

Consumer Economics and Pricing Strategies

The Regulation of producers and retailers relationships

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A regulation of retailers' and producers' behaviors

- European rules on vertical restraints (Article 101 and 102 of TFUE)
<https://www.slaughterandmay.com/media/64575/the-eu-competition-rules-on-vertical-agreements.pdf>
- Specific rule per countries
 - Rules about General terms of sales- Non discrimination principle ?
 - Resale below cost laws
 - Forbids excessively low prices
 - Framework for commercial services
 - Refusal to sell prohibited.
 - Framework for sales (products on sale for at least 3 month)/ promotions.

- Loi Galland (1996): Resale Below cost laws.
- LME (2008)-Input price discrimination Allain, Chambolle, Tuolla, *Working Paper*, 2018.

Resale-Below-Cost Laws

- Per-se law forbids a retailer to sell a product at a price below a defined level of cost.
- Several countries have adopted RBC laws (OECD report, 2006)
 - US: General or specific state laws
 - EU: Belgium, Italy, Portugal, Greece, Spain, France (Galland law) and Ireland...
- Why is a RBC law enacted? Economic and legal debate
- Definition of the threshold of cost varies among countries=> We focus here on the Spanish, French and Irish cases.
- In France, the threshold is the unit "price invoiced" since Galland law (1996) and Ordonnance de 1986 forbids producers from *discriminating* between "similar" retailers => Uniform price-floor \approx RPM.

- Average backroom margins have increased from 22% in 1998 to 35% in 2004 (ILEC).
- The Galland law at that time seems to transfer negotiations towards upfront rebates!

The Galland law

makes it legal for producers to set uniform price-floors to retailers. A uniform price-floor (like a RPM) solves opportunism and thus enables a monopoly producer to sustain monopoly prices. Several papers have also shown that it relaxes also upstream competition.

In a secret contract environment:

- Without price-floor P offers $w = c$ and each downstream firm sells its Cournot competition quantity q^C . Backroom margin is $F = \frac{\pi^C}{2}$.
- With a price-floor, P offers a price floor at P^M . At this price floor the downstream firm cannot offer more than $q^M/2$ at consumers, and opportunism is solved. Backroom margin increases to $F = \frac{\pi^M}{2}$.

Theory: Effect on Upstream competition

- Allain, M-L and C. Chambolle (2011), "Anti-competitive effects of resale-below-cost laws", *International Journal of Industrial Organization*, 29, 4, 373-385.
- Rey. P and T. Vergé, (2010), "Resale Price Maintenance And Interlocking Relationships", *Journal of Industrial Economics*, Wiley Blackwell, 58(4), 928-961.

