

A Framework for Analyzing Technical Trade Barriers in Agricultural Markets. By Donna Roberts, Timothy E. Josling, and David Orden. Market and Trade Economics Division, Economic Research Service, U.S. Department of Agriculture. Technical Bulletin No. 1876.

Abstract

Technical trade barriers are increasingly important in the international trade of agricultural products. Designing technical trade measures that can satisfy the growing demand for food safety, product differentiation, environmental amenities, and product information at the lowest cost to the consumer and to the international trading system requires an understanding of the complex economics of regulatory import barriers. This report proposes a definition and classification scheme to frame discussion and evaluation of such measures. Open-economy models that complement the classification scheme are developed graphically to highlight the basic elements that affect the economic impacts of changes in technical trade barriers.

Keywords: technical trade barriers, sanitary and phytosanitary, agricultural trade policy, environmental trade measures

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Summary

Technical trade barriers—measures that restrict imports of products that fail to meet a country’s health, quality, safety, or environmental standards—are increasingly important in international agricultural trade. Income growth is fueling demand for environmental amenities, food safety, product differentiation, and product information, and regulators are being asked to provide these services when markets fail to do so. Economic analysis that can inform policy decisions about the design of regulations and standards to satisfy these growing demands and that improves the understanding of the trade and welfare implications of alternative policies has been slow to develop. Technical trade barriers are a difficult conceptual and empirical topic, and it may be some time before key questions about optimal policies are resolved. This report provides a preliminary framework for analyzing this vast array of trade-restricting measures so as to foster research that will provide the answers to these questions.

Specifically, this study proposes definitions and a classification scheme to:

- Provide a conceptual foundation for evaluation of technical trade barriers;
- Guide the specification of economic models used to gauge the trade and welfare impacts of these measures; and
- Provide policymakers and analysts with an organizing framework for discussing and possibly negotiating international guidelines for their use.

Technical trade barriers are defined as *regulations and standards governing the sale of products into national markets that have as their prima facie objective the correction of market inefficiencies stemming from externalities associated with the production, distribution, and consumption of these products*. An externality is defined by economists as a direct and unintended side effect of an activity of one individual or firm on the welfare of other individuals or firms (such as the use of food processing methods in foreign countries that result in microbial contamination in food that subsequently causes consumers to fall ill). Given such an occurrence, authorities might choose to adopt a technical trade barrier (in the form of a process standard) if it were judged that market incentives alone had not produced the “efficient” amount of food safety—that is, if consumers would have been willing to pay more (perhaps through higher food prices caused by restricting imports from some sources) to avoid illness. Thus, technical trade barriers can be welfare-enhancing, a feature generally absent from other trade-restricting measures. The words *prima facie* in the definition acknowledge that technical trade measures have sometimes been used to shield domestic producers from international competition.

A classification scheme is proposed to set up the economic analysis of these measures in a systematic framework. Technical barriers are first classified by policy instrument and by scope, which provides a basis for evaluating these measures as if they were standard trade barriers. They are then classified by regulatory goal, to further understanding of how their effects might differ from standard barriers.

The classification criteria are then used to analyze the results of a U.S. Department of Agriculture (USDA) survey of foreign technical barriers to U.S. agricultural exports. A rating of the relative importance of different regulatory goals emerges from this analysis. The regulatory objectives of most of the barriers identified in the survey were protection of commercial crops and livestock (62 percent) and food safety (22 percent). Conservation or protection of the natural environment from harmful non-indigenous species were objectives for only a few of the trade barriers. The classification also permits examination of the distribution of the most trade-restrictive measures across regulatory goal categories. The analysis indicates that import bans constitute 27 percent of the measures used to protect crops and livestock, a higher percentage than for any other regulatory goal category.

Models that complement the classification scheme are developed graphically to highlight three basic elements that affect the economic impacts of changes in technical measures in an open economy framework: the case where there is no valid rationale for the barrier, and supply shifts and demand shifts that might result from changes in policy if the barrier has a significant technical basis.

In addition to modeling the effect of the technical barrier on the parameters of supply and demand in the market in question, a full analysis of the trade impacts of a technical measure requires consideration of its scope. That is, does the barrier apply to all exporters or only to particular exporters, and are such barriers applied by only one importer or by many importers? These distinctions essentially govern the incidence of the cost of compliance with import regulations. The trade and welfare effects of different technical trade barriers are analyzed from both the importer and exporter perspective in these models.

An application of this analytical framework is illustrated by an assessment of the price, quantity, and welfare effects of alternative phytosanitary measures that would allow imports of Mexican avocados into the United States. The effects on American producers and consumers are examined under different assumptions about the probability of a pest infestation affecting domestic production and about the costs of an infestation in terms of pest-control expenses and reduced yields. The analysis indicates that, in certain scenarios, technical barriers that restrict trade to minimize the probability of trade-related pest infestations can create welfare losses that exceed the domestic costs arising from these infestations.

Glossary

AMS—Agricultural Marketing Service, USDA

APHIS—Animal and Plant Health Inspection Service, USDA

CODEX—Codex Alimentarius Commission

EU—European Union

FSIS—Food Safety and Inspection Service, USDA

GATT—General Agreement on Tariffs and Trade

GIPSA—Grain Inspection, Packers and Stockyards Administration, USDA

HNIS—Harmful Non-Indigenous Species

IPPC—International Plant Protection Convention

NAFTA—North American Free Trade Agreement

NTB—Non-tariff Trade Barrier

OECD—Organization for Economic Cooperation and Development

OIE—Office International des Epizooties (International Office of Epizootics)

PPM—Production and Processing Methods

SPS—Sanitary and Phytosanitary

TBT—Technical Barriers to Trade

WTO—World Trade Organization