

An Empirical Assessment of SPS Regulations on U.S. Fresh Fruit and Vegetable Imports

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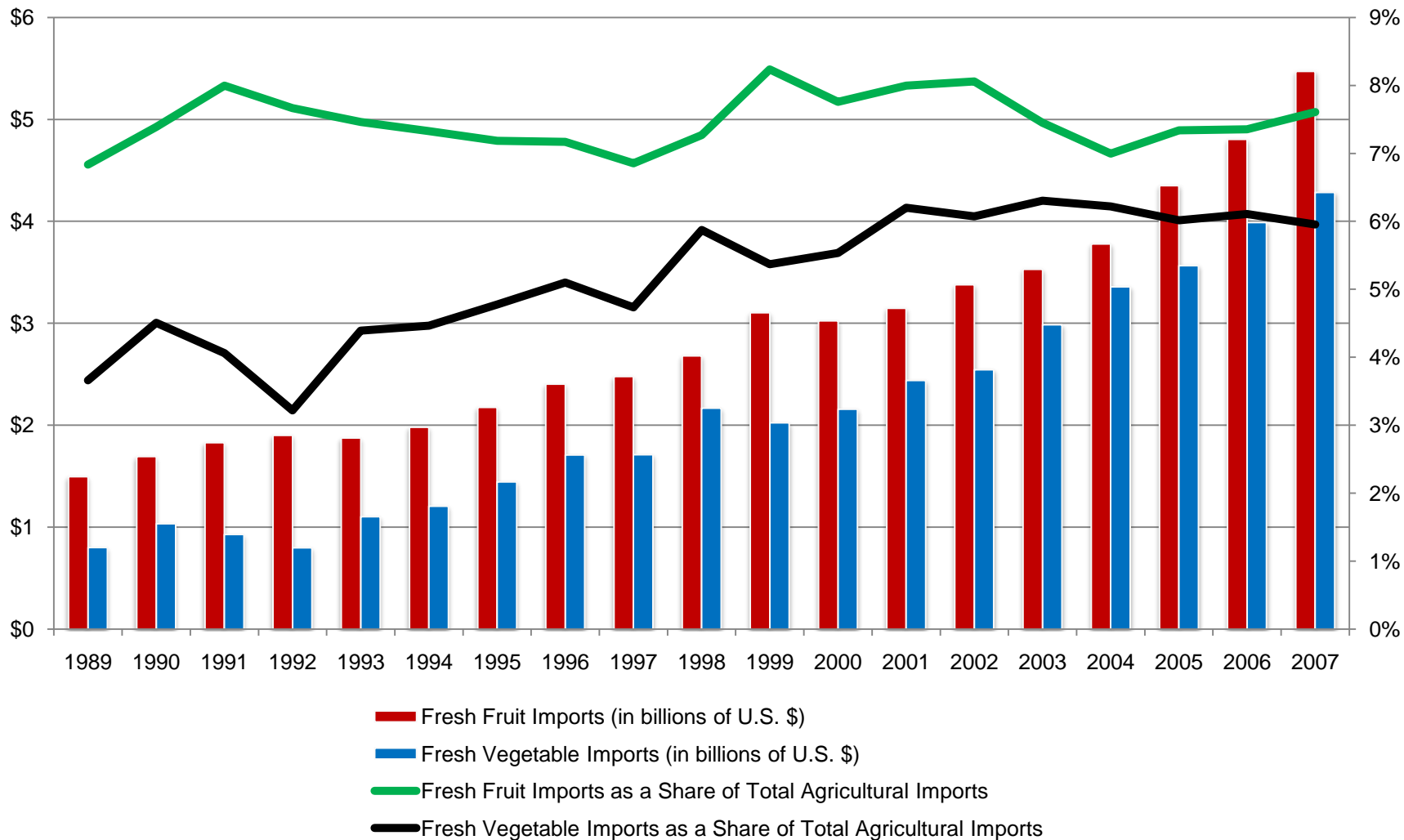
Ft. Myers, FL