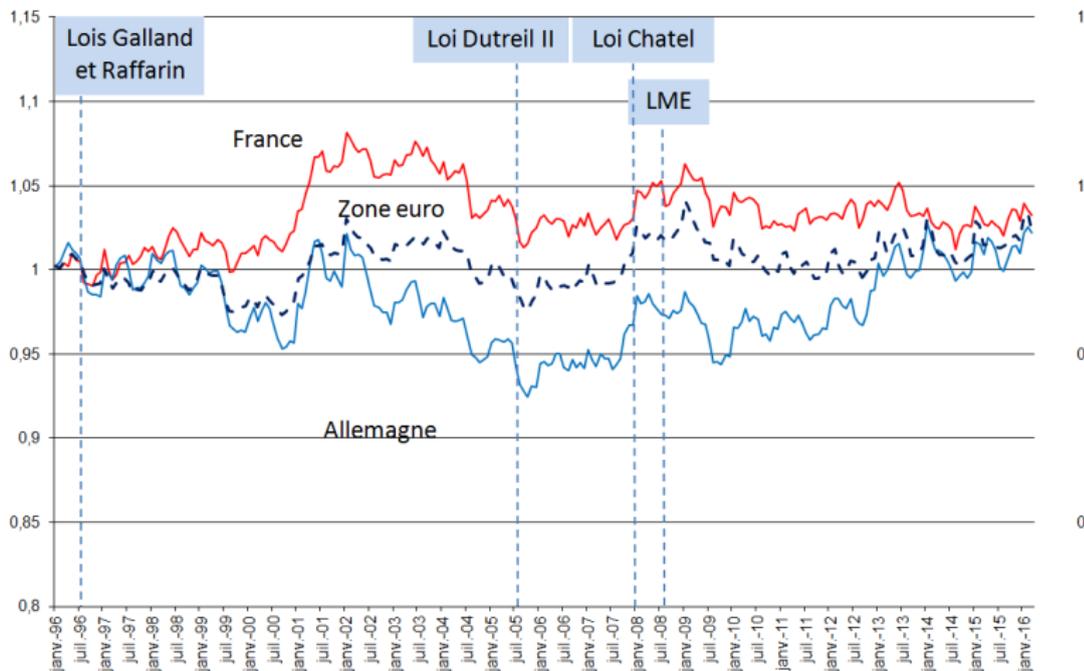
Empirically: Effect on retail prices

- Biscourp, P., Boutin, X. and T.Vergé (2013), "The Effects of Retail Regulations on Prices Evidence from the Loi Galland", *The Economic Journal*, 123,573, 1279?1312.
 - Moving from **competitive retail prices** (highly correlated with concentration on the local markets), to **monopoly price** (which depends much less on the competition on the local market).

A long process of reforms

- **Loi Dutreil 2005**: A progressive % of backroom margins can be included in the RBC threshold.
- **Loi Châtel 2008**: The RBC threshold= "3 fois net" is the real price paid to producers (100% backroom margins):
- **Loi de Modernisation Economique 2008**: Wholesale price discrimination authorized!
- **Etats généraux de l'alimentation 2018**: "Loi Alimentation" that was enacted in february 2019 aims at rebalancing the relationships between producers and retailers: RBC threshold=1.1X"3 fois net". Promotions limited to -34% of the usual price of sale.

Resale Below-Cost Laws



Input Price Discrimination

- Input price discrimination refers to the case where an upstream supplier charges different prices for the same product to different buyers.
- Input price discrimination arises because:
 - ① It is always beneficial for a supplier to exploit downstream firms' heterogeneity (e.g., demand or production costs).
 - ② Buyers with high bargaining power may force upstream suppliers to offer advantageous wholesale price (typically the case in the food retail sector).

Input Price Discrimination

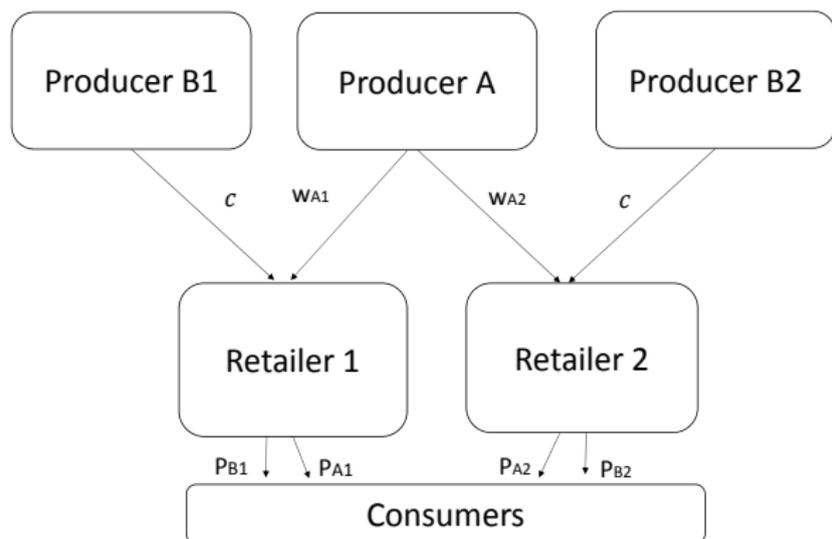
Legislation on input price discrimination

- In the U.S., the **Robinson Patman Act** enacted in 1936 prevents “a seller from discriminating in prices among its purchasers for good of like grade and quality” where the effect “may be to lessen competition”.
- The **European Union Treaty's Article 82 (c)** prohibits a dominant firm of “applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage”.
- In France
 - The **Ordonnance relative à la liberté des prix** in 1986 forbids any supplier to offer different conditions to similar buyers.
 - A reform, **Loi de Modernisation Economique**, took place in 2008 and abandoned this non-discrimination principle. A report on the evaluation of this law in 2015 for E. Macron (Ministry of Economics): <https://www.economie.gouv.fr/files/files/PDF/RapportComplet-LME-19-dec-def.pdf>
- In Norway: discussion - Kolonial.no

A model

Assumptions

- Two imperfectly competing retailers R1 and R2;
- U_A produces a national brand at cost 0 and sells it to both retailers.
- A product B (private label) is produced by a competitive fringe at cost $c > 0$ and each retailer selects one dedicated supplier.



