

Common ownership, market power, and innovation

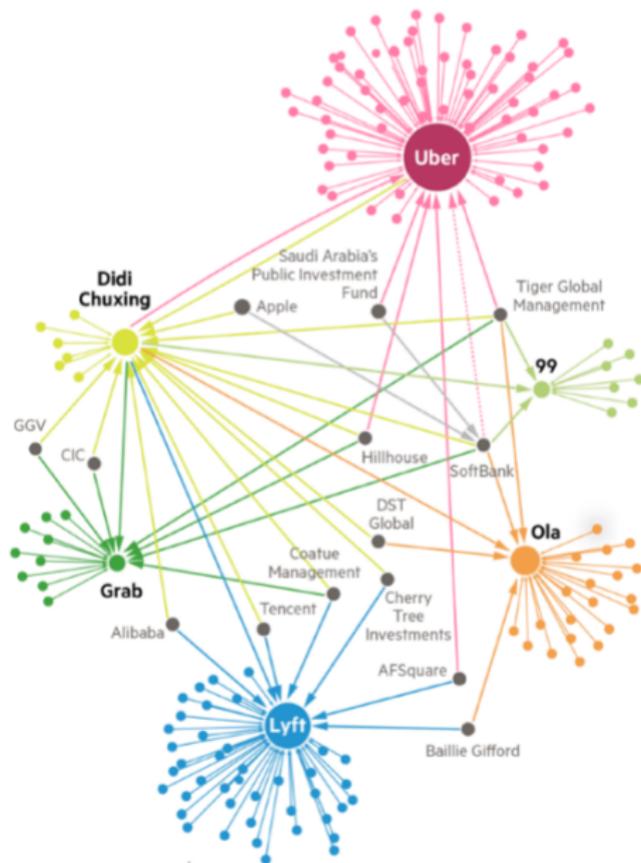
Xavier Vives

IESE Business School

EARIE Presidential Address
Athens, September 2018

(With support from the European Research Council)

Investors in car-booking companies



- ▶ Cross-ownership:
 - Uber-Didi
 - Uber-Grab
- ▶ Common ownership
 - SoftBank
 - Tiger Global
 - AFSquare
 - Fidelity

CrunchBase; FT research

Question

Do common/cross ownership
arrangements aggravate
the oligopoly problem?

Research project co-authors

- ▶ "Overlapping Ownership, R&D Spillovers, and Antitrust Policy" with Ángel López, forthcoming in the *Journal of Political Economy*
- ▶ "Common Ownership -Product Market Consequences of a Shift from Active to Passive Investors" with Albert Banal-Estañol and Jo Selderslachts
- ▶ "Oligopoly, Macroeconomic Performance, and Competition Policy" with José Azar

Outline

- ▶ Trends
 - ▶ Oligopoly widespread and on the rise
 - ▶ The increase and consolidation of institutional investment and common ownership (CO)
 - ▶ Change in ownership patterns of firms
- ▶ Corporate governance and overlapping ownership
- ▶ Market power or efficiency?
 - ▶ The Structure-Conduct-Performance paradigm revisited
- ▶ Innovation and spillovers
- ▶ General equilibrium effects
- ▶ Antitrust implications
- ▶ Conclusion

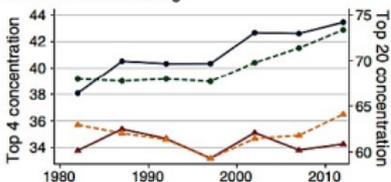
Oligopoly widespread and on the rise

- ▶ Growing product market concentration and market power (Grullon et al. 2016; Autor et al. 2017; Head and Spencer 2017).
- ▶ Increase in economic profits and markups (De Loecker and Eeckhout 2017; Hall 2018).
- ▶ Evidence of monopsony power in labor markets (Azar et al. 2017, 2018; Benmelech et al. 2018).
- ▶ Declining labor share (Barkai 2016; Autor et al. 2017; Giandrea and Sprague 2017).
- ▶ General concerns:
 - ▶ Perception of lack of dynamism: entry and exit, investment, and innovation on both sides of the Atlantic (CEA 2016 reports).
 - ▶ After the Great Recession and the "weak" recovery: potential secular stagnation of advanced economies blamed on increased market power (Summers 2015, Stiglitz 2016).

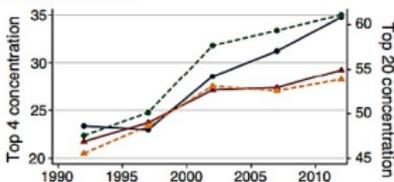
Product market concentration

Autor et al., 2017

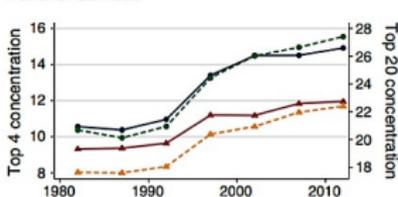
Panel A. Manufacturing



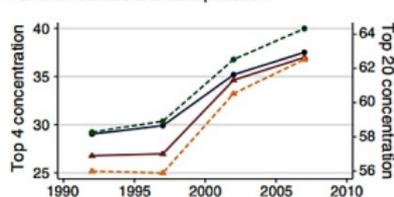
Panel B. Finance



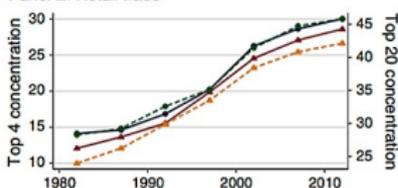
Panel C. Services



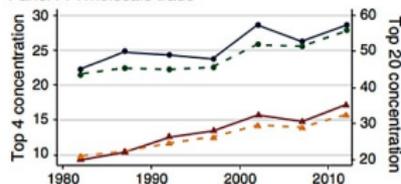
Panel D. Utilities and transportation



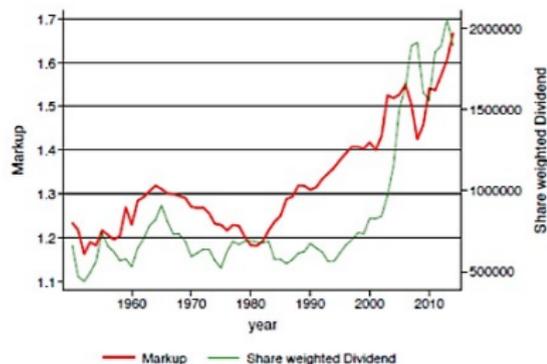
Panel E. Retail trade



Panel F. Wholesale trade



Increasing markups, dividends and market value



(a) Average Dividends (weighted)