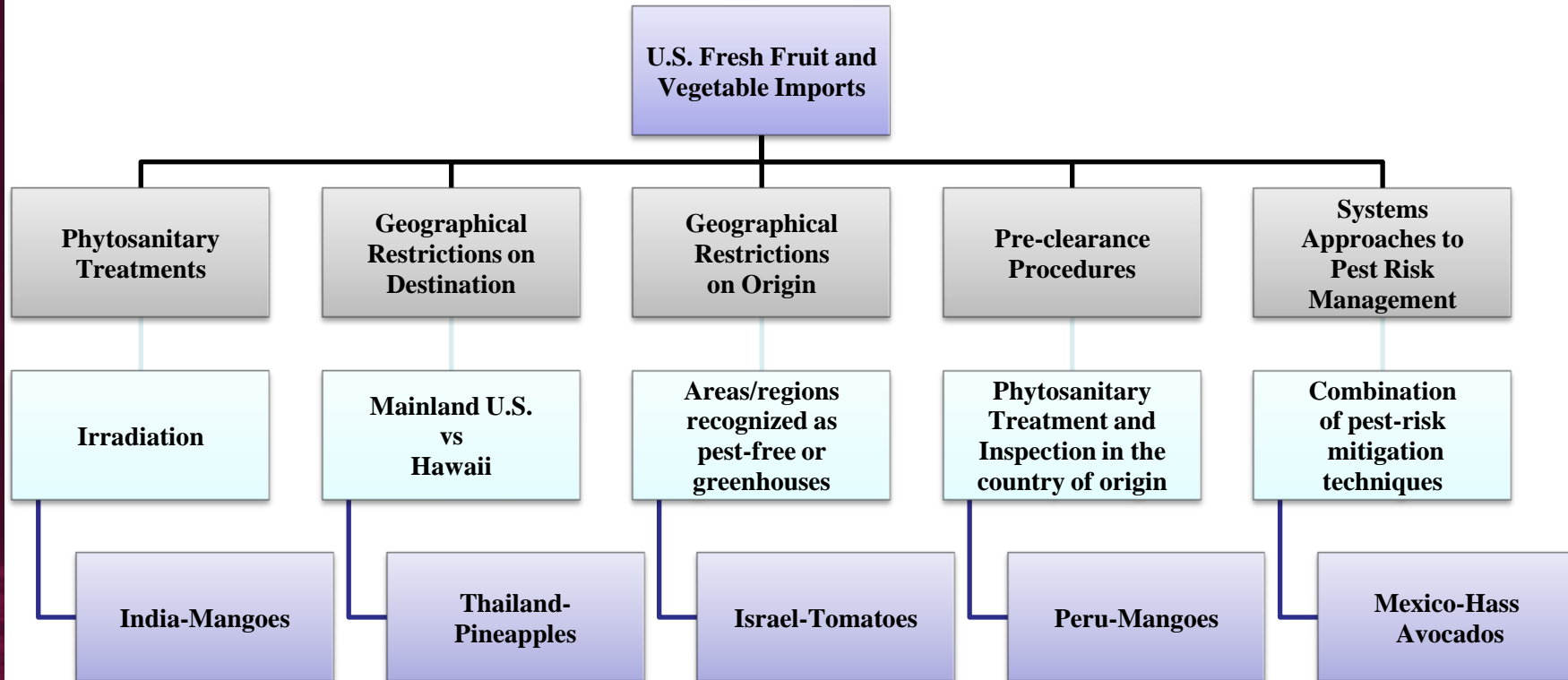
Outline

- Background on fresh fruit and vegetable imports
- Overview of U.S. regulations
- Empirical estimates of effects of phytosanitary treatments on U.S. imports

