

Chapter 1. Introduction

1.1. Introduction

Barriers to the international trade of goods and services exist in many forms that can limit free competition. The General Agreement on Tariffs and Trade [GATT] is the primary multilateral institution for regulating trade relations among nations, with a goal of lowering or removing such barriers. In 1994 the Uruguay Round GATT negotiations were completed, and in 1995 the resulting Final Act including the Agreement Establishing the World Trade Organization [WTO] was implemented. This Agreement incorporates all of the previously existing GATT rules as well as new Uruguay Round Agreements. In addition, the WTO provides a new institutional structure for policing and enforcing GATT regulations.

One focus of the Uruguay Round was reducing barriers to trade in agricultural products. In the Agreement on Agriculture, signatory nations make specific numerical commitments to reductions in tariffs, domestic support, and export subsidies, as well as the tariffication and binding of other specified non-tariff measures. Tariffication is the conversion of non-tariff restrictions on trade to tariff-equivalents, the tariff level that would result in an equivalent amount of trade protection.

Technical barriers, an additional form of non-tariff restriction that often affects agricultural trade, are specifically addressed in the Uruguay Round Agreement on the Application of Sanitary and Phytosanitary Measures [SPS] and the Agreement on Technical Barriers to Trade [TBT]. For agriculture, technical barriers are broadly defined as measures to protect plant, animal, and human health, as well as other measures and standards related to product quality.

A distinguishing feature of technical barriers is their legitimate use 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. All nations employ a wide range of standards and regulations to govern the sale of agricultural products in national markets, the majority of which are considered justified commercial limitations. As such, technical barriers have the potential to increase national welfare, even without consideration of terms-of-trade effects, when legitimate externalities or other market failures are addressed.

Governments may also impose technical barriers simply to isolate domestic producers from international competition. In these cases under the small-country assumptions, technical barriers are welfare-decreasing policies, just as tariffs and other forms of non-tariff barriers. This type of disguised economic-based protection is subject to challenge under WTO dispute settlement procedures.

It is not always apparent how to separate the economic-based protection dimension from the legitimate externality-based protection dimension of a technical barrier. Challenges to technical barriers are often highly complex, and debates over the use of these measures can be

contentious. The goal of the SPS and TBT Agreements is 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 Uruguay Round Agreement on Agriculture.

1.2. Scope of the Study

Partly as a result of the strengthened rules provided by the Uruguay Round Agreements, technical barriers are emerging at the center of agricultural trade policy disputes with increasing frequency. These disputes usually center on distinguishing technical measures that are of questionable merit from those that are considered legitimate under WTO auspices. Policymakers are concerned that the legitimate justification for some measures will allow governments to use unnecessary technical barriers as replacements for more traditional restrictions to trade. If so, high levels of economic-based protection for domestic agricultural producers might be maintained even though the levels of tariff and other non-tariff barriers are reduced.

Despite the increased visibility of technical barriers in policy discussions, the extent of their misuse in agricultural trade has not been well quantified. Most previous research addressing technical barriers to agricultural trade has been structured as case studies. These studies provide detailed descriptive analysis and offer valuable insights on specific barriers, but they cannot be used to assess the broad incidence and impact of technical barriers as a form of trade protection. Individual case studies are not appropriate for identifying common factors among policies that can be considered questionable and, hence, subject to challenge in the WTO.

A more comprehensive view is needed to identify the extent of questionable technical barriers to agricultural trade and their common determinants. Developing such an overview has been precluded by the large amount of primary data collection required. In general, data on technical barriers is widely dispersed and difficult to obtain, and there has not been a consistent data source available.

In 1996 the United States Department of Agriculture [USDA] conducted a survey providing a cross-sectional accounting of technical barriers to U.S. agricultural exports that were enforced or proposed as of June 1996, that decreased or potentially decreased exports, and that were possibly subject to WTO challenge. The resulting data set provides a basis to systematically assess the broad incidence and impact of questionable technical barriers, albeit only from the perspective of a single exporting country.

