of concerns about overdispersion, where the conditional variance is significantly greater than the conditional mean. A test of the Poisson model's assumption of equal conditional mean and conditional variance is presented in Appendix A.

32. Specifically, the variable is $\ln(\text{Barrier} + 1)$, to address occasional zeroes in the data.

similar groups of products.³³

4.6 Results

Fitting these models to the data provides some insights on why markets for different varieties of goods are restricted in different ways. Table 4.3 outlines the general results from the models. They are described in more detail below. The model estimates for each of the four types of market access barriers are presented in Tables 4.4 to 4.15 in their respective subsections. A number of patterns arise that indicate that different kinds of market access restricting policies are associated with different industry features. Some of the hypotheses of the theory are supported, while others are — statistically or substantively — not strongly supported by the data. In some cases, evidence from the US case suggests a more complex relationship between industry features and the nature of protectionism, where it exists.

As models are estimated for each of the four types of market access-restricting costs separately, the results from those models are considered individually first. Then, the models estimates are considered together to draw summary conclusions.

4.6.1 Location-discriminating Costs

In models where the outcome of interest is the number of location-discriminating measures affecting a particular product line, results generally suggest that FDI and product differentiation are related to the contours of protection, while other industry characteristics are not as consequential.

The industry's average FDI inflows and outflows in the years preceding 2012 appear to have different associations with the number of location-discriminating measures. In industries where there have been significant outflows of direct investment

³³ As the product coding scheme necessarily puts similar goods in adjacent or nested product codes, using a higher level of coding, the 2- or 4-digit code, for instance, provides an effective method for grouping goods that are similar.

Industry Feature	Location-disc	Char-disc	Firm-disc	Indisc
FDI Outflow	+, mixed significance	+, mixed significance	+, mixed significance	+, mixed significance
FDI Inflow	-, mixed significance	\emptyset	\emptyset	-, weak/mixed significance
Prod. Diff.	-, significant	- (no controls), \emptyset (w controls)	- (no controls), \emptyset (w controls)	\emptyset (no controls), + (w controls)
Concentration	\emptyset	\emptyset	-, weak effect	inconsistent
# of Estab.	-, weak/small effect	\emptyset	-, weak effect	-, weak/small effect
Value Add	\emptyset	\emptyset	\emptyset	\emptyset
Control				
Loc-disc	NA	+	+	-
Char-disc	+	NA	-	+
Firm-disc	+	-	NA	+
Indisc	-	+	+	NA

Table 4.3: Summary of model results

capital, where firms have built supply chains or subsidiaries in foreign markets, products of those industries tend to face more location-discriminating barriers on average. However, for products produced in industries where there have been significant FDI inflows, fewer location-discriminating costs restrict market access. In this case, products in the US that are produced by industries where the United States has seen significant FDI inflows are covered by fewer location-discriminating policies.

This pattern is somewhat inconsistent with the expectations from the model of protection-seeking coalitions discussed above. Whereas the theory suggested that pressures from domestic firms investing abroad (FDI outflows) and foreign firms investing in the US (FDI inflows) would both lead to fewer location-discriminating costs, this does not appear to be the case. In these data, only inward flows have that effect. While this relationship does not appear in every model, it is roughly consistent across specifications and estimators.

	# Loc-Disc Barriers	
	(1)	(2)
Avg. FDI Out (USD bil)	0.456*	0.002
	(0.267)	(0.036)
Avg. FDI In (USD bil)	-0.131	-0.063**
	(0.178)	(0.029)
Rauch Diff Good	-12.074***	-1.058***
	(0.604)	(0.187)
Herf. Index, top 50 firms	-0.001	0.0004*
	(0.001)	(0.0002)
Establishments	-0.001**	0.00003
	(0.0003)	(0.0001)
Value Added	0.153	0.032
	(0.096)	(0.022)
# Char-Disc Barriers		0.304***
		(0.060)
# Firm-Disc Barriers		1.219***
		(0.098)
# Indiscrim Barriers		-0.425***
		(0.129)
Constant	21.895***	3.203***
	(4.396)	(0.923)
N	3,080	3,080
R ²	0.369	0.949
Adjusted R ²	0.368	0.949
Residual Std. Error	9.998 (df = 3073)	2.844 (df = 3070)

*p < .1; **p < .05; ***p < .01

Table 4.4: OLS with clustered standard errors

With other industry characteristics, such as product differentiation, industry size, and industry concentration, the relationships vary. Products face somewhat fewer location-discriminating market access barriers when they are differentiated goods. As the range of this variable is zero-to-one, the overall effect on the market is modest, but the relationship is statistically significant in most specifications. However, the number of location-discriminating barriers to market access do not appear to have a statistically or substantively significant relationship to industry concentration or the measures of industry size in these models.

	log(# Loc-Disc Barriers + 1)	
	(1)	(2)
Avg. FDI Out (USD bil)	0.030** (0.013)	0.003* (0.001)
Avg. FDI In (USD bil)	-0.009 (0.008)	-0.001 (0.001)
Rauch Diff Good	-0.480** (0.187)	-0.057* (0.031)
Herf. Index, top 50 firms	-0.00003 (0.0001)	0.00001 (0.00001)
Establishments	-0.00004*** (0.00001)	-0.00000* (0.00000)
Value Added	0.006 (0.004)	0.001 (0.001)
log(# Char-Disc Barriers + 1)		0.484*** (0.042)
log(# Firm-Disc Barriers + 1)		0.590*** (0.041)
log(# Indiscrim Barriers + 1)		-0.279*** (0.035)
Constant	2.864*** (0.199)	0.675*** (0.069)
N	3,080	3,080
R ²	0.365	0.963
Adjusted R ²	0.364	0.963
Residual Std. Error	0.478 (df = 3073)	0.115 (df = 3070)