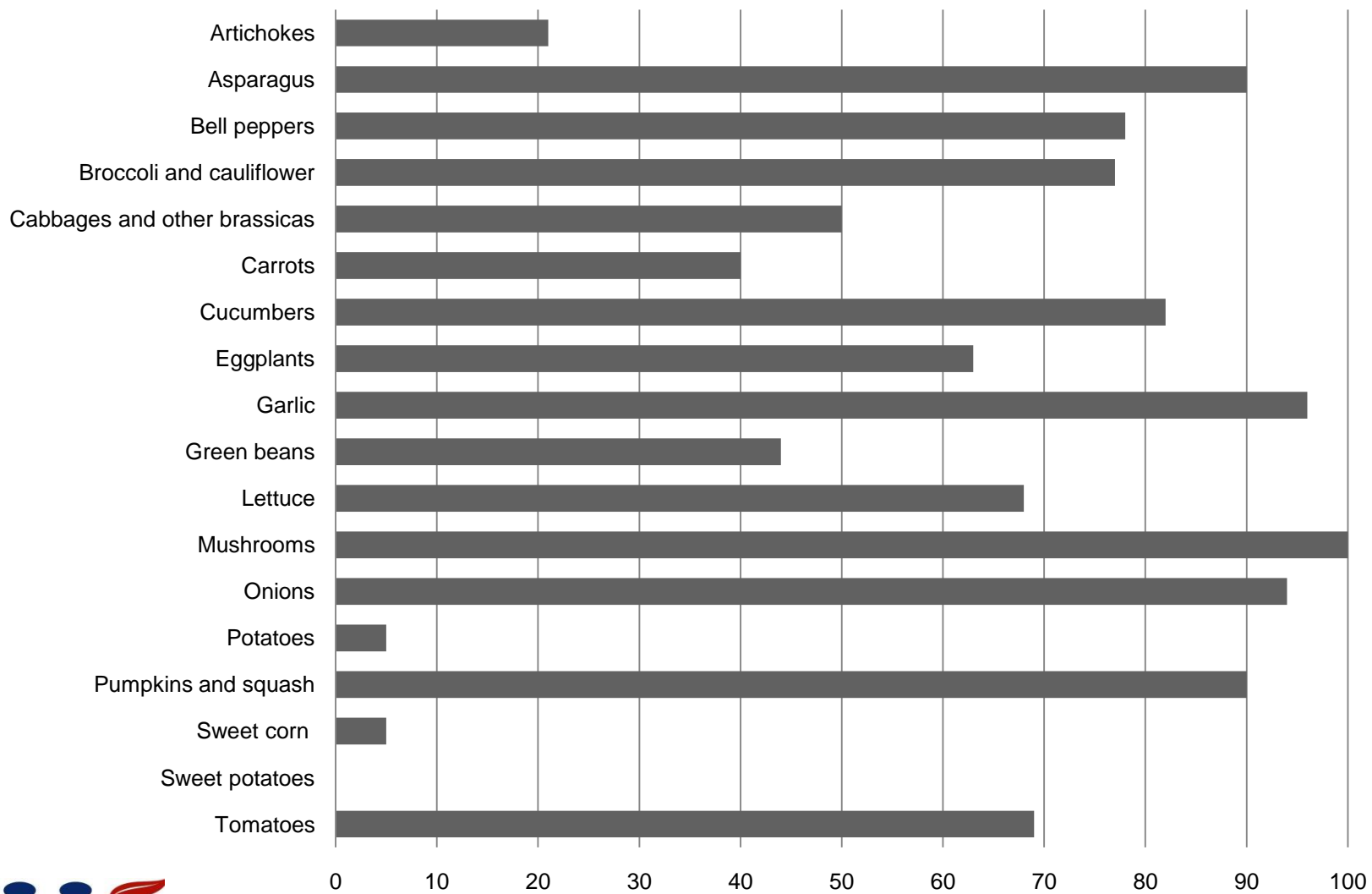
Trends in U.S. Fresh Fruit and Vegetable Imports



U.S. Regulation of Fresh Fruit and Vegetable Imports



Global Fresh Vegetable Export Volume Eligible for Importation to the United States