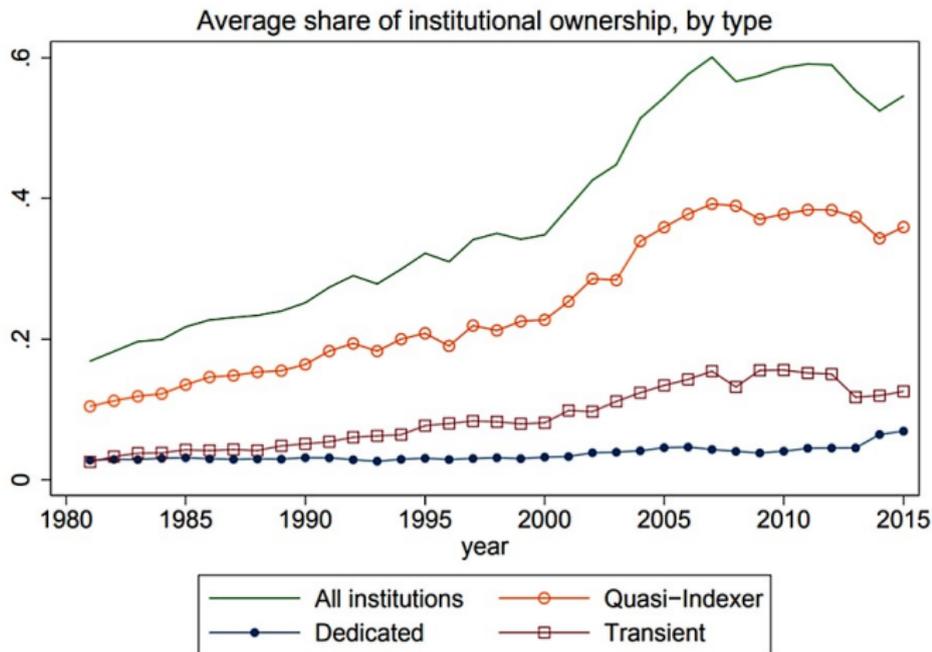
(b) Average Market Value (weighted)

De Loecker and Eeckhout, 2017

The changing ownership structure of firm

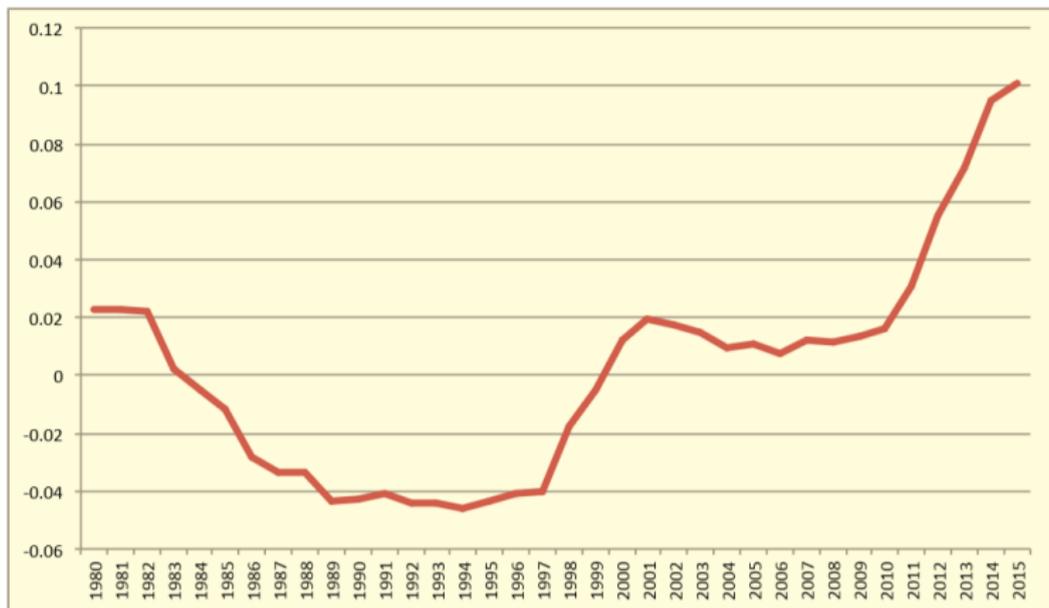
1. Institutional stock ownership has increased dramatically in the last 35 years.
 - ▶ World of dispersed ownership in US of Berle and Means (1932) no longer applies.
2. The asset management industry has become more concentrated.
3. There has been a shift from active to passive investors.
4. Common ownership patterns on the rise in many industries.
5. Minority cross-ownership shareholdings also widespread in many industries.

Increasing institutional ownership and indexation



Gutierrez and Philippon, 2016

Adjusted ownership concentration (filtered HHI)

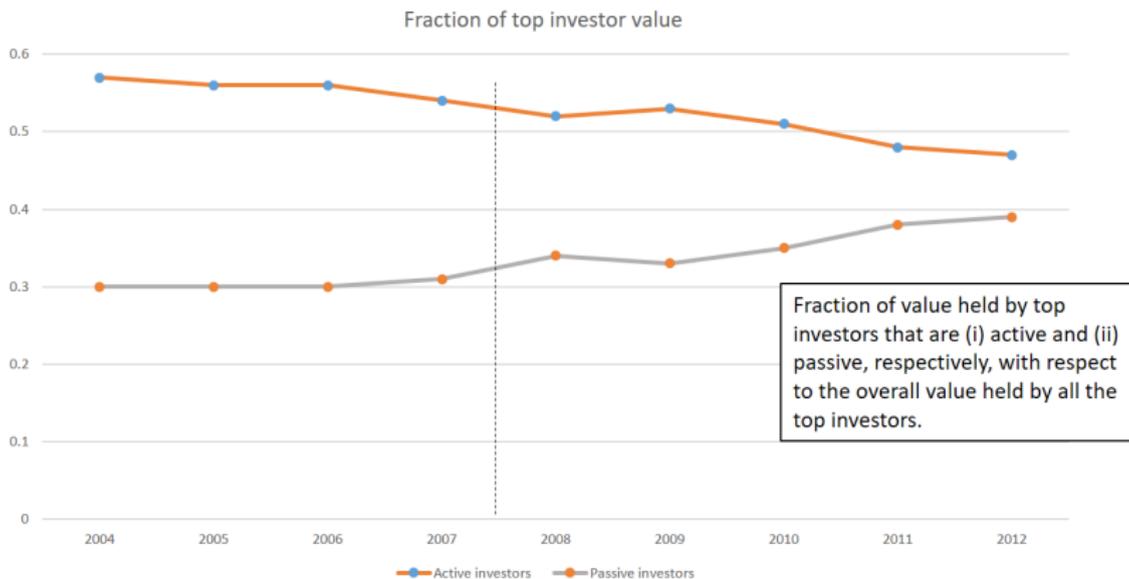


Kacperczyk et al. 2017

Filtered HHI of institutional owners of a stock taking out the predicted component in the HHI accounted by the number of investors

Continuous shift from active to passive investment

(and top 3 passive investors' rank creeps up)



Banal-Estano, Seldeslachts
and Vives

The financial crisis' impact on common
ownership and competition

Top 5 owners of the largest US banks (2Q 2017)

