

# The effect of retail mergers on variety: An ex-post evaluation

Elena Argentesi (University of Bologna)

Paolo Buccirossi (Lear)

Roberto Cervone (Lear)

Tomaso Duso (DIW Berlin, DICE, & BCCP)

Alessia Marrazzo (Lear)

E.CA Competition Law and Economics Expert Forum - Berlin

April 15 2016

# 1

## Introduction – The Merger

- We analyze the effect on **prices** and on **variety** of a merger among two major **Dutch full-service grocery chains** operating across the country: Jumbo and C1000
  - Last of a series of three mergers that took place between 2009 and 2012
- The Dutch competition authority (ACM):
  - Identified **problematic areas** where the chains competed door to door and had joint **MS>50%**
  - Cleared the merger in February 2012, conditionally on the **divestiture** of **18 stores** in these areas
- Our Main result: the merger did not affect prices but it reduced variety

# 1

## Introduction - Empirical strategy in a Nutshell

- We evaluate the effects of the merger on prices and variety (product assortment) with **differences-in-differences** techniques
- Potential **anti-competitive effects** are likely to be stronger in local markets where both merging parties directly competed before the merger (**overlap areas**)
  - We compare the evolution of prices and variety in the overlap areas with the evolution in areas where **only one chain was present** pre-merger (non-overlap areas)
  - We need to make sure that the control areas are comparable to the treated one → Selection of the areas by **propensity score matching** based on observable characteristics
- We analyze the effect of the merger both on the **merging parties** and **competitors** (Albert Hejin and Coop) controlling for the strength of **discounters**

## 2

## The Data – Product level information

- Due to budget limitation we could get store-level data on products on only **171 stores** for both the merging parties and competitors
  - **Product level data** at the store-level for the 171 selected stores from IRI
- Data on **Prices** (monthly, 2009-2013): turnover over volumes net of promotions
  - **11 product categories** (coffee, cola, cleaners, diapers, fresh milk, frikandels, mayonnaise, olive oil, sanitary napkins, shampoo, and toilet paper)
  - For each category, we have **two A-brand SKUs** and one **private-label SKU**

	Obs.	Mean	St. Dev.	Min	Max
<b>Price</b>	132,003	2.52	3.18	0.03	40
<b>Price A Brand</b>	90,365	2.86	3.5	0.03	40
<b>Price Private label</b>	41,638	1.79	2.17	0.05	10.5

- Data on **Variety** (number of SKUs in each store's assortment) for **125 product categories** (quarterly, 2010-2013)

	Obs.	Mean	St. Dev.	Min	Max
<b>Variety</b>	244,702	93.50	109.96	0	1,689

- Evidence of **local component**
  - **Prices:** some but limited variation (e.g., discount variability)
  - **Variety/Assortment:** main strategic dimension for local competition
- **Diff-in-diff** analysis comparing the change in prices/variety before and after the merger in the overlap areas (treatment group) with that in the non-overlap locations (control group):

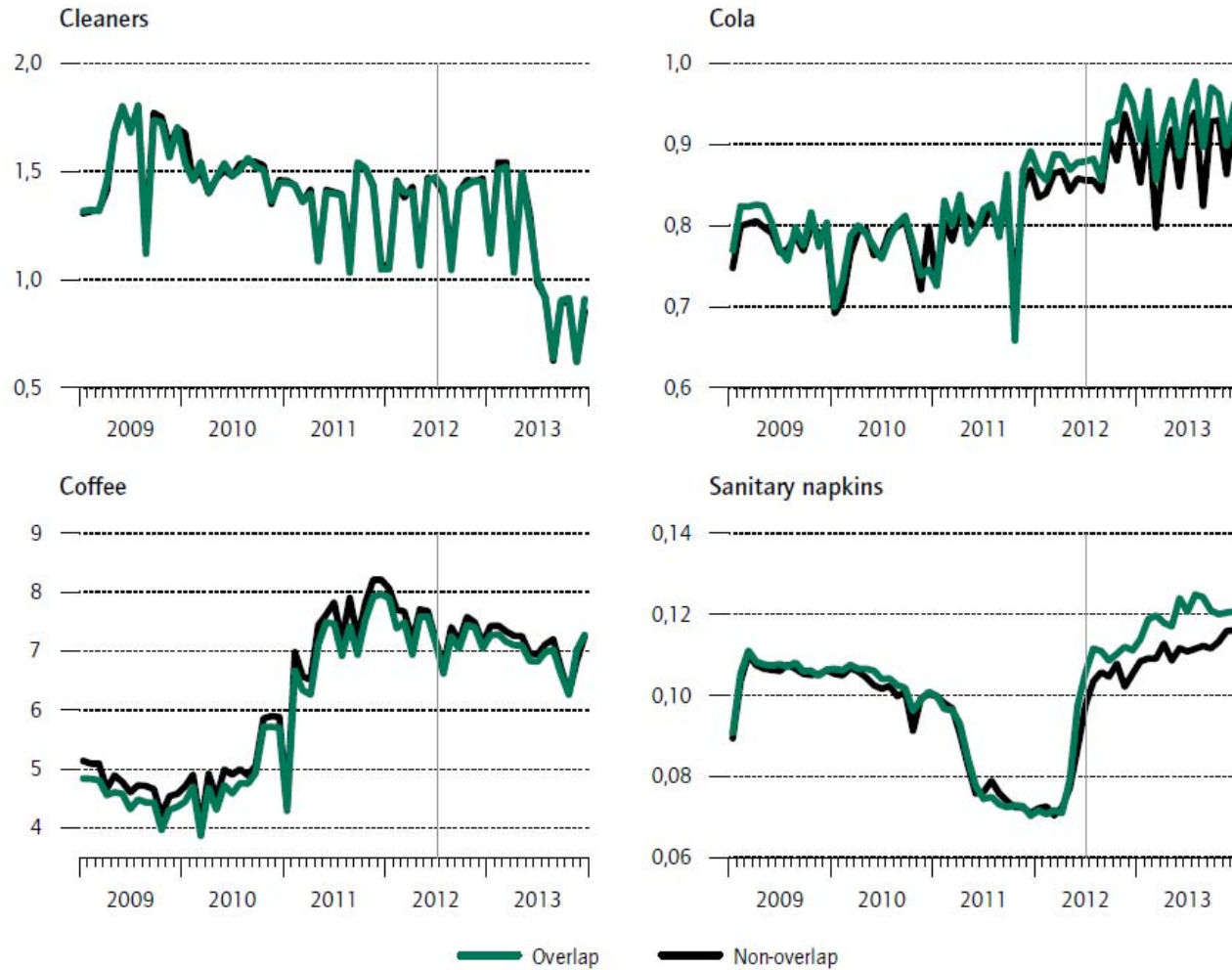
$$Out_{ist} = \alpha + \beta \cdot post_t + \lambda \cdot overlap_s + \delta \cdot post_t \times overlap_s + \mu \cdot Z_{st} + v_{is} + \eta_t + \varepsilon_{ist}$$

