

Is Producing a Private Label Counterproductive for a Branded Manufacturer?

Workshop on 'Market power in vertically market'

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March 17, 2009



Why analyzing Private Labels?

- Development of Private Labels (PL) is one of the most successful strategy for retailers over the past 30 years;
- In average, more than 1 product sold over 3 is a store brand good.
 - Italy: 16% of food sales;
 - France: 30% of food sales;
 - UK: 43% of food sales.
- Issue for manufacturers: PL production represents a high (increasing) volume of sales.

Agrofood industry and Private Labels

- 27% of French agrofood industries have produced PL in 2005 (21% in 2000)
- PL represented 11.4% of total agrofood industry revenues (8.6% in 2000).
- The share of SME in the production of PL decreases to the benefit of foreign firms and NB manufacturers.

Firms' Category	1999 MS	2006 MS
French SME	73 %	69 %
Foreign SME	18 %	19 %
NB Manufacturers	9 %	12 %

Table: Market shares of agrofood PL in large food stores.

PL and downstream strategies

- The economic literature on PL mainly focused on "downstream" decisions (see Bergès-Sennou et al. 2004 for a survey of this literature).
- PL has strengthened retailers' position vis-a-vis manufacturers (reservation profit)
- Better contract terms with producers, tariff concession (Mills 1995, 1998).
- Increased interbrand competition within a store.
- Lower competition between retailers (increase retailers' differentiation in the product range).

PL and downstream strategies : manufacturer choice

- Retailers may entrust the production of the PL to independent firm (often used)
- But they may prefer to entrust it to NB manufacturers. Why? quality - cost concerns.
- Retailer's choice of manufacturers with exogenous quality and restrictive demand specification: PL produced by a National Brand (NB) manufacturer if the retailer's bargaining power or consumers' store loyalty are high enough (Bergès-Sennou 2006).

PL and upstream strategies

- The economic literature on PL does not really focus on "upstream" decisions.
- Some branded good manufacturers do produce PL products for retailers (Galizzi et al, 1997) even if competing products on the shelves. Why?
- If he refuses, someone else will do it and get these additional revenues.
- He can improve contract conditions for the NB products by selling also the PL.
- Other possible explanation: NB manufacturers argue of costly idle production capacity to do so (Gomez and Bello, 2008).
- At the end, PL compete with their own branded products.

Objective of the paper

- Is the argument of NB manufacturers about PL production to cover costly excess capacity constraint valid?
- What is the best strategy for retailers about PL (quality, price) given the existence (or not) of capacity constraints?
- This requires the explicit modeling of capacity constraints in classic framework.

The framework

- A monopolist retailer R can sell two (vertically) quality differentiated goods (NB and/or PL).
- PL quality is endogenous and always considered as lower than NB quality by consumers (see Bell, 2000 or Steenkamp, 2008).
- There are two potential manufacturers for the PL: NB producer or independent firm.
- Quadratic cost of quality: $C(Q, q) = c(q) \cdot Q$ where $c(q) = \frac{c \cdot q^2}{2}$.
- $c = 1$ for the NB producer while $c > 1$ for the independent firm: cost advantage for NB producer with respect to PL.
- Consumers are heterogeneous regarding their willingness to pay for quality (Mussa-Rosen);
- Nash bargaining game where the NB manufacturer has a α bargaining power when negotiating with the retailer.

Timing of the game

The game takes place over 3 steps:

- Step 1: The retailer chooses his product range (NB and/or PL) as well as the PL quality and its manufacturer.
 - The NB manufacturer or an independent firm can be chosen by the retailer for PL production (different technologies).
 - The retailer negotiates a wholesale price and a franchise fee with the selected manufacturer (no double marginalization).
- Step 2: As far as the NB manufacturer is concerned, he accepts or refuses to produce the PL. If NB refuses, then the retailer turns to the independent firm.
- Step 3: The retailer decides the final price of good(s) sold.

Three different production conditions

The game is solved for three situations:

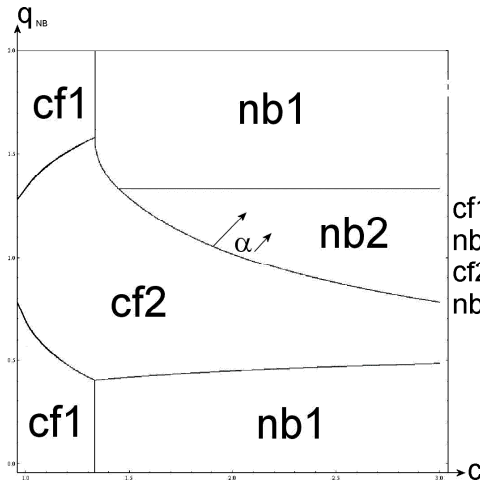
- Benchmark: no capacity constraint
- Capacity constraint applies to total production:
 - Different recipes and ingredients but same production process. Switching is thus easy for the producer.
 - This translates into $D_{NB}^* + D_{PL}^* < K$ where K is total production.
 - Implicitly assumes that reallocation of production capacity is costless.
- Capacity constraint applies only to PL production:
 - Some part of the production process is specific and intrinsically related to the NB product.
 - This translates into $D_{PL}^* < k$.
 - NB remains independent, it is costly to affect a production line from one good to another (short-run horizon).