<i>JP Morgan Chase</i>	<i>[%]</i>	<i>Bank of America</i>	<i>[%]</i>	<i>Citigroup</i>	<i>[%]</i>
Vanguard	7.03	Berkshire Hathaway	7.03	BlackRock	6.97
BlackRock	6.40	BlackRock	6.71	Vanguard	6.66
State Street Global Advisers	4.69	Vanguard	6.65	State Street Global Advisers	4.50
Capital Research	3.78	State Street Global Advisers	4.45	Fidelity	4.42
Fidelity	2.68	Fidelity	3.27	Wellington	1.77
<i>Wells Fargo</i>	<i>[%]</i>	<i>PNC Financial</i>	<i>[%]</i>	<i>U.S. Bancorp</i>	<i>[%]</i>
Berkshire Hathaway	9.85	Wellington	7.59	BlackRock	6.41
Vanguard	6.30	Vanguard	6.73	Vanguard	6.26
BlackRock	5.43	BlackRock	5.68	Berkshire Hathaway	6.08
State Street Global Advisers	4.01	State Street Global Advisers	4.80	State Street Global Advisers	4.38
Capital Research	3.55	Capital Research	4.37	Fidelity	3.84

Schmalz, 2018

Top owners of US airlines (2Q 2017)

<i>Delta Air Lines</i>	[%]	<i>Southwest Airlines Co.</i>	[%]	<i>American Airlines</i>	[%]
Berkshire Hathaway	8.25	PRIMECAP	11.78	T. Rowe Price	13.99
BlackRock	6.84	Berkshire Hathaway	7.02	PRIMECAP	8.97
Vanguard	6.31	Vanguard	6.21	Berkshire Hathaway	7.75
State Street Global Advisors	4.28	BlackRock	5.96	Vanguard	6.02
J.P. Morgan Asset Mgt.	3.79	Fidelity	5.53	BlackRock	5.82
Lansdowne Partners Limited	3.60	State Street Global Advisors	3.76	State Street Global Advisors	3.71
PRIMECAP	2.85	J.P. Morgan Asset Mgt.	1.31	Fidelity	3.30
AllianceBernstein L.P.	1.67	T. Rowe Price	1.26	Putnam	1.18
Fidelity	1.54	BNY Mellon Asset Mgt.	1.22	Morgan Stanley	1.17
PAR Capital Mgt.	1.52	Egerton Capital (UK) LLP	1.10	Northern Trust Global Inv	1.02
<i>United Continental Holdings</i>	[%]	<i>Alaska Air</i>	[%]	<i>JetBlue Airways</i>	[%]
Berkshire Hathaway	9.20	T. Rowe Price	10.14	Vanguard	7.96
BlackRock	7.11	Vanguard	9.73	Fidelity	7.58
Vanguard	6.88	BlackRock	5.60	BlackRock	7.33
PRIMECAP	6.27	PRIMECAP	4.95	PRIMECAP	5.91
PAR Capital Mgt.	5.18	PAR Capital Mgt.	3.65	Goldman Sachs Asset Mgt.	2.94
State Street Global Advisors	3.45	State Street Global Advisors	3.52	Dimensional Fund Advisors	2.42
J.P. Morgan Asset Mgt.	3.35	Franklin Resources	2.59	State Street Global Advisors	2.40
Altimeter Capital Mgt.	3.26	BNY Mellon Asset Mgt.	2.34	Wellington	2.07
T. Rowe Price	2.25	Citadel	1.98	Donald Smith Co.	1.80
AQR Capital Management	2.15	Renaissance Techn.	1.93	BarrowHanley	1.52

Azar, Schmalz and Tecu, 2018

What is the objective of the firm?

- ▶ Fisher Separation Theorem (Fisher 1930): With price-taking firms shareholders agree on profit maximization objective (Hart 1979 extends result to incomplete markets).
- ▶ No simple objective function for the firm otherwise:
 - ▶ High prices may harm shareholders as consumers.
 - ▶ Firms large in factor and product markets care about price impact.
- ▶ With overlapping ownership, manager of a firm should account also for profits and external effects on other firms.
 - ▶ Common owners in an industry may have the ability and incentive to influence management (Posner et al. 2016).
 - ▶ Common/cross ownership may lead to relaxed competition (Rubinstein et al. 1983).
- ▶ Parsimonious assumption: Manager of a firm maximizes weighted average of shareholders' utilities (Rotemberg 1984).
 - ▶ Rationalized by voting on management strategies/power indexes of shareholders (Azar 2017, Brito et al. 2017)
 - ▶ Managers maximize support from shareholders (Pelzman 1976).

Common ownership

(Salop and O'Brien 2000)

- ▶ Industry with J firms and I owners:
 - ▶ Ownership share (cash flow rights) of firm j accruing to investor i : v_{ij}
 - ▶ Control rights of firm j held by owner i : γ_{ij}
- ▶ Total portfolio profits of investor i : $\sum_{k=1}^J v_{ik} \pi_k$,
where π_k are the profits of portfolio firm k .
- ▶ Manager of firm j maximizes a weighted average of its shareholders' portfolio profits (weights given by control rights γ_{ij}), equivalently:

$$\pi_j + \sum_{k \neq j} \lambda_{jk} \pi_k$$

where

$$\lambda_{jk} \equiv \frac{\sum_i \gamma_{ij} v_{ik}}{\sum_i \gamma_{ij} v_{ij}}$$

is the degree of internalization (Edgeworth's 1881 coefficient of sympathy in the contract curve; Cyert and DeGroot 1973) of the manager of firm j for firm k .

Overlapping ownership

(López and Vives forth)

- ▶ Allowing for common and cross ownership with symmetric stakes and control ($v_{ij} = v$, $\gamma_{ij} = \gamma$).
- ▶ Manager of firm j maximizes

$$\varphi_j = \pi_j + \lambda \sum_{k \neq j} \pi_k$$

where the value of λ depends on the type of overlapping ownership.

- ▶ Suppose each firm has a reference shareholder and each investor acquires a share α of the firms which are not under his control:

	Common Ownership, $v_{ik} = \alpha, \gamma_{ik} = 0$ Silent Financial Interests (SFI)	Common Ownership, $v_{ij} = \gamma_{ij}$ Proportional Control (PC)	Cross-ownership (by firms, PCO)
λ	$\frac{\alpha}{(1-(I-1)\alpha)}$	$\frac{2\alpha[1-(I-1)\alpha] + (I-2)\alpha^2}{[1-(I-1)\alpha]^2 + (I-2)\alpha^2}$	$\frac{\alpha}{1-(J-2)\alpha}$

- ▶ In the three cases λ increases with the investment stake α (with control rights only in case PC).
- ▶ For given number of investors $I (= J)$ and α : $\lambda^{PC} > \lambda^{SFI} > \lambda^{PCO}$.

