Inefficient Buyer Mergers To Obtain Size Discounts

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This Paper

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- Buyer mergers are mergers between retailers active in independent markets.
  - No horizontal concerns, but focus on effects of buyer mergers on vertical contracts and thus on retail prices.
- Buyer power is defined as the ability of a larger buyer to get size discounts from the supplier.

Buyer Power Debate & Our Contribution

Potential Benefits

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  - **However**, lower purchasing costs might not be passed on to consumers downstream (the European Commission Guidelines).
- We support the EC's claim by showing that

  Even if larger buyers obtain size discounts from the supplier, they do not reflect these cost savings on consumer prices when firms bargain over **non-linear supply contracts**.

Buyer Power Debate & Our Contribution

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  - With multi-part tariffs, waterbed effects would less likely to be materialized. There is no evidence of waterbed effects in UK data (The UK Competition Commission).
- We find **no waterbed effect** at work, mainly because **non-linear supply contracts** transfer profits from the supplier to larger buyers without affecting supply tariffs of smaller retailers or retail prices.

  Our results thus support the UK Competition Commission's claims.

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  - Inderst and Valetti (2008): Consumer prices increase when retailers compete à la Hotelling.
  - Majumdar (2006): The total welfare decreases when the demand is linear.

Empirical Literature: Linear vs Non-linear Supply Contracts

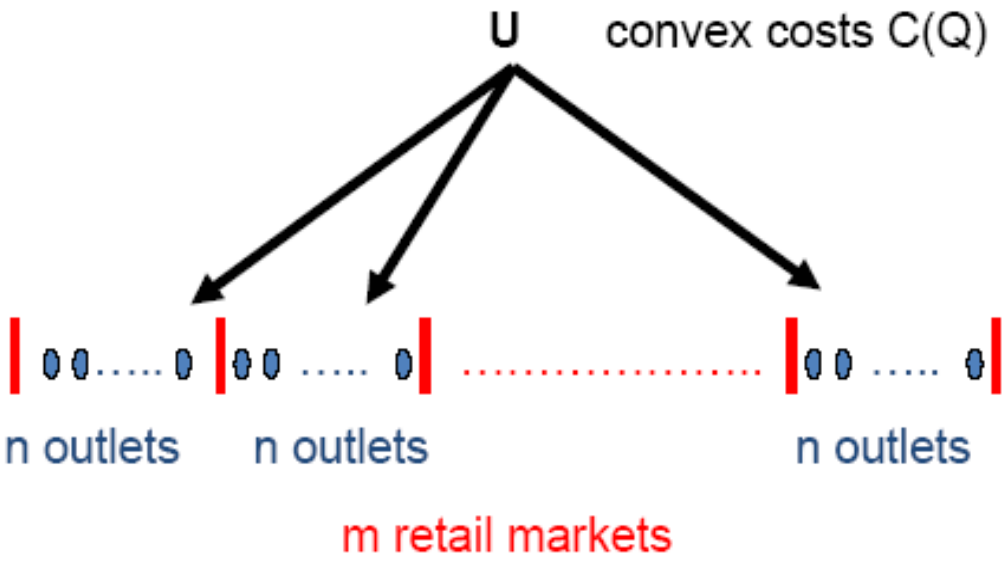
Non-linear supply contracts are prevalent.

- Bonnet and Dubois (2008), Berto Villas-Boas (2007):
  - In the markets for bottled water in France and yoghurt in the US.
- Some evidence from the UK Competition Commission:
  - 70% of suppliers make regular or occasional payments to grocery retailers as promotional investments.

Roadmap

- Benchmark Model
- Buyer Merger and Size Discounts
- Inefficient Buyer Merger
  - Waterbed Effects
  - Incentives to merge and retail competition
- Conclusions

