E C O N O M I C S  B U L L E T I N

# Import price effects on retail prices in the US and abroad: two cases

Robert Feinberg
*American University and US International Trade Commission*

## *Abstract*

I utilize the highly disaggregate EIU CityData and present some preliminary results looking at how retail prices of two goods almost exclusively imported, bananas and virgin olive oil, are affected by import prices of these goods; from another perspective, I consider how distributor margins respond to changes in import prices. To avoid dealing with the effects of within-destination-country distance on consumer prices, I consider only prices in cities at or near the port of entry. The findings of limited response are consistent with previous work and raise the issue of implications for welfare effects of trade and exchange rate policy. Given the combination of limited passthrough of import prices into final consumer prices and the likely low price elasticity for specific categories of groceries, the trade flow impacts of international shocks may be quite modest.

All views expressed are those of the author, and do not represent the views of the US International Trade Commission or any individual Commissioners.

**Citation:** Feinberg, Robert, (2008) "Import price effects on retail prices in the US and abroad: two cases." *Economics Bulletin*, Vol. 13, No. 1 pp. 1-7
**Submitted:** December 19, 2007. **Accepted:** February 11, 2008.
**URL:** http://economicsbulletin.vanderbilt.edu/2008/volume13/EB-07M20003A.pdf

## 1. Introduction

Recent work (Goldberg and Campa 2006, Hellerstein 2005) has noted the very limited passthough of exchange rate changes into consumer prices, especially for the US. Frankel, Parsley and Wei (2005) use the highly disaggregate Economist Intelligence Unit (EIU) CityData to investigate the determination of retail prices of 8 imported consumer goods – and find significant exchange rate passthrough into these prices only in the earlier part of their sample, little in the post-1996 period. In what follows I utilize the EIU data as well and present some preliminary results looking at how retail prices of two goods almost exclusively imported, bananas and virgin olive oil,[1] are affected by import prices of these goods – or from another perspective, how distributor margins respond to changes in import prices. To avoid dealing with the effects of within-destination-country distance on consumer prices, I consider only prices in cities at or near the port of entry.

## 2. Data and Descriptive Statistics

The two products were selected because they are relatively homogeneous and correspond well to HTS categories for which import-unit values (in dollars) can be obtained. For each, two samples were created: (1) US cities located adjacent to significant ports of entry for the items (for bananas this includes Boston, Houston, Los Angeles, Miami, New York City; for olive oil this includes Boston, Chicago, Houston, Los Angeles, Miami, New York City, San Francisco, Seattle and Washington, DC); (2) foreign cities in countries with no or little domestic production of the items which are small enough that the city must be relatively close to the port of entry (for both products this includes Amsterdam, Dublin, Reykjavik, Hong Kong, Luxembourg, and Singapore). The EIU data involves local currency retail prices (converted to US dollar prices at currently prevailing exchange rates) of narrowly-defined goods and services in more than 100 cities world-wide, collected annually since 1990. Below, annual data from 1990 through 2003 are analyzed, and I consider as well the two sub-periods 1990-1996 and 1997-2003.

Some descriptive statistics are presented in Table I. Looking at Table I, several points seem clear. First of all, while olive oil prices are lower and banana prices higher in the foreign cities than in the US, percentage margins over the import price (some combination of wholesale, distribution and retail margins) are much higher in the US (almost twice as large). Secondly, the patterns of prices, margins, and import unit values are similar in the later period for the US as compared to the full 1990-2003 period, suggesting comparison with the foreign cities for only the later period is a valid one.

## 3. Regression Results

Now turn to some simple regression equations, with results in Table II. First notice that the estimated passthrough from import to retail prices of olive oil is quite small (an elasticity of 0.12) and barely significant for the US over the entire 1990-2003 period, and -- consistent with the results of Frankel et al. -- this effect disappears

[1] Note that these products were not studied by Frankel et al.

completely in the latter half of the period. Similarly, the passthrough for foreign cities is small and not statistically significant. The estimated passthrough elasticities for bananas are larger (though smaller for foreign cities and in the latter half of the period for the US cities), but not statistically significant. Note that what is examined here is only part of what is more commonly thought of as passthrough – the impact of exchange rate movements on prices; given incomplete passthough of exchange rate and tariff changes into import prices themselves, these results suggest even more limited transmission of changes in these international shocks into retail prices.

Not surprisingly, movement in import prices but not in retail prices suggests large (offsetting) changes in margins and that is what is found in Table III. The coefficient estimates from regressions explaining percent margins by *ln* Import Price can be interpreted as the change in the percent margin associated with a 100 percent increase in the import price. Looking at the olive oil equations, the estimated impacts are all highly significant, with a 1 percent increase in the import price leading to an offsetting 2.8 percentage point reduction in the retail-import price margin for the US, a 2.3 percentage point reduction for the foreign cities, and a more dramatic 3.7 percentage point reduction for the later years of the US sample. The estimated effects are similar for bananas, though levels of significance are much lower; nevertheless, a 1 percent increase in import prices lead to a 1.9 percentage point margin reduction for the US, a 1.5 percentage point reduction for the foreign cities, a 1.4 percentage point reduction for the post-1996 US sample (though this effect is not statistically significant).

