Retail Trade Margins Index

Presentation for Voorburg Group 2010

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SNA 08

"The recording in the SNA of transactions for wholesalers and retailers does not mirror the way in which those involved view them. The purchases of goods for resale by wholesalers and retailers are not recorded by these units explicitly, and they are viewed as selling, not the goods, but the services of storing and displaying a selection of goods in convenient locations and making them easily available for customers. This partitioning measures output for traders by the value of the margins realized on goods they purchase for resale."

SNA 08, 6.38

Concept

- Retailers provide an intermediation service to connect the producer and the final consumer

- Retail Trade Margins are the difference between the sales price of a good and the cost to replace it at the time of the sale.

Why have a Retail Margins Index ?

- Bridge some of the gap between Producer Prices and Consumer Prices
- the contribution to final price pressures
- SNA Value Added deflation

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- What to collect ……

  What pricing basis….

  Replacement cost data ?

  Historical cost ?

  Holding gains or losses ?

First Solution

- Use the cost to purchase the good (COGS) - Historical cost
- The difference between replacement and historical cost depends on how long the good was in inventory.
- In recent years Australia has had fairly low inflation and comparatively quick turnover in the retail sector

- By measuring the margin on a good it is hoped that we can capture the change of the price of the distribution service over time.
- Retailers provide a service by having a range of goods in one location
- The experience of shopping – the service element

Sample

- Respondents were selected in a subjective matter
- Based on the characteristics of the market, ideal respondents were identified and targeted.
- End result was a sample representing 59% of the retail sector (according to supply and use tables)

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Table 1: Supply-use product categories and weights, 2002-03

Abbreviated product descriptor of SUPCs for which experimental indexes were produced	Retail margin $m	Percentage of total retail margin %
Alcoholic beverages	1048	2.0
Clothing and footwear	7042	13.4
Computers	2569	4.9
Dairy products	899	1.7
Edible meat, offal and meat products	1545	2.9
Fresh fruit and vegetables	920	1.8
Furniture	2182	4.2
Household appliances (excluding compressors; solar, gas and other non-electric hot water systems)	2031	3.9
Jewellery and silverware & watches	692	1.3
Liquefied petroleum gas	42	0.1
Motor cars	2176	4.1
Motor Vehicle parts & accessories	410	0.8
Other petroleum and coal	1069	2.0
Photographic, telecommunication and audio visual equipment	2390	4.6
Pneumatic tyres	931	1.8
Printing and newspaper, magazine and book publishing	1693	3.2
Recorded media & publishing	431	0.8
Textiles, fabrics & yarns; textile products nec	850	1.6
Tobacco products	845	1.6
Toys and sporting	1199	2.3
Total	**30964**	**59**

Methodology

- These respondents provided data for their enterprise sales and COGS for specific SUPCs and;
- Each sampled outlet's sales and COGS for specific SUPCs.
- This data was transformed into the Retail Trade Margin Price Index using three stages:

The three stages

- Stage 1- Derive enterprise by location specific indexes
- Stage 2- Derive aggregate enterprise specific index
- Stage 3- Combine SUPC indexes for the measured economy.

Stage One

- Enterprise specific SUPC indexes are constructed using the reported data

- Collect data from enterprises in SUPC groups.
- The data is collected for both COGS and sales revenue
- The data relates to the enterprise as a total and individual sampled locations

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- Results from survey

	March '06				June '06			
	Sales	COGS	$ M	% M	Sales	COGS	$ M	% M
Location 1	3,696	3,579	117	3.17	3,715	3,596	119	3.20
Location 2	2,096	2,027	69	3.29	1,805	1,726	79	4.38
Loc Sum	5,792	5,606	186	3.21	5,520	5,322	198	3.59
Enterprise	10,537	10,149	388	3.68	10,049	9,541	508	5.06

- Use the CPI to adjust therefore holding volumes constant

- This gives $ margins in constant volume

- $CPI_{March} = 210.5$
- $CPI_{June} = 203.3$

Stage 1

	March '06				June '06			
	Sales	COGS	$ M	% M	Sales	COGS	$ M	% M
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Enterprise	10,537	10,149	388	3.68	10,049	9,541	508	5.06

	March '06 in Constant Prices			June '06 in Constant Prices		
	Sales = $S_J \times CPI_M/CPI_J$	$ M	% M	Sales = $S_M \times CPI_J/CPI_M$	$ M	% M
Location 1	3,847	122	3.17	3,570	114	3.20
Location 2	1,869	62	3.29	2,024	89	4.38
Loc Sum	5,716	183	3.21	5,594	203	3.59

- Laspeyres index answers the question: “How much would a basket of goods bought in the last time period cost me to purchase at today's price?”
- We obtain this by taking the $P_{t-1}Q_{t-1}$ data and applying the CPI change from the time period t-1 to t which results in P_tQ_{t-1}.
- Laspeyres formula:
  $L = \Sigma(P_tQ_{t-1}) / \Sigma(P_{t-1}Q_{t-1})$.