*p < .1; **p < .05; ***p < .01

Table 4.5: Log-linear model with clustered standard errors

In a model where the counts of other policies are included as controls, it is possible to examine the relationships among the various types of market access barriers, given the industry characteristics considered above. In these models, the relationship between the number of location-discriminating barriers and quality- and firm-discriminating barriers is positive. Also, given the changes in magnitude of other covariates in the model, when added as controls the other barriers capture a significant portion of the variance in location-discriminating costs in the model. Products for which there are more characteristic- and firm-discriminating barriers in the TRAINS

	# Loc-Disc Barriers	
	(1)	(2)
Avg. FDI Out (USD bil)	0.027** (0.012)	0.009*** (0.003)
Avg. FDI In (USD bil)	-0.011 (0.008)	-0.007*** (0.003)
Rauch Diff Good	-0.583*** (0.188)	-0.129* (0.071)
Herf. Index, top 50 firms	-0.00000 (0.0001)	0.00002 (0.00002)
Establishments	-0.00005*** (0.00002)	-0.00000 (0.00000)
Value Added	0.009** (0.004)	0.002 (0.001)
# Char-Disc Barriers		0.011*** (0.002)
# Firm-Disc Barriers		0.043*** (0.006)
# Indiscrim Barriers		-0.004 (0.004)
Constant	2.976*** (0.197)	2.116*** (0.086)
N	3,080	3,080

*p < .1; **p < .05; ***p < .01

Table 4.6: Negative Binomial Model with clustered standard errors

data also have more location-discriminating barriers.

This relationship does not hold between location-discriminating and indiscriminate costs. The greater the number of indiscriminate cost barriers, the fewer the number of location-discriminating costs a particular product faces. This suggests that, when accounting for industry-specific factors, the measures that divide markets along production location, product characteristic, or producer identity lines are complements, but indiscriminate cost policies and location-discriminating cost policies are substitutes. Given the choices made in coding the TRAINS measures as market access barriers, this is expected. While the theory of protection-seeking might suggest

that all of the policies should be substitutes³⁴, this analysis does not support that hypothesis as clearly.

These model estimates are consistent with some of the hypothesized relationships between industry characteristics (and the other kinds of market access barriers) that arise from theories of protection-seeking coalitions. Products of industries where firms with global links (as measured by inward FDI) are more politically salient face fewer location-discriminating barriers.

4.6.2 Characteristic-discriminating Costs

Results from models testing an association between industry characteristics and the presence or absence of characteristic-discriminating costs imposed on a particular product are somewhat less clear. The relationships between industry characteristics and the number of characteristic-discriminating measures differ significantly when other market access costs are included as controls versus when they are not. In models where characteristic-discriminating costs are regressed on industry characteristics without those controls, many of the industry characteristics in the model have statistically significant relationships with the number of barriers. However, when including other measures as controls, many of the industry characteristics measures no longer covary with the outcome of interest in a meaningful way.

The primary hypothesis related to characteristic-discriminating barriers is that they should be less frequent in homogeneous-good industries. However, evidence from the models estimated here does not support that hypothesis. In some cases, there is no statistically-distinguishable relationship between product differentiation and the presence or absence of characteristic-discriminating costs. In other models, a relationship that is opposite to the theory appears to hold. Products that the Rauch classification categorizes as differentiated goods face fewer characteristic-

34. This is due to the aggregate effect on prices and utility as all policies distort goods markets.

	# Char-Disc Barriers	
	(1)	(2)
Avg. FDI Out (USD bil)	0.599 (0.365)	0.014 (0.060)
Avg. FDI In (USD bil)	-0.315 (0.246)	0.023 (0.040)
Rauch Diff Good	-17.771*** (6.510)	-1.579 (1.857)
Herf. Index, top 50 firms	-0.001 (0.002)	-0.001 (0.001)
Establishments	-0.001*** (0.0004)	-0.0001 (0.0001)
Value Added	0.253* (0.144)	-0.011 (0.019)
# Loc-Disc Barriers		2.133*** (0.194)
# Firm-Disc Barriers		-2.360*** (0.332)
# Indiscrim Barriers		1.287*** (0.240)
Constant	31.176*** (6.659)	-1.869 (1.845)
N	3,080	3,080
N	3,080	3,080
R ²	0.242	0.860
Adjusted R ²	0.241	0.859
Residual Std. Error	17.492 (df = 3073)	7.535 (df = 3070)

*p < .1; **p < .05; ***p < .01

Table 4.7: OLS with clustered standard errors

discriminating costs in these models.

Other industry characteristics do not appear to be strongly related to these measures of characteristic-discriminating market access costs. In some specifications, especially those without the additional measures as controls, some parameter estimates appear statistically significant at canonical thresholds, but the effect sizes appear modest. When additional market access barriers are included in the models, these estimates generally do not hold, and in some cases an even weaker effect of oppo-

	log(# Char-Disc Barriers + 1)	
	(1)	(2)
Avg. FDI Out (USD bil)	0.037*** (0.002)	-0.001 (0.001)
Avg. FDI In (USD bil)	-0.015*** (0.001)	-0.001 (0.0005)
Rauch Diff Good	-0.508*** (0.038)	0.007 (0.012)
Herf. Index, top 50 firms	-0.00003 (0.00002)	-0.00002** (0.00001)
Establishments	-0.00005*** (0.00001)	0.00001*** (0.00000)
Value Added	0.007*** (0.001)	-0.001** (0.0002)
log(# Loc-Disc Barriers + 1)		1.365*** (0.018)
log(# Firm-Disc Barriers + 1)		-0.713*** (0.019)
log(# Indiscrim Barriers + 1)		0.559*** (0.012)
Constant	3.056*** (0.038)	-0.456*** (0.029)
N	3,080	3,080
R ²	0.282	0.934
Adjusted R ²	0.281	0.934
Residual Std. Error	0.635 (df = 3073)	0.193 (df = 3070)

*p < .1; **p < .05; ***p < .01

Table 4.8: Log-linear model with clustered standard errors

site direction appears. The instability of these estimates, combined with their small magnitude, suggests no strong relationship in these models.

