

Chapter 6. Summary and Conclusions

6.1. Introduction

Technical barriers are a form of non-tariff restriction on international trade that have emerged at the center of agricultural policy disputes with increasing frequency. Despite the increased visibility of technical barriers in policy discussions, the extent of their misuse in agricultural trade has not been well quantified. The objective of this dissertation has been to assess the extent of technical barrier misuse and to identify the economic and political factors that determine the incidence and impact of questionable technical barriers to U.S. agricultural trade. Results are summarized in Section 6.2 and some policy implications are discussed briefly in Section 6.3.

6.2. Summary of Results

The GATT is the primary multilateral mechanism for regulating agricultural trade among nations. The most recent Uruguay Round of GATT Agreements included substantial institutional restructuring with implications for agricultural trade and the use of technical barriers. In establishing the WTO, the Final Act of the Uruguay Round strengthened compliance and enforcement mechanisms and created a formal organization to oversee the GATT Agreements. The Agreement on Agriculture brought agricultural trade discipline more in concordance with the underlying principles of the GATT by requiring specific numerical commitments on market access, domestic support, and export subsidies.

Technical barriers are explicitly defined in an economic context as regulations and standards governing the sale of products into national markets which have as their *prima facie* objective the correction of market inefficiencies stemming from externalities associated with the production, distribution and consumption of these products. A feature that distinguishes technical barriers from other forms of trade intervention is the legitimate use of technical regulation by governments to protect consumers' health, recognize citizen preferences in packaging and labeling, and protect the environment from the establishment of non-indigenous pests and diseases. Questionable technical barriers can also be used to provide economic-based protection for producers by insulating the domestic market from the effects of international competition.

The Uruguay Round SPS and TBT Agreements, which specifically address the use of technical barriers, provide guidelines for government behavior in implementing technical measures. These guidelines are designed to protect the legitimate rights of importing countries with respect to national health and safety without providing a loophole for countries to avoid the new trade-liberalizing disciplines of the Agreement on Agriculture. Disputes over technical barriers usually center on distinguishing measures that are of questionable merit from those that are considered legitimate. Taken together with WTO dispute settlement panel rulings and

statements, the Uruguay Round SPS and TBT Agreements indicate a set of criteria separating the externality-based from the economic-based protection components of technical barriers.

The ability of technical barriers to provide both externality-based and economic-based protection makes the analysis of their economic effects more complicated than for tariffs or other non-tariff barriers. Net welfare effects are shown to be indeterminate *a priori* in a static partial equilibrium analysis when technical barriers correct negative externalities in the economy. Technical barriers can increase national welfare even in the small country case. However, when an externality is not corrected, imposition of a technical barrier decreases net welfare in a small economy, just as welfare is decreased with the imposition of traditional trade restrictions.

Political economy is a paradigm that explains government intervention in markets even when the result is a loss in net welfare. The policy equilibrium is determined endogenously by producers, consumers, and policymakers acting as rational maximizers. A number of competing theoretical models to explain the behavior of agents and policymakers have been postulated in the political economy paradigm. Some of the more prominent theoretical approaches can be categorized into models of interest groups, voters, political preference functions, and campaign contributions.

While the political economy paradigm has not been extensively applied to the empirical analysis of technical barriers, such an approach has been the basis for numerous studies of other trade and agricultural policy decisions. These studies are often designed to identify policy determinants using a number of proxy measures for the political economy variables identified in the theoretical models. The proxy measures can be broadly classified as representing the effects of agent preferences, effective political influence, policymaker preferences, and institutional structures. Proxies for agent preferences, or the incentives for agents to influence policy, are typically measures designed to capture the stakes of individuals in the outcomes. The size of potential gains, measures of comparative advantage, and import competition are generally found to be significant determinants of policy. The effective political influence of agents is typically measured by variables representing the ability of agents to organize, given the structures of society and the number of agents in favor of a particular policy. Proxies for policymaker preferences include measures of welfare surpluses, financial support, or ideology although these proxies are not readily available for cross-country analysis. Proxies for the role of institutional structures have included domestic, international, and cultural constraints.

Despite GATT rules designed to limit the misuse of technical barriers, continued disputes indicate that this type of regulatory measure can not always be justified on the basis of unambiguous scientific evidence and suggests political economy factors may influence governments to apply technical barriers of questionable merit. The 1996 USDA Survey of Technical Barriers to U.S. Agricultural Exports provides a primary data source to assess the extent of questionable technical barriers, albeit from the perspective of a single exporter.