Benchmark Model



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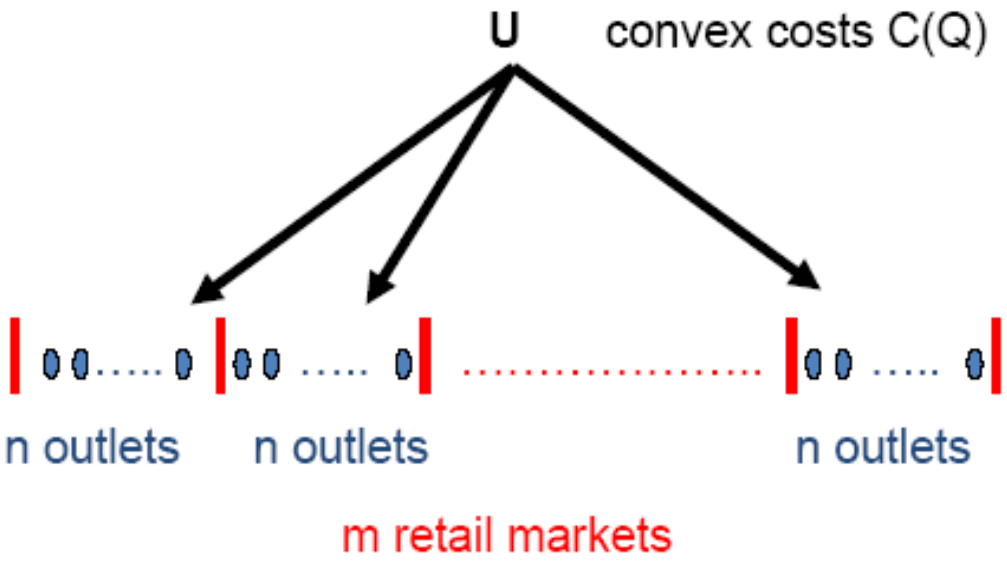

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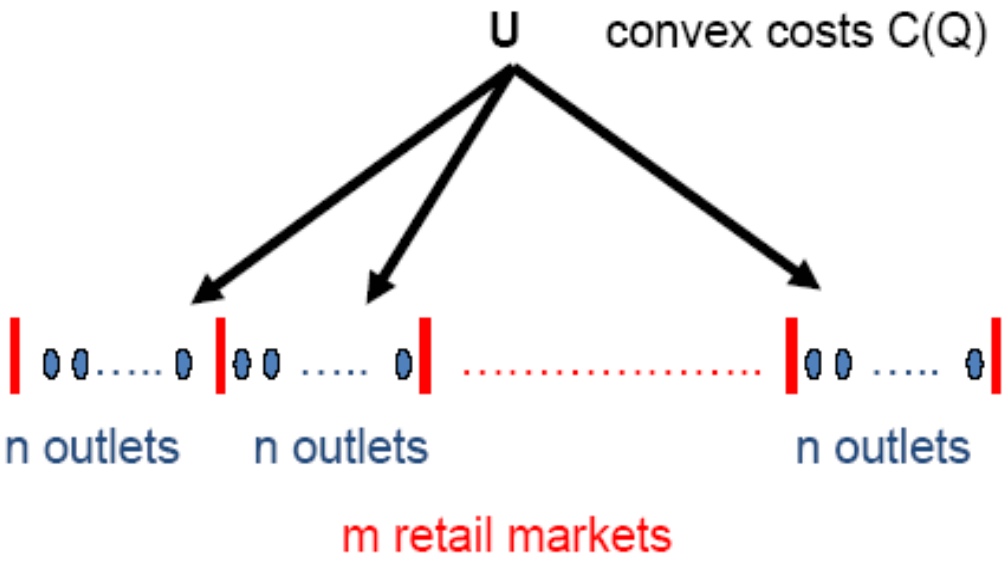

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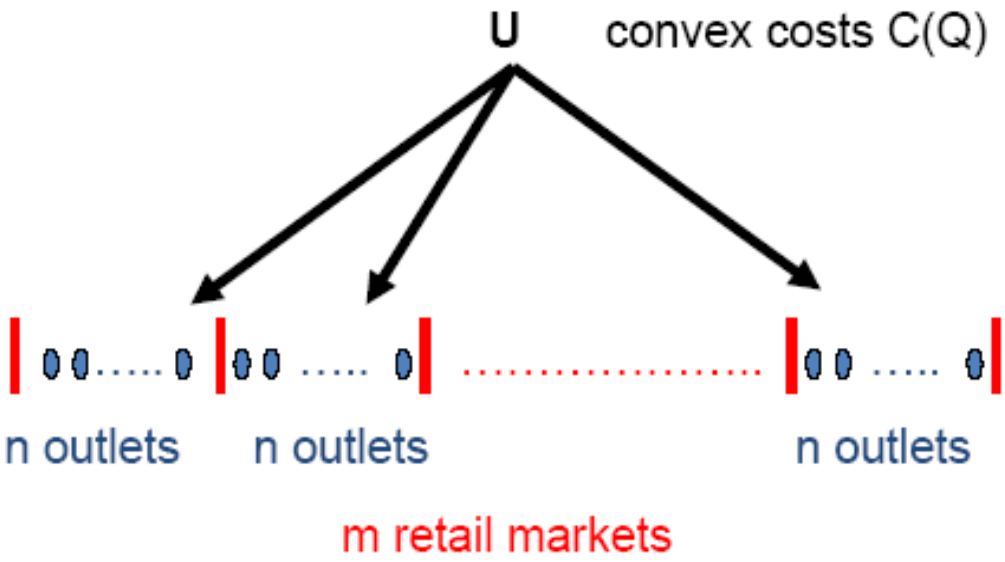

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- **Regularity Condition:** $P'(Q) + QP''(Q) < 0$ for any Q.
- Cost of retailing is c at each outlet.