When they are included as controls, the relationship between other forms of market access barriers and characteristic-discriminating costs is both strong and significant. In general, across the models, the number of location-discriminating barriers is positively associated with the number of characteristic-discriminating ones. The same positive relationship holds true for indiscriminate costs, as well.³⁵ However, these

³⁵. This may be in part because characteristic-discriminating barriers are sometimes administered

	# Char-Disc Barriers	
	(1)	(2)
Avg. FDI Out (USD bil)	0.027** (0.013)	0.015*** (0.005)
Avg. FDI In (USD bil)	-0.015* (0.009)	-0.006 (0.004)
Rauch Diff Good	-0.605*** (0.205)	-0.041 (0.102)
Herf. Index, top 50 firms	0.00001 (0.0001)	-0.00003 (0.00004)
Establishments	-0.0001*** (0.00002)	-0.00002 (0.00001)
Value Added	0.010** (0.005)	-0.001 (0.002)
# Loc-Disc Barriers		0.058*** (0.006)
# Firm-Disc Barriers		-0.063*** (0.012)
# Indiscrim Barriers		0.053*** (0.007)
Constant	3.309*** (0.226)	2.033*** (0.123)

*p < .1; **p < .05; ***p < .01

Table 4.9: Negative Binomial Model with clustered standard errors

data suggest that when there are more firm-discriminating costs, fewer characteristic-discriminating costs are present, on average and with all other covariates considered. As discussed in relation to location-discriminating costs, the positive relationships may be a consequence of the coding rules chosen, specifically the decision to count single measures as imposing multiple types of costs.

From these results, one may conclude that if there exists a relationship between industry characteristics and these characteristic-discriminating costs is not well identified using these measures. This may be in part because of the way UNCTAD codes the NTMs in the database. Many differences in technical standards are not considering policies that raise indiscriminate costs on products.

ered, or are only considered in some cases. These standards are likely to be the most prevalent type of characteristic-discriminating cost, and their omission from the data may go some way towards explaining the inconsistent findings here. These results also suggest that, in commodities markets, or markets where goods are considered commodities or index-priced goods, characteristic-discriminating policies are a means of creating differentiated markets, conferring different benefits than the theory of protection-seeking coalitions would suggest. In either case, this evidence does not strongly support the theory as it is.

4.6.3 Firm-discriminating Costs

Results from the models where firm-discriminating costs are the outcome of interest are mixed. For some industry characteristics, like FDI flows, findings are unstable. For others, like the number of establishments in a given sector, results are stable, but modest in magnitude. As with the previous models, links between varieties of market access costs remain strong in this coding.

Theory suggests that firm-discriminating costs should be more prevalent in industries where a small cadre of firms can collude to block new entrants, or where a sufficiently-concentrated segment of firms can raise costs on others. However relationships between the number of firm-discriminating costs and both the number and concentration of firms from these models do not match those predictions. While the parameter estimates for the association between concentration and the number of firm-discriminating costs may be statistically significant, they are substantively very modest. Also, the modest relationship is opposite to that predicted by the theory. While theory would suggest a positive relationship between the Herfindal index (that is larger the greater the degree of concentration) and the number of firm-discriminating barriers, the opposite appears to be the case.

The same modest relationship appears for the link between number of establish-

	# Firm-Disc Barriers	
	(1)	(2)
Avg. FDI Out (USD bil)	0.329 (0.205)	0.031 (0.035)
Avg. FDI In (USD bil)	0.018 (0.132)	0.047** (0.023)
Rauch Diff Good	-5.596** (2.230)	-0.547 (0.467)
Herf. Index, top 50 firms	-0.001 (0.001)	-0.0005*** (0.0002)
Establishments	-0.001** (0.0003)	-0.00004 (0.0001)
Value Added	0.054 (0.042)	-0.014 (0.011)
# Loc-Disc Barriers		0.505*** (0.067)
# Char-Disc Barriers		-0.139*** (0.044)
# Indiscrim Barriers		0.501*** (0.049)
Constant	10.718*** (2.520)	-0.541 (0.450)
N	3,080	3,080
R ²	0.415	0.955
Adjusted R ²	0.414	0.955
Residual Std. Error	6.589 (df = 3073)	1.831 (df = 3070)

*p < .1; **p < .05; ***p < .01

Table 4.10: OLS with clustered standard errors

ments in a given industry and the number of firm-discriminating costs that products of that industry face. However, where models reveal a substantively weak but statistically significant relationship, it is in the direction that theory would predict. The greater the number of US establishments associated with a certain product line, the fewer the number of firm-discriminating policies that apply to that product line. However, over the range of the variable in the sample, this is not consequential when all covariates are considered.

Other industry characteristics, like the degree of foreign investment (inward and

	log(# Firm-Disc Barriers + 1)	
	(1)	(2)
Avg. FDI Out (USD bil)	0.033** (0.016)	-0.002 (0.002)
Avg. FDI In (USD bil)	-0.006 (0.010)	0.003** (0.001)
Rauch Diff Good	-0.458** (0.188)	-0.005 (0.039)
Herf. Index, top 50 firms	-0.0001 (0.0001)	-0.00003*** (0.00001)
Establishments	-0.0001** (0.00002)	0.00000 (0.00000)
Value Added	0.006 (0.004)	-0.001 (0.001)
log(# Loc-Disc Barriers + 1)		1.018*** (0.069)
log(# Char-Disc Barriers + 1)		-0.436*** (0.056)
log(# Indiscrim Barriers + 1)		0.560*** (0.039)
Constant	2.182*** (0.215)	-0.559*** (0.100)
N	3,080	3,080
R ²	0.336	0.961
Adjusted R ²	0.334	0.961
Residual Std. Error	0.626 (df = 3073)	0.151 (df = 3070)

*p < .1; **p < .05; ***p < .01

Table 4.11: Log-linear model with clustered standard errors

outward) and the degree of product differentiation, have similarly weak relationships with the number of firm-discriminating barriers. In some models, the presence of outward FDI flows appears related to more firm-discriminating market access costs, but this relationship is somewhat inconsistent across models. Similarly, inward FDI flows appear positively related to the number of firm-discriminating barriers in some models, but negatively so in others.