Assumptions

- U_A offers R_1 and R_2 a two-part tariff take-it-or-leave-it secret contract (w_{A1}, T_{A1}) and (w_{A2}, T_{A2}) when discrimination is allowed.
- U_A offers R_1 and R_2 the same two-part tariff take-it-or-leave-it contract (w_A, T_A) when discrimination is banned.
- As product B is offered by a dedicated manufacturer and sold at cost, discrimination plays no role on the relationships between U_{Bi} and R_i .
- Consumer's inverse demand for a product K at retailer i is

$$p_{Ki} = 1 - q_{Ki} - aq_{Li} - bq_{Kj} - abq_{Lj}$$

in which $b \in [0, 1]$ represents a differentiation parameter among retailers and $a \in [0, 1]$ among products.

Input price Discrimination is allowed

Equilibrium

- In the price competition stage, each R_i maximises its profit with respect to p_{Ai} and p_{Bi} :

$$\Pi_i = (p_{Ai} - w_{Ai})q_{Ai}(p) + (p_{Bi} - c)q_{Bi}(p)$$

and we obtain:

$$p_{Ai}^r = \frac{1}{2}(1 - b(1 - \hat{p}_{Aj}) + w_{Ai})$$

$$p_{Bi}^r = \frac{1}{2}(1 - b(1 - \hat{p}_{Bj}) + c)$$

in which \hat{p}_{Aj} and \hat{p}_{Bj} are the anticipated prices of the rival j .

- In the contracting stage, U_A offers each retailer a contract such that it is indifferent between accepting and refusing.
 - If R_i refuses, it maximises a profit $(p_{Bi} - \hat{c})q_{Bi}^3$ in which q_{Bi}^3 denotes the demand for product B at retailer i when only Bi , Aj and Bj are sold. R_i obtains $\bar{\pi}_i = \frac{(1-b-c+b\hat{p}_{Bj})^2}{4(1-b^2)}$
 - T_{Ai} is such that $\Pi_i(p_{Ai}^r, p_{Bi}^r) - T_{Ai} = \bar{\pi}_i$

Input price discrimination is allowed

Equilibrium

U_A maximizes its bilateral profit with R_1

$$(w_{Ai} - c)q_{Ai}(p_{Ai}^r, p_{Bi}^r, \hat{p}_{Aj}, \hat{p}_{Bj}) + \Pi_i(p_{Ai}^r, p_{Bi}^r, \hat{p}_{Aj}, \hat{p}_{Bj}) - \bar{\pi}_i$$

with respect to w_{A1} and the bilateral profit with R_2 only depends on w_{A2} and is not affected by w_{A1} because of passive beliefs.

With discrimination

Secret contracts drive wholesale prices to marginal cost $w_{A1} = w_{A2} = c$ and the equilibrium price is $p_{A1}^* = p_{A2}^* = \frac{(1-b+c)}{(2-b)}$, $p_{B1}^* = p_{B2}^* = \frac{1+c-b}{2-b}$

Input price Discrimination is banned

Equilibrium

There are no longer passive beliefs as if I receive an offer w_A from U_A I know, thanks to the law, that my rival received the same price.

- In the price competition stage, each R_i maximises its profit with respect to p_{Ai} and p_{Bi} :

$$\Pi_i = (p_{Ai} - w_{Ai})q_{Ai}(p) + (p_{Bi} - c)q_{Bi}(p)$$

and perfectly anticipate the reaction of its rival, we obtain:

$$p_{Ai} = \frac{1 + w_A - b}{2 - b}$$

$$p_{Bi} = \frac{1}{2}(1 + c - b + c)$$

- In the contracting stage, U_A offers each retailer a contract such that it is indifferent between accepting and refusing.
 - If R_i refuses, it maximises a profit $(p_{Bi} - c)q_{Bi}^3$ in which q_{Bi}^3 denotes the demand for product B at retailer i when only B_i , A_j and B_j are sold. R_i obtains $\bar{\pi}'_i = \frac{(1-b)(1-c)^2}{(2-b)^2(b+1)}$
 - T_{Ai} is such that $\Pi_i(p_{Ai}, p_{Bi}) - T_{Ai} = \bar{\pi}'_i$

Input price Discrimination is banned

Equilibrium

U_A now maximizes its profit with R_1 and R_2

$$\sum_i (p_{Ai}(w_A)) q_{Ai}(p_{Ai}, p_{Bi}, p_{Aj}, p_{Bj}) + \sum_i (p_{Bi} - c) q_{Bi}(p_{Ai}, p_{Bi}, p_{Aj}, p_{Bj}) - \bar{\pi}'_i - \bar{\pi}'_j$$

with respect to w_A .