U.S. Phytosanitary Treatments

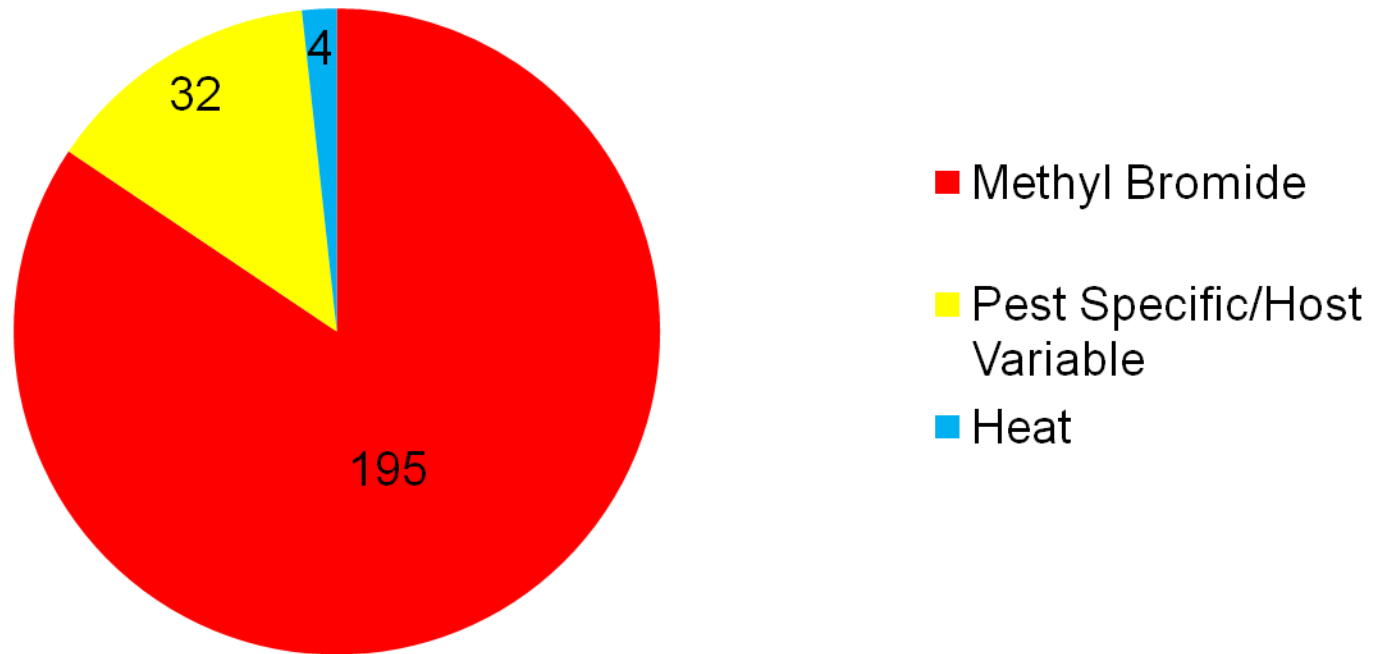
- Methyl Bromide
- Water Treatment
- High Temperature Forced Air
- Pest Specific/Host Variable
- Irradiation
- Vapor Heat
- Cold Treatment
- Fumigation Plus Refrigeration of Fruits
- Cold Treatment Plus Fumigation of Fruits
- Quick Freeze

Incidence of Phytosanitary Treatments

- Treatment requirements from APHIS *Fresh Fruits and Vegetables Import Manual*
- Observed import flows
- Incidence of all treatments
 - Fresh fruits: 21.7%
 - Fresh vegetables: 8.0%

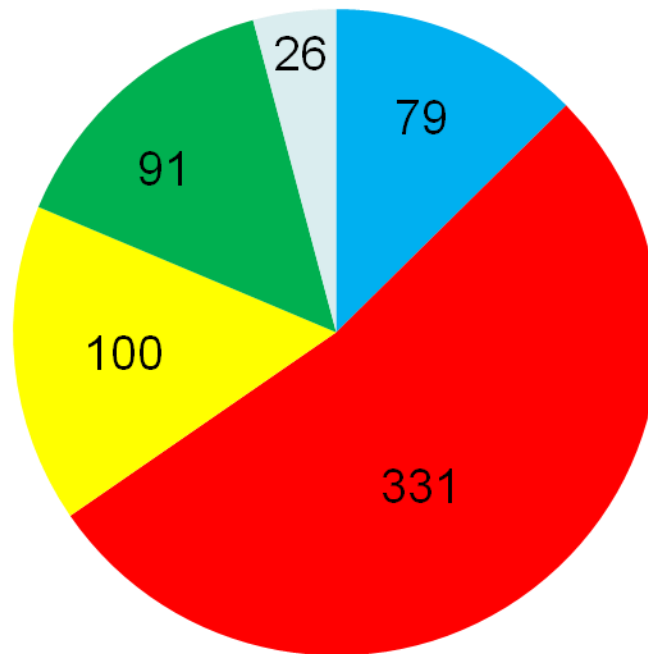
Phytosanitary Treatments for Vegetables

Frequency



Phytosanitary Treatments for Fruits

Frequency



- Methyl Bromide
- Cold Treatment
- Water Treatment
- Fumigation/Cold Combinations
- Other