Across the models where other market access barriers are included, the number of firm-discriminating market access barriers is positively related to the number of

	# Firm-Disc Barriers	
	(1)	(2)
Avg. FDI Out (USD bil)	0.034** (0.015)	0.014*** (0.005)
Avg. FDI In (USD bil)	-0.007 (0.011)	-0.005* (0.003)
Rauch Diff Good	-0.464** (0.188)	-0.104 (0.070)
Herf. Index, top 50 firms	-0.00001 (0.0001)	-0.0001* (0.00004)
Establishments	-0.0001** (0.00003)	-0.00002* (0.00001)
Value Added	0.007* (0.004)	0.0001 (0.002)
# Loc-Disc Barriers		0.033*** (0.005)
# Char-Disc Barriers		-0.008** (0.004)
# Indiscrim Barriers		0.041*** (0.005)
Constant	2.231*** (0.217)	1.298*** (0.095)
N	3,080	3,080

*p < .1; **p < .05; ***p < .01

Table 4.12: Negative Binomial Model with clustered standard errors

location-discriminating and indiscriminate cost barriers, but negatively associated with the number of characteristic-discriminating ones, when all of the industry-specific features are included in the models.

The estimates from these models do not clearly indicate a relationship between the industry-specific characteristics discussed above and the number of firm-discriminating barriers that apply to a particular product. In cases where estimated coefficients are consistent in direction and statistical significance, their magnitude is modest. For those variables where magnitudes are more substantial, direction of relationship and statistical significance are not consistent. While these measures are clearly associated with the presence or absence of other policies, those relationships are a consequence

of coding decisions when translating TRAINS data into the typology of market access barriers.

4.6.4 Indiscriminate Costs

In looking to policies that raise costs on all products of a given type, such as fixed costs of market entry, the relationships are somewhat different than those for other types of market-access costs. The theory of protection-seeking coalitions suggests that it is industry efficiency that determines whether the products of a given industry face costs that apply indiscriminately to all varieties. Without a direct measure of domestic industry efficiency, it is not possible to test this hypothesis directly.³⁶ However, the weak link between value added (which is associated with greater output and productivity) and the number of indiscriminate barriers suggests that there isn't strong evidence for that relationship here.

The link between foreign investment (both inward and outward) and indiscriminate-cost market access barriers is mixed. In the models where other measures are not included as controls, there appears to be a positive relationship between outward FDI flows and a greater number of indiscriminate-cost barriers. However, when including the other measures as controls, that relationship fades. On the other hand, where FDI inflows appear to be unrelated to indiscriminate-cost policies in the models without other policies as controls, when considering them in the model, a weak and negative relationship emerges. As with other measures as outcomes, this does not suggest a strong relationship.

For different reasons, the link between product differentiation and the number of indiscriminate costs a particular good faces is inconclusive. In the models where other barriers are not included, any relationship — where one appears to be distinguishable — is negative. However, when controlling for other kinds of market access barriers,

³⁶ An avenue for future research is comparing efficiency to these costs using measures of Total Factor Productivity, although use of these measures for inter-industry comparison can be difficult.

	# Indiscrimin Barriers	
	(1)	(2)
Avg. FDI Out (USD bil)	0.301*	-0.019
	(0.182)	(0.037)
Avg. FDI In (USD bil)	-0.013	-0.033
	(0.126)	(0.023)
Rauch Diff Good	-2.838	2.161***
	(1.862)	(0.735)
Herf. Index, top 50 firms	-0.00003	0.001**
	(0.001)	(0.0004)
Establishments	-0.001**	-0.00003
	(0.0003)	(0.0001)
Value Added	0.052	0.004
	(0.034)	(0.015)
# Loc-Disc Barriers		-0.435***
		(0.142)
# Char-Disc Barriers		0.187**
		(0.076)
# Firm-Disc Barriers		1.236***
		(0.111)
Constant	9.053***	-0.519
	(2.294)	(0.961)
N	3,080	3,080
R ²	0.276	0.887
Adjusted R ²	0.275	0.887
Residual Std. Error	7.279 (df = 3073)	2.875 (df = 3070)

*p < .1; **p < .05; ***p < .01

Table 4.13: OLS with clustered standard errors

differentiated goods appear to face more indiscriminate costs in the US market. This inconsistency makes it impossible to draw strong conclusions about an association between product differentiation and the raising of indiscriminate cost policies.

For measures of industry size and concentration, there is no strong evidence that any of those metrics are strongly associated with greater or fewer indiscriminate cost policies. The Herfindal index of the industry producing a particular good doesn't have a consistent positive or negative relationship across the models, and even in cases where it is statistically significant, the magnitude of the effect is modest at best.

	log(# Indiscrim Barriers + 1)	
	(1)	(2)
Avg. FDI Out (USD bil)	0.038** (0.016)	0.002 (0.002)
Avg. FDI In (USD bil)	-0.010 (0.010)	-0.002* (0.001)
Rauch Diff Good	-0.334* (0.174)	0.083* (0.049)
Herf. Index, top 50 firms	-0.00005 (0.0001)	0.00003* (0.00002)
Establishments	-0.0001*** (0.00003)	-0.00001*** (0.00000)
Value Added	0.007** (0.003)	0.001 (0.001)
log(# Loc-Disc Barriers + 1)		-1.005*** (0.132)
log(# Char-Disc Barriers + 1)		0.714*** (0.077)
log(# Firm-Disc Barriers + 1)		1.170*** (0.069)
Constant	2.068*** (0.207)	0.212 (0.132)
N	3,080	3,080
R ²	0.269	0.934
Adjusted R ²	0.268	0.933
Residual Std. Error	0.723 (df = 3073)	0.218 (df = 3070)

*p < .1; **p < .05; ***p < .01

Table 4.14: Log-linear model with clustered standard errors

In contrast, while the coefficient estimates for the variable capturing the number of establishments in a producing industry is consistently negative, the magnitude of that parameter is quite small. Only at the very maximum of the sample range for that variable would there be a relationship large enough to reach the magnitude of one additional policy.