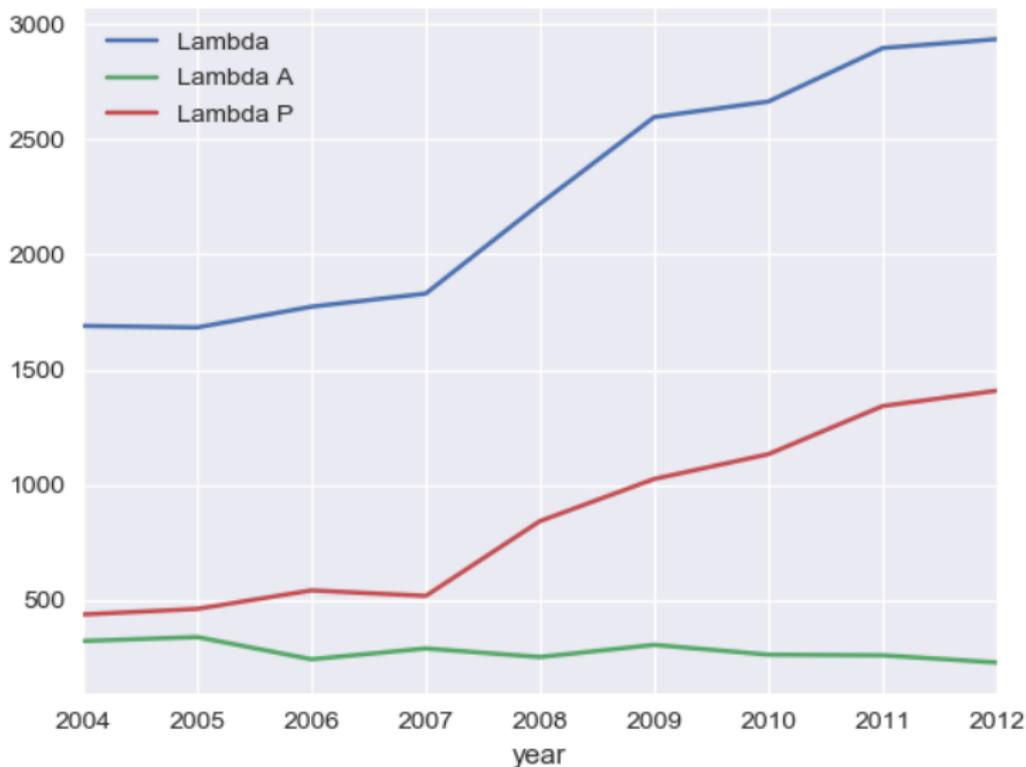
Common ownership: Active and passive investors

(Banal et. al 2018)

- ▶ Symmetric model
 - ▶ Each firm has a set of (identical) active major shareholders and a distinct set of (identical) passive major shareholders, which are in turn a minority shareholder in the other firms.
 - ▶ If active have more control than passive, then $\gamma_{ij} > v_{ij}$ for i active and $\gamma_{ij} < v_{ij}$ for i passive.
 - ▶ May decompose λ_{jk} into lambda active and lambda passive.
- ▶ **Result:** If passive investors are more diversified than active ones, λ_{jk}
 - ▶ (i) increases in the fraction of holdings of passive investors,
 - ▶ (ii) increases (decreases) in the level of concentration of passive (active) investors, and
 - ▶ (iii) increases in the degree of control of passive shareholders.
- ▶ Empirical analysis (time frame 2004-2012)
 - ▶ Ownership data: Thomson Reuters Global One
 - ▶ Firm data: Compustat US (publicly listed firms excluding utilities and financials)
 - ▶ Industries: NAICS-3

Lambda, lambda active and lambda passive

(Banal et. al 2018)



Market power or efficiency?

1. Does increase in common ownership aggravates oligopoly/market power problem?
 2. If so, is there an efficiency defense?
-
- ▶ The Structure-Conduct-Performance paradigm revisited

Structure-Conduct-Performance (I)

- ▶ 1960s, Market power hypothesis (Bain):
 - ▶ Firms in concentrated markets protected by barriers to entry earn high price/cost margins and profits.
- ▶ Cross section studies of industries:
 - ▶ Relation between concentration (HHI) and profitability is statistically weak and estimated concentration effect usually small (Schmalensee)
- ▶ Conduct is not modeled.
- ▶ Efficiency hypothesis (Demsetz, Chicago):
 - ▶ Large firms are more efficient, command larger price/cost margins and earn higher profits (therefore concentration and industry profitability go together).
 - ▶ "Superstar" firms favored by technological change gain market share increasing concentration and margins (Autor et al. 2017).

Question

Does overlapping ownership
augment the effect of relevant
market concentration
on prices and fees for customers?

Cournot with common ownership

(Reynolds & Snapp 1986, Bresnahan & Salop 1986)

- ▶ Lerner index of firm j :

$$L_j = \frac{p - C'_j}{p} = \frac{\sum_k \lambda_{jk} s_k}{\eta},$$

where η is the elasticity of demand and s_k the market share of firm k .

- ▶ In equilibrium, the market share-weighted industry Lerner index is

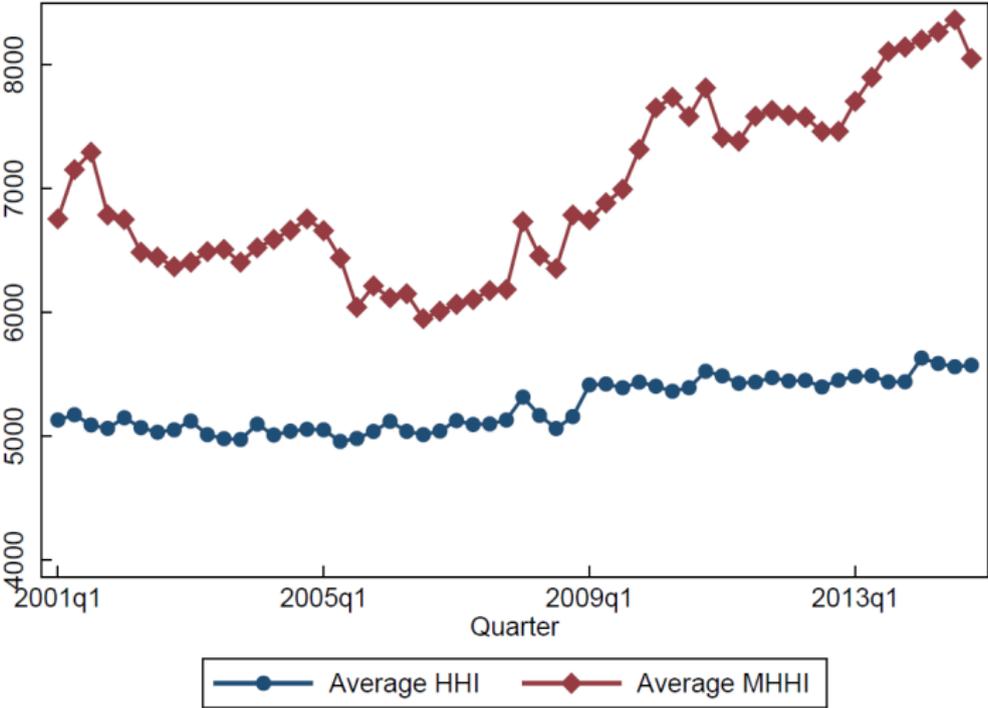
$$\sum_j s_j (p - C'_j) / p = \text{MHHI} / \eta,$$

where MHHI is the modified HHI:

$$\text{MHHI} \equiv \sum_j \sum_k \lambda_{jk} s_j s_k = \text{HHI} + \sum_j \sum_{k \neq j} \lambda_{jk} s_j s_k = \text{HHI} + \Delta$$