Although there were no questionable technical barriers to 1996 U.S. agricultural exports reported for 71 countries included in the Survey, there are a total of 302 barriers identified among 63 countries. The estimated trade impact of the questionable technical barriers reported is \$4.9 billion, or approximately seven percent of the total value of 1996 U.S. agricultural

exports. The majority (55 percent) of the barriers identified have estimated trade impacts of less than \$5 million per barrier, further illustrating the extent of proliferation of questionable technical barriers. In contrast, there are only 18 barriers reported in the Survey with estimated trade impacts greater than \$50 million per barrier. These 18 barriers alone account for almost 63 percent of the total trade impacts from questionable technical barriers.

When the 1996 Survey data is aggregated by country, 16 countries account for 64 percent of the barriers and 89 percent of the total estimated trade impact identified in the Survey. There are 47 additional countries utilizing questionable technical barriers with smaller total estimated impacts. Total disruptions to agricultural trade flows could become much larger if a proliferation of questionable technical barriers occurs among these 47 countries or among the other 71 countries identified as having no questionable technical barriers in the Survey.

In this dissertation, empirical models have been estimated to quantify the political economy determinants of questionable technical barriers as they are applied to U.S. agricultural exports. The first set of models addresses the incidence of questionable technical barriers, measured by the presence or absence of any questionable barriers by country. The second set of models addresses the impact of questionable technical barriers, measured by the estimated trade impact reported in the Survey as a percentage of total 1996 U.S. agricultural exports to that country. A set of 23 independent variables are utilized to represent characteristics of trade (11 variables), characteristics of agriculture (5 variables), characteristics of the aggregate economy (6 variables), and measurement issues (1 variable) that might affect the reported outcomes.

The maintained hypothesis of this research is that technical barriers to agricultural trade result from a combination of scientific, economic, and political forces, and that questionable technical barriers tend to arise when the economic incentives and political forces are relatively strong. Supporting hypotheses include the following:

1. technical barriers with certain characteristics related to regulatory goal, market impact, and product category lend themselves to active public or government intervention in the policy determination process;
2. as the economic stakes are higher for individual agents within the economy, their influence on the policy outcome will increase;
3. the level of technical barriers applied to a country's exports is directly related to the level of commodity trade between countries;
4. as the agricultural production sector becomes more concentrated, producer influence on the policy outcome will increase;
5. technical barriers are substitutes for (or complements to) other forms of trade protection; and
6. technical barriers are used in a retaliatory, or tit-for-tat, trading strategy between nations.

Simple statistics and cross-tabulations of the Survey results provide some evidence in support of the hypothesis that technical barrier misuse is likely to be greater when the barriers have certain characteristics related to regulatory goal, market impact, and product category. Almost two-thirds of the barriers identified are addressed to concerns over commercial production; the protection of commercial animal and plant health. Although there are fewer

measures addressing concerns over food safety, the estimated trade impact per goal for the food safety measures is the largest identified in the Survey.

The largest number of barriers reported in the Survey limit expansion of trade in existing markets and these barriers have the greatest total estimated trade impact. However, the highest average trade impact per barrier is reported when the retention of current trade was threatened, suggesting that the stakes are perceived to be high when there is a possibility of removing access to a market that is already established.

There are a large number of barriers reported that apply to final-unprocessed products such as fruit and vegetables, but the average estimated trade impact per barrier is low. In contrast, bulk products, primarily concentrated in grains, were reported to face relatively few questionable technical barriers but the average estimated trade impact per barrier was large. The largest number of barriers and the greatest estimated trade impact is identified among final-processed products with further processed food constituting the majority of these cases.

Results from the econometric models provide evidence in support of the hypothesis that the influence of individual agents on policy outcomes will increase as their economic stakes are higher. Empirical results suggest that questionable technical barriers are more likely to be present when the economic stakes are greater for producers. There is a decrease in the probability of barriers being reported when the change in bilateral agricultural trade balance with the U.S. has been more favorable (exports to the U.S. increase relative to imports from the U.S.). More competitive producers have less (or at least seem to perceive to have less) to gain from regulatory intervention. In contrast, the empirical results suggest that the impact from regulatory intervention is likely to decrease when the economic stakes are greater for consumers. There is a decrease in the percentage estimated trade impact from questionable technical barriers when the level of private consumption rises. Even when the level of income is held constant, the impact from questionable technical barriers decreases as consumption increases. Surprisingly, the variable for per-capita income (GDP) is not a significant determinant of either the presence of questionable technical barriers or the percentage estimated trade impact from such barriers. The negative coefficient on the percentage contribution of agriculture to GDP provides indirect evidence that technical barriers are less likely to be observed in developing countries.

