Washington Center for Equitable Growth

Topic (Primary)	Sub-Topic	Title	Author(s)	Year	Summary or Edited Abstract	Peer Reviewed? (econ) or Law Review?	Citation
Modern antitrust economics: Literature from 2000 to the present							
The literature review assembles in one place the most recent economic literature bearing on antitrust enforcement in the United States. The papers are organized by enforcement topic (e.g. horizontal mergers), each of which is preceded by a short summary of what the literature has demonstrated over the past 18 years. The enormous bulk of the results on these key topics in competition enforcement in the United States find evidence of significant problems of underenforcement. The economic theory papers qualify or reject assumptions long made by courts that have limited the scope of antitrust law; empirical work finds evidence of the exercise of market power in many dimensions: price, quality, innovation, exclusion, and more. Overall, the picture is one of a divergence between enforcement practice and rigorous use of modern economics to advance consumer welfare.							
Underenforcement		Taking the Error Out of 'Error Cost' Analysis: What's Wrong with Antitrust's Right	Jonathan B. Baker	2015	Decision theory, or error-cost analysis, seeks to minimize false negatives (rules and decisions that permit anticompetitive activity) and false positives (rules and decisions that prohibit procompetitive activity). Although decision theory is ideologically neutral, conservative scholars have argued that false positives are far more costly to efficiency and consumer welfare than false negatives based on three faulty assumptions: (a) Markets and competition will address anticompetitive activity quickly but bad legal rules are difficult to correct, whereas monopolies actually have every incentive to use their rents to protect themselves from entry and sustain their position over time; (b) false positives are more costly than false negatives in antitrust enforcement because false positives will suppress innovation, whereas it is clear that false negatives prolong anticompetitive conduct or market structure which can cause enormous harms to many consumers; and (c) courts are poorly equipped to distinguish anticompetitive conduct from procompetitive conduct, whereas because a decision is inherently imprecise provides no reason to introduce bias in addition to the imprecision. As a result, decision theory, in practice, has become a tool to limit antitrust intervention rather than balance harms.	y	Jonathan B. Baker, "Taking the Error Out of 'Error Cost' Analysis: What's Wrong with Antitrust's Right," *Antitrust Law Journal* 80 (1) (2015).
Horizontal mergers overview:	Horizontal mergers are a large and critical element of antitrust enforcement. In just the past 10 years, the economics literature has produced a striking amount of research demonstrating that market power is being created and exploited through horizontal mergers. This literature spans a broad range of areas (healthcare, retail, and intellectual property, among others). Horizontal mergers often increase prices and suppress innovation. Further, consent decrees often fail to address or prevent anticompetitive effects. Interestingly, anticompetitive effects are even prevalent in mergers too small to be reported under the Hart-Scott-Rodino Act.						
Horizontal mergers	General studies	The Effect of Mergers on Consumer Prices: Evidence from Five Mergers on the Enforcement Margin	Orley Ashenfelter and Daniel Hosken	2010	Every year, thousands of merger requests are filed and allowed to proceed, and only a small number are blocked because they might result in higher, anticompetitive consumer prices. This paper looks at five consummated mergers that the authors argue were problematic in the sense that were most expected to result in anticompetitive price increases. They use retail scanner data to measure price changes. The price increases from these mergers provide an upper bound on the price increases that other permitted mergers may have produced and a lower bound on the price increases that might otherwise have occurred in mergers that were blocked. Their results indicate that four of the five mergers resulted in some increase in consumer prices (3 percent to 7 percent), while the fifth merger had little effect.	y	Orley Ashenfelter and Daniel Hosken, "The Effect of Mergers on Consumer Prices: Evidence from Five Mergers on the Enforcement Margin," *Journal of Law & Economics* 53 (3) (2010): 417–466.
Horizontal mergers	General studies	Horizontal Mergers, Market Structure, and Burdens of Proof	Herbert Hovenkamp and Carl Shapiro	2018	In this piece, the authors argue that structural presumption, or the idea that "a merger is anticompetitive if it leads to a significant increase in market concentration," has proven effective in merger enforcement and is supported by economic evidence. They propose various suggestions by which courts can utilize the structural presumption to more effectively challenge horizontal merger proposals within pre-existing law.	y	Herbert Hovenkamp and Carl Shapiro, "Horizontal Mergers, Market Structure, and Burdens of Proof," *Yale Law Journal* 127 (7) (2018).
Horizontal mergers	General studies	Evidence for the Effects of Mergers on Market Power and Efficiency	Bruce A. Blonigen and Justin R. Pierce	2016	In examining the impacts of mergers and acquisitions, or M&A, on market and firm efficiency, the authors find that M&A activity leads to an increase in average markups, or an increase in the price of the product. They find little evidence of firm-level effects of M&A on the firm's efficiency or productivity.	wp	Bruce A. Blonigen and Justin R. Pierce, "Evidence for the Effects of Mergers on Market Power and Efficiency." Finance and Economics Discussion Series 2016-082 (Board of Governors of the Federal Reserve System, 2016), available at https://doi.org/10.17016/FEDS.2016.082.

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Horizontal mergers	General studies	Mergers, Merger Control, and Remedies: A Retrospective Analysis of U.S. Policy	John E. Kwoka Jr.	2015	This book provides a comprehensive analysis of merger outcomes based on all empirical studies, with an assessment of the effectiveness of antitrust policy toward mergers. The author finds that most of the studied mergers resulted in competitive harm, usually in the form of higher product prices, but also with respect to various nonprice outcomes. Other important findings include the fact that joint ventures and code sharing arrangements do not result in such harm, and that policies intended to remedy mergers—especially conduct remedies—are not generally effective in restraining price increases.	book	John Kwoka, *Mergers, Merger Control, and Remedies: A Retrospective Analysis of U.S. Policy* (Cambridge, MA: The MIT Press, 2015).
Horizontal mergers	General studies	The Structural Presumption and the Safe Harbor in Merger Review: False Positives, or Unwarranted Concerns?	John E. Kwoka Jr.	2016	This paper analyzes the debate around two aspects of merger policy: the structural presumption and the safe harbor. The author studies evidence from a compilation of mergers, looking at their competitive outcomes and comparing it to data on concentration and the changes in concentration due to the merger and number of significant competitors after each merger. From this analysis, the author concludes that market structure is a valid predictor of postmerger harm. A substantially large fraction of mergers that lie above identifiable thresholds indeed prove to be anticompetitive. This prediction is stronger when a simple HHI measure is supplemented by a condition on the change in HHI, and stronger yet when couched in terms of the number of significant competitors. On the other hand, the evidence is not so compelling to support the safe harbor—the range of concentration where mergers are presumed unlikely to harm competition. The author points out that many anticompetitive mergers cast at least some doubt on the validity of it as screening tool. He suggests the measure should be treated as considerably weaker guidance for merger policy than the term "safe harbor" might imply.	WP	John E. Kwoka, "The Structural Presumption and the Safe Harbor in Merger Review: False Positives, or Unwarranted Concerns?" (2016), available at https://ssrn.com/abstract=2782152 or http://dx.doi.org/10.2139/ssrn.2782152.
Horizontal mergers	General studies	Stealth Consolidation: Evidence from an Amendment to the Hart-Scott-Rodino Act	Thomas Wollmann	2018	Prospective merger review has two important and distinct effects: It allows government agencies to investigate the predicted competitive impact of deals prior to their completion, and it also serves to deter firms from attempting to merge in the first place. The 2000 amendment of the Hart-Scott-Rodino Act increased the size threshold for exempt transactions, providing a natural experiment for measuring both the enforcement and merger activity impacts of reduced prospective merger review. In addition to finding a dramatic fall in merger-related investigations among newly exempt deals, the author shows a rise in mergers between direct competitors just below the newly increased threshold, reflecting an endogenous response of firms to the much lower likelihood of investigation. Estimates of the potential impact and variation across industries are also briefly discussed.	y	Thomas Wollmann, "Stealth Consolidation: Evidence from an Amendment to the Hart-Scott-Rodino Act" (2018), available at http://faculty.chicagobooth.edu/thomas.wollmann/docs/Stealth_Consolidation_Wollmann.pdf.
Horizontal mergers	General studies	Strategic Patent Acquisitions	Fiona Scott Morton and Carl Shapiro	2013	The paper gives background on the prevalence and business model of nonpracticing entities, or NPEs, that acquire patents and assert them, including the way in which patent law and technological progress have created the opportunity for holdup. Then, the authors lay out an economic model to illustrate the incentives to invest in new technologies by both implementers and upstream technology investors. The model demonstrates under what conditions patent licensing is procompetitive. Publicly available data applied to the model indicates the more likely effect of NPE licensing is anticompetitive and reduces the incentive to invest in new products. The welfare conclusion applies to the analysis of the competitive impact of acquisitions of patents by NPEs.	y	Fiona Scott Morton and Carl Shapiro, "Strategic Patent Acquisitions," *Antitrust Law Journal* 79 (2) (2013).