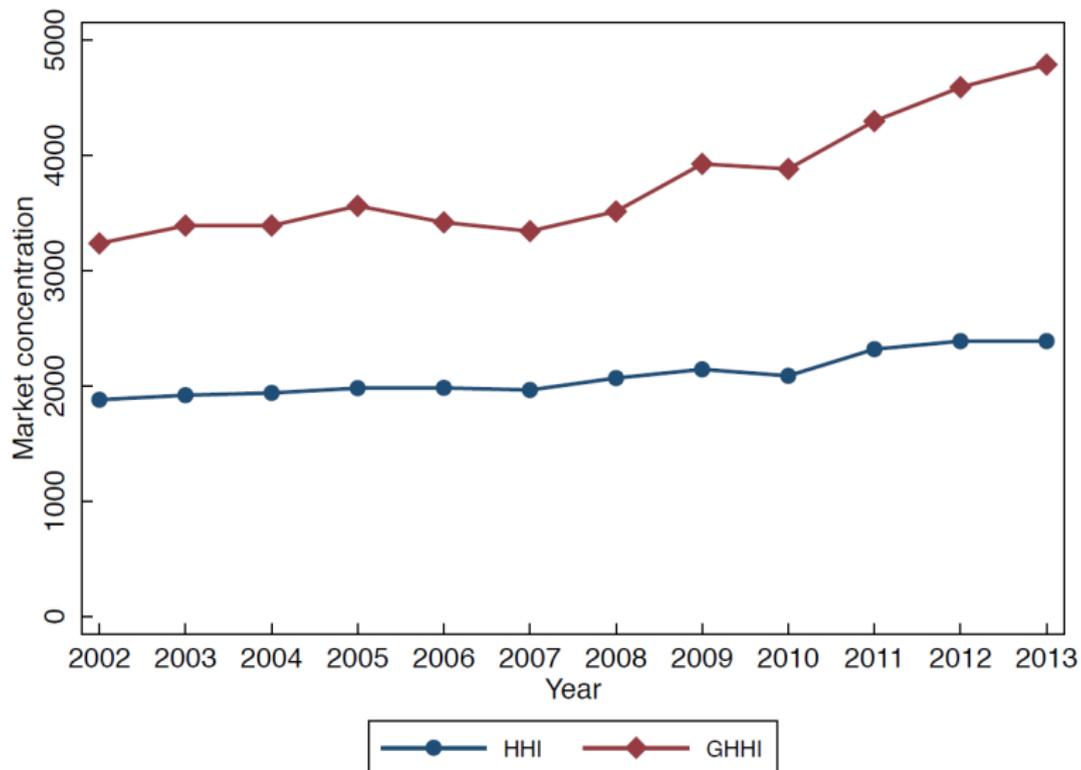
- ▶ Δ is a measure of the unilateral anti-competitive incentives due to common ownership.
- ▶ The matrix Λ can accommodate both common and cross-ownership patterns to yield $G\text{HHI} = s' \Lambda s$.

US national-level airline company concentration, 2001-2014



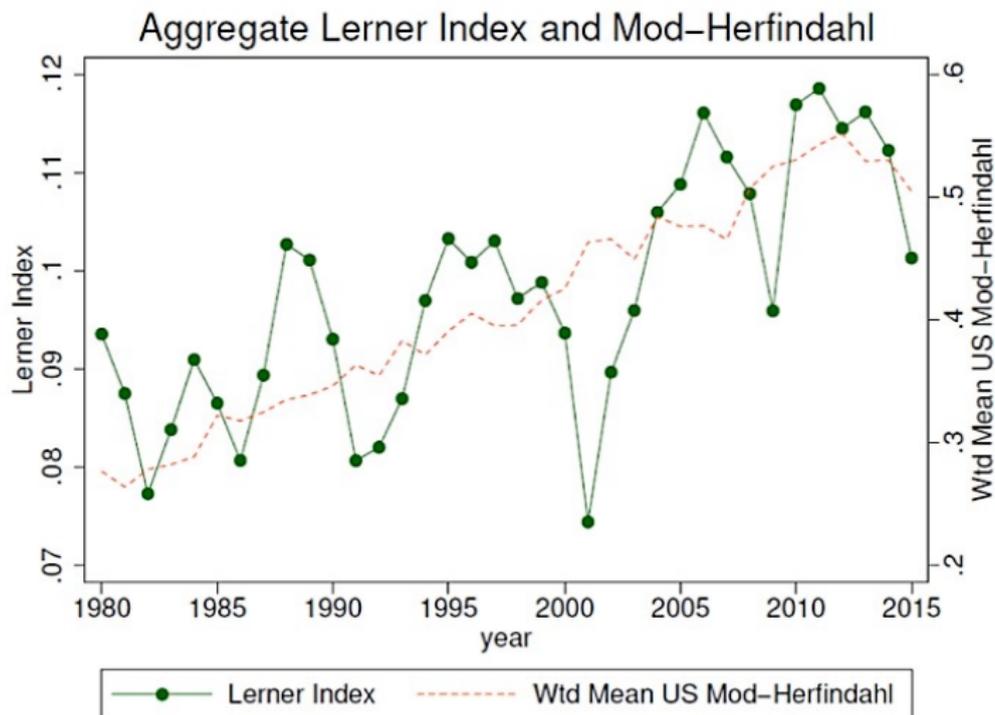
Azar, Raina and Tecu, 2018

US county-level bank concentration, 2002-2013



Schmalz, 2018

Aggregate Lerner index and Modified Herfindahl



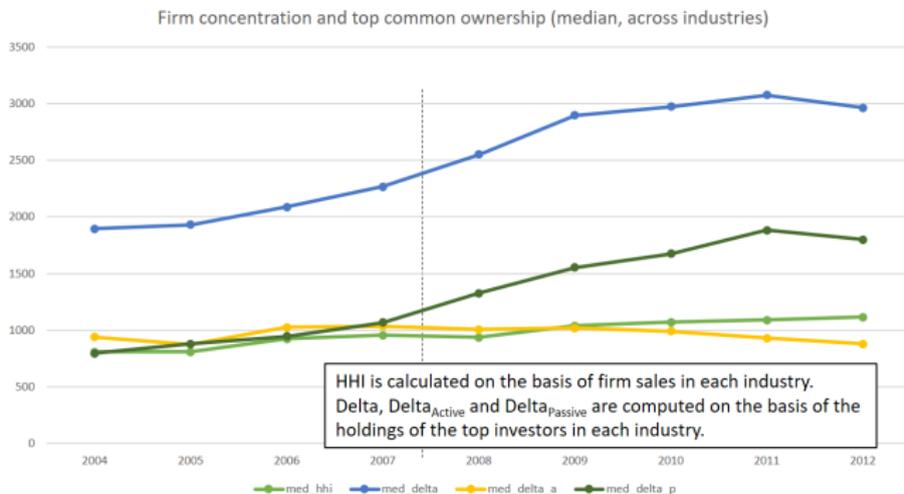
Gutierrez and Philippon, 2017

Structure-Conduct-Performance (II)

Market power hypothesis (augmented)

- ▶ Firms in markets with high levels of overlapping ownership, controlling for concentration, earn high price/cost margins and profits.
- ▶ Evidence
 - ▶ US: Airlines (2001-14) and banking (2004-13) (using MHHI, Azar, Schmalz and co-authors)
 - ▶ Caveat: MHHI is endogenous.
 - ▶ Empirical debate: O'Brien and Whaerer (2017), Dennis et al. (2018), Kennedy et al. (2017), Gramlich and Grundl (2017) for criticisms.
 - ▶ Cross section of industries: increases in intra-industry common-ownership density predict industry margins (Azar 2012) and firm margins (Banal et al. 2018).
 - ▶ Underinvestment (relative to standard valuation measures such as Tobin's Q) in the US since early 2000s (Gutiérrez and Philippon 2016, 2017):
 - ▶ Firms owned by quasi-indexers and belonging to industries that have high concentration and high common ownership drive the investment gap.

