

Price indices of drugstore articles: Scanner data vs surveys

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Outline

- Scanner data in Dutch CPI
- Drugstores: Survey and Scanner data
- Price indices: Calculation and analysis of differences
- Conclusions

Use of scanner data in Dutch CPI

- Introduced in 2002 (two supermarket chains)
- Situation now:

	Scanner data	Surveys
Supermarkets	13.5	0
DIY stores	0.5	0.9
Travel agencies	1.9	0
Fuel	6.1	0
Other	0	77.0
Total	22.1	77.9

(in %, as share of sum Coicop weights)

Data drugstore articles used in CPI

- Survey data
- Scanner data supermarkets

Survey drugstores

L-Coicop	Article name	Notes
Toiletries	Toothpaste - Prodent	3 articles allowed
	Toothbrush - Aquafresh, adults	
	Shampoo - L'Oréal Elvive	
	Shampoo - Andrélon	1 article is priced
	Liquid soap - Palmolive	1 article is priced
	Shower gel - Sanex	
	Shower cream - Dove	
Beauty articles	Razor blades	
	Deodorant - Rexona	different articles allowed, content fixed at 150 ml
	Bodymilk, self-tanning - Dove	2 articles allowed, content is 250 ml in both cases
	Eau de toilette - Burberry Brit, ladies	1 article is priced
	Eau de toilette - Calvin Klein, men	1 article is priced
	Hair dye - Permanent colouring	3 brands, 5 articles allowed
	Lipstick - Maybelline	
	Night cream - Nivea visage	1 article is priced
	Aftershave - Nivea	1 article is priced
	Day cream - Nivea	1 article is priced
	Eyeshadow	different brands and colours allowed
Other articles for personal care	Hairspray - Wella	different articles with different content allowed
	Nappies - Pampers	
	Nappies - Own brand	
	Sanitary protection towels - Own brand	different articles with different content allowed
	Paper handkerchiefs	
	Baby wipes	

Scanner data drugstores

- Sales information for two Dutch chains
- Weekly sales data, from week 3, 2011
- EAN, article description, content, unit, VAT, chain
- Turnover and quantities per EAN per week
- Nested article classification (6 levels of detail)

Index methods: General procedure

Main methodic steps

1. Product characterisation
2. Selection of index formula

Choices for survey and scanner data

Survey

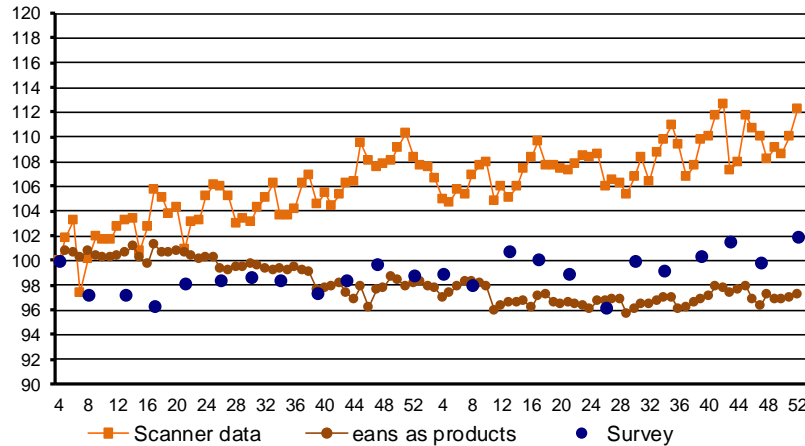
1. Products: 24 articles in survey list
2. Index method: 'Weighted Jevons index'