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Horizontal mergers	General studies	Did Robert Bork Understate the Competitive Impact of Mergers? Evidence from Consummated Mergers	Orley Ashenfelter, Daniel Hosken, and Matthew C. Weinberg	2014	This paper provides a critique of Robert Bork's skepticism of oligopoly concerns resulting from mergers. His view that mergers are generally competitively neutral and only those creating a dominant firm or monopoly are likely to harm consumers is overly permissive. Contrary to what Bork believed, subsequent empirical studies have shown that mergers in oligopolistic markets can increase prices. The authors identify 49 studies examining mergers in 21 industries published over the past 30 years and find that 36 of the 49 studies find evidence of merger-induced price increases. For each study included in the survey, the authors categorize by industry, identify the specific mergers studied, describe any evidence that the mergers were on the enforcement margin, and state the estimated price effect.	y	Orley Ashenfelter, Daniel Hosken, and Matthew C. Weinberg, "Did Robert Bork Understate the Competitive Impact of Mergers? Evidence from Consummated Mergers," *Journal of Law & Economics* 57 (S3) (2014).
Horizontal mergers	Innovation	Killer Acquisitions	Colleen Cunningham, Florian Ederer, and Song Ma	2018	Through their study of more than 70,000 projects in the drug development market, the authors find that innovative competing projects are likely to be terminated upon acquisition of the company by another firm. This effect is particularly pronounced in cases where the incumbent firm has an incentive to protect profits earned by an existing product for which the innovation would be a new competitor. Moreover, termination of the newly acquired project is more frequent when the transaction falls just below the HSR threshold compared to transactions above the threshold. To demonstrate the robustness of their findings, the authors show that alternative factors, including selection of optimal projects or considerations of human capital and technology, do not account for the strong correlation observed between incumbent firms and the incentive to terminate competitively threatening projects.	wp	Colleen Cunningham, Florian Ederer, and Song Ma, "Killer Acquisitions" Working Paper (Washington Center for Equitable Growth, 2019), available at https://equitablegrowth.org/working-papers/killer-acquisitions/.
Horizontal mergers	Innovation	Horizontal Mergers and Product Innovation	Giulio Federico, Gregor Langus, and Tommaso M. Valletti	2018	This paper sets up a stylized oligopoly model of uncertain product innovation to analyze the effects of a merger on innovation incentives and on consumer surplus. The authors incorporate two competitive channels for merger effects in the model: the "price coordination" channel and the internalization of the "innovation externality." The model is solved numerically, and the authors find that price coordination between the two products of the merged firm tends to stimulate innovation, while internalization of the innovation externality depresses it. The latter effect is stronger in the simulations and, as a result, the merger leads to lower innovation incentives for the merged entity, absent cost efficiencies and knowledge spillovers. In this numerical analysis, both overall innovation and consumer welfare fall after a merger.	wp	Giulio Federico, Gregor Langus, and Tommaso M.Valletti, "Horizontal Mergers and Product Innovation" (2018), available at https://ssrn.com/abstract=2999178 or http://dx.doi.org/10.2139/ssrn.2999178.
Horizontal mergers	Innovation	How mergers affect innovation: Theory and evidence	Justus Haucap, Alexander Rasch, and Joel Stiebale	2019	This article analyses how horizontal mergers affect innovation of the merged entity and its nonmerging competitors. Using data on horizontal mergers among pharmaceutical firms in Europe and applying propensity score matching estimators, the authors find that average patenting and R&D of the merged entity and its rivals declines substantially in postmerger periods. The authors show that this result is consistent with the predictions from an oligopoly model with heterogeneous firms, as well as a patent race model, when premerger R&D intensity is sufficiently high. Consistent with their theoretical model, they find that negative effects of mergers on innovation are concentrated in markets with high R&D intensity and in technology classes with overlap in premerger innovation activities of merging and rival firms.	y	Justus Haucap, Alexander Rasch, and Joel Stiebale, "How mergers affect innovation: Theory and evidence," *International Journal of Industrial Organization* 63 (2019): 283–325.
Horizontal mergers	Healthcare mergers	The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured	Zack Cooper, Stuart Craig, Martin Gaynor, and John Van Reenen	2019	This paper examines how hospital prices for patients are affected by competition in the health industry. In addition to findings on price differences across geographic regions, the study concludes that hospitals located in areas where they have a monopoly have prices more than 15 percent higher than those in areas with multiple competitors. This finding is consistent across different coverage rates by different insurance providers.	y	Zack Cooper and others, "The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured," *The Quarterly Journal of Economics* 134 (1) (2019): 51–107.

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Horizontal mergers	Healthcare mergers	Paying a Premium on Your Premium? Consolidation in the US Health Insurance Industry	Leemore Dafny, Mark Duggan, and Subramaniam Ramanarayanan	2012	The paper estimates the causal impact of increased concentration among health insurers on premiums. In order to address the endogeneity challenge, the authors exploit sharp and heterogeneous increases in local market concentration generated by the 1999 merger of two industry giants, Aetna and Prudential Healthcare. Importantly, the premerger market shares of the two firms varied significantly across specific geographic markets, resulting in very different shocks to postmerger concentration. For example, raw share changes due to the merger imply an increase in postmerger HHI of 892 points in Jacksonville, but only 21 points in Las Vegas. Focusing on the years immediately surrounding this merger, the authors examine the relationship between premium growth and HHI changes using these predicted changes as instruments for actual changes and controlling as fully as possible for changes in the characteristics of health plans (such as benefit design). The point estimates indicate that rising concentration in local health insurance markets accounts for a nontrivial share of premium growth in recent years. Specifically, the instrumental variables estimates imply that the mean increase in local market HHI between 1998 and 2006 (inclusive) raised premiums by roughly 7 percent from their 1998 baseline, all else equal. Given private health insurance expenditures of $490 billion in our base year, 1998, if this result is generalizable, then the “premium on premiums” by 2007 is on the order of $34 billion per year, or about $200 per person with employer-sponsored health insurance.	y	Leemore Dafny, Mark Duggan, and Subramaniam Ramanarayanan, "Paying a Premium on Your Premium? Consolidation in the US Health Insurance Industry," *The American Econonomic Review* 102 (2) (2012): 1161–1185.
Horizontal mergers	Healthcare mergers	The Price Effects of Cross-Market Hospital Mergers	Leemore Dafny, Kate Ho, and Robin S. Lee	2016	The authors study hospital mergers across distinct geographic markets (“cross-market” mergers) and show that such combinations can reduce competition among the merging firms for inclusion in insurers' networks, leading to higher prices (or lower-quality care). The result derives from the presence of “common customers” (i.e., purchasers of insurance plans) who value hospitals belonging to both merging parties, as well as (one or more) “common insurers" with which price and network status is negotiated. The authors then test their theory using two samples of cross-market hospital mergers, focusing exclusively on hospitals that are bystanders rather than the likely drivers of the transactions in order to address concerns about the endogeneity of merger activity. They find that hospitals gaining system members in-state (but not in the same geographic market) experience price increases of 7 percent to 10 percent relative to control hospitals, while hospitals gaining system members out-of-state exhibit no statistically significant changes in price.The results suggest that cross-market, within-state hospital mergers increase hospital systems' leverage when bargaining with insurers.	wp	Leemore Dafny, Kate Ho, and Robin S. Lee, "The Price Effects of Cross-Market Hospital Mergers." Working Paper No. 22106 (National Bureau of Economic Research, 2016).
Horizontal mergers	Healthcare mergers	Mergers When Prices are Negotiated: Evidence from the Hospital Industry	Gautam Gowrisankaran, Aviv Nevo, and Robert Town	2015	Hospital prices in the healthcare market are determined via bilateral negotiations rather than set by one of the sides or via an auction. A party to negotiations will earn more beneficial terms of trade by improving its bargaining leverage. One of the ways to achieve this is by merging with a competitor. This paper estimates a model of competition in which prices are negotiated between managed care organizations, or MCOs, and hospitals. Its contribution is in modeling the effect of final consumers paying some of the costs (through coinsurance); the estimates of price-cost margins and policy-relevant counterfactuals; and in the way the model is estimated, which generalizes the equilibrium models commonly used in industrial organization that does not require data on downstream market outcomes. The authors use the estimates to investigate the extent to which hospital bargaining and patient coinsurance restrain prices and to analyze the impact of counterfactual hospital mergers and policy remedies. They show that increasing patient coinsurance tenfold would reduce prices by 16 percent. This approach is applied to a proposed hospital acquisition in Northern Virginia that was challenged by the Federal Trade Commission, and they find that the merger would have significantly raised hospital prices. Remedies based on separate bargaining do not alleviate the price increases.	y	Gautam Gowrisankaran, Aviv Nevo, and Robert Town, "Mergers When Prices are Negotiated: Evidence from the Hospital Industry," *The American Economic Review* 105 (1) (2015).