Banning Input price discrimination

U_A now has an incentive to raise its wholesale price to relax competition among retailers and set $w_A = \frac{1}{2}((1-a)b(1-c) + 2c) > w_{A1}^*$ and the equilibrium price is $p_{A1} = p_{A2} = \frac{b(ac-a-c-1)+2(c+1)}{2(2-b)} > p_{A1}^*$,
 $p_{B1} = p_{B2} = \frac{1+c-b}{2-b} = p_{B1}^*$.

Remark: without product B, it would be the monopoly price.

Empirical approach

- Data: Kantar World Panel 2006-2010 survey: Daily purchases of food products by 10 000 households in France. 72 millions of food purchases over this period.
- DID approach / to estimate the causal effect of the LME on food prices.
- How to define the control group?
 - Based on our model:
 - Products which are sold at only one retailer's are in the control group.
 - Products which are sold at least at two competing retailers are treated.
 - The control group is mostly composed of private labels.

	Treatment	Control	Total
Panel A: Products			
Nb of products	12,468	13,786	26,254
Nb of product category	168	168	168
Av. nb of products/ category	74.21	82.06	156.27
Panel B: Brand Types			
% of NB	100	–	0.47
% of PL	–	100	0.53
Panel C: Prices			
Average of monthly average prices	10.27	7.11	9.33
S.D. of monthly average prices	49.67	19.24	43.01
Panel D: Expenditures			
Number of purchases	14,904,852	10,785,417	25,690,269
Total expenditures	46,311,088	23,909,402	70,220,490

Empirical approach

We estimate the following weighted OLS regression:

$$\ln(P_{it}) = \beta \times PostLME_t + \mu_i + \varepsilon_{it} \quad (1)$$

- P_{it} : the monthly average price for product i at month t ;
- $PostLME_t$ is a dummy variable equal to one for months following the introduction of the LME;
- μ_i are product fixed-effects.

Dependent variable: (log) of monthly average price		
Variable	(1)	(2)
$PostLME_t$	0.0010 (0.0010)	
$PostLME_t \times PL-D$		0.0203*** (0.0026)
$PostLME_t \times PL$		0.0114*** (0.0016)
$PostLME_t \times FP$		0.0270*** (0.0046)
$PostLME_t \times NB$		-0.0068*** (0.0014)
Product FE	Yes	Yes
R ²	0.990	0.990
Observations	4649144	4649144

We estimate the following weighted OLS regression:

$$\ln(P_{ijt}) = \alpha + \beta T_{ij} \times PostLME_t + \delta T_{ij} + \gamma PostLME_t + \mu_{ij} + \varepsilon_{ijt} \quad (2)$$

- P_{ijt} : the monthly average price of product i in chain j at month t ;
- T_{ij} is a dummy variable that characterizes product-chain ij as belonging to the affected group;
- μ_{ij} are product-chain fixed-effects.

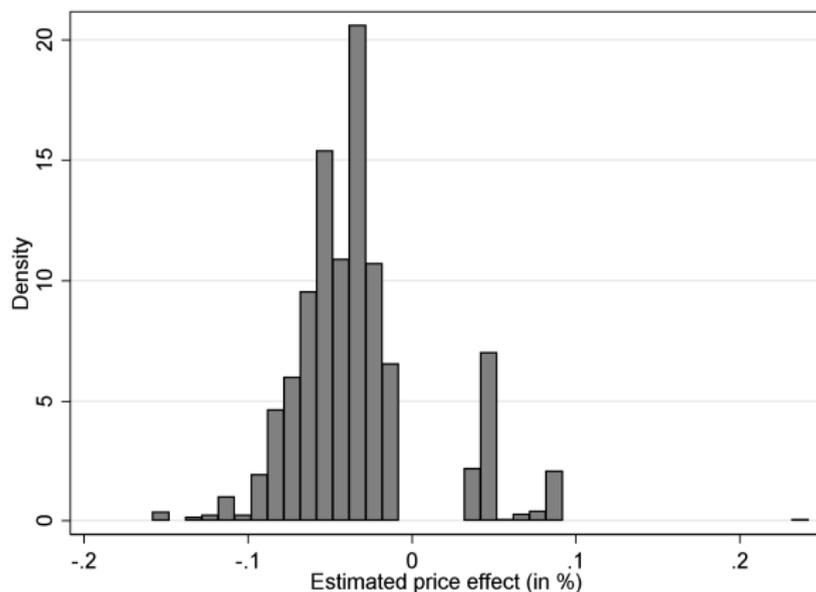
Results

Dependent variable: (log) price (P_{ijt})			
	Baseline	With monthly trend	
		Chain	Category
Treatment \times PostLME	-0.0195*** (0.0037)	-0.0217*** (0.0036)	-0.0336*** (0.0031)
Chain-product FE	Yes	Yes	Yes
Chain-month FE	No	Yes	No
Category-month FE	No	No	Yes
R ²	0.986	0.986	0.987
Observations	3050346	3050173	3050338

