

Online appendix for publication

What is the Impact of Food Stamps on Prices and Products Variety? The Importance of the Supply Response

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Identifying product groups with strong local preferences

To identify product groups with stronger local brand preferences, I use a random effects model as in Jaravel (2017). For each product group, the market share of brand b in state s at time t (s_{bst}) is modeled as the sum of a “national preference” (λ_b), a “local preference” (μ_{bs}) and a shock (ϵ_{bst}). The signal standard deviations of national (σ_λ) and local (σ_μ) preferences are recovered as follows:

$$\begin{aligned} s_{bst} &= \lambda_b + \mu_{bs} + \epsilon_{bst}, \\ \widehat{\sigma}_\lambda &= \sqrt{Cov(\bar{s}_{bs}, \bar{s}_{b(s+1)})}, \\ \widehat{\sigma}_\epsilon &= \sqrt{Var(s_{bst} - \bar{s}_{bs})}, \\ \widehat{\sigma}_\mu &= \sqrt{Var(s_{bst}) - \widehat{\sigma}_\lambda^2 - \widehat{\sigma}_\epsilon^2}, \end{aligned}$$

where \bar{s}_{bs} is the average market share of brand b in state s over all years. The covariance between brand average shares \bar{s}_{bs} across states gives a consistent and unbiased estimate of σ_λ . The variance in brand shares within a state over time gives the residual variance σ_ϵ , which in turn makes it possible to recover the local component σ_μ . Intuitively, if there is a lot of variation in brand market shares across states for a given product group, this product group must be characterized by strong “local” preferences. The random effect model quantifies this variation in a principled way and handles noise efficiently.

With these estimates in hand, I rank product groups by $\frac{\widehat{\sigma}_\mu}{\widehat{\sigma}_\lambda}$ and label those above (below) median as having strong local (national) preferences. The results are intuitive: sanitary protection, canning supplies, detergent, flour and deodorant are the five product groups for which local preferences are the weakest, while liquor, wine, beer, apparel and fresh meat are those with the strongest local preferences.

Table 1: Falsification Tests on the Effect of Changes in Take-Up for Food Stamps on Inflation

Panel A: Introducing Controls

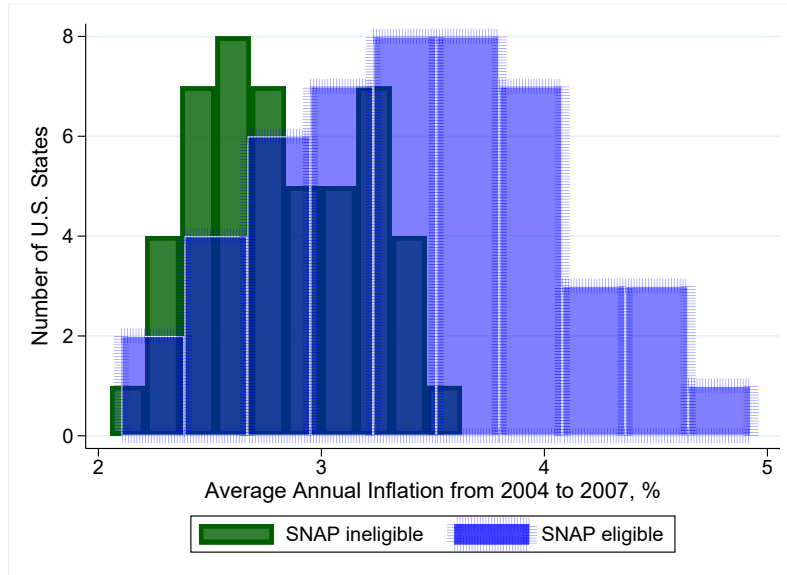
	Inflation Difference b/w Eligible and Ineligible HH, pp		
	(1)	(2)	(3)
Change in take-up rate, 2001 to 2007, pp	-0.0079502* (0.0046903)	-0.0090482** (0.0046005)	-0.0074593* (0.0041905)
2001 take-up rate	0.0003596 (0.005408)		
2001 unemployment rate		-0.1430964* (0.0829455)	
Employment growth, 2001 to 2007			0.0153036 (0.0584327)
Product group fixed effects	Yes	Yes	Yes
Observations	4,856	4,856	4,856