Gravity Model Specification

- Dependent variable: custom value
- Independent variables:
 - Distance
 - U.S. and exporter production
 - Exchange rate
 - Exporter share of global exports
 - Free trade agreements
 - Phytosanitary treatments
 - Treatment-export share interaction

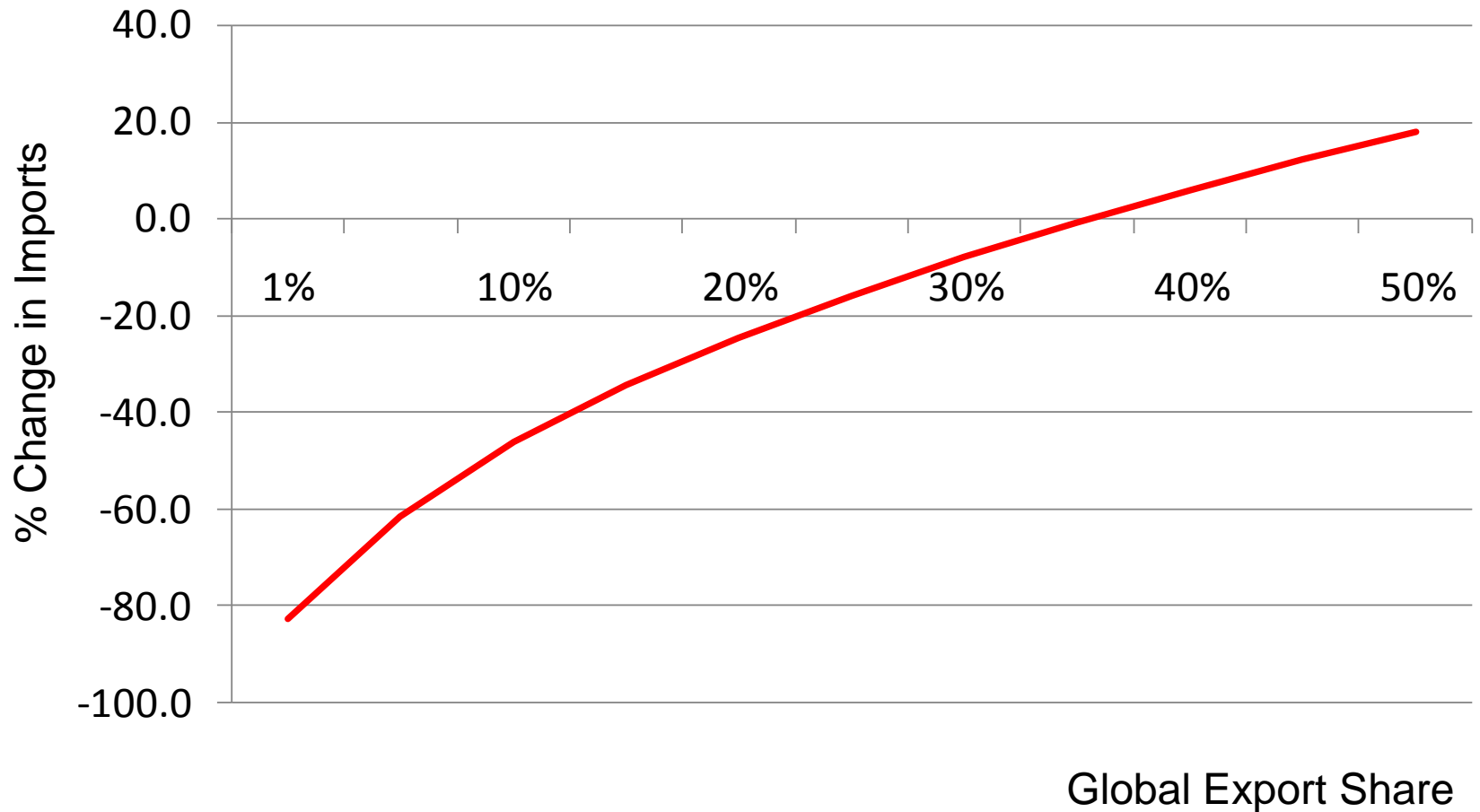
Zero Trade Flows

- With product-line analysis, high number of zero trade flows
- Reasons for zero trade flows
 - No production in “exporting” country
 - Country doesn’t export product
 - Trade costs too high
 - Exporting country not “eligible” to ship product to U.S.
 - Cost of phytosanitary treatment too high
- 40% zero trade flows in sample