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Horizontal mergers	Healthcare mergers	Competition in Health Care Markets	Martin Gaynor and Robert Town	2012	This chapter reviews the literature devoted to studying markets for healthcare services and health insurance. The authors begin by examining research on the determinants of market structure, considering both static and dynamic models. They then model the strategic determination of prices between health insurers and providers where insurers market their products to consumers based, in part, on the quality and breadth of their provider network. The chapter continues reviewing the large empirical literature on the strategic determination of hospital prices through the lens of this model. Variation in the quality of healthcare clearly can have large welfare consequences. The authors then describe the theoretical and empirical literature on the impact of market structure on quality of healthcare. The statistics presented in the chapter point to healthcare and health insurance markets that are concentrated and becoming more so over time. There is also some evidence that prices are rising faster than quantities, and that price variation isn't related to quality but may be due to market power. The chapter then moves on to consider competition in health insurance markets (where empirical research is recent and most of the studies find evidence that competition leads to lower prices) and physician services markets (where empirical research is sparse mainly due to lack of data). Finally, the authors discuss vertical restraints and monopsony power. The authors point out that there has been significant antitrust scrutiny of certain types of vertical relations in healthcare such as exclusive dealing between physician practices and hospitals (usually for a specialized service, e.g., radiology or anesthesiology), and most-favored-nations clauses between insurers and providers. However, despite this interest, there is relatively little evidence on the effects of vertical restraints in healthcare. The evidence that exists comes from reduced form studies. When discussing monopsony, the authors point out that it is clear that monopsony affects the costs of healthcare provision since the bargaining leverage of insurers, which is determined by their size and the presence of alternative insurers, lowers provider prices. Still, they claim evidence of monopsony in healthcare markets is quite limited.	book	Martin Gaynor and Robert Town, "Competition in Health Care Markets." In T. McGuire, M.V. Pauly, and P. Pita Barros, eds., *Handbook of Health Economics*, vol. 2 (Amsterdam: Elsevier North-Holland, 2012).
Horizontal mergers	Healthcare mergers	Insurer Competition in Health Care Markets	Kate Ho and Robin S. Lee	2017	This paper seeks to empirically understand whether the likely premium increases from the removal of a health insurer from the market are mitigated or offset by the improved bargaining power of remaining insurers with hospitals. It conducts a counterfactual empirical simulation based on plans offered by three major health insurers through the California Public Employees Retirement System, or CalPERS. The paper finds that although premiums generally increase, it also demonstrates that a reduction in premiums (and therefore substantial mitigation of consumer harm) is empirically possible. Moreover, the paper simulates that hospital prices often fall in multiple markets as remaining insurers exercise increased leverage, and notes that the competitiveness of the insurer being removed is an important predictor of hospital price changes.	y	Kate Ho and Robin S. Lee, "Insurer Competition in Health Care Markets," *Econometrica* 85 (2) (2017): 379–417.
Horizontal mergers	Dialysis	The Effect of Firm Strategy on Patient Outcomes in Health Care: Evidence from Acquisitions of Dialysis Facilities	Paul J. Eliason, Benjamin Heebsh, Ryan C. McDevitt, and James W. Roberts	2018	The paper finds that changes in ownership (via acquisition by a chain firm) of dialysis clinics significantly affects both provider behavior and patient welfare. Using a rich dataset from the U.S. Renal Data System, the authors show that acquired facilities markedly increase doses of highly reimbursed drugs and simultaneously reduce the number of patients in line for a kidney transplant, effectively reducing their costs and maximizing their reimbursement gained through caring for the patient. Furthermore, these acquired facilities have a tendency to replace highly skilled nurses with low-skilled technicians, putting the patient at greater risk for mortality and additional health risks. Antitrust officials should consider not only the effect on market competition of an acquisition, but also subsequent firm behavior that causes harm to consumers.	wp	Paul J. Eliason and others, "The Effect of Firm Strategy on Patient Outcomes in Health Care: Evidence from Acquisitions of Dialysis Facilities" (2018), available at https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=IIOC2018&paper_id=336.

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Horizontal mergers	Other industry-specific studies	Ownership Concentration and Strategic Supply Reduction	Ulrich Doraszelski, Katja Seim, Michael Sinkinson, and Peichun Wang	2016	The paper develops the profit-maximizing strategy of TV license holders who anticipate the incentive auction (March 29, 2016) in which the FCC sought to acquire spectrum from broadcast TV license holders in order to sell it to wireless carriers. The paper argues that multilicense holders (common owners) may attempt to increase profits by reducing their supply of licenses into the auction, thereby increasing the prices of those that they sell and decreasing the economic efficiency, as the licenses released for sale are not likely to be socially optimal. This strategic supply reduction raises the cost of acquiring spectrum to the FCC. Thus the horizontal combination of television stations creates anticompetitive harm through the auction mechanism.	wp	Ulrich Doraszelski and others, "Ownership Concentration and Strategic Supply Reduction." Working Paper No. w23034 (National Bureau of Economic Research, 2017), available at https://ssrn.com/abstract=2900039.
Horizontal mergers	Other industry-specific studies	Spatial Differentiation and Vertical Mergers in Retail Markets for Gasoline	Jean-Francois Houde	2012	This paper proposes a comparative approach to evaluating the impact of mergers in the retail gasoline industry, relying on empirical simulations based on the merger of Sunoco and Ultramar in Quebec and Ontario. It finds that the merger caused a significant price increase in the neighborhood of Sunoco stations, corresponding to a 10 percent increase in retail margins. More importantly, the paper's novel modeling of the demand for spatially differentiated goods—which relies on modelling commuting paths and the locations of customers—is validated by the results of the empirical exercise. The difference-in-difference estimate of prices roughly equates the average price increase predicted by the counterfactual simulation of the merger, providing greater support for the merger methodology.	y	Jean-Francois Houde, "Spatial Differentiation and Vertical Mergers in Retail Markets for Gasoline," *The American Economic Review* 102 (5) (2012): 2147–2182.
Horizontal mergers	Other industry-specific studies	Identification and Estimation of Intra-Firm and Industry Competition via Ownership Change	Christian Michel	2016	This analysis estimates the degree of joint-profit maximization of horizontally merging firms in the ready-to-eat cereal industry. Using industry data before and after the 1993 Post-Nabisco merger, the author tracks the organizational integration of the merging firms and the intensity of industry competition in the industry. The results indicate an increase in the joint-profit maximizing behavior of the merging firms leading to nearly complete joint maximization within 2 years after the merger. The paper also estimates that 18 percent to 21 percent of manufacturer markups in the industry are attributable to cooperative industry behavior.	wp	Christian Michel, "Identification and Estimation of Intra-Firm and Industry Competition via Ownership Change" (2016), available at http://christianmichel.net/wp-content/uploads/2018/05/IdentificationIntraIndustry_042116.pdf.
Horizontal mergers	Other industry-specific studies	Market Concentration in Homebuilding	Jacob Cosman and Luis Quintero	2018	This paper investigates the impact of increasing concentration in local residential construction markets on housing production. The authors show that the increase in concentration in the past decade has led to lower production volume, fewer units in the production pipeline, and greater unit price volatility. Their results imply that the greater concentration has decreased the annual value of new housing production by $106 billion. Because housing is a determinant of the business cycle, these findings provide further evidence that the secular decline in competitive intensity in the American economy is altering macroeconomic dynamics.	wp	Jacob Cosman and Luis Quintero, "Market Concentration in Homebuilding." Johns Hopkins Carey Business School Research Paper No. 18-18 (2018), available at https://ssrn.com/abstract=3303984 or http://dx.doi.org/10.2139/ssrn.3303984.
Horizontal mergers	Other industry-specific studies	Brewed in North America: Mergers, Marginal Costs, and Efficiency	Paul Grieco, Joris Pinkse, and Margaret Slade	2017	The authors propose a quantitative technique that can be used to forecast merger-related changes in returns to scale, marginal costs, and total factor productivity, or TFP, growth and can be implemented with only premerger data. They use their model of production to evaluate the cost impacts of a merger between Molson and Coors that occurred in 2005 and united the second-largest brewer in Canada with the third-largest in the United States. The Molson Coors cross-border merger rationalized production, marketing, and distribution, since the brands of both firms were already sold in both countries. To quantify these effects, the authors perform ex-ante forecasts using premerger data. They forecast nontrivial increases in returns to scale and declines in marginal costs and verify those results by analyzing the impact of the merger retrospectively using postmerger data. They conclude that their simulations yield fairly accurate forecasts of efficiencies.	y	Paul A. Grieco, Joris Pinkse, and Margaret E. Slade, "Brewed in North America: Mergers, Marginal Costs, and Efficiency" (2017), available at https://econ2017.sites.olt.ubc.ca/files/2017/11/pdf_paper_margaret-slade-brewing.pdf.