Product market concentration: Delta passive and Delta increase



Graph includes median of all industries in a given year. Test includes median of all industries in all the pre- and post-crisis years.

Banal-Estanol, Seldeslachts and Vives

The financial crisis' impact on common ownership and competition

	HHI	Delta	Delta active	Delta passive
Pre-crisis	865.28	2064.65	974.64	922.92
Post-crisis	1039.36	2886.72	968.54	1613.48
Difference	174.07	822.07	-6.11	690.56
p-value	0.02	0	0.91	0

Margins and lambdas

(Banal et. al 2018)

- ▶ Firm-level specification to explain margins with lambdas using cost of goods sold (proxy for labor) and plant property and equipment (proxy for capital) as controls (De Loecker and Warzynski 2012; De Loecker 2013).
- ▶ Observe per-period firm-level sales, capital and total variable cost of production.
- ▶ Estimate industry-specific Cobb-Douglas production function.
- ▶ Assume proportional control.

Results:

1. Lambdas have a strongly significant positive effect on markups.
2. Both active and passive lambdas have a strongly significant positive effect on markups.
3. Quantitatively, the impact of lambda passive is about double the impact of lambda active.

Structure-Conduct-Performance (III)

Efficiency hypothesis (revised)

- ▶ High levels of CO and efficiency are associated because CO improves information sharing, internalization of horizontal and vertical external effects, corporate governance, and induces managers to reduce cost/improve performance.
- ▶ Large firms have more CO links, better corporate governance, are more efficient, and command larger price/cost margins, earn higher profits.
- ▶ Therefore, CO and high p/c margins and industry profits go together.
 - ▶ He and Huang (2017): US cross-held public firms (1980-2010) have higher market share growth and profitability due to efficiency gains and enhanced innovation productivity (patents per \$ spend in R&D).
 - ▶ Geng et al. (2016): vertical CO links improve internalization of patent complementarities.

Overlapping ownership, spillovers, and innovation

(López and Vives forth.)

- ▶ Socially optimal level of R&D is between two and three times as high as the level of observed R&D because of non-internalized technological spillovers (Bloom et al. 2013).
- ▶ Question: Can overlapping ownership arrangements (OOAs) help to internalize spillovers?
- ▶ General symmetric model of cost-reducing R&D investments with spillovers in Cournot or Bertrand oligopoly with overlapping ownership.
- ▶ Central scenario: Each firm $j = 1, \dots, J$ chooses simultaneously R&D (x_j) and output (homogeneous product) (q_j) or price (differentiated products) (p_j) and the manager of firm j maximizes

$$\varphi_j = \pi_j + \lambda \sum_{k \neq j} \pi_k,$$

where λ depends on the type of common/cross-ownership.

- ▶ We assume that there is a unique regular symmetric interior equilibrium (q^*, x^*) or (p^*, x^*) .

Framework

(López and Vives forth.)

- ▶ Marginal production cost $c(\cdot)$ with R&D effort x_j :

$$c(x_j + \beta \sum_{k \neq j} x_k) \text{ with } c' < 0, c'' \geq 0 \text{ (} j \neq k \text{)}.$$

where $\beta \in [0, 1]$ is the spillover coefficient of the R&D activity.

- ▶ ▶ Bloom et al.(2013): average sensitivity of .4 to .5 of the stock of knowledge of firm j in relation to the R&D investment of $k \neq j$.
- ▶ The cost of investment is $\Gamma(x_j)$ with $\Gamma' > 0$ and $\Gamma'' \geq 0$.
- ▶ The profit of firm j (with output q_j) is given by

$$\pi_j = \text{Revenue} - c(x_j + \beta \sum_{k \neq j} x_k) q_j - \Gamma(x_j).$$

- ▶ FOC with respect to R&D at symmetric equilibrium:

$$-c'(Bx^*) ((1 + \lambda\beta(n-1))) q^* = \Gamma'(x^*)$$

where $B \equiv 1 + \beta(n-1)$.

Equilibrium (Cournot)

(López and Vives forth.)

- ▶ *Assumption.* Homogeneous good with inverse demand function $f(Q)$, $f' < 0$, with constant relative degree of convexity

$$Qf''/f' = \delta.$$

- ▶ Allows for log-concave and log-convex demands;
- ▶ e.g., linear, d'Aspremont and Jacquemin (1988), Kamien et al. (1992); constant elasticity, Dasgupta and Stiglitz (1980)).
- ▶ Revenue: $R(q_j; q_{-j}) = f(Q)q_j$.
- ▶ FOC with respect to output:

$$\frac{f(Q^*) - c(Bx^*)}{f(Q^*)} = \frac{\text{MHHI}}{\eta(Q^*)},$$

where

$$\text{MHHI} = \frac{1 + \lambda(n-1)}{n}.$$

Equilibrium (Bertrand with product differentiation)

(López and Vives forth.)

- ▶ Industry with N differentiated products, each produced by one firm.
- ▶ The demand for good j is given by $q_j = D_j(\mathbf{p})$, \mathbf{p} is the price vector
- ▶ Revenue: $R(p_j; p_{-j}) = p_j D_j(\mathbf{p})$.

Assumption. For any j , $D_j(\cdot)$ is smooth whenever positive, downward sloping, $\partial D_k / \partial p_j > 0$, $k \neq j$, and the demand system $D(\cdot)$ is symmetric with negative definite Jacobian.

- ▶ FOC with respect to price:

$$\frac{p^* - c(Bx^*)}{p^*} = \frac{1}{\eta_j - \lambda(n-1)\eta_{jk}}$$

where $\eta_j = -\frac{\partial D_j(\mathbf{p}^*)}{\partial p_j} \frac{p^*}{D_j(\mathbf{p}^*)}$ and $\eta_{jk} = \frac{\partial D_k(\mathbf{p}^*)}{\partial p_j} \frac{p^*}{D_k(\mathbf{p}^*)} > 0$, $k \neq j$.