The retailer's product range choice

There are three equilibria to be computed:

- Selling only the NB product: no reservation profit for the retailer in this setting;
- Selling only the PL product: trade-off for the choice of PL producer between cost efficiency and higher quality vs rent to leave to the NB manufacturer;
- Selling both NB and PL: PL serves retailer's reservation profit when negotiating with the NB manufacturer.

The different kinds of equilibria (for $\alpha = \frac{1}{4}$)

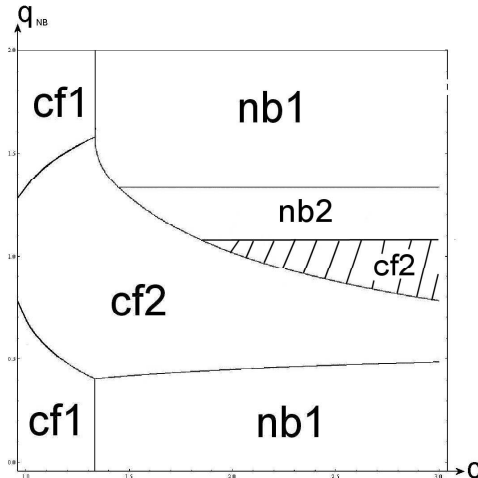


cf1 = PL only produced by CF
 nb1 = PL only produced by NB
 cf2 = NB+PL produced by CF
 nb2 = NB+PL produced by NB

The different kinds of equilibria (for $\alpha = \frac{1}{4}$)

- Both PL and NB sold when NB quality intermediate (enjoy discrimination profits and PL competitiveness);
- PL production by NB manufacturer not very likely (independence is valued);
- A high bargaining power from NB producer will discourage the production of PL by the NB producer (residual PL profits lower for the retailer).

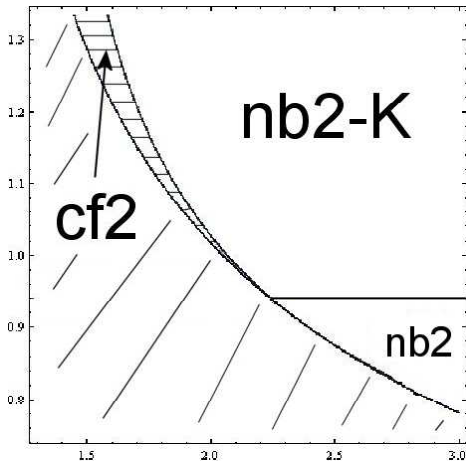
Capacity constraint applies to the whole production
($K = 0.37$).



Capacity constraint applies to the whole production

- Independent firm may now be chosen while it was the NB producer without constraint.
- When constrained, PL quality and price are higher if produced by the NB Manufacturer. In order to comply with capacity restriction, production is reorganized resulting in more NB production at a lower price (total NB revenues decrease);
- Potential efficiency gains on PL offset by losses on NB (decrease in NB revenues + gain in bargaining revenues when dealing with the ind. firm).

Capacity constraint applies to the production of PL only ($k = 0.235$)



Capacity constraint applies to the production of PL only

- PL would be profitable for NB manufacturer. However, the independent firm may now be chosen.
- When NB manufacturer is constrained and elected, PL quality, price and quantity (k) implies lower NB quantity at same price. Consequently, PL revenues increases and NB ones decrease.
- For higher level of NB quality or higher cost for the ind. firm, profit from the sales of PL results in PL produced by the NB producer.

Conclusions

- NB manufacturer argument has a rationale. They may produce store brand when unconstrained.
- However, when capacity constrained but with production lines that are product specific, their statement is partially true (PL may be entrusted to NB manufacturers).
- Taking into account capacity constraint jeopardizes the retailer's decision:
 - The independent firm may be favored whatever the reallocation between NB and PL proposed by the NB manufacturer;
 - If capacity constraint only applies to PL, the NB manufacturer may produce the PL (PL of higher quality).
 - Tradeoff for the retailer: Efficiency (cost advantage with the NB producer) vs profitability (full bargaining power with the ind. firm).
- PL quality (endogenous) plays an important role in the retailer's decision.

Thanks!

Thanks for your attention!

Comparison of Capacity constraint vs benchmark eq.

	Benchmark (NB manufacturer chosen)	Capacity constraint setting leading to the choice of the independent firm	Difference relative to benchmark
q_{PL}	$\frac{q_{NB}}{2}$	$\frac{1}{4}q_{NB}(3 - \sqrt{\frac{9c-8}{c}})$	-
P_{PL}	$\frac{1}{16}q_{NB}(4 + q_{NB})$	$\frac{q_{NB}}{32\sqrt{c}}(\sqrt{c}(12 + (9c - 4)q_{NB}) - \sqrt{(9c - 8)}(4 + 3cq_{NB}))q_{NB}$	-
P_{NB}	$\frac{1}{4}(2 + q_{NB})$	$\frac{1}{4}(2 + q_{NB})$	=
Q_{PL}	$\frac{q_{NB}}{4}$	$\frac{1}{8}(3cq_{NB} - \sqrt{c(9c - 8)})q_{NB}$	-
Q_{NB}	$\frac{1}{8}(4 - 3q_{NB})$	$\frac{1}{16}(8 - 9cq_{NB} + 3\sqrt{c(9c - 8)})q_{NB}$	+
π_{NB}			-

Table: Comparison of equilibrium variables between the benchmark and the capacity constraint case.