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Horizontal mergers	Other industry-specific studies	Efficiencies Brewed: Pricing and Consolidation in the U.S. Beer Industry	Orley C. Ashenfelter, Daniel Hosken, and Matthew C. Weinberg	2013	Though merger efficiencies are the primary argument for why mergers of competitors may benefit consumers, there is little evidence that efficiencies can offset incentives to raise prices following mergers. This paper uses a reduced-form analysis to assess the MillerCoors joint venture that occurred in 2008. It shows that larger predicted increases in concentration were associated with larger price increases, and larger reductions in shipping distances were associated with smaller price increases. Overall, small but significant increases in both prices and efficiencies (2 percent to 3 percent) post-joint-venture roughly offset one other.	y	Orley Ashenfelter, Daniel Hosken, and Matthew Weinberg, "Efficiencies brewed: Pricing and consolidation in the US beer industry." Working Paper 19353 (National Bureau of Economic Research, 2013).
Horizontal mergers	Other industry-specific studies	Understanding the Price Effects of the MillerCoors Joint Venture	Nathan H. Miller and Matthew C. Weinberg	2017	The paper documents the abrupt increases in retail beer prices just after the consummation of the MillerCoors joint venture, both for MillerCoors and its major competitor, AnheuserBusch. It tests and rejects the hypothesis that the price increases can be explained by movement from one Nash-Bertrand equilibrium to another, in the context of a differentiated-products pricing model. Counterfactual simulations imply that prices after the joint venture are 6 percent to 8 percent higher than they would have been with Nash-Bertrand competition, and that markups are 17 percent to 18 percent higher. Finally, the paper relates the results to documentary evidence that the joint venture may have facilitated price coordination.	y	Nathan H. Miller and Matthew C. Weinberg, "Understanding the Price Effects of the MillerCoors Joint Venture," *Econometrica* 85 (6) (2017): 1763–1791.
Horizontal mergers	Other industry-specific studies	Measuring the Incentive to Collude: The Vitamin Cartels 1990-1999	Mitsuru Igami and Takuo Sugaya	2018	The authors model the vitamin C cartel of the 1990s. The cartel naturally broke down before it was discovered by the U.S. Department of Justice. The authors show that a counterfactual merger, one that actually took place in 2001, could have enabled the cartel to continue if it had taken place in 1991. The paper establishes a link between horizontal mergers and the ability to successfully cartelize.	wp	Mitsuru Igami and Takuo Sugaya, "Measuring the Incentive to Collude: The Vitamin Cartels, 1990-1999" (2018), available at https://ssrn.com/abstract=2889837 or http://dx.doi.org/10.2139/ssrn.2889837.
Horizontal mergers	Other industry-specific studies	The Price Effects of a Large Merger of Manufacturers: A Case Study of Maytag-Whirlpool	Orley C. Ashenfelter, Daniel Hosken, and Matthew C. Weinberg	2013	This paper analyzes the Whirlpool/Maytag merger, which arguably presents an opportunity to evaluate whether a change in antitrust policy—allowing a merger that, it was claimed, otherwise would have been challenged—resulted in a price increase. Using scanner data covering a period before and after Whirlpool's purchase of Maytag, the authors estimate how markets for different types of appliances were impacted by the acquisition. Their results show price increases for dishwashers and relatively large price increases for clothes dryers, but no price effects for refrigerators or clothes washers. The combined firm's market share fell across all four affected categories, and the number of distinct appliance products offered for sale fell.	y	Orley Ashenfelter, Daniel Hosken, and Matthew Weinberg, "The Price Effects of a Large Merger of Manufacturers: A Case Study of Maytag-Whirlpool," *American Economic Journal: Economic Policy* 5 (1) (2013): 239–61.

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Coordinated effects overview:	The field of applied game theory has advanced greatly in the past 40 years. The models in the literature can explain a large range of behavior by rational and sophisticated actors. The collusive outcomes that can be sustained without a formal contract and recourse to courts is determined by the patience of the parties and the financial reward from continuing to collude versus defecting, among other factors. Since the 1990s, U.S. merger policy, particularly in litigated cases, has focused on unilateral effects. This focus was driven in large part by economic arguments from the 1950s and '60s, concluding that it was unlikely, even in highly concentrated markets, that firms would coordinate without an explicit agreement. However, models can now identify a much larger range of behavior by rational and sophisticated actors that leads to sustained coordinated interaction such as price leadership, public statements, and multimarket contact. A number of studies have empirically confirmed these results across a range of industries such as airlines, health insurance, and beer.						
Coordinated effects	Cartel behavior	Breaking Up Is Hard to Do: Determinants of Cartel Duration	Margaret C. Levenstein and Valerie Y. Suslow	2011	This paper estimates the impact of cartel organizational features, as well as macroeconomic fluctuations and industry structure, on cartel duration using a dataset of contemporary international cartels. The estimation distinguishes factors which increase the risk of "death by antitrust" from those that affect "natural death," including defection, dissension or entry. From their analysis, the authors indicate that the probability of cartel death from any cause increased significantly after 1995, when competition authorities expanded enforcement efforts toward international cartels. They find that fluctuations in firm-specific discount rates have a significant effect on cartel duration, whereas market interest rates do not. Cartels with a compensation scheme—a plan for how the cartel will handle variations in demand—are significantly less likely to break up. In contrast, retaliatory punishments in response to perceived cheating significantly increase the likelihood of natural death.	y	Margaret C. Levenstein and Valerie Y. Suslow, "Breaking Up Is Hard to Do: Determinants of Cartel Duration," *The Journal of Law and Economics* 54 (2) (2011).
Coordinated effects	Cartel behavior	How Do Cartels Use Vertical Restraints? Reflections on Bork's The Antitrust Paradox	Margaret C. Levenstein and Valerie Y. Suslow	2014	This paper studies cartels that used vertical restraints to support collusion and finds that one-quarter of a sample of convicted contemporary international cartels used vertical restraints. Some of these cartels used vertical restraints to control downstream firms which might otherwise have undermined collusion. In other cases, distributors themselves had market power and received a share of cartel rents in return for their willingness to exercise that power as part of a cartel. The authors point out that this raises questions for antitrust policy toward vertical restraints in highly concentrated industries or those with a history of cartel activity.	y	Margaret C. Levenstein and Valerie Y. Suslow, "How Do Cartels Use Vertical Restraints? Reflections on Bork's The Antitrust Paradox," *The Journal of Law and Economics* 57 (S3) (2014).
Coordinated effects	Tacit collusion	Public Communication and Collusion in the Airline Industry	Gaurab Aryal, Federico Ciliberto, and Benjamin T. Leyden	2018	This paper explores whether legacy U.S. airlines use their quarterly earnings calls as a means of communicating and establishing collusion with other airlines to decrease the number of passenger seats available, thus leading to an increase in the price of seats for consumers. (Earnings calls are conference calls between a company's management, investors and analysts to discuss the firm's financial status in a given period). The authors construct an original dataset using the public data from the earnings calls to meaure communication. Subsequently, the authors track the use of the term "capacity discipline," the mention of which (during earnings calls) is found to be correlated with a significant decline in commercially available airline seats. The authors conclude that this effect is largely led by legacy carriers, or airlines having been affected by the Airline Deregulation Act of 1978, which removed government oversight of the airline industry, leaving it open to the market.	wp	Gaurab Aryal, Federico Ciliberto, and Benjamin T. Leyden, "Public Communication and Collusion in the Airline Industry." Working Paper No. 2018-11 (Becker Friedman Institute for Research in Economics, 2018), available at https://ssrn.com/abstract=3123972.