As with the other models where location-, characteristic-, and firm-discriminating costs were the outcomes of interest, when including other market access costs as controls, there are strong and significant relationships. Location-discriminating costs ap-

	# Indiscrimin Barriers	
	(1)	(2)
Avg. FDI Out (USD bil)	0.031** (0.015)	0.010** (0.004)
Avg. FDI In (USD bil)	-0.008 (0.011)	-0.010** (0.004)
Rauch Diff Good	-0.185 (0.176)	0.170* (0.088)
Herf. Index, top 50 firms	0.00003 (0.0001)	0.00002 (0.00003)
Establishments	-0.0001** (0.00003)	-0.00002** (0.00001)
Value Added	0.007* (0.004)	0.001 (0.002)
# Loc-Disc Barriers		-0.042*** (0.009)
# Char-Disc Barriers		0.022*** (0.004)
# Firm-Disc Barriers		0.099*** (0.013)
Constant	2.104*** (0.217)	1.175*** (0.132)
N	3,080	3,080

*p < .1; **p < .05; ***p < .01

Table 4.15: Negative Binomial Model with clustered standard errors

pear to have a negative relationship with indiscriminate costs. However, characteristic- and firm-discriminating costs appear positively associated with the number of indiscriminate cost policies.

From these models, it appears that any relationship between industry characteristics and the presence or absence of policies that raise costs on goods indiscriminately is modest. While the FDI measures appear to have some effect, it is modest or inconsistent. Differentiated goods appear to have face more indiscriminate costs, but only when controlling for other kinds of policies. Industry size and concentration do not appear to be consistently related to more or fewer of these policies, either. The strongest relationship, as in the other models, is with other kinds of policies.

4.6.5 Summary of Results

The results from the individual models taken together provide some insights into the nature of market access across products in the US. First, foreign investment, both inward and outward, is related to the number of market access costs of different types. While the theory suggested that FDI should affect location-discriminating costs, there is evidence that both FDI inflows and FDI outflows are related to the presence or absence of multiple types of market access barriers. Where there is more outward FDI in an industry, those products are generally face more market access costs of all types.

Another observation from these results is that the relationship between industry characteristics and the number of policies of any type in place is modest. In the models where other policies are included as controls, the coefficients suggest that the difference in outcome — of counts of any type of policy — is at most one or two additional policies of a specific type over the range of the industry characteristic variables.

The areas of difference in the relationships across the measures are in FDI inflows, industry concentration, product differentiation, and the size of an industry as measured by the number of establishments.

The strongest relationships from these models are the relationships among the varieties of market access costs. With this coding and these data, it appears that there is complementarity among most pairs of policy types, but not all. The negative relationship between location-discriminating costs and indiscriminate costs, as well as between characteristic-discriminating and firm-discriminating costs, suggests a degree of substitution between them.

4.6.6 Areas for Future Research

The evidence here is by no means conclusive. In some ways, it raises more questions than it answers and also points towards improvements that can be made in future research. Some of those improvements concern measurement of core concepts raised by the theory of market access barriers, while others concern expanding the scope of the project across cases and time.

The market access costs coding scheme used for this analysis can be improved. The high degree of correlation across the measures, created partially by construction, also makes examining different relationships between industry characteristics and protectionist policies more difficult. While the goal of being inclusive, or conservative, when translating the descriptions of measures from the TRAINS codebook to the “4 costs” typology has some benefits, it also created a situation where one measure counted multiple times, and is somewhat inconsistent with the theory’s conception of those costs as independent dimensions of the barriers facing a particular good. Rather than measuring the policy as imposing greater discriminatory costs on one feature of a product and lesser costs on others, this choice makes all costs imposed by an NTM equally significant. A weighting scheme across dimensions for NTMs where descriptions suggest multiple types of costs may be more appropriate, although more difficult to construct.

More critically, this coding scheme, while a best effort to adapt existing data to a new theory, also conflicts with a core argument of the market access barriers framework. Each of the types of policies is, in theory, orthogonal to the others. While a given policy may raise multiple types of costs, those costs are themselves independent factors. The “one policy, multiple costs” coding for those TRAINS measures that are not clearly one type or another is a second-best solution for measuring these costs. Another avenue for future improvement may be text analysis of policies where content dimensions are constrained to match these four types of costs more closely. Alterna-

tively, with more detailed market data, it might be possible to recover price wedges across these dimensions, albeit with significant model structure and assumptions.

Expanding the domain of study across cases is also necessary for one to have greater confidence in the validity of the theory of protection-seeking coalitions. While limiting analysis to the United States meant better access to fine-grained data, it also reduces confidence in the external validity of the findings. It is possible that the US's trade politics at the particular period of study is anomalous in some way. Institutional features of the US may make the dynamics of protection-seeking behavior significantly different than in other countries. While they rarely exist for more than one year, there are NTM panels for other countries in the TRAINS dataset that may serve as comparison cases for the US. Looking to these other cases may reveal whether the finding here are artifacts of the US specifically, or other fundamental patterns, including those hypothesized above.

4.7 Conclusion

This evidence, provided by looking to existing data on NTMs through a slightly different lens, links empirical insights to a new body of thinking on how trade-distorting measures “work”. By looking to different kinds of policies based not on whether they are import taxes or not, but rather based on what features of a hypothetical good they affect, we see a slightly different picture of protectionism. While there are relationships that persist across all varieties of policies, there is also some difference in the relationships across measures. This suggests, to some degree, that NTMs are not all alike, and ought not be treated as such.

These estimates provide initial insights into what drives the provision of different kinds of protectionist policies for different segments of an economy. Some of the findings are consistent with existing evidence from the study of tariff and non-tariff measures. In particular, the relationships between industries with greater degrees

of international investment and market access barriers reflect existing argument and evidence. Other findings, such as the varying covariance of product differentiation and industry size and concentration across different market access barriers open the door for further inquiry. The substitution-versus-complementarity evidence from the models with controls may suggest a more complex relationship among the measures than extant theory suggests, but is more likely the product of the process that generated the data. Future research, less reliant on existing databases of NTMs (which necessarily focus on the location-discriminating nature of a policy) or armed with a revised coding strategies that more clearly distinguish between policies, may yield stronger and more consistent findings with respect to the varieties of protection and the ways in which and reasons why global goods market access has changed over time.