Scanner data

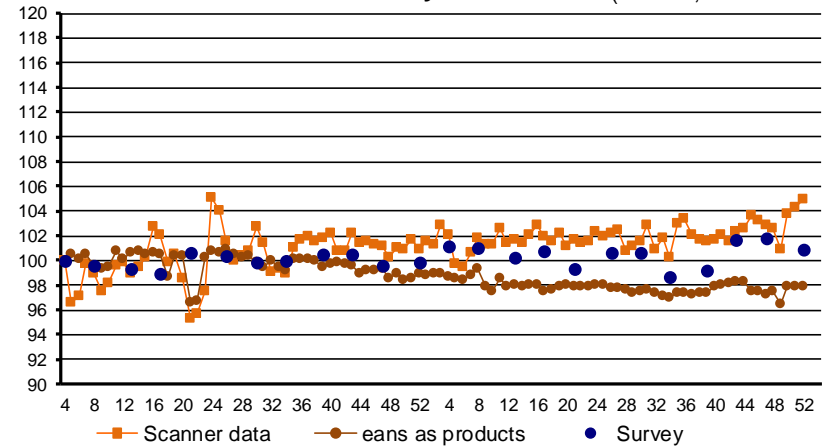
1. Products:
 - Characterised by *brand*, *target group*; *content* added at later stage
 - Alternative: EANs are unique products (finest level of detail)
2. Index method: Jevons, products weighted by turnover shares

Price indices: Scanner data vs Survey

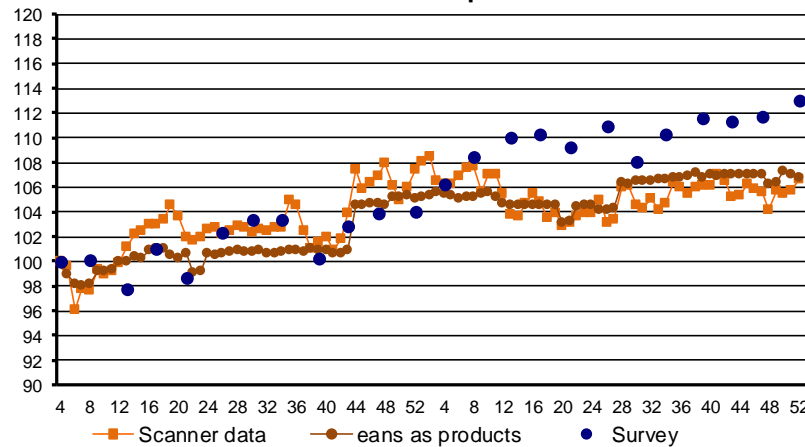
Toiletries



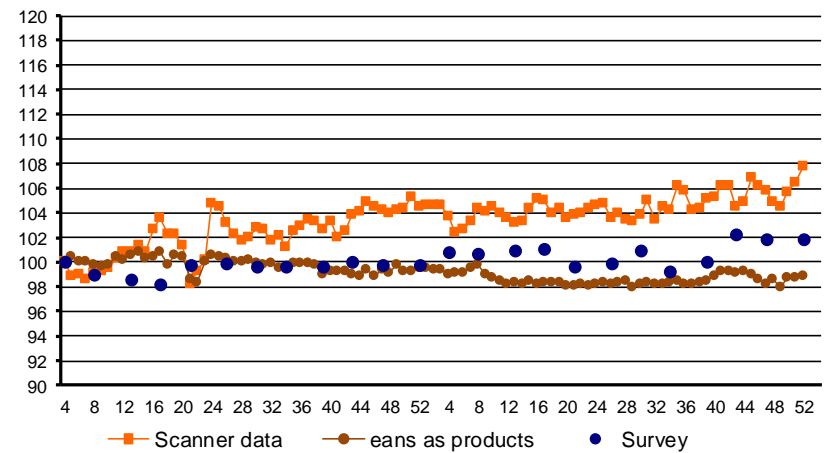
Beauty articles (week 4, 2011 = 100)