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Coordinated effects	Tacit collusion	An Empirical Model of Oligopoly Price Leadership: The U.S. Beer Industry	Nate Miller, Gloria Sheu, and Matthew Weinberg	2018	This paper examines an infinitely repeated game of oligopoly price leadership in which one firm, the market leader, announces a super-markup over static Nash prices that serves as an endogenous focal point for other firms. Two identification results make the model suitable for empirical analysis. First, marginal costs and the equilibrium super-markup can be recovered from aggregate data on price and quantities. Second, counterfactual simulations can be used to test whether incentive compatibility constraints bind and, in the affirmative case, recover the discount factor. The paper applies the model to the U.S. beer industry over 2005–2011. Estimation results indicate that price leadership increased prices by $0.87 above static Nash levels after the MillerCoors merger. The authors find that the incentive compatibility constraints bind.	wp	Nate Miller, Gloria Sheu, and Matthew Weinberg, "An Empirical Model of Oligopoly Price Leadership: The U.S. Beer Industry" (2018), available at https://www.dropbox.com/s/79b2cxfy0pwj59o/msw_plm_2018.07.16b.pdf?dl=0.
Coordinated effects	Tacit collusion	Understanding the Price Effects of the MillerCoors Joint Venture	Nathan H. Miller and Matthew C. Weinberg	2017	The paper documents the abrupt increases in retail beer prices just after the consummation of the MillerCoors joint venture, both for MillerCoors and its major competitor, AnheuserBusch. It tests and rejects the hypothesis that the price increases can be explained by movement from one Nash-Bertrand equilibrium to another, in the context of a differentiated-products pricing model. Counterfactual simulations imply that prices after the joint venture are 6 percent to 8 percent higher than they would have been with Nash-Bertrand competition, and that markups are 17 percent to 18 percent higher. Finally, the paper relates the results to documentary evidence that the joint venture may have facilitated price coordination.	y	Nathan H. Miller and Matthew C. Weinberg, "Understanding the Price Effects of the MillerCoors Joint Venture," *Econometrica* 85 (6) (2017): 1763–1791.
Coordinated effects	Tacit collusion and multimarket contact	Multimarket Contact in Health Insurance: Evidence from Medicare Advantage	Haizhen Lin and Ian M. McCarthy	2018	The paper studies the mutual forebearance (tacit collusion) hypothesis on the price and quality of Medicare Advantage, or MA, plans in the U.S. health insurance market. First, it finds consistent support for the proposition that higher levels of multimarket contact, or MMC, where a handful of large firms compete in multiple geographic markets, leads to economically significant increases in Part C bids and premiums, but limited effect on Part D bids or premiums. Second, it finds support for the proposition that MMC has a negative impact on the probability of a program receiving a high star rating, although it has little effect on the average star rating of a program or the probability of a low star rating. The paper notes the importance of the firms' ability to detect deviations in the mutual forebearance hypothesis, suggesting that the differential effect between Part C and Part D pricing may be reflective of the lack of transparency in the Part D program relative to Part C. The paper ends urging that MMC should be considered when assessing anticompetitive threats from mergers and acquisitions, especially in settings where national players tend to operate in multiple markets.	wp	Haizhen Lin and Ian M. McCarthy, "Multimarket Contact in Health Insurance: Evidence from Medicare Advantage." Working Paper No. 24486 (National Bureau of Economic Research, 2018).
Coordinated effects	Tacit collusion and multimarket contact	Multimarket Contact in the Hospital Industry	Matt Schmitt	2018	Hospitals in the United States increasingly belong to multihospital systems that operate in numerous geographic markets. A large literature in management and economics suggests that competition between firms may be softened as a result of multimarket contact—i.e., firms competing with one another in multiple markets simultaneously. To address the potential endogeneity of within-market changes in multimarket contact, the author estimates difference-in-differences models that isolate variation in multimarket contact generated by out-of-market consolidation. The results show that increases in multimarket contact over the 2000–2010 period led to higher hospital prices. These results suggest that continued hospital consolidation may produce higher prices even if that consolidation only minimally affects within-market concentration.	y	Matt Schmitt, "Multimarket Contact in the Hospital Industry," *American Economic Journal: Economic Policy* 10 (3) (2018): 361–87.

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Coordinated effects	Tacit collusion and multimarket contact	Does Multimarket Contact Facilitate Tacit Collusion? Inference on Conduct Parameters in the Airline Industry	Federico Ciliberto and Jonathan W. Williams	2015	The paper studies whether multimarket contact, or MMC, facilitates tacit collusion over prices in the airline industry. It finds that carriers with little MMC do not cooperate in setting fares, whereas those with a significant amount of MMC can sustain near-perfect cooperation. Thus, for very high levels of multimarket contact, where firms are already perfectly coordinating on prices, there is very little impact from an increase in MMC. Results suggest that legacy carriers cooperate to a large degree in setting fares, while there is very little cooperation between legacy carriers and low-cost carriers. However, for low or moderate levels of contact, there is a significant increase in fares. The paper's empirical work also suggests that economic models where firms are allowed to behave differently with different competitors—based on level of MMC—suggest very different marginal estimates of marginal cost than Bertrand-Nash or perfect competition models. The study also suggests that cross-price elasticities play an important role in determining the magnitude of the change in fare from in all situations except very high MMC, where firms exhibit perfect coordination.	y	Federico Ciliberto and Jonathan W. Williams, "Does Multimarket Contact Facilitate Tacit Collusion? Inference on Conduct Parameters in the Airline Industry," *The RAND Journal of Economics* 45 (2015).
Coordinated effects	Tacit collusion and multimarket contact	Multimarket Contact and Tacit Market Sharing Agreements: Empirical Evidence from the US Airline Industry	Volodymyr Bilotkach and Giovanni Tabacco	2013	The paper studies the level of multimarket contact, or MMC, on more than 8,000 airline city pairs and investigates its impact on price and market concentration. First, with regards to MMC's relationship with price, it finds that, consistent with earlier findings, increased MMC leads to higher prices, and that more fragmented markets show a stronger effect of MMC on prices. Second, with regards to MMC and market concentration, it finds that the evidence is consistent with the possibility of market-sharing agreements on markets which otherwise appear competitive. The authors' results suggest that airlines appear to use more concentrated routes to increase the extent of MMC, and then use the increased level of multimarket contact to soften competition on the less-concentrated markets. The authors point out that this is of clear importance for antitrust policy.	wp	Volodymyr Bilotkach and Giovanni Tabacco, "Multimarket Contact and Tacit Market Sharing Agreements: Empirical Evidence from the US Airline Industry" (2013), available at http://ftp.zew.de/pub/zew-docs/veranst_upload/1825/697_Paper_Draft_092013_Volodymyr.pdf.
Coordinated effects	Tacit collusion	Low Wage Labor Markets and the Power of Suggestion	Natalya Y. Shelkova	2014	This paper explains the "minimum wage spike"—or the clustering of employee wages around the minimum wage—using a game-theoretic model in which employers collude to establish monopsony power and keep wages low. The author posits that the minimum wage serves as a focal point for a Nash equilibrium wage and, as such, may have a pull-down effect on employee earnings. Using CPS data, empirical tests find that the average percent of workers with latent wages above the minimum but who currently earn the minimum or less in the period from 1990–2002 is 19.3 percent. For the service industry, this number is closer to 31 percent. Furthermore, the number of affected employees tends to be higher in the years following a minimum wage hike. Thus, the use of a single national minimum wage may be ineffective for raising the earnings of low-wage workers. A better alternative would be the establishment of multiple focal points, such as locally set living wages, industry-specific minimum wages, or employer-union negotiated wages, in order to make collusion and the establishment of monopsony power more difficult for firms.	wp	Natalya Y. Shelkova, "Low-Wage Labor Markets and the Power of Suggestion" (2014), available at https://ssrn.com/abstract=2478219.
Coordinated effects	Tacit collusion	Learning to Coordinate: A Study in Retail Gasoline	David P. Byrne and Nicolas de Roos	2018	This paper studies equilibrium selection in the retail gasoline industry and contributes to the debate over the role of communication in generating collusive outcomes. Using a dataset that contains the universe of station-level prices for an urban market for 15 years, the authors identify a gradual, 3-year equilibrium transition, whereby dominant firms use price leadership and price experiments to create focal points that coordinate market prices, soften price competition, and enhance retail margins. The results are particularly relevant to the discussion on the initiation of collusion and equilibrium selection.	wp	David P. Byrne and Nicolas de Roos, "Learning to Coordinate: A Study in Retail Gasoline" (2018), available at https://ssrn.com/abstract=2570637 or http://dx.doi.org/10.2139/ssrn.2570637.

