



European Commission

Competition

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Unilateral Effects – Recent Developments Demand Estimation and Merger Simulation

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*The views expressed are those of the speakers and do not necessarily reflect those of DG Competition or the European Commission



Introduction

- Empirical evidence in recent unilateral effects cases:
 - Descriptive analysis
 - Market definition techniques
 - UPP-style analysis
 - Demand estimation and merger simulation
 - Direct estimation of competitive constraints
- DG Competition's discussion paper for the OECD Roundtable on economic evidence in merger analysis of 15 February 2011 (http://ec.europa.eu/competition/international/multilateral/2011_feb_economic_evidence.pdf)



Demand estimation and merger simulation: two recent cases

- Kraft / Cadbury: demand estimation and merger simulation submitted by the parties
- Unilever/Sara Lee: Commission carried out own demand estimation and merger simulation



Kraft / Cadbury

„Chocolate companies as a breed also have a peculiarly intimate relationship with their customers, partly because chocolate is involved in so many childhood, romantic and festive rituals, and partly because people acquire their tastes in chocolate at their mothers' knees. Most Britons would rather eat scorpions than Hershey bars“

(The Economist, 5 November 2009)



Kraft / Cadbury

- Issues in the UK: Overlap mainly in the Tablet segment: retail market shares are [40-50%] for Cadbury and [5-10]% for Kraft in this segment.
- Cadbury's main product: Cadbury Dairy Milk
- Kraft's main product: Toblerone (and Milka)
- The parties submitted a merger simulation model (nested logit), which predicted low price increases on average and for the parties' brands.



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Main issue: closeness of competition