Comparative statics with respect to lambda

- ▶ For a given x , λ has a negative (positive) effect on quantity (price) because products are (gross) substitutes:

$$\partial_{\lambda q_j} \varphi_j < 0 \text{ and } \partial_{\lambda p_j} \varphi_j > 0.$$

- ▶ For a given quantity/price, λ has a positive effect on investment if $\beta > 0$:

$$\partial_{\lambda x} \varphi_j = -\beta q(n-1)c' > 0.$$

- ▶ The total impact of λ on the equilibrium values of quantity/price and R&D will depend on which of the two effects dominates.
- ▶ We have also that

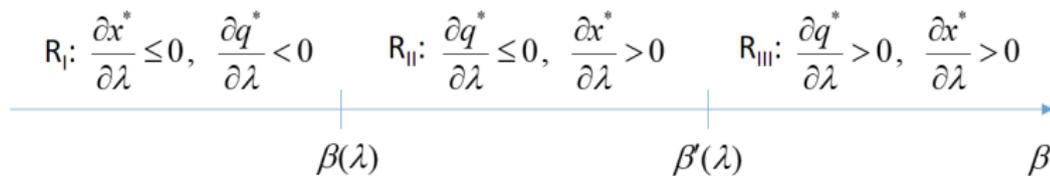
$$\partial x^* / \partial \lambda \leq 0 \implies \partial q^* / \partial \lambda < 0, \partial p^* / \partial \lambda > 0$$

because price (output) and R&D are substitutes (complements) for a firm.

OOAs and innovation incentives

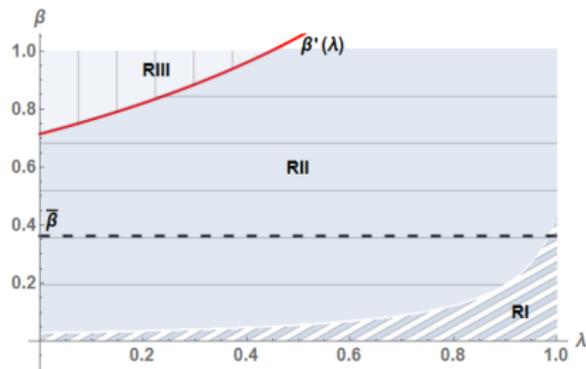
(López and Vives forth)

- ▶ Result: spillover partition in potentially three regions:

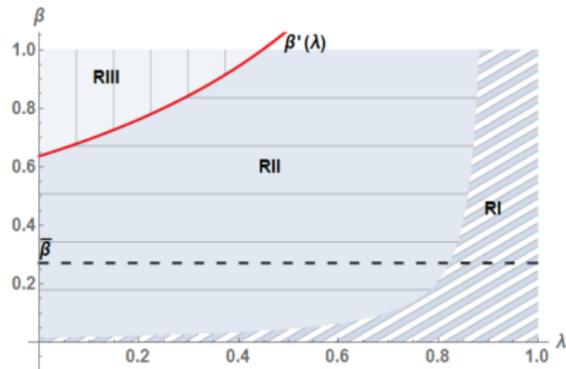


- ▶ $\underline{\beta}(\lambda)$ and $\beta'(\lambda)$ are increasing in the level of market concentration in the Cournot case.
- ▶ $\underline{\beta}(\lambda)$ and $\beta'(\lambda)$ are weakly increasing in λ .
- ▶ β' is decreasing in the effectiveness of R&D.
- ▶ In the model specifications $\partial x^* / \partial \lambda \partial \beta > 0$
- ▶ Testable predictions:
 - ▶ a positive relationship between overlapping ownership and R&D should be found in industries with high enough spillovers and low enough concentration;
 - ▶ the positive association should extend to output in industries with high effectiveness of R&D;
 - ▶ impact of overlapping ownership on R&D should be higher when spillovers are high.

Regions I, II and III for Linear Bertrand with product differentiation



Bertrand with linear demand
 $n = 8$.



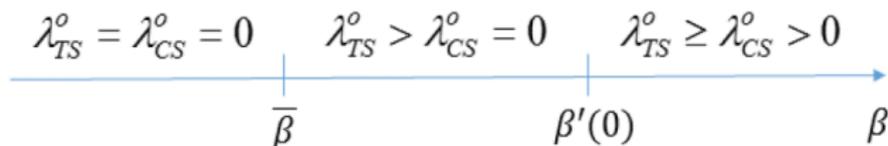
Bertrand with linear demand
 $n = 10$.

Welfare Analysis

(López and Vives forth)

Proposition. In the Cournot case, if $\delta > -2$, total welfare single peaked in λ , and under regularity assumptions on R&D effectiveness (assumptions hold in the models) then there are threshold values

$\bar{\beta} < \beta'(0)$:

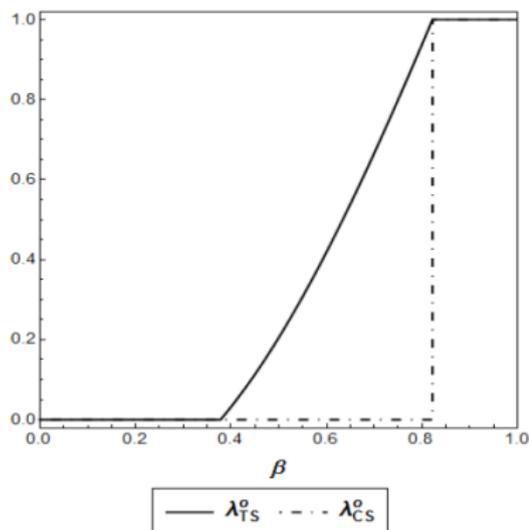


- ▶ In all cases, CS standard is more stringent: $\lambda_{TS}^o \geq \lambda_{CS}^o$.
- ▶ Whenever $\lambda_{TS}^o \in (0, 1)$ or $\lambda_{CS}^o \in (0, 1)$, then
 - ▶ $\lambda_{TS}^o, \lambda_{CS}^o$ are strictly increasing in β ;
 - ▶ λ_{TS}^o is positively associated with R&D effectiveness;
 - ▶ λ_{TS}^o increases with J , the elasticity of demand and of the innovation function (simulations).
- ▶ In the model specifications, both $\bar{\beta}$ and $\beta'(0)$ are decreasing in J .
- ▶ Similar results for Bertrand models (linear and constant elasticity).

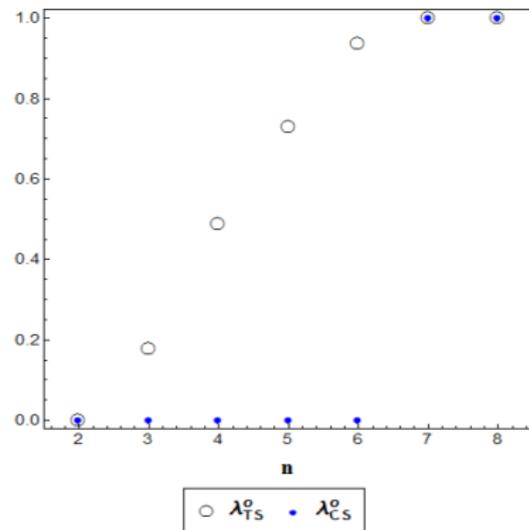
Welfare Analysis

Socially optimal level of overlapping ownership (d'Aspremont-Jacquemin model; López and Vives forth.)

