

An Alternative View to Examining Consumer Tendency to Shop Around

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Consumer Price Index

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Findings

- 1. Differences between elasticities calculated using quantities demanded data versus expenditures data suggests that contrary to Marshallian demand theory, one may not be a good proxy for the other. This is because while consumers may demand the same quantity of a good or service, they might not spend the same amount due to substitution.

Findings

- 2. According to existing literature, when using quantities demanded data to derive own-PED, the broader the definition of a good or service, the lower the elasticity. However, with expenditures or revenue data, this is not always the case, because while consumers may demand the same quantity of a good or service at the broader definition of a good or service, they might not spend the same amount when faced with own-price changes if they choose to substitute within the category.

Example

	<25 years	25-34 years	35-44 years	45-54 years	55-64 years	>65 years
Food at home	1.16	1.12	1.20	.76	1.04	1.27
Meats, poultry, fish and eggs	1.86	1.20	.55	.73	.13	.64
Beef	.30	.54	.10	.55	.60	.11

Findings

- 3. Using expenditure data may allow us to analyze different aspects of consumer demand. It may analyze the consumer's willingness or ability to shop around for better prices and to substitute to a similar but differently priced good or service. It can yield further insight into consumer loyalty to certain brands

A way to gauge substitution

When

- Own-PED using quantities demanded inelastic
 - ▶ i.e. Poultry .67 (Okrent and Alston, “The Demand for Food in the United States: A Review of the Literature, Evaluation of Previous Estimates, and Presentation of New Estimates of Demand, 2010)
- Own-PED using expenditures elastic
 - ▶ Poultry (ranges from 1.33 to 1.93 depending on age group)
 - ▶ Suggests the consumer is buying same amount of poultry but is able and willing to substitute

CPI Implications

- Laspeyres index formula, which assumes no substitution, is used to estimate aggregate categories
- Geometric (or “geomeans”), which assumes substitution, or Laspeyres index formulas are used to estimate basic categories
- However, based on our findings, not all broader categories are relatively inelastic
- Not all narrower categories are relatively elastic



CPI Implications

- Research and development of additional sub population indexes (i.e. for Millennials)
- If elderly consumers tend to have more inelastic behavior for certain goods and services, then use of Laspeyres may be more appropriate at certain elementary levels for E population



Elasticity

$$E_P \approx \frac{\frac{\Delta Exp}{Exp}}{\frac{\Delta P}{P}}$$

$ \epsilon > 1$	Elastic	Exp changes more than P
$ \epsilon = 1$	Unit elastic	Exp changes like P
$ \epsilon < 1$	Inelastic	Exp changes less than P

Model

$$\log(\exp_{i,h,t}) = \eta \log(cpi_{i,t}) + eci_t + \lambda_{i,t} + \varepsilon_{i,t}$$

where

exp = annual average expenditures (CEX)

cpi=Consumer Price Index

eci=Employment Cost Index

λ= household age and income group fixed effects

i=expenditure category

h=household age and income group

t=time

Tobacco products and smoking supplies

	Inelastic	Elastic
Under 25 years	.97	
25-34 years	.61	
35-44 years	.83	
45-54 years	.48	
55-64 years	.52	
65 years and over	.13	

Medical services

	Inelastic	Elastic
Under 25 years		1.19
25-34 years	.39	
35-44 years		1.12
45-54 years	.18	
55-64 years		1.19
65 years and over		1.34

Health insurance

	Inelastic	Elastic
Under 25 years		2.60
25-34 years		2.72
35-44 years		2.17
45-54 years	.47	
55-64 years		2.28
65 years and over	.28	

Gasoline and motor oil

	Inelastic	Elastic
Under 25 years	.80	
25-34 years	.81	
35-44 years	.77	
45-54 years	.75	
55-64 years	.79	
65 years and over	.71	

Alcoholic beverages

	Inelastic	Elastic
Under 25 years		1.45
25-34 years	.57	
35-44 years	.15	
45-54 years	.23	
55-64 years	.15	
65 years and over		2.23

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