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Vertical Mergers:	The modeling of vertical mergers is a new area of research in economics made possible by advances in modeling and empirical techniques. Media is a popular application in this literature due to the availability of data, the spectrum of possible relationships, and policy interest. An important theme to emerge from the academic literature is that anticompetitive effects from vertical mergers (foreclosure) are context specific. Theory indicates that foreclosure will be profitable under certain circumstances, and there are multiple empirical papers that find that result. There are also studies that conclude that foreclosure is not profitable in the case being analyzed. Thus, a generalization that vertical mergers are either all harmless or all anticompetitive will not be correct. The results in the literature indicate that an agency making no mistakes would be likely to find some vertical mergers anticompetitive.						
Vertical mergers	Theories of vertical mergers	Do Vertical Mergers Facilitate Upstream Collusion	Volker Nocke and Lucy White	2007	This paper seeks to demonstrate that vertical mergers can facilitate upstream collusion on account of two contrasting effects: First, an outlets effect, under which upstream firms collude since they cannnot profitably sell through downstream outlets owned by integrated upstream rivals when they choose to deviate; and second, a punishment effect, under which it is harder to punish an integrated firm as severely during the punishment phase as an unintegrated firm, which may make collusion harder. The paper finds that irrespective of whether the firms compete in prices or quantities to sell homogenous or differentiated goods, the outlets effect dominates the punishment effect, such that the first vertical merger facilitates collusion. Moreover, with respect to multiple vertical mergers, the paper finds that the net effect on collusive possibilities is ambiguous, but can, in principle, be calculated using their model given a demand function and a market structure. The authors discuss limiting cases (almost perfect substitutes final goods and sufficiently large number of upstream and downstream firms) for which every upstream merger facilitates collusion.	y	Volker Nocke and Lucy White, "Do Vertical Mergers Facilitate Upstream Collusion?" *The American Economic Review* 97 (4) (2007): 1321–1339, available at http://www.jstor.org/stable/30034094.
Vertical mergers	Empirical studies of vertical mergers	The Welfare Effects of Vertical Integration in Multichannel Television Markets	Gregory S. Crawford, Robin S. Lee, Michael D. Whinston, and Ali Yurukoglu	2018	The paper estimates the welfare effects of vertical integration of upstream regional sports networks with downstream cable distribution firms. It measures efficiencies due to integration (reduction of double marginalization) against potential foreclosure incentives (exclusion and raising rivals' costs). In a counterfactual examining vertical integration of regional sports networks in the absence of program access rules, the paper finds a net welfare loss (foreclosure harm is greater than EDM) when program access rules do not protect rival distributors and they can be excluded. The paper also analyzes regulatory policy toward integrated firms.	y	Gregory S. Crawford and others, "The Welfare Effects of Vertical Integration in Multichannel Television Markets," *Econometrica* 86 (3) (2018): 891–954.
Vertical mergers	Empirical studies of vertical mergers	Vertical Integration with Multiproduct Firms: When Eliminating Double Marginalization May Hurt Consumers	Fernando Luco and Guillermo Marshall	2018	While most empirical research on vertical integration, or VI, has focused on the tension between the elimination of double marginalization and market foreclosure, this paper evaluates a third mechanism that arises with multiproduct firms. When integrating with a supplier, vertical integration may eliminate double margins for only a subset of the products of the downstream firm. The products with eliminated double margins become relatively more profitable to sell, which gives the multiproduct firm incentives to divert demand toward these by increasing the prices of the products for which double marginalization was not eliminated. This paper studies the vertical mergers among The Coca Cola Co., PepsiCo Inc., and their main bottlers, which only eliminated double margins for the brands owned by these companies. The authors find that vertical integration decreased the prices of own brands bottled by a vertically integrated bottler by 1.4 percent, whereas rival brands bottled by the same bottler rise by 3.9 percent. The overall impact of vertical integration was to increase the prices of products bottled by vertically integrated bottlers by an average of 1.8 percent. These results show that eliminating double marginalization may potentially hurt consumers in multiproduct industries—or at least mitigate potential benefits.	wp	Fernando Luco and Guillermo Marshall, "Vertical Integration With Multiproduct Firms: When Eliminating Double Marginalization May Hurt Consumers" (2018), available at https://ssrn.com/abstract=3110038 or http://dx.doi.org/10.2139/ssrn.3110038.

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Vertical mergers	Empirical studies of vertical mergers	Diagnosing Foreclosure Due to Exclusive Dealing	John Asker	2016	Exclusive dealing arrangements, in which a distributor contracts to work exclusively with a single manufacturer, can be efficiency enhancing or they can be an anticompetitive means to foreclose markets. This paper evaluates the effect of exclusive distribution arrangements on competition in the Chicago beer market in 1994. A diagnostic test is provided to judge whether exclusive arrangements between brewers and their distributors lead to foreclosure. The author estimates a model of consumer demand and firm behavior that incorporates industry details and allows for distribution through exclusive and shared channels. The test indicates that foreclosure effects are not present in this market, suggesting that the most likely effect of intervention would be to reduce social welfare.	y	John Asker, "Diagnosing Foreclosure Due to Exclusive Dealing," *The Journal of Industrial Economics* 64 (3) (2016): 375–410.
Vertical mergers	Empirical studies of vertical mergers	Vertical Integration, Market Foreclosure, and Consumer Welfare in the Cable Television Industry	Tasneem Chipty	2001	This paper examines vertical integration in the cable television industry to measure the impact of both market foreclosure and efficiency improvements. Based on system-level data from 1991, the author finds that integration in the cable television industry results in market foreclosure, with both premium and basic cable operators less likely to carry rival services. At the same time, there are significant efficiency gains from vertical integration: Integrated operators successfully sell more subscriptions despite excluding certain programs, and these operators stimulate demand by offering larger basic packages with less program duplication. Basic operators achieve higher sales not by lowering price but rather by offering more programming. The paper also offers a methodology to evaluate the net consumer welfare effect of these forces and concludes that consumers in integrated cable markets are statistically no worse off than consumers in unintegrated markets.	y	Tasneem Chipty, "Vertical Integration, Market Foreclosure, and Consumer Welfare in the Cable Television Industry," *The American Economic Review* 91 (3) (2001): 428–453.
Vertical mergers	Empirical studies of vertical mergers	Cementing Relationships: Vertical Integration, Foreclosure, Productivity, and Prices	Ali Hortaçsu and Chad Syverson	2007	This paper examines the market effects of vertical integration across several decades of the cement and ready-mixed concrete industry. The authors find little evidence of foreclosure resulting from vertical integration; instead, when markets become more integrated, prices fall, quantities rise, and entry rates remain unchanged. These patterns support an alternative, efficiency-based mechanism with larger, more productive integrated firms taking market share from less efficient producers. This explanation is reflected in the fact that, controlling for firm size and productivity impacts, vertical integration per se does not explain plant- or market-level outcomes. The authors highlight the trade-off for the social welfare implications of vertical integration while emphasizing that the results of this paper may not extend to other industries.	y	Ali Hortaçsu and Chad Syverson, "Cementing Relationships: Vertical Integration, Foreclosure, Productivity and Prices," *The Journal of Political Economy* 115 (2) (2007).
Vertical mergers	Empirical studies of vertical mergers	Market foreclosure and vertical merger: A case study of the vertical merger between Turner Broadcasting and Time Warner	Ayako Suzuki	2009	This paper employs an event-study methodology, the event being the vertical merger between Time Warner Inc. and Turner Broadcasting, distribution and programming, respectively, in the cable television industry. The authors assess the effects of the merger on final prices, subscriptions, and carriage and marketing decisions of Time Warner. The analysis first finds foreclosure in Time Warner markets following the merger for the rival channels that are not integrated with any cable distributors. Second, the Turner Broadcasting channels that increased market shares because of this merger appeared to be foreclosed by Time Warner prior to the merger. The preference for own channels by Time Warner persisted, despite a lower quality of channel bundles in its markets. The per-channel price decreased more in Timer Warner markets than would have been the case without the merger, but those efficiency gains were not passed on to consumers.	y	Ayako Suzuki, "Market foreclosure and vertical merger: A case study of the vertical merger between Turner Broadcasting and Time Warner," *International Journal of Industrial Organization* 27 (4) (2009).