Simulation (web)



$J = 6$



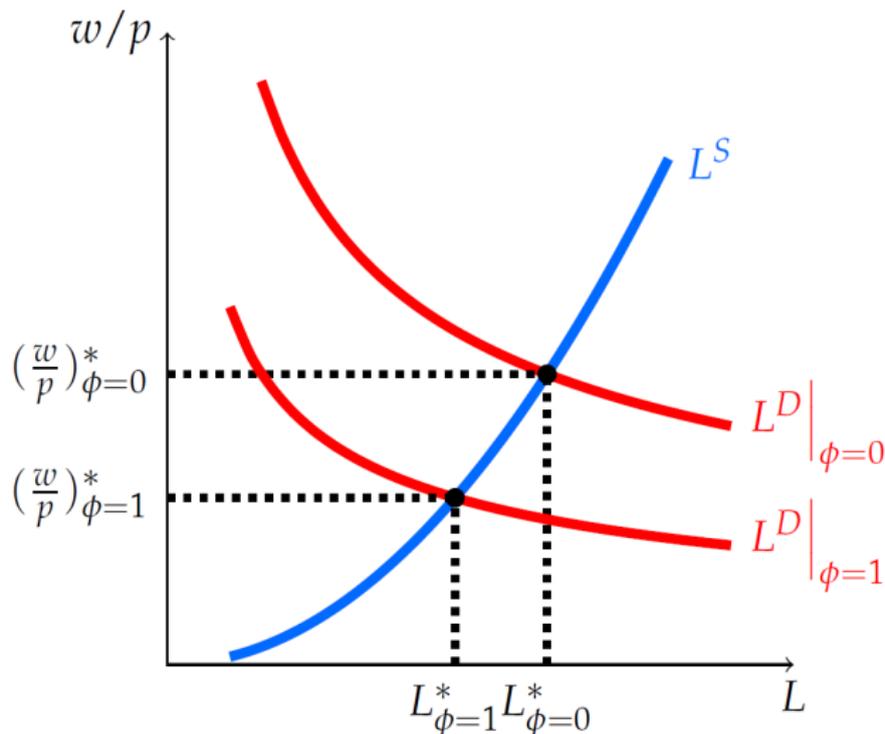
$\beta = 0.8$

General equilibrium framework

(Azar and Vives 2018)

- ▶ Macroeconomic model in which firms are large and have market power in both product and factor markets.
- ▶ Worker-consumers and owner-consumers are atomistic.
- ▶ Each firm maximizes a share-weighted average of shareholder utilities, which makes the equilibrium independent of price normalization.
- ▶ Ownership structure allowing common ownership (degree of diversification of investors: ϕ).
- ▶ Firms compete à la Cournot in the output market with labor as input: Cournot-Walras equilibrium.
- ▶ Questions:
 - ▶ How does output, labor demand, prices and wages depend on market concentration augmented by common ownership?
 - ▶ Can common ownership be pro-competitive in general equilibrium?
 - ▶ Is competition policy complementary or substitutable with other government policies to boost employment?

Effective market concentration and Cournot-Walras equilibrium in one sector economy



General equilibrium effects: Summary

(Azar and Vives 2018)

- ▶ One-sector economy: if returns to scale are non-increasing, then an increase in “effective” market concentration (accounting for overlapping ownership) leads to declines in employment, real wages, and labor share.
 - ▶ To foster employment: (i) controlling common ownership and reducing concentration are complements and (ii) government jobs are a substitute for either policy.
- ▶ Multiple sector economy: to foster employment, traditional competition policy on market concentration is adequate; common ownership can have a positive or negative effect:
 - ▶ Negative for intraindustry CO.
 - ▶ Positive for economy-wide CO, due to an intersectoral pecuniary externality, when the impact of profit internalization on market power in the labor market is lower than in product markets.
 - ▶ Caveats: vertical relations, different pattern of consumption between owners and workers.

Antitrust concerns on OOAs

- ▶ Growing interest in assessing competitive effects of OOAs:
 - ▶ Rapid growth of common ownership with stakes in competing firms.
 - ▶ Growth of private equity investment firms holding partial ownership interests in competing firms.
 - ▶ Some notorious cross-ownership cases :
 - ▶ Ryanair's acquisition of Aer Lingus's stock.
- ▶ US: OOAs examined under Clayton Act (S. 7) and Hart-Scott-Rodino Act:
 - ▶ Institutional investors can hold up to 15% without need to notify to the antitrust authority.
 - ▶ OOAs can be challenged if they substantially lessen competition.
- ▶ Proposals on how to deal with OOAs:
 - ▶ Elhauge (2016, 2017): use antitrust to control the effects of rising common ownership (Clayton Act (S.7) and Sherman Act (S.1)).
 - ▶ Posner et al. (2016): limit ownership in oligopolistic industries for institutional investors to benefit from a safe harbor (from enforcement of the Clayton Act).
 - ▶ Rock and Rubinfeld (2017) provide a criticism of those views.

OOAs in the EU

- ▶ European Commission (EC) has proposed extending the scope of merger regulation to examine the acquisition of minority shareholdings.
 - ▶ EU Merger Regulation is limited to acquisitions that confer control and is narrower than Section 7 of the Clayton Act.
- ▶ Dow-Dupont EC (2017) merger decision:
"the Commission is of the view that (i) a number of large agrochemical companies have a significant level of common shareholding, and that (ii) in the context of innovation competition, such findings provide indications that innovation competition in crop protection should be less intense as compared with an industry with no common shareholding".
- ▶ Lively debate about whether mergers decrease innovation.
 - ▶ In López-Vives an increase in λ can be interpreted as a partial merger and $\lambda = 1$ as merger to monopoly.

Conclusion

- ▶ The patterns of firm ownership have changed and the standard profit maximization hypothesis needs to be revised.
- ▶ Approach: Integrate oligopoly and ownership structure with the parsimonious Edgeworth's λ -model.
- ▶ Both theory and preliminary evidence point at potential market power concerns as well as to internalization of external effects associated to the increase in common/overlapping ownership.
- ▶ More antitrust scrutiny needed but it is still early to advance and implement major changes in regulation and antitrust enforcement.
 - ▶ Traditional competition policy (e.g., controlling market concentration) is still a valid tool in a world of OOAs.
 - ▶ Antitrust should take account of general equilibrium effects.
- ▶ Key elements to define policy towards OOAs:
 - ▶ Extent of intra-industry vs. inter-industry OOAs.
 - ▶ Type of OOAs: silent financial interest, degree of control in OOA, partial cross ownership.
 - ▶ Extent of externalities (e.g., technological spillovers).
 - ▶ Relative impact of profit internalization in the level of market power in product and labor markets.

Open issues

- ▶ We need to have a better understanding of the channels of transmission of ownership patterns into competitive outcomes, via corporate governance, and more empirical evidence of impact on consumers, innovation, and general equilibrium effects.
- ▶ Extensions:
 - ▶ Asymmetries in firms and in ownership structure.
 - ▶ Endogenize the ownership structure.
 - ▶ Price formation in stock markets and oligopoly in product and factor markets.
 - ▶ Effects of passive investing.

THANK YOU!

<http://blog.iese.edu/xvives/>