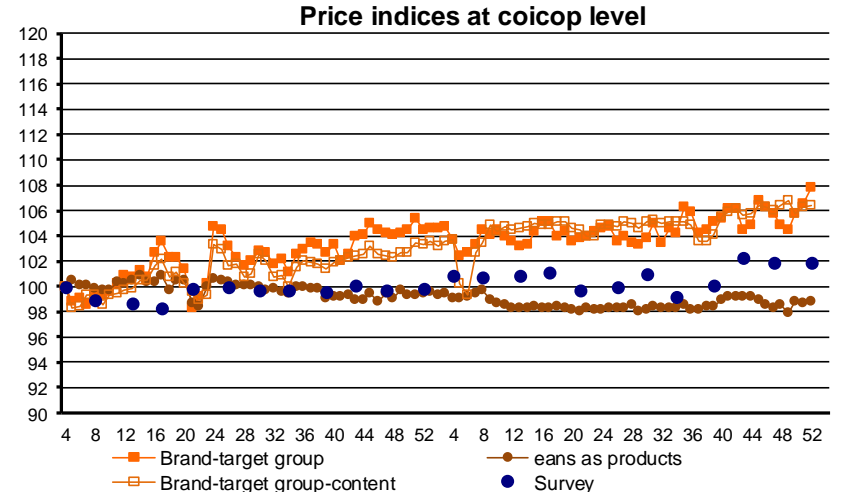
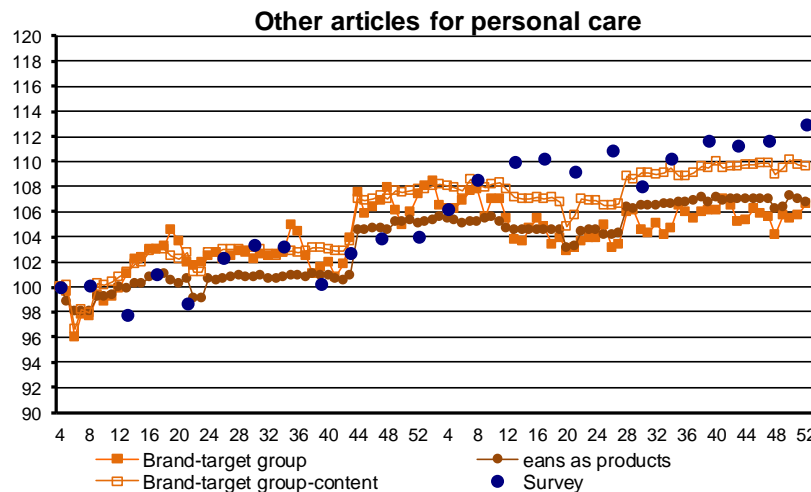
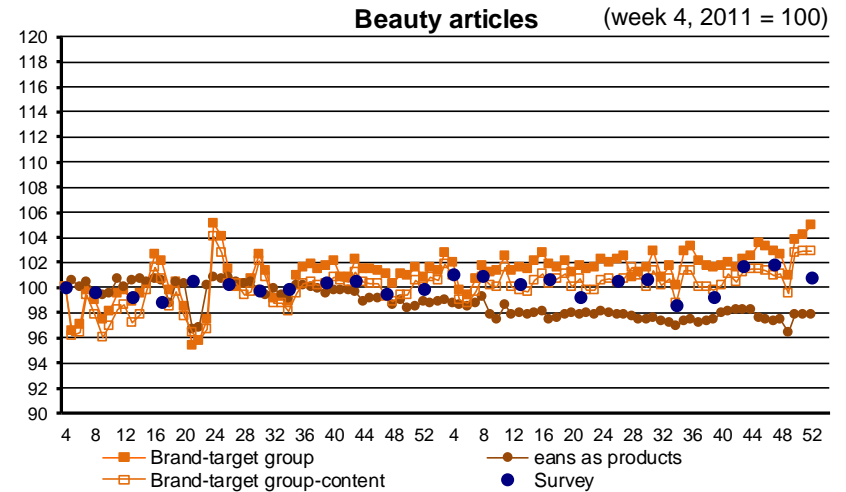
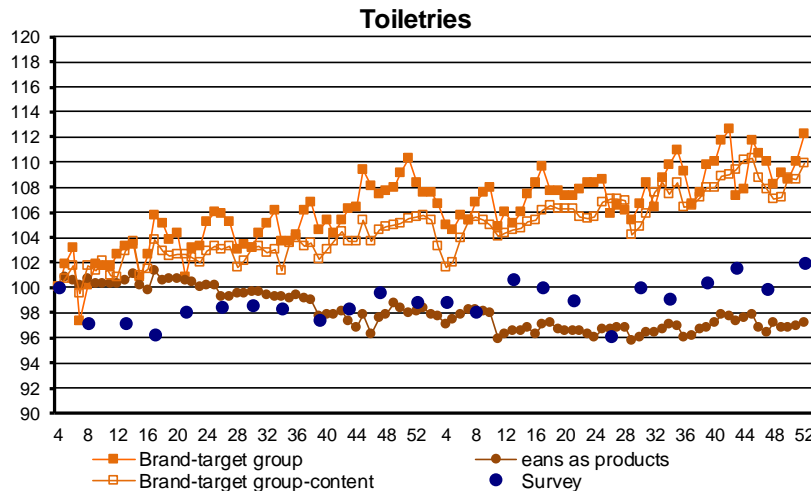
Other articles for personal care