## 4. Conclusion

These findings are consistent with previous work, but yet raise the issue of what this implies for estimates of import demand and the analysis of welfare effects of trade and exchange rate policy. Assuming fixed proportions between the imported good and the retail equivalent sold to consumers (i.e., an imported banana and one sold at your local Safeway), the import demand elasticity should equal the price passthrough elasticity times the retail price elasticity of demand. How high is the latter? For the narrowly-defined consumer products considered above, economists generally assume quite high price elasticities of demand, but in the context of supermarket shopping and pricing it can be argued that consumer response to a price shock on one (very small) item in a consumer's (literal) shopping basket will not induce significant response.[2] Given the combination of limited passthrough of import prices into final consumer prices and the likely low price elasticity of specific categories of groceries, the trade flow impacts of

[2] If one takes a modified "Armington" approach, viewing consumer demand for a particular retail food item as a derived demand relative to demand for a composite good "groceries", the retail demand elasticity for that particular item will be equal to **$\sigma$ + (composite grocery demand elasticity – $\sigma$)(cost-share of particular item)**. As the cost-share of that item in the shopping basket approaches zero, the individual retail demand elasticity approaches the elasticity of substitution between that item and other grocery items – once shoppers have made up their list, **$\sigma$** may be quite small. More intuitively, the notion is that supermarkets compete for shoppers on an average price basis (with sales and promotions used as a signal of this) – once in a store, consumers may buy what is on their list without much response to individual item prices.

international shocks on consumer goods should be modest. Ultimately, this is an empirical question.

## References

Frankel, J.A., D.C. Parsley, and S. Wei (2005) "Slow Passthrough Around the World: A New Import for Developing Countries?" NBER Working Paper No. 11199

Goldberg, L.S., and J.M. Campa (2006) “Distribution Margins, Imported Inputs, and the Sensitivity of the CPI to Exchange Rates” Federal Reserve Bank of New York Staff Report No. 247

Hellerstein, R. (2005) “A Decomposition of the Sources of Incomplete Cross-Border Transmission: The Case of Beer” Federal Reserve Bank of New York Working Paper

Table I. Sample Means (all prices in $/kg)

| | US cities (1990-2003) | US cities (1997-2003) | Foreign cities (1997-2003)** |
|---|---|---|---|
| Retail Banana Price | $1.13 | $1.08 | $1.38 |
| Banana Import Unit Value* | $0.36 | $0.36 | $0.63 |
| Pct Margin | 221.4 | 208.2 | 138.9 |
| | | | |
| Retail Virgin Olive Oil Price | $9.54 | $9.89 | $7.13 |
| Virgin Olive Oil Import Unit Value* | $2.83 | $2.74 | $3.07 |
| Pct Margin | 248.9 | 268.8 | 140.7 |

*This is landed duty-paid value for US, CIF for foreign.
** 1999-2003 for Luxembourg and Singapore

Table II. Explaining retail prices, pooling cities, with city fixed effects, log-log specification (t-statistics in parentheses)

Dependent variable – *ln*Price

| | US olive oil | Foreign olive oil | US olive oil (97-03) |
|---|---|---|---|
| *ln*Import Price | 0.12 | 0.13 | 0.01 |
| | (1.87) | (0.72) | (0.10) |
| R-squared | 0.29 | 0.61 | 0.47 |
| N | 126 | 36 | 63 |

Dependent variable – *ln*Price

| | US bananas | Foreign bananas | US bananas (97-03) |
|---|---|---|---|
| *ln*Import Price | 0.49 | 0.37 | 0.23 |
| | (1.63) | (1.14) | (0.64) |
| R-squared | 0.20 | 0.64 | 0.52 |
| N | 70 | 35 | 35 |

Table III. Explaining percentage margins over import prices, pooling cities, with city fixed effects (t-statistics in parentheses)

Dependent variable – Pct Margin

| | US olive oil | Foreign olive oil | US olive oil (97-03) |
|---|---|---|---|
| *ln*Import Price | -280.3 | -231.2 | -365.7 |
| | (12.46) | (4.34) | (10.67) |
| R-squared | 0.64 | 0.72 | 0.77 |
| N | 126 | 36 | 63 |

Dependent variable – Pct Margin

| | US bananas | Foreign bananas | US bananas (97-03) |
|---|---|---|---|
| *ln*Import Price | -187.9 | -150.1 | -140.9 |
| | (1.95) | (1.85) | (1.22) |
| R-squared | 0.40 | 0.54 | 0.64 |
| N | 70 | 35 | 35 |