In this dissertation, which was initiated in conjunction with the USDA survey data collection, the extent of technical barrier misuse affecting U.S. agricultural exports is quantified and analyzed. The results of the dissertation provide a unique overview as a basis of comparison for individual case studies. The assessment also provides a positive analysis of the economic and political determinants that underlie questionable technical barriers and empirical evidence addressing frequently stated hypotheses concerning these determinants. Finally, the empirical

analysis provides a basis for making predictions about future observed behavior with respect to the use of questionable technical barriers as trade restrictions.

1.3. Objectives of the Study

The overall objective for this study is 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. Specific objectives are:

1. to provide an economic definition of technical barriers and review the GATT disciplines on these measures;
2. to exposit a political economy paradigm for regulatory decision-making that accounts for the potential misuse of technical barriers;
3. to utilize the 1996 cross-sectional data set collected by USDA on questionable technical barriers to U.S. agricultural exports in order to quantify and characterize the extent of economic-based protection provided; and
4. to identify the economic and political determinants of questionable technical barriers to U.S. agricultural exports, and to estimate their relative impact in reduced-form econometric models.

1.4. Hypotheses of the Research

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. Several supporting hypotheses will be tested. These 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.

1.5. Overview of the Dissertation

The remaining chapters of this dissertation are organized as follows. Chapter Two provides an overview of the institutional structure of the GATT including a summary of the objectives of the international trading community for the governance of agricultural trade policy and a review of the WTO enforcement and dispute settlement mechanisms. Provisions of the Agreement on Agriculture addressing tariffs and more traditional non-tariff barriers that impact agricultural trade are described. Then an economic definition of technical barriers is offered which identifies some unique characteristics of these measures. The Uruguay Round SPS and TBT Agreements, which specifically address technical barriers, are discussed. These two Agreements provide criteria to identify when technical barriers can be considered questionable, and broadly constitute the multilateral institutional constraints on the use of such measures.

In Chapter Three, the political economy of direct and regulatory government interventions in markets is presented. First, the efficiency and distributional consequences of intervention through technical barriers are discussed. Given the legitimate uses of technical barriers, these effects will change as the relative levels of questionable economic-based versus legitimate externality-based protection vary. Next, a political economy paradigm for decision-making is explicated in which the levels of interventions are endogenous in the economy, arising as individual agents and policymakers act as rational maximizers given their preferences and the institutional structures of society. Theoretical political economy models and empirical studies that use political economy to explain intervention in agricultural markets through trade barriers and domestic farm commodity support programs are reviewed.

Procedures and results of the 1996 USDA Survey of Technical Barriers to U.S. Agricultural Exports (hereafter “the Survey” or “the USDA Survey”) are provided in Chapter Four. Despite the efforts of the international trading community to limit the questionable use of technical barriers, an analysis of the 1996 USDA data indicates that such barriers are widely used to provide economic-based protection. A series of simple statistics and cross-tabulations are calculated to characterize and quantify the apparent misuse of these measures. Questionable technical barriers to U.S. agricultural exports are categorized according to their legal classification, regulatory goal, market impact, policy instrument, level of product processing, product category, and geographic region. Individual questionable barriers are aggregated by country to identify the number and estimated trade impact of questionable technical barriers by government imposing the restriction.

In Chapter Five a series of reduced-form models, based on the political economy paradigm, are estimated using limited dependent variable econometric techniques. Two fundamental set of models are explicated to build a preponderance of evidence that identifies the determinants of the incidence and impact of questionable technical barriers facing U.S. agricultural exports. The first set of models quantifies the incidence of questionable technical barriers as the presence or absence of such measures and is analyzed using PROBIT econometric techniques. The second set of models quantifies the impact of questionable technical barriers as

the percentage estimated trade impact from such measures and is analyzed using TOBIT econometric techniques.

Chapter Six presents a summary of the dissertation results and draws some conclusions concerning the broad incidence and impact of technical barriers on agricultural trade.