Panel B: Inflation Difference between Middle Class and High-Income Households

	Inflation Difference b/w Middle Class and High-Income HH, pp				
	Full Sample	Food Product Groups		Non-Food Product Groups	
		(1)	Local (2)	National (3)	Local (4)
Change in take-up rate, 2001 to 2007, pp	-0.0006 (0.006)	-0.009 (0.01)	0.004 (0.006)	0.004 (0.008)	0.0009 (0.01)
Product group fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	4,570	1,021	1,714	1,048	739

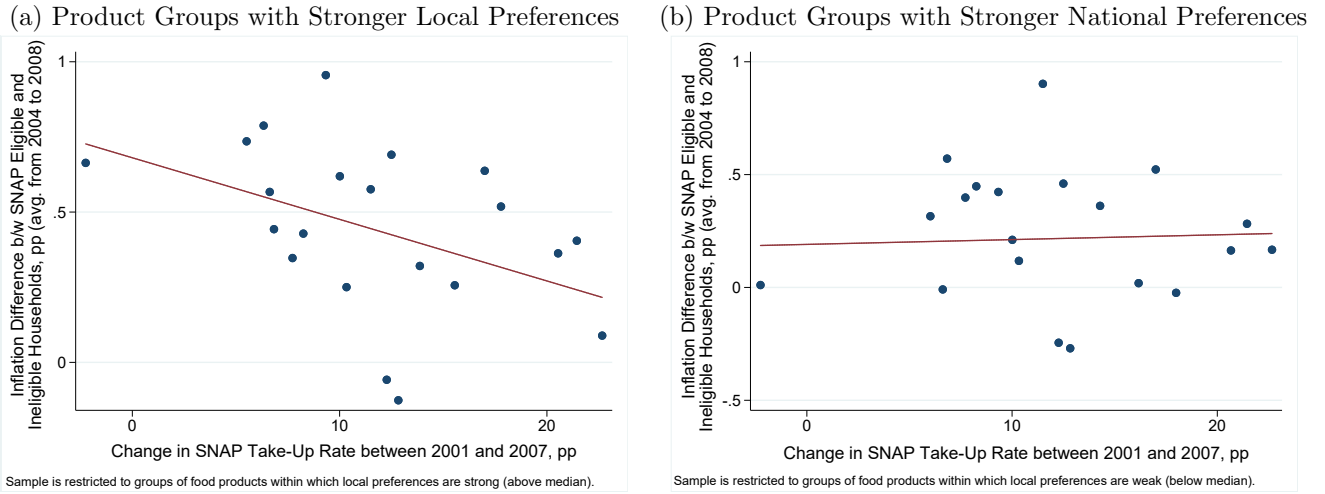
Notes: In both panels of this Table, each observation is at the level of product groups by state and all regressions use spending weights. Panel A presents the results from specification (1) when introducing additional controls. In Panel B, the outcome variable is the average annual inflation difference from 2004 to 2008 between households earning between \$30,000 and \$100,000 (“middle class”) and households making above \$100,000 (“high income”). Local and national product groups are defined based on the estimates of the random effects model presented in the Online Appendix. Standard errors are clustered by state. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Figure 1: Inflation for Eligible and Ineligible Households across US States



Notes: This figure reports the distributions of inflation rates across U.S. states for households that are eligible or ineligible for food stamps, using the proxy for eligibility described in Section I. The inflation rates are computed using CES price indices for each eligibility group in each state.

Figure 2: The Effect of Changes in Take-Up for Food Stamps on Food Inflation



Notes: This figures provides a graphical depiction of the data underlying the estimates in Columns (1) and (2) of Panel B of Table 1. Each dot represents 4% of the data; the underlying observations are at the level of product groups by state. OLS best-fit lines are also reported, using spending weights. Local and national product groups are defined based on the estimates of the random effects model presented in the Online Appendix.

References

Jaravel, Xavier. 2017. “The Unequal Gains from Product Innovations: Evidence from the US Retail Sector.” *Working Paper*.