The overarching takeaway from this analysis is that not all trade-distorting policies are driven by the same industry pressures. Moving away from theory and empirical analysis that either treat all NTMs as similar to tariffs, or all NTMs as fundamentally different from tariffs (but still homogeneous as a group) is a step forward in understanding the policies that regulate and shape the global goods market, both across and within countries.

APPENDICES

APPENDIX A

Testing the Negative Binomial Model's Overdispersion Assumption

One of the motivations for using the negative binomial model, which like the Poisson model estimates expected values of count variables, is a concern that the conditional mean and conditional variance of the outcome variable are not equal. In a Poisson model, both the mean and variance are defined by a single parameter. If the outcome variable (here, counts of market access barriers) are overdispersed, it may be necessary to include additional model structure to address that overdispersion. In the negative binomial model, this is captured by an additional parameter α , which is fixed to unity in the Poisson model. To justify use of the negative binomial model, rather than the Poisson, it is necessary to test the additional assumption.

One way of testing this assumption is by comparing the model fit when estimated as a Poisson model (where α is fixed at unity) against the negative binomial model. As both are estimated using maximum likelihood, a likelihood ratio test can be used to test the hypothesis that the negative binomial model (where α is a free parameter) has better fit than the Poisson model (where α is constrained). If the conditional means and variance are not equal, the fit of the negative binomial model will be superior to that of the Poisson model in a statistically-distinguishable way.

The assumption of overdispersion is tested for each of the models specified in the body text. Each of the models is reestimated as a Poisson model, then the log-likelihood ratio statistic of the negative binomial model and the Poisson model is computed.¹ Then, a classical likelihood ratio test is performed. The one-tailed p-value of this statistic, which is distributed chi-squared, is the measure that indicates whether there is a significant difference in fit between the two models. Both the statistic and the p-value are presented in Table A.1.

Model	D	p-value
Model 1a	6,575.022	0
Model 1b	295.301	0
Model 2a	20,634.060	0
Model 2b	3,590.341	0
Model 3a	4,851.644	0
Model 3b	437.502	0
Model 4a	7,025.719	0
Model 4b	1,266.179	0

Table A.1: Overdispersion Assumption Test

The results are fairly conclusive. For every specification of the model examined, the negative binomial model clearly fits better than a Poisson model. The overdispersion in the count data for market access barriers is too great to support the assumptions of the Poisson model in this case, and thus including the extra free parameter is appropriate.

1. Here, the negative binomial is the alternative model and the Poisson model the null model.

APPENDIX B

Coding of Market Access Barriers, UNCTAD TRAINS NTM Codebook

Table B.1: Recoding of TRAINS NTM Measures

NTM Code	Subcode	NTM Name	Loc.	Char.	Firm	Indiscr.
A		Sanitary and Phytosanitary Measures				
A1		Prohibitions/restrictions of imports for SPS reasons				
A11	A110	Temporary geographic prohibitions for SPS reasons	1	1	0	0
A12	A120	Geographical restrictions on eligibility	1	1	1	0
A13	A130	Systems Approach	1	1	0	0
A14	A140	Special authorization requirement for SPS reasons	1	1	1	0
A15	A150	Registration requirements for importers	1	0	1	0
A19	A190	Prohibitions n.e.s.	1	1	0	0
A2		Tolerance limits for residues and restricted use of substances				

NTM Code	Subcode	NTM Name	Loc.	Char.	Firm	Indiscr.
A21	A210	Tolerance limits for residues of or contamination by certain non-microbiological substances	0	1	0	0
A22	A220	Restricted use of certain substances in foods and feeds and their contact materials	0	1	0	0
A3		Labelling, marking, and packaging requirement				
A31	A310	Labelling requirements	0	0	0	1
A32	A320	Marking requirements	0	0	0	1
A33	A330	Packaging requirements	0	1	0	0
A4		Hygienic requirements				
A41	A410	Microbiological criteria of the final product	0	1	0	0
A42	A420	Hygienic practices during production	0	1	0	0
A5	A500	Treatment for elimination of animal pests and disease-causing organisms in the final product	0	1	0	0
A51	A510	Cold/heat treatment	0	1	0	0
A52	A520	Irridation	0	1	0	0
A53	A530	Fumigation	0	1	0	0
A59	A590	Treatment for elimination of animal pests and disease-causing organisms in the final product, n.e.s.	0	1	0	0
A6	A600	Other requirements on production of post-production processes	0	1	0	0
A61	A610	Plant-growth processes	0	1	0	0
A62	A620	Animal-raising or -catching processes	0	1	0	0
A63	A630	Food and feed processing	0	1	0	0
A64	A640	Storage and transport conditions	0	1	0	0
A69	A690	Other requirements n.e.s.	0	1	0	0
A8	A800	Conformity assessment related to SPS	0	1	0	1

NTM Code	Subcode	NTM Name	Loc.	Char.	Firm	Indiscr.
A81	A810	Product registration requirement	1	1	0	0
A82	A820	Testing requirement	1	1	0	0
A83	A830	Certification requirement	1	1	0	0
A84	A840	Inspection requirement	1	1	0	0
A85	A850	Traceability requirement	1	1	1	0
A851	A851	Origin of materials and parts	1	1	0	0
A852	A852	Processing history	0	1	0	0
A853	A853	Distribution of products after delivery	0	1	0	0
A859	A859	Traceability requirements, n.e.s.	0	1	0	0
A86	A860	Quarantine requirement	1	1	0	0
A89	A890	Conformity assessment related to SPS, n.e.s	0	0	0	1
A9	A900	SPS measures, n.e.s.	0	1	0	0
B		Technical Barriers to Trade				
B1		Prohibitions/restrictions of imports for objectives set out in the TBT agreement				
B11	B110	Prohibition for TBT reasons	1	1	0	0
B14	B140	Authorization requirement for TBT reasons	1	1	1	0
B15	B150	Registration requirement for importers for TBT reasons	1	1	1	0
B19	B190	Prohibitions/restrictions of imports for TBT agreement reasons, n.e.s	1	1	0	0
B2		Tolerance limits for residues and restricted use of substances				
B21	B210	Tolerance limits for residues of or contamination by certain substances	0	1	0	0
B22	B220	Restricted use of certain substances	0	1	0	0
B3		Labelling, marking, and packaging requirement				