'*post x overlap*' is the DiD variable, whose coefficient  $\delta$  measures the Average effect of the merger on the outcome variable

- We then look at possible sources of **heterogeneity** in this average effects

# 3

## Price effects – Descriptive



# 3

## Price effects – Regression

- **No significant average treatment effect** of the mergers both for merging firms and competitors
- **No evidence of price effects** along any dimensions of **heterogeneity** (both for merging firms and competitors) :
  - Areas where C1000 stores were not **rebranded** after merger
  - Very **concentrated** markets (HHI>4000)
  - Areas where **divestitures** took place
- Results are robust to dropping **3-month and 6-month** windows around the merger date
- Caveat: we only have a **sample** of (many) products and stores. We focus on products which were offered **during the entire sample period**

## 4

## Variety effects – Regressions

(Dep. Var.: Variety)	Merging parties	Competitors
Post	1.881** (0.791)	1.311 (0.799)
Overlap	6.717*** (0.660)	-3.707*** (0.862)
Overlap × Post	-3.842*** (0.790)	0.624** (0.277)
Population	-0.0001*** (0.000)	-4.48e-06 (0.000)
Average income	0.438*** (0.119)	2.027*** (0.246)
Discounters market share	-7.000*** (2.157)	14.95*** (2.763)
HHI	-0.001*** (0.000)	-0.001*** (0.000)
Net sales floor	0.005*** (0.001)	0.002*** (0.000)
House value	0.037*** (0.005)	-0.013*** (0.004)
Constant	139.5*** (2.455)	138.5*** (4.723)
Observations	166,531	64,691
R-squared	0.867	0.942
Cluster	Category	Category
Fixed Effects	Category × Insignia	Category × Insignia



# 3

## Variety effects – Main results

- On average, the merger **negatively affected** the level of the merging parties' product variety (-4.3%)
  - This effect is only partly outweighed by an increase in competitors' variety (+0.66%)
- These average effects are not univocally but strongly driven by areas where there was **no re-branding** of the target (C1000)
  - C1000 decreased assortment by over 15%
  - Jumbo increased assortment by more than 5%
  - Albert Hejin increased assortment by more than 10%
- Our Interpretation: **product repositioning** to avoid cannibalization (Gandhi et al., JIE 2008; Mazzeo et al., 2014)

# 4

## Variety effects – Additional results

- The negative effects of the merger on variety are particularly severe in areas where **concentration is high**:
  - All chains (Jumbo, C1000, AH) **significantly reduce their assortment**
  - Evidence of anti-competitive effects?
- **Weaker effects** in areas where a **divestiture** took place
  - Slight increase for merging parties, but decrease for competitors
- Results (both for merging firms and competitors) are **robust** to
  - **Dropping 3-month and 6-month** windows around the merger date
  - Dropping **seasonal products** from the sample
  - Rebalancing the sample

- Important to look at **non-price effects** of mergers in retail markets
  - Variety (product assortment) is a key competitive variable at the local level
- The merger did not affect prices but it caused a **reduction in** the average depth of **assortment** in overlapping areas, notwithstanding the remedies imposed by the competition authority
  - Effect was particularly strong in areas where concentration is high and stores were not rebranded
  - Remedies seem to alleviate the problem
- Not enough information to fully understand changes in the composition of assortment, nor how consumers evaluate a change in assortment
  - Potential cost savings were not passed on to consumers in terms of lower prices

Thank you for your attention.

---



**DIW Berlin — Deutsches Institut  
für Wirtschaftsforschung e.V.**  
Mohrenstraße 58, 10117 Berlin  
[www.diw.de](http://www.diw.de)

Tomaso Duso  
[tduso@diw.de](mailto:tduso@diw.de)