The Role of Domestic Production in Import Demand Analysis

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1. Introduction
When estimating import demand for a specific commodity, an important question is whether domestic domestically produced goods play a role. Method One: Method One assumes domestic production is separable from imports. In this method, we estimate the demand for a country of origin. If an analysis on the effects of imports on demand for the domestic good, this method is included.

Method Two: Method Two includes the domestically produced good along with imports in the demand system. This method can restrict the effects of imports on the domestic good, but the cross selling of a similar number of imports. This is because the cross selling of imports deviates from the quantity of imports from any given country, and the domestic data reflect the rest of the world.

3. Data
• This paper studies the relationship among domestically produced and imported fruits and vegetables (i.e., fresh onions, fresh tomatoes, spinach, and cantaloupes). Data are collected from National Agricultural Statistics and Economics Research Service (ERS).
• The salient fact about the data is that home produced goods made up the vast majority of consumption fresh onions and fresh spinach, while import commodities play a more important role in terms of consumption of fresh tomatoes and cantaloupes.

3.1 Estimated coefficients obey the following basic properties:
1. Homogeneity:
\[ q_i c = p_i c \]
2. Share:
\[ q_i c / q_i = p_i / p \]
3. Transitivity:
\[ q_i c / q_j c = p_i / p_j \]

4. Results
4.1 Marginal Shares
• The conditional expenditure parameters measure the marginal shares of expenditure conditioned on total expenditures for the good from all sources. Marginal share indicates the share of additional dollars that are spent on each commodity. For example, from method three, if U.S. total expenditure on fresh tomatoes increases by 5%, then the expenditure on fresh tomatoes imported from Mexico increases by 7.92 cents, from U.S. domestic tomatoes by 10.6 cents, from imports from other countries by 1.4 cents, and from imports from the rest of the world by 1.6 cents.

4.2 Conditional Elasticities
The conditional expenditure elasticities measure the percent change of quantity demanded from a source of a commodity in ten percent with annual expenditure remaining constant. As such it includes both the substitutive and income effects of an own-price change. The Cross-price elasticity measures the sensitivity of the demand to the cross-price change with the constant quantities. The higher the Cross-price elasticity, the more sensitive in Cross demand to a cross-price change.

4.3 Method
• Four sets methods: The U.S. domestic marginal shares are all greater for other commodities, except for fresh tomatoes.
• The U.S. domestic marginal share is especially dominant in spinach.

In terms of import countries, Mexico for all commodities in the country with the largest share and its marginal share is even greater than U.S. is case of fresh tomatoes.

4.4 Conditional Expenditure Elasticities
• The conditional expenditure elasticities estimate the percent change in quantity demanded for commodities when U.S. expenditures on the selected commodity increase by 1.
• If an elasticity is less than one, it is conditionally inelastic and indicates that the budget share of the commodity from a particular source will decrease if total expenditures increase for the commodity.
• If a conditional expenditure elasticity is higher than 1.0, it is conditionally elastic and indicates that the budget share of the commodity from a particular source will increase in total expenditure on this commodity increases.

4.5 Method
• Method One, Method Two, Method Three, and Method Four. Method One and Method Two are the focus of this analysis.

6. Conclusion
• Two methods yield the same signs for all country pairings.
• The incidence cross-price elasticities for most country indicate that Cross demand for fresh onions from one country are not sensitive to the price change of the commodity from another country.

6.1 Study the cross-price elasticities indicated that small farms are more sensitive to the price changes.
6.2 The Test of the Separability between Domestic and Import Goods
• Weak separability is tested by Joint Wald test, the test, is for the implied restrictions to the demand share equations. These tests are c with degrees of freedom equal to the number of restrictions.
• Results from the tests are mixed. At the 5% level, weak separability of home goods and imports is not rejected for fresh tomatoes, cantaloupes, fresh oranges, and melons. However, it is rejected for fresh onions.

6.3 The three methods applied in this study yield different results for condition marginal shares, expenditure and price elasticities.