NTM Code	Subcode	NTM Name	Loc.	Char.	Firm	Indiscr.
B31	B310	Labelling requirements	0	0	0	1
B32	B320	Marking requirements	0	0	0	1
B33	B330	Packaging requirements	0	1	0	0
B4		Production or post-production requirement				
B41	B410	TBT Regulations on production processes	0	1	0	0
B42	B420	TBT regulations on transport and storage	0	1	0	0
B49	B490	Production or post-production requirements, n.e.s.	0	1	0	0
B6	B600	Product identity requirement	0	1	0	0
B7	B700	Product-quality or -performance requirement	0	1	0	0
B8	B800	Conformity assessment related to TBT	1	1	1	1
B81	B810	Product registration requirement	1	1	1	1
B82	B820	Testing Requirement	1	1	1	1
B83	B830	Certification requirement	1	1	1	1
B84	B840	Inspection requirement	1	1	1	1
B85	B850	Traceability information requirements	1	1	1	1
B851	B851	Origins of materials and parts	1	0	0	1
B852	B852	Processing history	1	1	0	1
B853	B853	Distribution of products after delivery	1	0	1	1
B859	B859	Traceability requirements, n.e.s.	1	1	1	1
B89	B890	Conformity assessment related to TBT, n.e.s	0	1	1	1
B9	B900	TBT measures, n.e.s.	0	1	1	1
C1	C100	Pre-shipment inspection	1	0	0	0
C2	C200	Direct consignment requirement	1	1	0	0
C3	C300	Requirement to pass through specified port of customs	1	0	0	0

NTM Code	Subcode	NTM Name	Loc.	Char.	Firm	Indiscr.
C4	C400	Import-monitoring and -surveillance requirements and other automatic licensing measures	1	0	1	0
C9	C900	Other formalities, n.e.s	1	0	0	0
D1		Antidumping Measures				
D11	D110	Antidumping Investigation	1	0	0	0
D12	D120	Antidumping Duty	1	0	0	0
D13	D130	Price undertaking	1	0	0	0
D2		Countervailing measure				
D21	D210	Countervailing investigation	1	0	0	0
D22	D220	Countervailing Duty	1	0	0	0
D23	D230	Undertaking	1	0	0	0
D3		Safeguard measures				
D31	D310	General (multilateral) safeguard	1	0	0	0
D311	D311	Safeguard investigation	1	0	0	0
D312	D312	Safeguard duty	1	0	0	0
D313	D313	Safeguard quantitative restriction	1	0	0	0
D314	D314	Safeguard measures, other form	1	0	0	0
D32		Agricultural special safeguard				
D321	D321	Volume-based agricultural special safeguard	1	0	0	0
D322	D322	Price-based agricultural special safeguard	1	0	0	0
D39	D390	Safeguard , n.e.s.	1	0	0	0
E1		Non-automatic import-licensing procedures other than authorizations for SPS or TBT reasons				
E11		Licensing for economic reasons				
E111	E111	Licensing procedure with no specific ex ante criteria	1	0	1	0
E112	E112	Licensing for specified use	1	1	1	0
E113	E113	Licensing linked with local production	1	0	1	0
E119	E119	Licensing for economic reasons, n.e.s.	1	0	1	0

NTM Code	Subcode	NTM Name	Loc.	Char.	Firm	Indiscr.
E12	E120	Licensing for non-economic reasons	1	0	1	0
E121	E121	Licensing for religious, moral, or cultural reasons	1	0	1	0
E122	E122	Licensing for political reasons	1	0	1	0
E129	E129	Licensing for non-economic reasons, n.e.s.	1	0	1	0
E2		Quotas				
E21	E210	Permanent Quotas	1	0	0	0
E211	E211	Global allocation	1	0	0	0
E212	E212	Country allocation	1	0	0	0
E22	E220	Seasonal Quotas	1	0	0	0
E221	E221	Global allocation	1	0	0	0
E222	E222	Country allocation	1	0	0	0
E23	E230	Temporary	1	0	0	0
E231	E231	Global allocation	1	0	0	0
E232	E232	Country allocation	1	0	0	0
E3		Prohibitions other than for SPS and TBT reasons				
E31		Prohibition for economic reasons				
E311	E311	Full prohibition (import ban)	1	0	0	0
E312	E312	Seasonal prohibition	1	0	0	0
E313	E313	Temporary prohibition, including suspension of issuance of licenses	1	0	0	0
E314	E314	Prohibition of importation in bulk	1	1	0	0
E315	E315	Prohibition of products infringing patents or other intellectual property rights	1	1	0	0
E316	E316	Prohibition of used, repaired, or remanufactured goods	1	1	0	0
E319	E319	Prohibition for economic reasons, n.e.s.	1	0	0	0
E32		Prohibition for non-economic reasons				
E321	E321	Prohibition for religious, moral, or cultural reasons	1	1	0	0