Conclusion

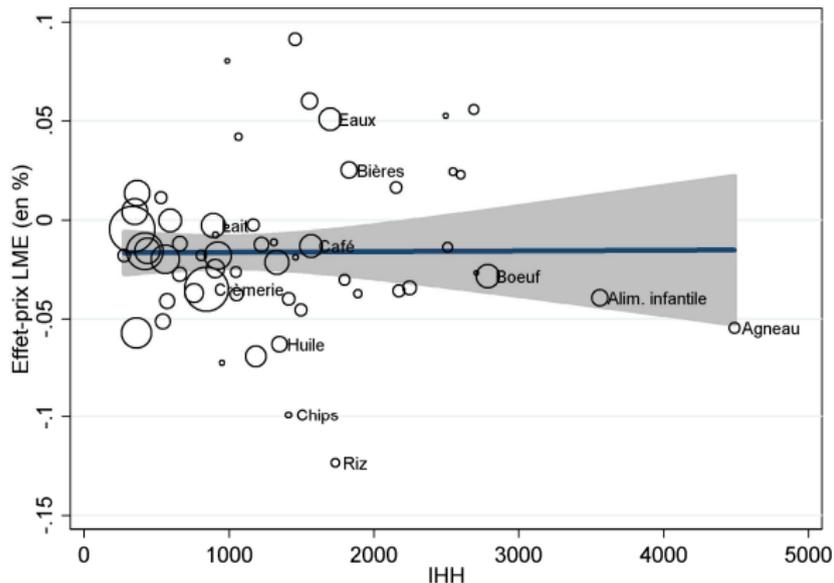
As predicted by the theory, on average, the LME caused a drop by 3.36% of prices. It is robust when we split by product categories.

- 82% of product categories (173) have experienced a drop in price.



Price-effect of the LME and suppliers' concentration

- No correlation between the price effect and supplier's concentration
 - Proxy for the power of suppliers: Concentration Index (HHI).
 - Proxy for the retailer's power: % of PL



- Two alternative comparison groups: (PL offered by HD, All PI (traditional+discounters+ FP): Robust.
- Longer transitory period → we suppressed the period from 01/08/2008 to 01/01/2009 in the data: application delay. If we suppress data until 12/2009: effect still < 0 and significant but lower.

Attention

The lowering in prices that we have highlighted mostly reflect the return to competition and not a price war!

Price-effect per year after the LME.

$T_i \times PostLME_t \times year1$	0.0022 (0.0016)	-0.0262*** (0.0022)	-0.0274*** (0.0021)	-0.0323*** (0.0020)
$T_i \times PostLME_t \times year2$	-0.0122*** (0.0018)	-0.0046* (0.0026)	-0.0070*** (0.0024)	-0.0139*** (0.0022)
Product FE	Yes	Yes	Yes	Yes
Month FE	No	Yes	No	No
Family-month FE	No	No	Yes	No
Category-month FE	No	No	No	Yes
R^2	0.993	0.993	0.994	0.994
Observations	1845343	1845343	1845342	1845341

Varying the transitory period.

Transitory period	$\hat{\beta}$		Obs.	R ²
	Coef.	S. E.		
2008/08–2008/12	-0.0233***	0.0020	1845341	0.994
2008/08–2009/12	-0.0138***	0.0022	1415742	0.994
2006/01–2006/12 & 2008/08–2008/12	-0.0178***	0.0017	1853881	0.994

References

- Allain, M-L., C. Chambolle, Turolla, S. (2017), "The Effect of Intermediate Price Discrimination on Retail Prices: Theory and Evidence from France", ongoing work.
- Allain M-L., C. Chambolle, Turolla, S. (2016), Report <https://www.economie.gouv.fr/files/files/PDF/RapportComple-LME-19-dec-def.pdf>
- Allain, M-L and C. Chambolle (2011), "Anti-competitive effects of resale-below-cost laws", *International Journal of Industrial Organization*, 29, 4, 373-385.
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