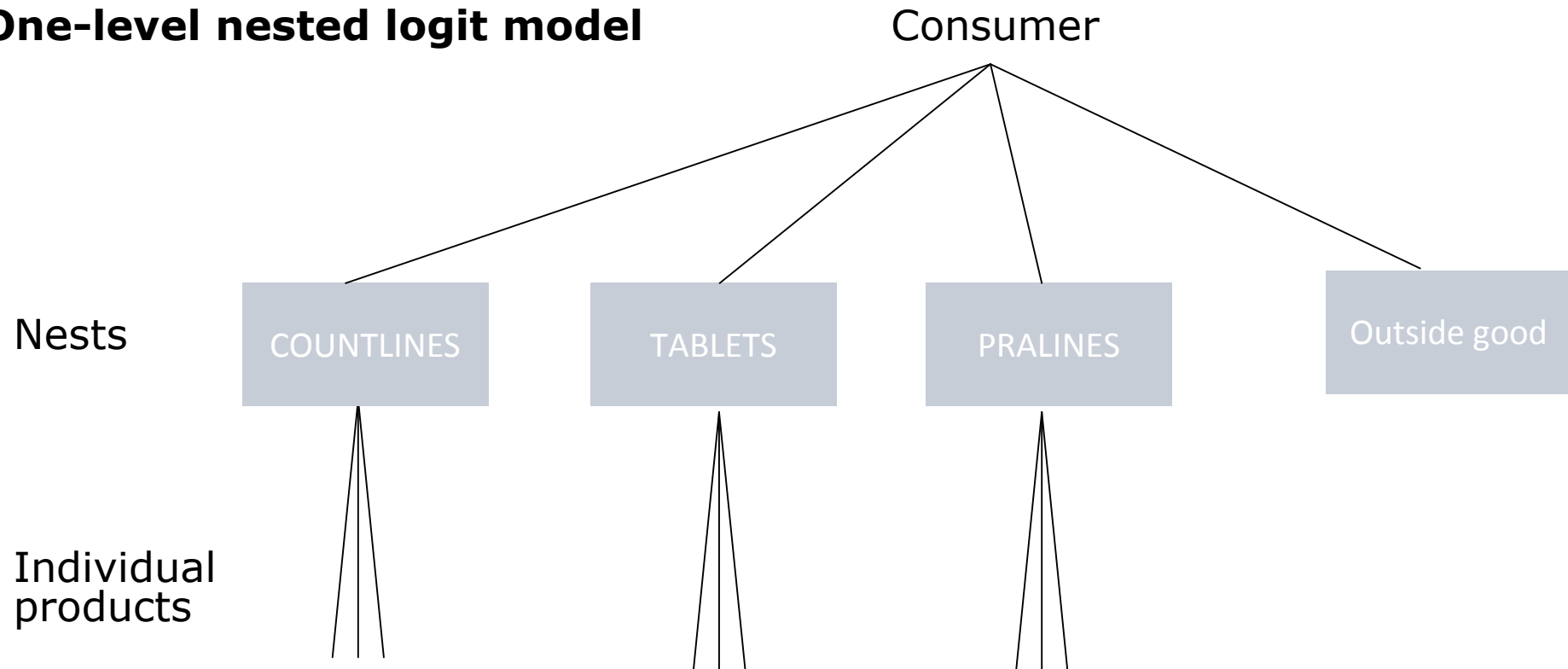
Parameters of differentiation

- British heritage / continental style chocolate
 - “British heritage chocolate like Cadbury Dairy Milk has a lower content of cocoa butter, a higher content of milk fat than typical continental European chocolate.”
 - “Cadbury Dairy Milk also contains vegetable fats instead of cocoa butter, as do other British heritage chocolates such as Mars brand Galaxy.”
 - “Cadbury Dairy Milk also uses different production processes from continental type of chocolate like Milka or other continental chocolate.”
- Format, price, branding, purpose of use...

➡ What does the nested logit model tell us about this?



One-level nested logit model



The nested logit demand system is a particular functional form of demand from which own- and cross-price elasticities are derived. It is based on discrete choice modeling and allocates each product into a particular product category or "nest" (in this case, countlines, tablets or pralines) to allow for some correlation of consumer tastes across products.



- The nested logit model imposes a strong structure on substitution patterns.
- Nested logit relies on the *Independence of Irrelevant Alternatives* assumption: switching within a nest is supposed to take place in proportion to market shares.
- Practical advantage: there are only two parameters to estimate.



- The qualitative and other quantitative evidence gathered during the market investigation indicated that Kraft's brand do not exert a significant competitive constraint on Cadbury Dairy Milk, unlike Mars Galaxy (e.g. evolution of sales, prices and promotion/advertising, seasonality of sales...).
- The merger simulation submitted by the parties was one element that was consistent with the rest of the evidence gathered.
 - The Commission performed a thorough sensitivity analysis, which respect to both the estimation and the calibration (e.g. nest specifications, aggregate elasticity of demand, choice of instruments, cost data used in calibration, treatment of private labels,...)
 - The results of the merger simulation were likely conservative since it was assumed that the parties were equally close competitors within a nest.
- But it does not resolve the key question of closeness of competition between the parties' brands (since switching is assumed to be proportional to market shares within each format).



Trade-off between flexibility and ease of estimation

- In differentiated products, one is interested in the cross-elasticities between the merging parties' products.
- More flexible models may provide a better fit to the data and a more direct answer to this key question. For example, the Almost Ideal Demand System (Deaton and Muellbauer, 1980) was used by the Commission in Friesland/Campina.
- More flexibility comes at a cost however (more parameters to estimate).



A middle way?

- In Unilever/Sara Lee, there were significant overlaps among the parties' deodorants brands in a number of countries.
- The Commission estimated one- and two-level nested logit models for deodorants, with nests for male and non-male deodorants, and sub-nests depending on whether the deodorant is presented as skin friendly.



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Parties' main deodorant brands