1.6. Summary of the Main Empirical Results

Data from the 1996 USDA Survey indicate that questionable technical barriers are widespread in international agricultural markets. Although no questionable technical barriers to 1996 U.S. agricultural exports are reported for 71 countries included in the Survey, there are a total of 302 barriers identified among 63 countries. The estimated trade impact from these questionable technical barriers is \$4.9 billion, approximately seven percent of the total value of 1996 U.S. agricultural exports.

When the Survey data is summarized by country, 16 countries account for 64 percent of the barriers and 89 percent of the total estimated trade impact identified. In addition there are 47 countries reported to utilize questionable technical barriers with smaller estimated impacts. Disruptions to agricultural trade flows could become much larger if a similar proliferation of questionable technical barriers occurs among these 47 countries or among the other 71 countries identified in the Survey as having no questionable technical barriers.

In an empirical analysis of the political economy determinants of questionable technical barriers, a number of factors are shown to affect the probability of one or more questionable technical barriers being observed for a country. The probability of questionable technical barriers being reported decreases when a larger percentage of the labor force is employed in agriculture or when agricultural producers are less concentrated geographically. These results suggest that larger, more dispersed, groups of producers may find it harder to organize, overcome free-rider problems, and lobby successfully for protection.

Trade patterns and policy also influence the use of questionable technical barriers. There is a decrease in the probability of any barriers being reported when recent changes in the bilateral agricultural trade balance with the U.S. have been favorable (exports to the U.S. increase relative to imports from the U.S.). The probability of any barriers being reported also decreases, all else constant, as agricultural imports increase relative to the level of domestic value-added in agriculture. These results suggest that use of questionable technical barriers is less likely when domestic producers are more competitive in international markets, or when domestic agriculture is small relative to domestic consumption. In the latter case, domestic producers may not be very competitive, but consumer interests seem to dominate producer gains from regulatory intervention if the domestic agricultural production sector is small. Such consumer interests do not always dominate the outcomes. The probability of questionable technical barriers being reported is higher, all else equal, in countries for which there is a decline in the projected future level of protection for agriculture through other forms of government intervention.

The survey design also has a measurable influence on the probability of one or more questionable technical barriers being observed. The presence of an FAS post in some countries, but not in others, has a significant positive effect on questionable technical barriers being reported.

The estimated percentage trade impact of questionable technical barriers on U.S. agricultural exports ranges from zero, for those 71 countries where no questionable technical barriers are identified, to 412, where the estimated trade impact from questionable technical barriers in 1996 was largest relative to 1996 U.S. agricultural exports to the country. Consistent with results for the probability of observing one or more questionable technical barriers, the percentage estimated trade impact from such barriers decreases when the percentage of the labor force employed in agriculture increases and when agricultural imports increase relative to the level of domestic value-added in agriculture. In addition, the impact from regulatory intervention is estimated to decrease when the stakes are greater for consumers. There is a decrease in the percentage estimated trade impact from questionable technical barriers when the level of per-capita private consumption rises, regardless of the level of national income (GDP), which somewhat surprisingly is itself not found to have a significant impact on the outcomes.

There is a positive relationship between WTO membership and the percentage estimated trade impact from questionable technical barriers. This may indicate that commitment to the GATT Agreements has not been a constraining factor on technical barrier misuse, but it is also possible that WTO membership has simply resulted in increased exposure for previously existing technical barriers that are now subject to international scrutiny. Eventually WTO membership could reduce the use of questionable technical barriers under the latter interpretation.

Taken together, the empirical results presented in this dissertation provide an assessment of technical barrier misuse when such measures are applied to U.S. agricultural exports. The results indicate that technical regulations are not always determined on the basis of unambiguous scientific evidence. Despite the strengthened WTO rules governing the use of technical barriers, political economy considerations continue to influence the incidence and impact of technical barriers as a source of disguised economic-based protection in international agricultural markets.