Industry vs. Product Surveys: U.S. Experience

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U.S. SPPI Experience

- Industry surveys, conducted on rotating schedule

Industry	2015	2016	2017	2018	2019	2020	2021
Hotels	Collection	Repricing	Repricing	Repricing	Repricing	Repricing	Collection
Wired Telecom	Repricing	Collection	Repricing	Repricing	Repricing	Repricing	Repricing
Restaurants	Repricing	Repricing	Collection	Repricing	Repricing	Repricing	Repricing
Wireless Telecom	Repricing	Repricing	Repricing	Collection	Repricing	Repricing	Repricing
Airlines	Repricing	Repricing	Repricing	Repricing	Collection	Repricing	Repricing
Data Processing	Repricing	Repricing	Repricing	Repricing	Repricing	Collection	Repricing

What if we did product surveys?

Large wired telecom firms could be visited repeatedly

Industry	2015	2016	2017	2018	2019	2020	2021
Food Sales							
Telephone Service		X					
Lodging Sales							
Web Hosting				X			
Video Programming					X		
Airfare Sales							

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Challenge of product surveys: sampling frames

- Most U.S. economic surveys selected from business register or national tax record frame sources

- These sources provide little to no information about business activity by product

- Most businesses do not maintain records that allow for enumeration of employees, turnover, or wages by product area

Using industry survey data to create product-based SPPIs

	Wired telecom industry	Wireless telecom industry	Satellite telecom industry	All other industries
Industry total turnover	$1 billion	$500 million	$250 million	
Home telephone services	$200 million	$100 million	$50 million	$60 million
Business telephone services	$100 million	$50 million	$25 million	$40 million
Programming services	$400 million	$200 million	$100 million	$50 million
Data services	$300 million	$150 million	$75 million	$100 million

Using industry survey data to create product-based SPPIs

	Home telephone service product-based SPPI	
Product total	$410 million	100%
Home telephone services from wired telecommunications firms	$200 million	49%
Home telephone services from wireless telecommunications firms	$100 million	24%
Home telephone services from satellite telecommunications firms	$50 million	12%
Home telephone services from all other industries	$60 million	15%

Challenges of using industry survey data to create product SPPIs

Example: Industry sample, 5 frame units, sample size = 2

Industry	Turnover	% of Total	Sampling Pattern
Company 1	$1,000,000	72%	Certainty Selection
Company 2	$100,000	7%	
Company 3	$100,000	7%	Probability selection
Company 4	$100,000	7%	
Company 5	$100,000	7%	
Total	$1,400,000	100%	

} Company 3 selected and weight is magnified 4x to represent companies 2, 4, and 5

Challenges of using industry survey data to create product SPPIs

- Procedure of magnifying weights of smaller companies is based on theory they represent the activities of similarly-sized frame units not selected

- Concept works if all units selected from same sampling frame

- Mixing items from different industries with different weight adjustment schemes into a single product index ("from all other industries") is problematic

Challenges of using industry survey data to create product SPPIs

	Retailer A Sales	% of Retailer A Sales	Total Market Sales	Retailer A Market Share
Groceries	$100 billion	71.0%	$1 trillion	10.0%
Pharmaceuticals	$20 billion	14.0%	$1 trillion	2.0%
Apparel	$10 billion	7.0%	$500 billion	2.0%
Electronics	$10 billion	7.0%	$200 billion	5.0%
Books	$1 billion	0.7%	$10 billion	10.0%
Greeting Cards	$500 million	0.3%	$2 billion	25.0%

Challenges of using industry survey data to create product SPPIs

- With standard industry survey item selection, book and greeting card sales transactions likely not chosen for Retailer A

- But Retailer A constitutes a leading share of both of these markets

- Product based surveys more likely to produce accurate representation of these smaller retail trade markets

So why bother with product SPPIs?

- Most user-friendly look at how prices actually behave in competitive markets

- Captures price effects of:
  - Changing product supply *across* industries
  - Shifts in consumer demand *across* industries

- Most useful for deflating income and product accounts

Secondary products

- If frame unit is found to be misclassified:
  - In industry survey, may be able to collect using collection instruments for correct industry
  - In product survey, no collection may occur

- Easier to train data collectors for product surveys:
  - Will only have to use pre-determined product questionnaire
  - In industry survey, data collectors have to be prepared to use multiple questionnaires to capture all primary and secondary products that may be encountered

Where product-based surveys work in the U.S. - import & export prices

- All legal imports & exports recorded by U.S. government and classified by product type (Harmonized Tariff Schedule)

- Aggregation of this data creates comprehensive product-based sampling frame

- Emphasis placed on managing relationships with large producers who appear in many different product samples

U.S. turnover data by product

- With 2017 Economic Census, uniform NAPCS product lines implemented across all industries

- Current plan is to create new publication output for turnover by product data across all industries

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