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Vertical mergers	Empirical studies of vertical mergers	Vertical Relationships and Competition in Retail Gasoline Markets: Empirical Evidence From Contract Changes in Southern California	Justine Hastings	2004	This study examines the conversion of the largest independent chain of retail gasoline stations in Southern California to a branded chain in 1997 as a natural experiment for station competition and price levels. Branded stations, whether company-operated or franchised, are required to sell differentiated gasoline containing additives specific to the brand, whereas independent stations can sell any type of gasoline from any refiner. The study finds that independent (nonintegrated) retailers generate lower prices. When an independent station is replaced by a branded retailer, there is a large and significant upward effect on the local gasoline price. In such instances, prices increase most at stations that were the closest competitors: those with low shares of brand-loyal customers. The study finds no significant difference between company-operated and dealer-run stations in terms of the impact on prices.	y	Justine Hastings, "Vertical Relationships and Competition in Retail Gasoline Markets: Empirical Evidence From Contract Changes in Southern California," *The American Economic Review* 94 (1) (2004): 317–328.

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Exclusionary conduct overview:	Exclusionary conduct can be profitable, thereby creating an incentive for the incumbent firm to use it as a strategy against potential and actual entrants. Chicago School proponents have long argued that any exclusionary contract could only be adopted if customers benefited from it. Further, this line of thinking assumed that oligopoly or monopoly markets are contestable (entry is costless and immediate), meaning there was no reason to engage in an exclusionary strategy because it would not be successful. Decades of economics literature has refuted the robustness of both of these propositions and contains a number of examples of companies executing on exclusionary strategies. The exclusive dealing literature took a leap forward with the Naked Exclusion paper by Segal and Whinston, which established that exclusives need not be efficient to be profitable. Some of these strategies have been found to violate the antitrust laws. Other tactics designed to prevent entry or exclude existing entrants have not yet attracted any successful enforcement. Recent literature on exclusionary contracts is listed below. The extensive empirical literature disproving contestability is too old, well-established, and conclusive to be listed here.						
Exclusionary conduct	Horizontal competitor agreements	Strategic Patent Acquisitions	Fiona Scott Morton and Carl Shapiro	2014	The paper gives background on the prevalence and business model of nonpracticing entities, including the way in which patent law and technological progress have created the opportunity for holdup. Then, the authors lay out an economic model to illustrate the incentives to invest in new technologies by both implementers and upstream technology investors. The model demonstrates under what conditions patent licensing is procompetitive. Publicly available data indicates the more likely effect of NPE licensing is anticompetitive and reduces the incentive to invest in new products.	y	Fiona Scott Morton and Carl Shapiro, "Strategic Patent Acquisitions," *The Antitrust Law Journal* 79 (2) (2013).
Exclusionary conduct	Horizontal competitor agreements	Antitrust Limits to Patent Settlements	Carl Shapiro	2003	Patents, patent litigation, and patent settlements increasingly influence competition. Settlements of patent disputes come in many forms, including licensing and cross-licensing agreements, patent pools, mergers, and joint ventures. While frequently procompetitive, such settlements can stifle competition and harm consumers. The author proposes a specific antitrust rule limiting such settlements: A settlement must leave consumers at least as well off as they would have been from ongoing patent litigation. After establishing that profitable settlements satisfying this constraint generally exist, the author shows how this antitrust rule can be used to evaluate three types of settlements: mergers, patent pools, and negotiated entry dates.	y	Carl Shapiro, "Antitrust Limits to Patent Settlements," *RAND Journal of Economics* 34 (2) (2003): 391–411.
Exclusionary Conduct	Vertical restraint	Raising Retailers' Profits: On Vertical Practices and the Exclusion of Rivals	John Asker and Heski Bar-Isaac	2014	The paper establishes an economic theory of how vertical restrictions can co-opt a retailer to exclude a seller's rival and harm competition.	y	John Asker and Heski Bar-Isaac, "Raising Retailers' Profits: On Vertical Practices and the Exclusion of Rivals," *The American Economic Review* 104 (2) (2014).
Exclusionary Conduct	Vertical restraint: exclusive contracts	Vertical Integration and Exclusivity in Platform and Two-Sided Markets	Robin S. Lee	2013	This paper studies the competitive impact of exclusivity (via integration and exclusive contracts) between hardware and software providers in the sixth generation of the U.S. video game industry. The paper finds mixed results. On one hand, relying on counterfactual simulations finds that exclusive arrangements harmed the incumbent and encouraged market entry. This result is due, in part, to software heterogenity, wherein only two of the top five games impacting hardware demand onboard the dominant PS2 were exclusive, the XBox and GameCube had exclusives on all their top five titles. Exclusivity between software and hardware spurred platform competition and helped the entrant at the expense of the incumbent.	y	Robin S. Lee, "Vertical Integration and Exclusivity in Platform and Two-Sided Markets," *The American Economic Review* 103 (7) (2013).
Exclusionary Conduct	Vertical restraint: exclusive contracts	Surprise! Out-of-Network Billing for Emergency Care in the United States	Zack Cooper, Fiona Scott Morton, and Nathan Shekita	2018	Hospitals and physicians negotiate contracts with insurance companies independently of one another. Thus, when a privately insured patient selects a hospital for an emergency room visit that is covered by their insurance, they may be treated and subsequently billed by an emergency room physician who is not part of that insurance network (out of network). The mechanics of emergency departments, or EDs, and the nature of hospital contracts exclude from the ED other physicians who might be willing to work at in-network rates. The paper shows that physician prices in such settings are far higher than the market prices and are driven by outsourcing firms that focus on out-of-network billing as a strategy. The outsourcing firm and the hospital together eliminate competition for physician services in the ED, leading to higher healthcare costs and financial burdens on patients.	wp	Zack Cooper, Fiona Scott Morton, and Nathan Shekita, "Surprise! Out-of-Network Billing for Emergency Care in the United States." Working Paper No. 23623 (National Bureau of Economic Research, 2018).