Price indices at coicop level



Content added as product characteristic



Problem at EAN level: “Relaunches”

Part of assortment is ‘refreshed’

- Appearance of packaging changed, content may also be involved
- ‘New’ articles have a different EAN
- And also a higher price!

Implication for price index methods

- Price increases are not taken into account when differentiating products at EAN level

Relaunch example: Shampoo in 2011



EAN: 36-00521-74076-7

Elvive shampoo 2-in-1 multivitamine
Content: 250 ML

Price week 38: **€ 3,18**

Price week 39: **€ 2,00**

EAN: 36-00522-00499-8

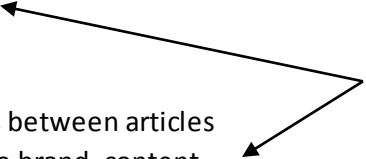
Elvive shampoo 2-in-1 multivitamine
Content: 250 ML

In week 39 sold for first time

Price week 39: **€ 3,98**

Analysis of differences

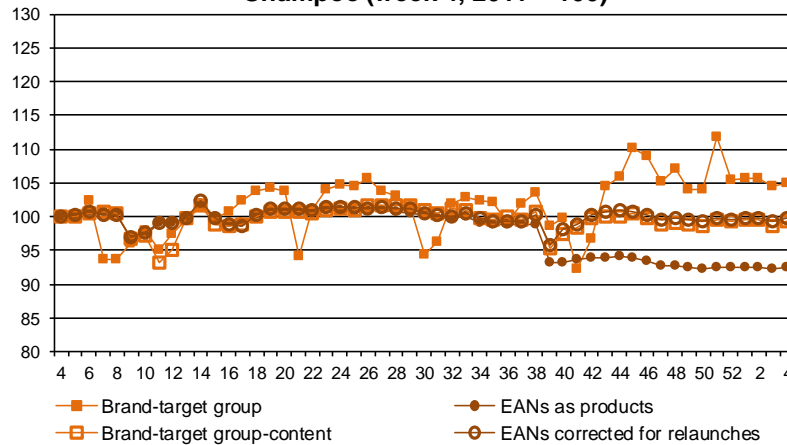
Product characterisation	Contribution to price change
EAN	price change at EAN level
article description	relaunches
brand, target group, content	shifts in sales between articles with the same brand, content and consumer target group
brand, target group	shifts in sales between articles with different content