NTM Code	Subcode	NTM Name	Loc.	Char.	Firm	Indiscr.
E322	E322	Prohibition for political reasons (embargo)	1	0	0	0
E329	E329	Prohibition for non-economic reasons, n.e.s.	1	0	0	0
E5		Export-restraint arrangement				
E51		Voluntary export-restraint arrangements (VERs)				
E511	E511	Quota agreement (VER)	1	0	0	0
E512	E512	Consultation agreement (VER)	1	0	0	0
E513	E513	Administrative cooperation agreement (VER)	1	0	0	0
E59	E590	Export-restraint arrangements, n.e.s.	1	0	0	0
E6	E600	Tariff-rate quotas (TRQ)	1	0	0	0
E61	E610	WTO-bound TRQs, included in WTO schedules	1	0	0	0
E611	E611	Global allocation, WTO-bound TRQ	1	0	0	0
E612	E612	Country allocation, WTO-bound TRQ	1	0	0	0
E62	E620	Other TRQs included in other trade arrangements	1	0	0	0
E621	E621	Global allocation, other TRQs	1	0	0	0
E622	E622	Country allocation, other TRQs	1	0	0	0
F1	F100	Administrative measures affecting customs value	1	0	0	0
F11	F110	Minimum import prices	1	0	0	0
F12	F120	Reference prices	1	0	0	0
F19	F190	Other administrative measures affecting the customs value, n.e.s.	1	0	0	0
F2	F200	Voluntary export-price restraints (VEPRs)	1	0	0	0
F3	F300	Variable charges				
F31	F310	Variable levies	1	1	0	0
F32	F320	Variable components	1	1	0	0
F39	F390	Variable charges, n.e.s.	1	0	0	0
F4	F400	Customs surcharges	1	0	0	0
F5	F500	Seasonal duties	1	1	0	0

NTM Code	Subcode	NTM Name	Loc.	Char.	Firm	Indiscr.
F6	F600	Additional taxes and charges levied in connection to services provided by the government				
F61	F610	Customs-inspection, -processing, and -servicing fees	1	0	0	0
F62	F620	Merchandise-handling or -storing fees	1	0	0	0
F63	F630	Tax on foreign exchange transactions	1	0	1	0
F64	F640	Stamp tax	1	0	0	0
F65	F650	Import license tax	1	0	1	0
F66	F660	Consular invoice fee	1	0	0	0
F67	F670	Statistical tax	1	0	0	0
F68	F680	Tax on transport facilities	1	0	0	0
F69	F690	Additional charges, n.e.s.	1	0	0	0
F7		Internal taxes and charges levied on imports				
F71	F710	Consumption taxes	0	0	0	1
F72	F720	Excise taxes	0	0	0	1
F73	F730	Taxes and charges for sensitive product categories	0	0	0	1
F79	F790	Internal taxes and charges levied on imports, n.e.s.	0	0	0	1
F8	F800	Decreed customs valuations	1	0	0	0
F9	F900	Price-control measures, n.e.s.				
G1		Advance payment requirement				
G11	G110	Advance import deposit	1	0	1	0
G12	G120	Cash margin requirement	1	0	1	0
G13	G130	Advance payment of customs duties	1	0	0	0
G14	G140	Refundable deposits for sensitive product categories	1	1	0	0
G19	G190	Advance payment requirements, n.e.s.	1	0	1	0
G2	G200	Multiple exchange rates	1	0	0	0

NTM Code	Subcode	NTM Name	Loc.	Char.	Firm	Indiscr.
G3		Regulation on official foreign exchange allocation				
G31	G310	Prohibition of foreign exchange allocation	1	0	0	0
G32	G320	Bank authorization	1	0	1	0
G33	G330	Authorization linked with non-official foreign exchange				
G331	G331	External foreign exchange	1	1	1	0
G332	G332	Importers' own foreign exchange	1	0	1	0
G339	G339	License linked with non-official foreign exchange, n.e.s.	1	0	1	0
G39	G390	Regulation on official foreign exchange allocation, n.e.s.	1	0	1	0
G4	G400	Regulation concerning terms of payment for imports	1	0	1	0
G9	G900	Finance measures, n.e.s.				
H1		State-trading enterprises, for importing: other selective import channels				
H11	H110	State-trading enterprises, for importing	1	0	1	0
H19	H190	Other selective import channels, n.e.s.	1	0	1	0
H2		Compulsory use of national services				
H21	H210	Compulsory national insurance	1	0	1	0
H22	H220	Compulsory national transport	1	0	1	0
H29	H290	Compulsory national service, n.e.s.	1	0	1	0
H9	H900	Measures affecting competitions, n.e.s.	1	0	1	0
I1	I100	Local content measures	1	1	0	0
I2	I200	Trade-balancing measures	1	1	1	0
I9	I900	Trade-related investment measures, n.e.s.	1	1	1	0

NTM Code	Subcode	NTM Name	Loc.	Char.	Firm	Indiscr.
J1	J100	Geographical restriction (on distribution)	0	0	0	1
J2	J200	Restriciton on resellers (on distribution)	1	0	1	0
K	K000	Restricitons on post-sales services	1	1	1	0
L	L000	Subsidies	1	0	0	0
M	M000	Government procurement restrictions	0	0	1	0
N	N000	Intellectual property	0	0	1	0
O	O000	Rules of origin	1	0	0	0
P		Export-license, -quota, - prohibition, and other quantitativie restricitons	1	0	0	0
P11	P110	Export prohibition	1	0	0	0
P12	P120	Export quotas	1	0	0	0
P13	P130	Licensing- or permit re- quirements to export	1	0	1	0
P14	P140	Export registration re- quirements	1	0	1	0
P19	P190	Export quantitative re- strictions, N.e.s	1	0	0	0
P21	P210	State-trading enterprises, for exporting	1	0	1	0
P29	P290	Other selective export channels, n.e.s.	1	0	1	0
P3	P300	Export price-control measures	1	0	0	0
P4	P400	Measures on re-export	1	0	0	0
P5	P500	Export taxes and charges	1	0	0	0
P6	P600	Export technical mea- sures	1	1	0	0
P61	P610	Inspection requirement, for export	1	1	0	0
P62	P620	Certification required by the exporting country	1	1	0	0
P69	P690	Export technical mea- sures, n.e.s.	1	1	0	0
P7	P700	Export subsidies	1	0	1	0
P8	P800	Export credits	1	0	1	0
P9	P900	Export measures, n.e.s.	1	0	1	0

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