



Using Scanner Data To Answer Food Policy Questions

Conference

**Wednesday, June 1 -
Thursday, June 2, 2011**

**Economic Research Service
1800 M Street, NW
Waugh Auditorium
Washington, DC**

Investigating Price Pass-Through in Local Markets: The Case of Milk

Ashley Spalding and Sofia B. Villas-Boas,
University of California, Berkeley

June 1-2, 2011

Using Scanner Data to Answer Food Policy Questions Conference

Motivation

- Typical American meal travels 1500 miles from source till consumption
- 80% of fossil fuel used in agriculture comes from transporting food from farms to plates
- Local food consumption would lower oil consumption significantly (Kingsolver et al, 2007)

Contribution

- Local foods are more expensive than non local on average across several categories
- Eat local typically due to non price reasons and some of it environmental movements
- Did the high oil prices in past decade contribute to lowering local versus non local price gap?

Empirical Strategy

- IRI scanner data set on milk prices
- Weekly Gasoline prices
- January 2011 until December 2005

- Do gasoline price spikes get passed through to lesser degree by local milk relative to non local milk ?

Empirical Strategy

- Fixed effects price hedonic model

$$P_{it} = \beta_1(\text{Floz}) + \beta_2(\text{Local}) + \beta_3(\text{Gas})_{rt} + \beta_4(\text{Diesel})_{rt} \\ + \beta_5(\text{Barrel})_t + \beta_6(\text{Local} * \text{Gas}_{rt}) + X_{it} \gamma + \varepsilon_{it}$$

- Control for location, 51 cities, 32 states
- Control for time
- Control for input costs
- In X we include other controls such as year and state fixed effects, lagged diesel, lagged gas, and lagged barrel prices, and interactions of local dummy variable with contemporaneous and lagged diesel, barrel, and gasoline prices.

Results

- milk from local dairies cost significantly more than that from more commercial, non-local dairies by an amount of \$0.66.
- location and time explain 7.1% of the variation in milk prices (column 1)
- brand fixed effects (product characteristics) explain an additional 24.7% of the variation in prices (column 2)
- gas and oil prices explain only a infinitesimal fraction of the variation in milk prices, namely, only 0.7%

Results

Table 2 OLS Results Price Hedonic Regressions

Dependent Variable: Price of milk product i at time t

	1		2		3		4	
	coefficient	std	coefficient	std	coefficient	std	coefficient	std
floz			0.014***	0.0000			0.0140***	0.0000
local			0.0094***	0.0012	0.7701***	0.0088	0.6646***	0.0075
dieselprice					0.0764***	0.0025	0.0374***	0.0022
gasprice					0.0193***	0.0027	0.0426***	0.0023
barrelprice					0.0007***	0.0001	0.0006***	0.0001
localdiesel					0.0133	0.0091	0.1079***	0.0078
localgas					-0.006	0.0099	-0.0328***	0.0085
localbarrel					-0.0064***	0.0003	-0.0079***	0.0003
diesel1					0.1077***	0.0006	0.0869***	0.0005
diesel2					0.1080***	0.0006	0.0871***	0.0005
diesel3					0.1080***	0.0006	0.0874***	0.0005
localdiesel1					-0.1188***	0.0024	-0.1039***	0.0020
localdiesel2					-0.1238***	0.0024	-0.1075***	0.0020
localdiesel3					-0.1205***	0.0024	-0.1053***	0.0020
State Fixed Effects	YES		YES		YES		YES	
Year Fixed Effects	YES		YES		YES		YES	
Product Fixed Effects	NO		YES		NO		YES	
R squared	0.07		0.318		0.08		0.323	
Number Observations	16,103,465		16,103,465		16,103,465		16,103,465	
*** significant at the 1 percent level.								

← Lower pass through of local versus nonlocal!

Conclusions

- milk from local dairies cost significantly more than that from more commercial, non-local dairies
- Although gas and oil prices explain only a infinitesimal fraction of the variation in milk prices
- Indeed local milk prices do react differently to gasoline price changes than non local milk prices

Implications

- We could improve on defining local brands beyond current definition

But overall

- High oil prices may have lessened price gaps of local versus non local milk products
- Environmental benefits due to more affordable products that need to be transported less