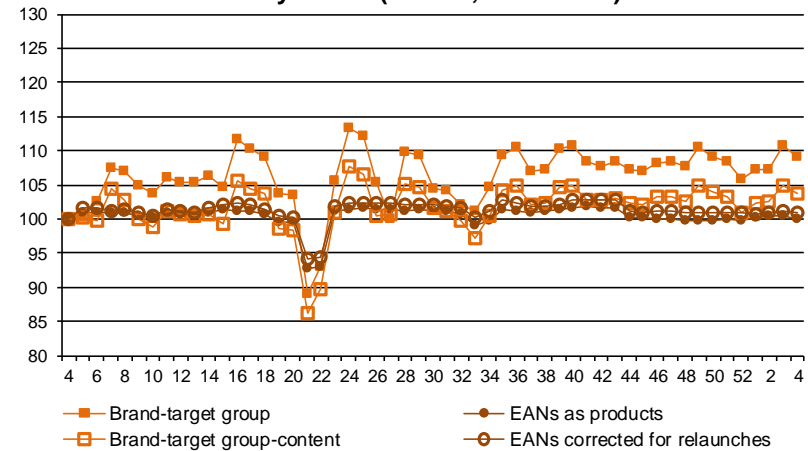
additional price indices

Decomposition of price changes

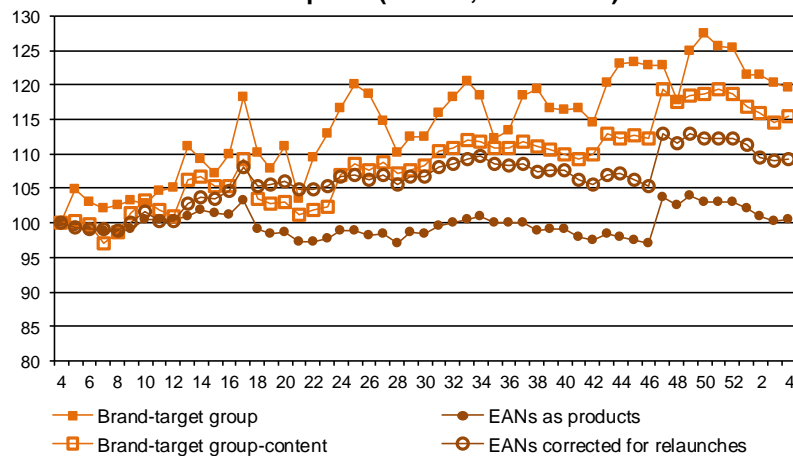
Shampoo (week 4, 2011 = 100)



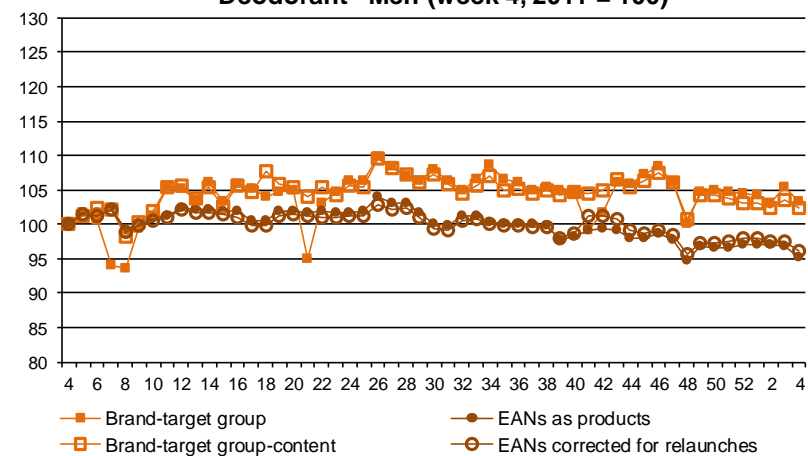
Day cream (week 4, 2011 = 100)



Toothpaste (week 4, 2011 = 100)

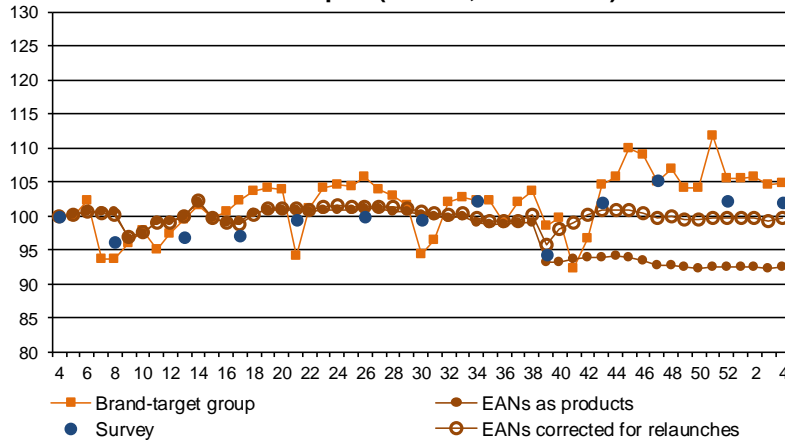


Deodorant - Men (week 4, 2011 = 100)