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- $L_J = (P_1Q_0 / P_0Q_0)$
  $= (203 / 186) \times 100.0$
  $= 109.1$

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- Paasche index; how much would a basket of goods bought today have been in a previous time period's price?
- We obtain this by taking the P_tQ_t data and applying the CPI change from the time period t to t-1 which results in $P_{t-1}Q_t$.
- $P = \Sigma(P_tQ_t) / \Sigma(P_{t-1}Q_t)$.

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- $P = \Sigma(P_t Q_t) / \Sigma(P_{t-1} Q_t)$. = 108.2

	March '06				June '06			
	Sales	COGS	$ M	% M	Sales	COGS	$ M	% M
Location 1	3,696	3,579	117	3.17	3,715	3,596	119	3.20
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	March '06 in Constant Prices			June '06 in Constant Prices		
	Sales = S_J x CPI_M/CPI_J	$ M	% M	Sales = S_M x CPI_J/CPI_M	$ M	% M
Location 1	3,847	122	3.17	3,570	114	3.20
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- The Fisher “ideal” index is obtained by taking the geometric mean of the Paasche and Laspeyres indexes
- $$F_J = \sqrt{(L_J \times P_J)}$$
  $$= \sqrt{(109.1 \times 108.2)}$$
  $$= 108.6$$
- Enterprise 1s Index number for the SUPC in June quarter = 108.6

Stage Two

- Enterprise specific SUPCs are combined to give a SUPC index

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We could calculate the index based on the total enterprise figures; why did we bother with stage one?

- Use the CPI to set quantity and quality at the commodity level
- We use the sampled locations of an enterprise as a proxy for the entire enterprise to set quality.

Aggregating enterprises

	March '06		June '06	
	$ M	I_M	$ M	I_J
Enterprise 1	388	100.0	508	108.6
Enterprise 2	763	100.0	1,276	115.6
Sum	1,151		1,784	

	March '06		June '06	
	$ M = M_J x (I_M/I_J)	I_M	$ M = M_M x (I_J/I_M)	I_J
Enterprise	468	100	421	108.69
Enterprise	1,104	100	882	115.6
Sum	1,572		1,303	

- $L = (P_1Q_0 / P_0Q_0)$

$=(1303 / 1151) \times 100.0$

$= 113.2$

	March '06		June '06	
	$ M	I_M	$ M	I_J
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Enterprise 2	763	100.0	1,276	115.6
Sum	1,151		1,784	

	March '06		June '06	
	$ M = $M_J \times (I_M/I_J)$	I_M	$ M = $M_M \times (I_J/I_M)$	I_J
Enterprise	468	100	421	108.69
Enterprise	1,104	100	882	115.6
Sum	1,572		1,303	

- $P_J = (P_1Q_1 / P_0Q_1)$
  $= (1{,}784 / 1{,}572) \times 100$
  $= 113.5$

	March '06		June '06	
	$ M	**I_M**	**$ M**	**I_J**
Enterprise 1	388	100.0	508	108.6
Enterprise 2	763	100.0	1,276	115.6
Sum	1,151		1,784	

	March '06		June '06	
	$ M = $M_J x ($I_M$/$I_J$)	**I_M**	**$ M = $M_M x ($I_J$/$I_M$)**	**I_J**
Enterprise	468	100	421	108.69
Enterprise	1,104	100	882	115.6
Sum	1,572		1,303	

- The Fisher index

- $$F_J = \sqrt{(L_J \times P_J)}$$
  $$= \sqrt{(113.2 \times 113.5)}$$
  $$= 113.4$$

- An SUPC Index in the June quarter = 113.4

Stage Three

- Combine the SUPC indexes to produce the retail trade margin price index

- Calculate a fixed weight Laspeyres retail trade margin price index from the Fisher index numbers calculated in stage two

- The weights are obtained from the supply and use tables.