Timing

- **Stage I:** U and retailer i negotiate quantity q_i and tariff t_i for this quantity, $i = 1, 2..., nm$.

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  - Each retailer is capacity constrained by the quantity it negotiated at Stage I.
- Look for a Subgame Perfect Nash Equilibrium.

Notation

In the negotiation between retailer i and U, under passive beliefs,

- The profit of U is

$$\pi_U = t_i + T_{[i]} - C(q_i + Q_{[i]})$$

where

$$T_{[i]} = \sum_{j \neq i} t_j \quad , \quad Q_{[i]} = \sum_{j \neq i} q_j .$$

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- The outside options are respectively

$$\pi_U^o = T_{[i]} - C\left(Q_{[i]}\right) \quad , \quad \pi_i^o = 0.$$

Equilibrium Contracts

- Generalized Nash Bargaining Solution where the supplier gets α and each retailer gets $1-\alpha$ of the gains from trade, for $\alpha \in (0,1)$,

$$q_i^*, t_i^* = \arg\max_{q_i, t_i} \left(\pi_U - \pi_U^o\right)^{\alpha} \left(\pi_i - \pi_i^o\right)^{(1-\alpha)}$$

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Solution

Since retailers are symmetric, $q_i^* = q^*$ and $t_i^* = t^*$ such that

$$P'\left(nq^*\right) q^* + P\left(nq^*\right) = c + C'\left(mnq^*\right)$$

$$t^* = \alpha\left[P\left(nq^*\right) - c\right] q^* + (1-\alpha)\left[C\left(mnq^*\right) - C\left(\left(mn-1\right) q^*\right)\right]$$

Hence, each retailer gets

$$\pi^* = (1-\alpha)\left[\left[P\left(nq^*\right) - c\right] q^* - \left[C\left(mnq^*\right) - C\left(\left(mn-1\right) q^*\right)\right]\right]$$

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- $Q_{h,\Phi}$: The total quantity sold in a market where L is not present (independent market).

Buyer Mergers and Size Discounts: Equilibrium

- $*$: the pre-merger equilibrium, $**$: the post-merger equilibrium,

$$\begin{aligned} \frac{q_L^{**}}{l} &= q_R^{**} = q_I^{**} = q^* \\ t_R^{**} &= t_I^{**} = t^* \qquad \text{and} \qquad t_L^* < lt^*. \end{aligned}$$

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- **No pass through** due to non-linear supply contracts and passive beliefs.

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- If $\mu > 0$, there is a trade-off between efficiency and size discounts.

Inefficient Buyer Merger (Ctd)

Proposition

If the merger is efficient, $\mu < 0$, $q_R^{**} < q_I^{**} < q^* < \frac{q_L^{**}}{I}$, $Q_{h,\phi}^{**} < Q_h^* < Q_{h,L}^{**}$ *and* $Q^* < Q^{**}$,
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- Possible effects of an inefficient buyer merger, $\mu > 0$:

Profits of	**size effect**	**cost effect**	**competition effect**
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rival retailers, R	$\emptyset$	+	+
independent ret.s, I	$\emptyset$	+	$\emptyset$

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independent ret.s, I	$\varnothing$	$+$	$\varnothing$

- If *size effect* $>$ $|$*cost effect* $+$ *competition effect*$|$, an inefficient merger is profitable.

Waterbed Effects

- **Definition:** After a buyer merger, if the small retailers earn lower profits for any volume of sales, there are waterbed effects.

Proposition

If the merger is efficient, $\mu < 0$, there are waterbed effects on the small retailers. If the merger is inefficient, $\mu > 0$, there is no waterbed effect, indeed the small retailers earn higher profits for a given volume of sales post-merger.

- The UK Competition Commission (2008): No decline of small store revenues following a buyer merger (we provide an explanation).
- Comparing post-merger and pre-merger profits could be a tool to identify the efficiency of a buyer merger.
- Contrary to Inderst and Valetti (2008), and Majumdar (2006), waterbed effects (if exist) increase the consumer surplus.

Incentives to Merge and Retail Competition

- How do incentives to merge change with retail competition?

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- **Ilustrative example:** Linear demand and quadratic upstream cost:

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- **Policy Implication:** Commercial zoning laws restrict local competition, and thus make inefficient buyer mergers more likely.

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