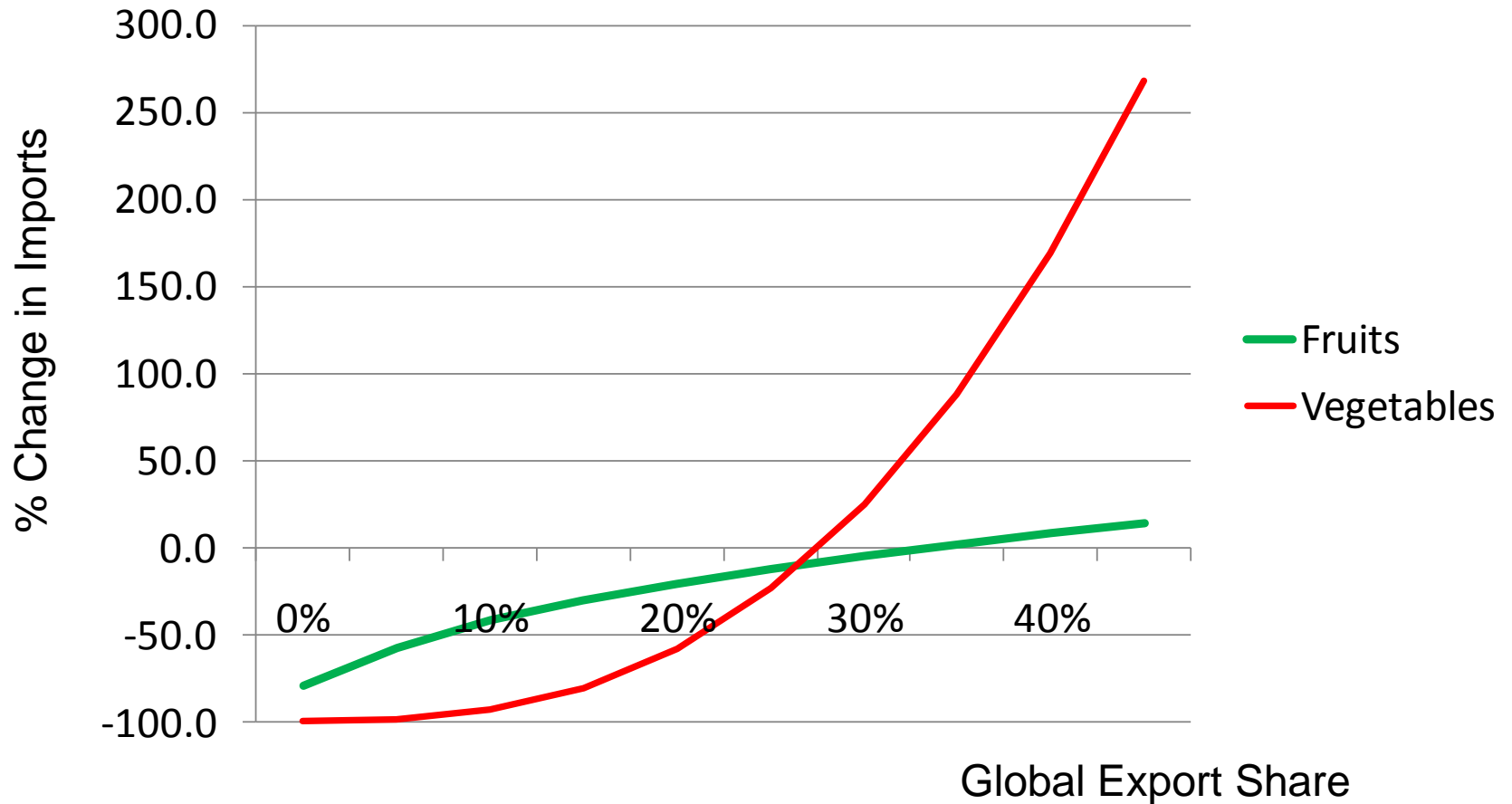
Results

- Non-treatment independent variables
 - Have expected signs
 - Values statistically significant and robust across scenarios
- Phytosanitary treatments
 - Negative and significant for treatment variable(s)
 - Positive and significant interaction term with export share
- R^2 : 0.56 to 0.61