Where will it fit in?

- An output Producer Price Index.
- Included in SOP stage 3.
- Is reliant on CPI figures so timing may be an issue
- Timing of quarterly returns 50 days post reference period

- An experimental Retail Trade Margins Index was developed and conducted by the ABS between 2002 and 2007.

- Published in February 2007, ceased in 2008 due to budget constraints.

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Table 3: Experimental retail margins index numbers and percentage changes

Quarter	Index number	Percentage change from corresponding quarter of previous year	Percentage change from previous quarter
2003			
December	100.0	..	..
2004			
March	99.9	..	-0.1
June	101.1	..	1.2
September	100.8	..	-0.3
December	102.7	2.7	1.9
2005			
March	101.0	1.1	-1.7
June	101.7	0.6	0.7
September	102.7	1.9	1.0
December	103.2	0.4	0.5
2006			
March	101.3	0.3	-1.8
June	103.8	2.1	2.4
September	105.0	2.3	1.2

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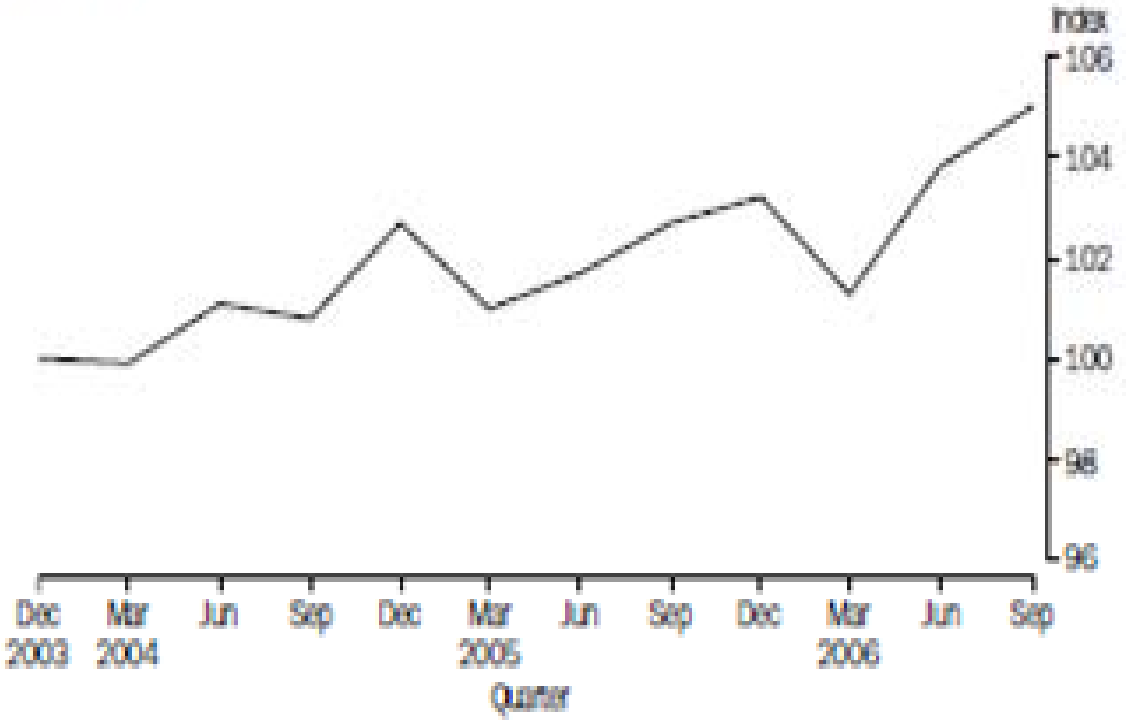
GRAPH 1: INDEX NUMBERS, Total retail margins price index, Australia



- 86 large and medium sized business were enrolled
- Small businesses were excluded
- 59 percent of Margin activity covered, we investigated more.

Moving forward….

- Reinstatement of retail margins
- Currently reviewing our approach

Reinstatement review

- Methodology
  - Fisher
  - Regional / national sample
  - Collection methods / issues

Reinstatement review (con't)

- System
  - Experimental system
  - New Developments
- Backdating

Questions?

- Information Paper: Experimental Price Index for Retail Trade Margins
  ABS Catalogue number 6402.0