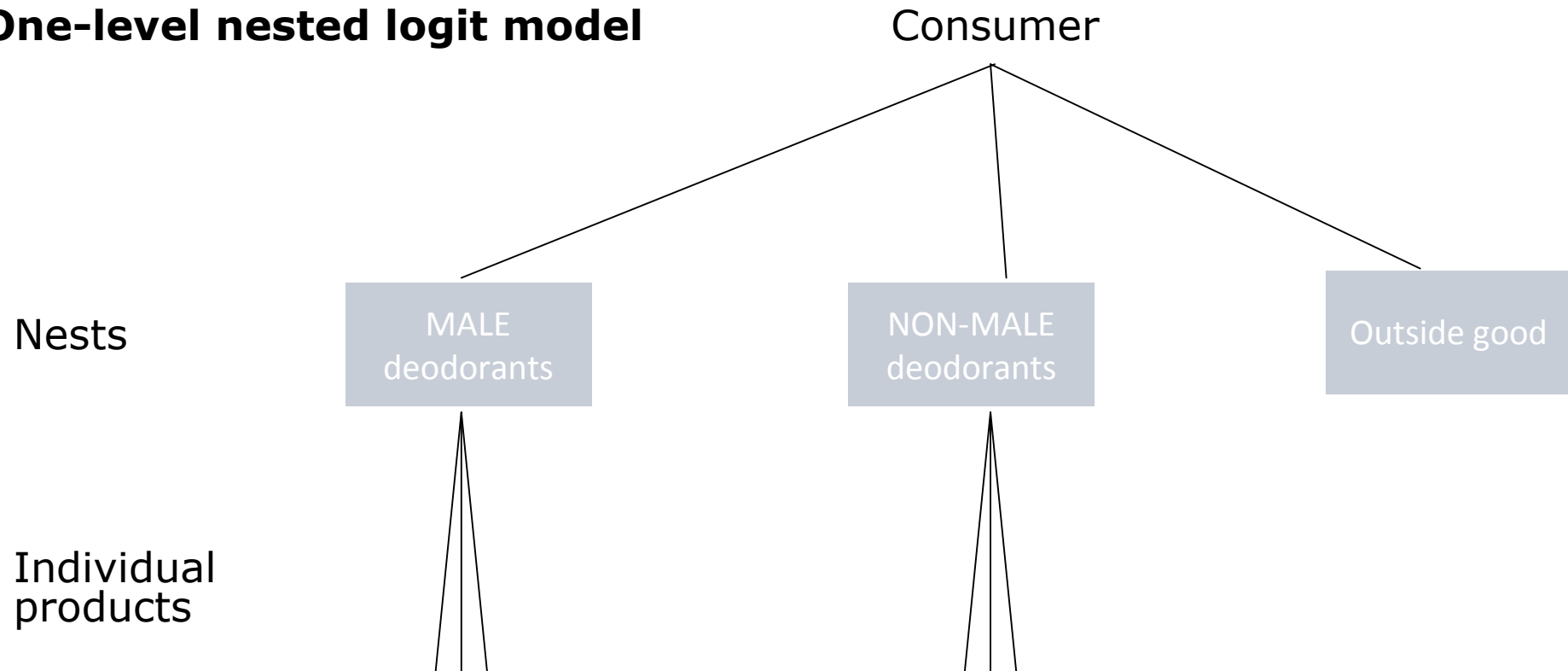
Sara Lee



Unilever

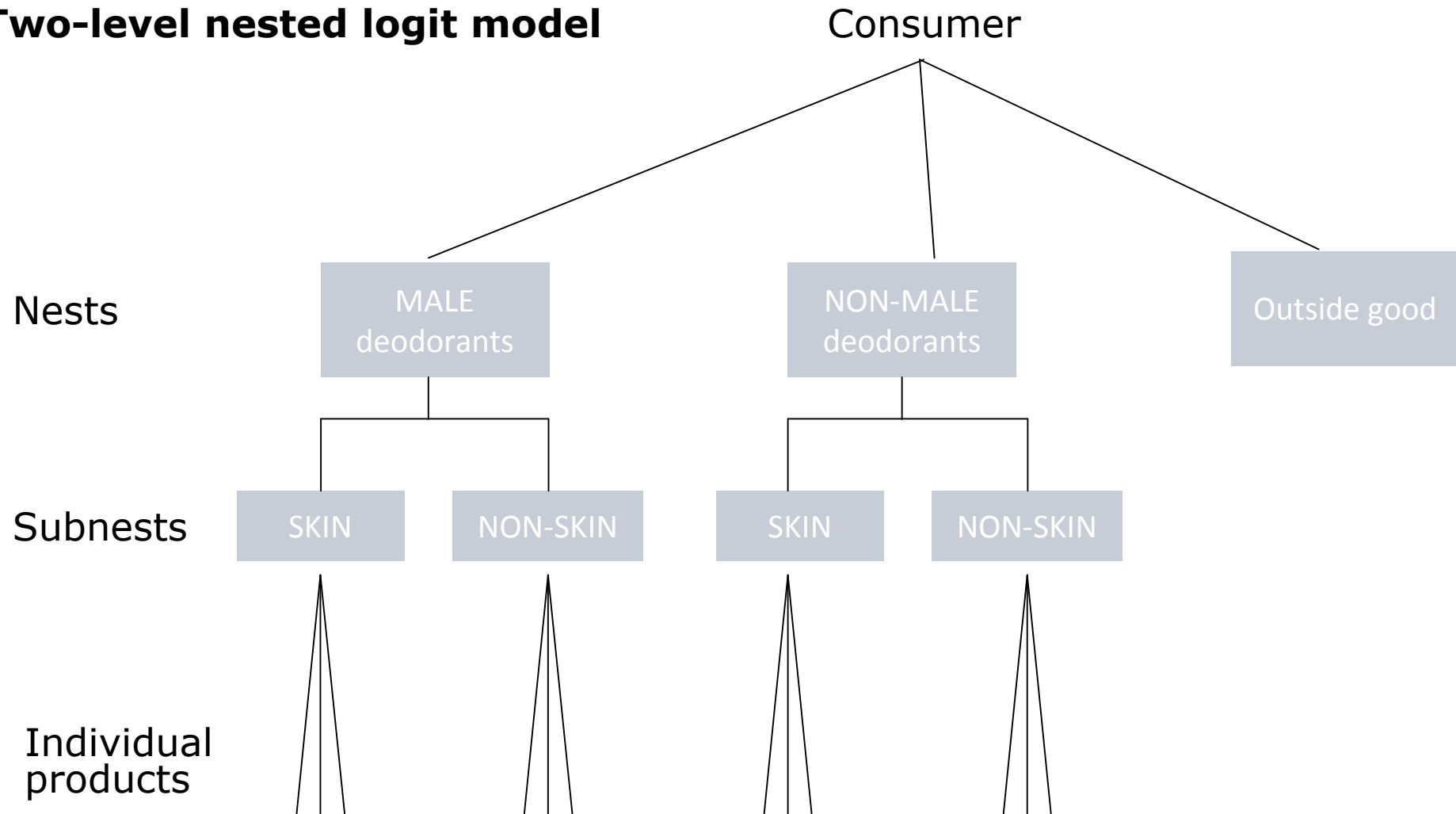


One-level nested logit model





Two-level nested logit model





- The Commission found overall deodorant price increases of up to 5% depending on the country (in the absence of efficiencies), with generally higher price increases for non-male deodorants (higher price increases were also presented at the brand level).
- The overall required compensating efficiencies were in the range of [5%-25%] depending on the country and specification.



Key questions

- How well does the estimation fit the observed data (e.g. observed margins)?
- Does it allow sufficient flexibility to estimate the relevant substitution patterns?
- Robustness / choice of instruments



Cross-examination of the results

- Does the work stand or not?
- The best practices for the submission of economic evidence provide a framework for ensuring that economic evidence is properly assessed.
 - Importance for the parties to be able to replicate and check the work performed by the Commission (and vice versa).
 - All code made available to the parties, which brought forward a number of critiques leading to additional modeling refinements and testing.
 - The parties also responded to economic submissions by third parties.



How much weight should be given to the results?

- How confident are we with the results of the merger simulation?
 - What are the limitations of the model? What was assumed? What was estimated? How well does this fit the facts of the industry?
 - Keep in mind that these are static models, which do not take into account factors such as entry or repositioning and assume passive retailer behavior.
- How confident are we with the other pieces of qualitative and quantitative evidence?
 - What are the other pieces of qualitative and quantitative evidence telling us? For example, many other types of evidence used in Unilever/Sara Lee, including diversion based on household panel data, internal documents, ...
 - How reliable are these other pieces of evidence?



Conclusion

- Demand estimation and merger simulation can provide valuable insights to assess the likely effects of a merger (and to weigh possible pro- and anti-competitive effects)
- It is important for the model to fit the characteristics of the industry, and to capture the closeness of competition between the parties.
- Merger simulation can not be seen in isolation – at best one piece of the puzzle.