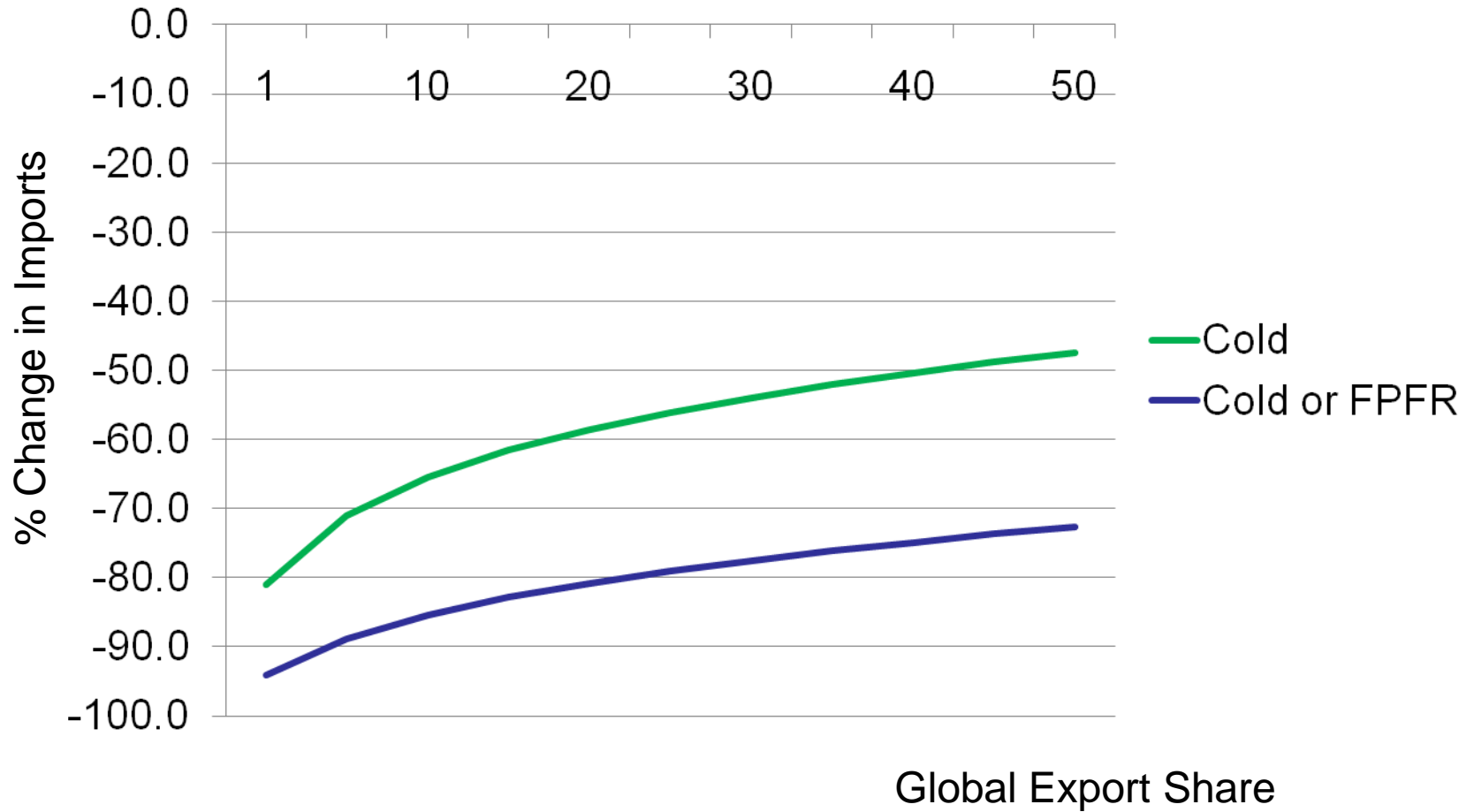
Aggregate Effect of Treatments



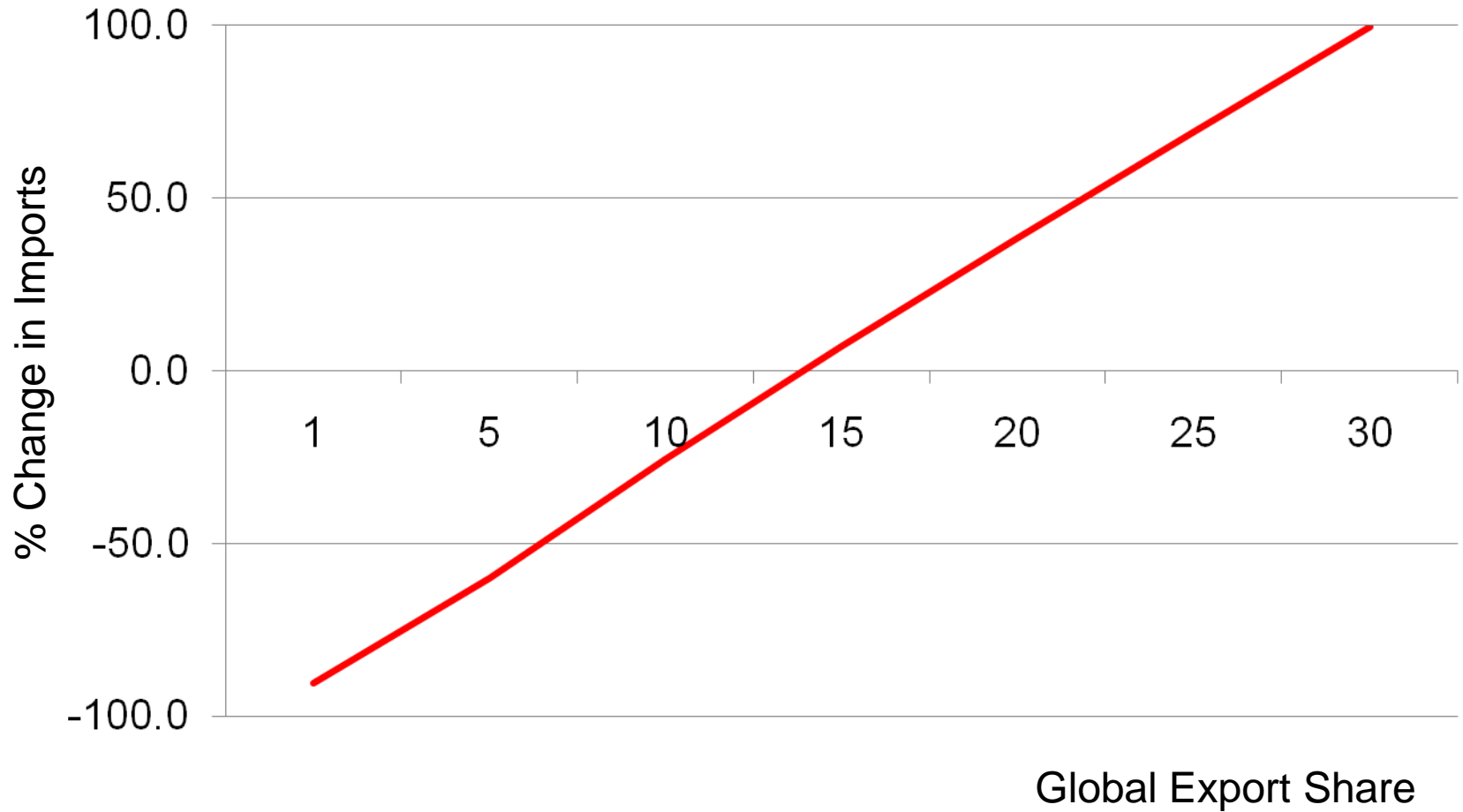
Aggregate Treatment Effects by Product



Effects of Cold Treatments



Effects of Methyl Bromide



Constant Treatment Effects

- Negative effects (fruits)
 - Water: -52.7%
 - Fumigation plus refrigeration of fruits: -97.7%
 - Methyl bromide and cold treatment: -98.1%
- No effects:
 - Pest specific/Host variable
 - Heat – too few observations

Treatment Rankings

- Least to most restrictive:
 - Pest specific/Host variable
 - Methyl bromide
 - Water
 - Cold
 - Cold or fumigation plus refrigeration (fruits)
 - Fumigation plus refrigeration (fruits)
 - Methyl bromide and cold treatment (fruits)

Summary

- Incidence of phytosanitary treatments relatively low
- Effects of phytosanitary treatments:
 - Negative but may diminish as country's exports increases
 - Vary by treatment type
- Cold treatments, including combinations with methyl bromide fumigation, are most trade restrictive