

Outputs: FSRG Working Paper: **Demand for Organic and Conventional Potatoes**,
by Ming-Feng Hsieh, Paul D. Mitchell, and Kyle W. Stiegert, available at
<<http://www.aae.wisc.edu/fsrg/research.html>>.

FSRG Discussion Paper: **Organic and Conventional Potatoes: Pricing and Demand, 2000-2005**,
available at : <<http://www.aae.wisc.edu/fsrg/discussion.html>>

POTATO DEMAND IN AN ORGANIC WORLD

With demand for organic foods rising, how do potato varieties fare?

The US organic food industry is growing, with conventional retailers grabbing a larger share of the market. Wal-mart, the nation's largest grocer, and Target, another retailing giant, announced major moves into the marketing of organic foods. These and other retailers likely will force down the price of organic foods, making them more accessible and affordable to the tens of millions of Americans currently not participating in this market.

As organic food sales increase, policymakers and people in the food and potato industry can benefit from a better understanding of the market impact this growing trend has on consumer demand for the varieties of potatoes that compete with organics. Consumers have made potatoes one of their top organic purchases among fresh vegetables even though organic potatoes carry a significantly higher price premium than do most other vegetables—organic potatoes typically cost 75% more than conventional varieties. These high premiums reflect both the higher costs associated with organic potato production and consumers' increasing demand for organics.

THE STUDY. FSRG used aggregate quarterly supermarket sales data from 2000 to 2005 to examine changes in the price of and demand for different types of potatoes and potato products: fresh organic, fresh conventional by variety (russet, white, red, and minor colored), frozen/refrigerated, and dehydrated. The study creates a better picture of how organic food demand is changing the potato market, and it improves our understanding of how consumer demand for certain potato varieties and products reacts to price changes, as well as the role played by demographics, seasonality, regional differences, and supply shocks.

THE FINDINGS. There is little evidence that potato demand differs across the four US regions in the study: east, west, north and south. Only red potatoes showed significant regional differences, with higher demand in the east and north regions and lower demand in the south region.

Increased consumer demand for organics significantly impacts pricing for fresh potatoes. Prices for red and russet potatoes fell the most, with smaller declines for minor colored potatoes. White potato prices declined, but not with statistical significance. Meanwhile, organic potato prices rose significantly as a result of the increase in demand for organic foods.

In response to the consumer trend toward organic foods, the market share of dehydrated potatoes increased. White potatoes were the only conventional fresh market potato to respond positively to this trend, and did so without a related price decline. Both organic potatoes and minor colored

potatoes had only one statistically significant substitution relationship: with white potatoes. When people spend more for potatoes, statistically white potatoes are the only fresh market potatoes to gain in market share. It appears that white potatoes, despite a low price profile, compete effectively with pricier minor colored and organic potatoes. Thus, white potatoes seem positioned to gain in market share relative to other conventional fresh market potatoes in the emerging organic-oriented marketplace.

Results imply that demand for minor colored and dehydrated potatoes are very responsive to price changes (*elastic demand*). Therefore, these two potato categories can handle large supply adjustments with small price changes. The remaining potato categories have *inelastic demand*, meaning that large price swings may be needed to clear small supply changes and producer price risks are likely to be higher.

Expenditure elasticities describe which potato categories gain or lose market share when aggregate potato expenditures change. We found strong statistical support that, when expenditures increase, white and dehydrated potatoes gain market share, russet and organic potatoes are expenditure-neutral, and red, frozen, and minor colored potatoes lose market share. *Income elasticities* measure quantity demand changes in response to consumer aggregate income changes. We found that increases in consumer income led to a statistically significant reduced demand for russet, dehydrated and white potatoes. Three other categories had similar results but without statistical support. Thus, potatoes can be generally classified as an “inferior” good. These findings may signal a need for potato market boards to engage in advertising and promotional campaigns aimed at upping the potato’s market image.

Competing carbohydrate groups impact the potato market. Lower prices for bread or frozen vegetables led to a reduction in overall expenditures on potatoes, though neither rice/pasta nor fresh vegetable prices had statistically important effects on potato expenditures. Dehydrated potatoes are overwhelmingly the most sensitive to competing carbohydrate prices, while the market shares for frozen, organic, minor colored and red potatoes are not affected. Surprisingly, the price of fresh vegetables, usually sold in close store proximity to fresh potatoes, had no influence on potato market shares.

* * * *

ISSUES: The rise in organic market share and its impact on other potato varieties. Price and demand dynamics among varieties of potatoes and processed potato products across the United States.

FINDINGS: Little difference exists in demand for potatoes across the United States. Increasing demand for organic foods implies lower prices for most fresh potatoes, yet fresh conventional white potatoes and dehydrated potatoes grew their market shares in the increasingly organic-oriented market. Frozen vegetables and competing carbohydrate foods, such as bread, negatively impact the potato market.

* * * *

CONTACTS

Researchers: **Ming-Feng Hsieh** mhsieh2@wisc.edu, **Paul D. Mitchell** pdmitchell@wisc.edu, and **Kyle W. Stiegert** kwstiegert@wisc.edu

FSRG editor: **Kurt Brown**
(608) 262-8029; kdbrown@wisc.edu