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The Effects of Phytosanitary Regulations on U.S. Imports of Fresh Fruits and Vegetables

Peyton Ferrier

What Is the Issue?

Since fruits and vegetables are particularly susceptible to phytosanitary problems, their imports are often subject to a large number of regulatory requirements. While multilateral and bilateral trade liberalization agreements since the late 1980s have worked to restrain the arbitrary use of nontariff measures (including phytosanitary regulations), some argue that countries continue to use them to protect domestic producers because their complexity makes them difficult to challenge. While previous research has found examples where phytosanitary regulations reduce imports and protect domestic producers, relatively little work considers how these nontariff measures comprehensively affect the full range of fruit and vegetable imports.

This type of analysis is challenging because import regulations vary over time and by country of origin, and they are enforced by different agencies. For example, fruit and vegetable imports are regulated by the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) for pest risk, USDA's Agricultural Marketing Service regulates for quality standards and marketing claims, and the U.S. Food and Drug Administration regulates for adulteration with pesticides and human pathogens. Moreover, enforcement data are typically not readily available, and imports and demand-substitution patterns are seasonal and diverse. Fruit and vegetable commodities are also regulated differently depending on the country of origin—each country-commodity combination (e.g., pineapples from Costa Rica) is considered a “pathway” by which pests may be introduced into the United States.

What Did the Study Find?

Using regulatory enforcement data, this study reports the rates at which fruit and vegetable imports receive discretionary phytosanitary treatments at the border as the result of an inspection (risk rates), and classifies these rates by the type of treatment

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ordered and the reason it was ordered. Combining this data with import data, this report has five main findings:

- For many imported commodities, the reported trade volume (as measured by the total weight) differs significantly between inspection data (collected by APHIS) and import data (collected by the U.S. Census Bureau) because of differences in the way these data are collected. This report compares the percentage difference between the quantity of a commodity recorded in imports data and the quantity of a commodity recorded in inspections data. Of the 29 goods considered, only 12 have differences (in absolute terms) of less than 10 percent and 6 have differences greater than 20 percent. These differences, however, are generally decreasing over time.
- U.S. imports of specific commodities are often dominated by a small number of countries, although a far larger number of pathways are permitted entry. Of the 29 goods considered, only 8 have more than 4 suppliers with import shares larger than 1 percent. Moreover, 18 of the 29 goods considered have a single country supplying more than 80 percent of U.S. imports of that good.
- About 8 percent of significant pathways (where a country ships more than 1 percent of all exports of a particular commodity to the United States) require a discretionary phytosanitary treatment more than 5 percent of the time, and about 30 percent of them require this type of treatment over 1 percent of the time. Of the 29 goods considered, 8 (apples, cassava, celery, corn, eggplant, papaya, peas, and pineapple) required discretionary phytosanitary treatments more than 1 percent of the time.
- Significant and nonsignificant pathways are about equally as likely to require a mandatory phytosanitary treatment. In 2012, 11 percent of significant pathways required a treatment as a condition of entry, compared with 13 percent of all pathways. Import requirements also vary across commodities—grapes, kiwi, peaches, and pears all have significant pathways that require mandatory treatments, while no significant pathways require treatments for bananas, tomatoes, and strawberries.
- Using the percentage of imports subject to discretionary treatments as an upper limit on the average cost of inspection, this report finds that both tariffs and nontariff measures are relatively small across significant pathways.

How Was the Study Conducted?

Four data sources—inspection enforcement data and regulatory data from APHIS, import data from the U.S. Census Bureau, and average tariff rates compiled by USDA’s Economic Research Service—were used to develop a panel data set for month, commodity, and country of origin. These data include monthly import volumes, the volumes reported as being inspected, the inspection outcomes, and the average tariff rates. The inspection outcomes data were used to calculate the rates at which goods are ordered treatments, which were further classified by the specific type of risk (e.g., pests found, discrepancies in phytosanitary certificates, cargo contamination, prohibited products, or shipping material violations) and by the type of treatment ordered (e.g., whether the commodity was destroyed, returned, fumigated, cold treated, or given some other action). This report also includes the percentage of imports that entered under an APHIS pre-clearance program and the percentage of imports that entered the United States under the National Agricultural Release Program, a program where shipments of low-risk imports are inspected with less frequency than ordinary shipments.