As further evidence in support of the hypothesis that the influence of individual agents increases as their economic stakes increase, both the probability of questionable technical barriers being reported and the percentage estimated trade impact decrease as agricultural imports increase relative to the level of domestic value-added in agriculture. Countries with relatively small domestic agricultural sectors compared to national consumption are less likely to apply questionable technical barriers. This empirical result suggests that consumers are able to dominate the effect of producer gains from regulatory intervention when they have more to lose from regulatory intervention; for example, when import competition is greater relative to domestic value-added. In contrast, countries with relatively large domestic agricultural sectors compared to the level of imports are more likely to apply questionable technical barriers. This suggests that producers are able to dominate the effect of any potential consumer losses when the domestic sector is large relative to national consumption.

The pattern of questionable technical barriers identified in the Survey follows the broad patterns of U.S. agricultural trade flows, providing some evidence to support the hypothesis that the level of technical barriers applied to a country's exports is positively related to the level of commodity trade between countries. Barriers in the Americas are concentrated among the grain and seed product groups. Barriers in East Asia are more prevalent among fruit and further processed foods. Barriers in Europe are concentrated in the animal products. There are fewer barriers in the Oceania, Africa, and Middle East regions with no concentration in any particular product category.

There is evidence from the econometric models to support the hypothesis of increasing effective political influence from more concentrated groups of producers. In the models for the presence or absence of questionable technical barriers, results suggest that the probability of enacting questionable technical barriers increases when the number of agricultural producers becomes geographically more concentrated. In addition, as the percentage of the labor force employed in agriculture decreases the probability of enacting questionable technical barriers increases, indicating that more concentrated groups of producers might find it easier to organize, overcome free-rider problems, and lobby successfully for protection. Similar results are indicated by the coefficient for the percentage contribution of agriculture to national GDP. As the relative contribution of the agricultural sector to the economy decreases, the probability of enacting questionable technical barriers increases. The results from the models of impact coincide with those from the models of incidence.

The variables used as proxies for institutional structure provide some evidence to support a substitution hypothesis among trade policies. As the projected future level of protection for agriculture through other forms of government intervention, including tariffs and the tariffication of other non-tariff barriers, decreases, the probability of questionable technical barriers being reported increases. Results indicate that the probability of questionable technical barriers is higher when future protection rates are lower, even when countries have committed to the SPS and TBT Agreements and face the possibility of international challenge in the WTO. There is a positive relationship between WTO membership and the percentage estimated trade impact from questionable technical barriers, further indicating that a multilateral commitment to the provisions of the GATT Agreements may not be a constraining factor on the misuse of technical barriers. These empirical results may also indicate simply that WTO membership results in increased exposure for existing technical barriers that are now subject to international scrutiny, in which case WTO membership may eventually reduce the use of questionable barriers.

There is some indirect evidence to support the hypothesis that countries use technical barriers in a retaliatory, or tit-for-tat, trading strategy, even though such an hypothesis cannot be tested directly without data on U.S. regulatory policy. As the percentage change in the bilateral agricultural trade balance with the U.S. increases (exports increase relative to imports) the probability of questionable technical barriers being reported decreases. In addition to reflecting an influence of increased competitiveness of domestic producers in general, this may suggest that a tit-for-tat strategy has been utilized in decisions about imposing such barriers.

Empirical results indicate that questionable technical barriers are more likely to be reported in countries where an FAS post, the primary data collection mechanism, is present.

This analysis has not determined whether the barriers are over-reported in countries with an FAS post or under-reported in countries without an FAS post. Results from the models of impact indicate that while such barriers were less likely to be identified in countries without an FAS post, the absence of a post does not appear to influence the levels of the estimated trade impact from questionable technical barriers.

6.3. Policy Implications

The results of this dissertation have several policy implications. Technical barriers continue to be used as a form of disguised economic-based protection for domestic agricultural sectors despite the strengthened disciplines of the GATT Uruguay Round Agreements designed to limit such misuse. Of particular concern is the support for the hypothesis that technical barriers may be used as substitutes for tariffs and other non-tariff barriers.

The distribution of questionable technical barriers among countries has important implications for the proliferation of policy misuse. While only 16 countries accounted for over one-half of the barriers and 89 percent of the estimated trade impact reported in the Survey, there were 47 additional countries utilizing questionable technical barriers with smaller estimated trade impacts. The potential disruptions to international agricultural trade could be much larger if the 47 countries increase their use of questionable technical barriers or if the 71 countries with no questionable technical barriers reported implement such barriers, even with “small” total estimated trade impacts per country. Conversely, if only a few countries continue to apply questionable technical barriers with large total impacts on agricultural trade, policymakers may be able to significantly influence market openness by concentrating their negotiating efforts on a limited number of trading partners.

The results from the empirical models can be used to help identify situations where future questionable technical barriers are more likely to be enacted. The assessment of technical barriers to U.S. agricultural exports provides a positive analysis of the economic and political determinants of questionable technical barriers. Results provide a basis for making predictions about future observed behavior that may help policymakers anticipate the enactment of technical regulations that are likely to be contentious.