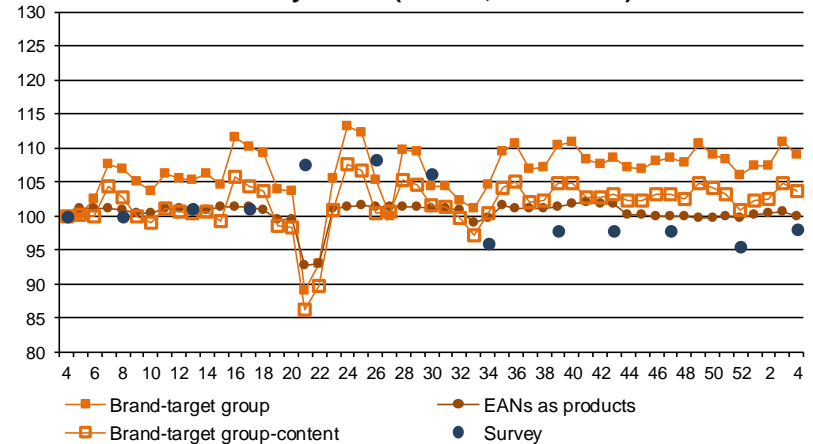


How survey fits

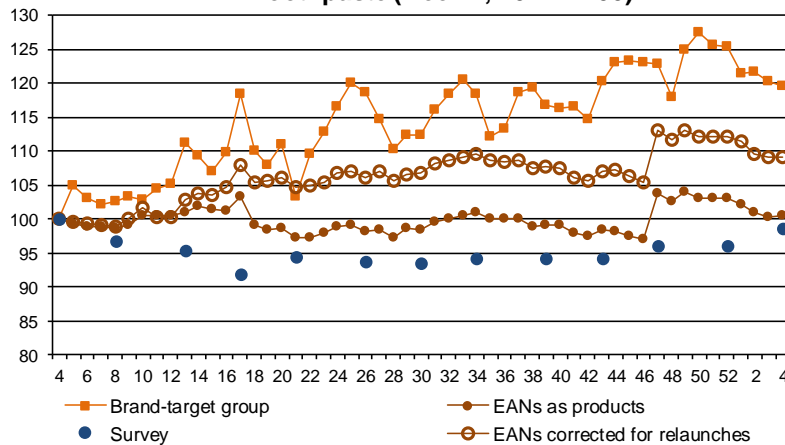
Shampoo (week 4, 2011 = 100)



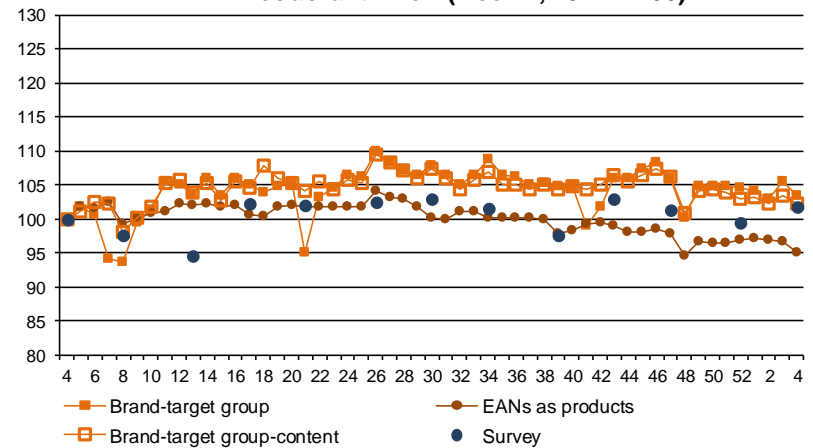
Day cream (week 4, 2011 = 100)



Toothpaste (week 4, 2011 = 100)



Deodorant - Men (week 4, 2011 = 100)



Conclusions

Price indices for survey and scanner data:

- Survey-based index is often smaller
- Relaunches partly captured by survey (sampling problem)
- Same holds for other factors (depends on article description)

Use scanner data, but take care of:

- 'Sufficient' info for product characterisation
- Data inconsistencies
- Returned articles

Future plans:

- Survey to be replaced by scanner data \Rightarrow new index method
- How to characterise products? (Results sensitive to different choices)