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Exclusionary conduct	Vertical restraint: resale price maintenance	The Empirical Effects of Minimum Resale Price Maintenance	Alexander MacKay and David Smith	2014	This study estimates the empirical effects of minimum resale price maintenance, or RPM, across a broad variety of products. The authors analyze conflicting theories using an exogenous state-level law change resulting from the 2007 Leegin Supreme Court decision. The welfare-reducing view contends that vertical price agreements allow firms to exert market power. The opposing view is that RPM contracts can solve market failures and incentivize noncontractible behavior by retailers, enhancing consumer welfare. The Leegin decision established that minimum RPM agreements should be judged under a rule-of-reason standard, rather than being per se illegal at the federal level. Because states vary both in their adherence to federal precedent and in their statutes regarding vertical price agreements, the decision resulted in state-by-state variation in the treatment of minimum RPM. In states where RPM contracts are treated under the more relaxed rule-of-reason standard, prices increased. The authors findings are that, in aggregate, consumers are worse off in the rule-of-reason states.	wp	Alexander MacKay and David Smith, "The Empirical Effects of Minimum Resale Price Maintenance." Paper No. 2-006 (University of Chicago Booth Kilts Center for Marketing, 2014), available at https://ssrn.com/abstract=2513533.
Exclusionary conduct	Unilateral conduct: announced capacity expansion	Do Firms Strategically Announce Capacity Expansions to Deter Entry?	Matthew J. Bloomfield and Marcel C. Tuijn	2018	This paper provides evidence that firms strategically preannounce capacity expansions to deter entry into their product markets. Looking through public firm's press releases from 1995–2016, the authors create a Capacity Expansion Announcement, or CEA, variable that takes a value when explicit forward-looking statements are made regarding capacity increases. They find that more than 20 percent of firms make at least one such disclosure. The authors demonstrate that these disclosures are credible by showing that their measure accurately predicts increases in capacity, as captured by CAPEX, PP&E, sales, COGS, and inventories. They then show that firms respond to heightened entry threats by announcing capacity expansions. Their results confirm that larger firms are more likely to respond in this fashion, while firms with more private information about industry prospects are less likely to respond in this fashion. Capacity expansion announcements appear to be effective at deterring entry.	wp	Matthew J. Bloomfield and Tuijn, Marcel, "Do Firms Strategically Announce Capacity Expansions to Deter Entry?" (2018), available at https://ssrn.com/abstract=3195932 or http://dx.doi.org/10.2139/ssrn.3195932.
Exclusionary conduct	Vertical restraint: exclusive contracts	Naked Exclusion: Comment	Ilya R. Segal and Michael D. Whinston	2000	Representatives of the Chicago School of economic thought argue that an incumbent monopolist cannot profitably deter entry by signing exclusionary contracts with buyers since the buyers would have to be compensated for forsaking future competition, and the necessary compensation exceeds the incumbent's possible gain from exclusion. However, this is not, in general, true. Rasmusen, Ramseyer, and Wiley [American Economic Review 1991, henceforth RRW] have argued that an incumbent may, in fact, be able to exclude rivals profitably by exploiting buyers' lack of coordination. While the intuition suggested by RRW is confirmed, the possibility of profitable exclusion is shown to depend on the incumbent's ability to discriminate in its offers to different buyers. Absent the ability to discriminate, the incumbent can exclude profitably only when buyers fail to coordinate on their most preferred continuation equilibrium. In contrast, when discrimination is possible, the incumbent need not rely on a lack of buyer coordination to exclude profitably: Discrimination allows the incumbent to successfully exploit the externalities that exist across buyers. As the number of buyers becomes large, the externalities across buyers become so severe that the incumbent is always able to exclude for free.	y	Ilya R. Segal and Michael D. Whinston, comment on "Naked Exclusion," *The American Economic Review* 90 (1) (2000).
Exclusionary conduct	Vertical restraint: exclusive contracts	Diagnosing Foreclosure due to Exclusive Dealing	John Asker	2016	Exclusive dealing arrangements, in which a distributor contracts to work exclusively with a single manufacturer, can be efficiency enhancing or they can be an anticompetitive means to foreclose markets. This paper evaluates the effect of exclusive distribution arrangements on competition in the Chicago beer market in 1994. A diagnostic test is provided to judge whether exclusive arrangements between brewers and their distributors lead to foreclosure. To implement this test, the paper estimates a model of consumer demand and firm behavior that incorporates industry details and allows for distribution through exclusive and shared channels. The test indicates that foreclosure effects are not present in this market, suggesting that the most likely effect of intervention would be to reduce social welfare.	y	John Asker, "Diagnosing Foreclosure due to Exclusive Dealing," *The Journal of Industrial Economics* 64 (3) (2016).

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Exclusionary conduct	Vertical restraint: exclusive contracts	Impact of mandated exclusive territories in the US brewing industry: Evidence from scanner level data	Jacob Burgdorf	2019	The paper examines the competitive effects of mandated exclusive territories in the U.S. beer industry. Theory is ambiguous as to the competitive impacts of this vertical practice. Using scanner data from a large number of grocery stores, the author empirically examines the impact on beer prices, quantities, and number of brands sold after Wisconsin mandated that brewers must assign exclusive wholesale territories in 2006. Reduced form results from a differences-in-differences model using several control groups and a synthetic control show that the mandates increased prices and reduced quantity of craft beer. Overall number of brands sold decreased as well, and craft brewers were the most negatively impacted. Findings suggest that the mandate gave protection to wholesalers and caused an increase in the costs of distribution and reduced competition in the brewing industry.	y	Jacob Burgdorf, "Impact of mandated exclusive territories in the US brewing industry: Evidence from scanner level data," *International Journal of Industrial Organization* 63 (2019): 376–416.

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MFN overview:	The older Most Favored Nation—also known as MFNs, price coherence, Price Parity Clauses or Best Price Clauses, or BPCs—literature established that MFNs can arise endogenously and raise prices. The MFN has experienced a resurgence of research interest in light of its use in many internet platforms. For example, the European Commission opened an investigation into MFNs employed by Amazon.com, Inc. that prevented sellers from selling at lower prices on another website, and the company voluntarily dropped the contract provisions in response. In the United States, MFNs used by insurance companies with hospitals were challenged by the Department of Justice, but there has been no enforcement in the digital platform context other than the Apple eBooks case. MFNs utilized by travel platforms have been banned due to enforcement actions in Europe. Recent literature establishes that the use of most-favored-nation clauses, particularly by internet platforms (such as online travel agencies, rebate services, and search services generally), as a matter of theory and empirics likely increase prices and stifle entry and innovation particularly when the platform holds a dominant position. These effects can occur both with broad MFNs—those that prevent a seller from offering a lower price on competing platforms—and narrow MFNs—those that prevent a seller from offering a lower price on its own direct sales. Narrow MFNs can eliminate free-riding on the platform's investment in features and consumer attention, which can be beneficial but only if there is sufficient platform competition. Three studies examine the impact of the elimination of MFNs in Europe for hotel booking sites. Two find that the change lowered hotel prices and increased competition. Although the third did not find any effect, its data ended promptly after the policy change, limiting the ability to draw any conclusion. Antitrust enforcement targeting anticompetitive platform MFNs has the potential to increase entry and price competition, and thereby enhance productivity and consumer welfare.						
Platform MFNs	Evidence of MFN effects	Price-parity clauses on hotel room booking: empirical evidence from industry data	Sean Ennis, Marc Ivaldi and Vicente Lagos	2018	Online Travel Agency, or OTA, contracts with hotels have often included Price-Parity-Clauses, or PPCs, that forbid hotels from setting lower retail prices on alternative OTAs or via their own direct sales. In 2015, EU countries experienced a regime change that relaxed these PPCs, which, in theory, would allow hotels to differentiate prices posted on different channels. This paper empirically assesses the impact of the switch from wide-PPC to narrow-PPC on online booking prices in the European Union. The study uses proprietary hotel-level transaction data from different hotel chains that operate in most European countries and finds that prices fall after the elimination of PPCs.	draft	Sean Ennis, Marc Ivaldi, and Vicente Lagos, "Price-parity clauses on hotel room booking: empirical evidence from industry data" (2018), available at https://www.ebos.com.cy/cresse2013/uploadfiles/2018_ps7_pa3.pdf.
Platform MFNs	Evidence of MFN effects	Evaluation of Best Price Clauses in Hotel Booking	Matthias Hunold, Reinhold Kesler, Ulrich Laitenberger, and Frank Schlütter	2018	This paper evaluates the banning of narrow MFNs in German hotel markets and finds that the ban lowered prices but did not alter the supply of hotel rooms. Although hotel sites typically price at a discount to full-service OTAs—a precondition for customer free-riding—the full-service OTAs did not appear pressured to cut back on investments: The hotels posted more rooms on OTAs than before, and the full-service OTAs did not change their commission rates.	wp	Matthias Hunold and others, "Evaluation of Best Price Clauses in Hotel Booking," *International Journal of Industrial Organization* 61 (2018): 542–571.
Platform MFNs	Evidence of MFN effects	The Dynamics of Online Hotel Prices and the EU Booking.Com Case	Andrea Mantovani, Claudio A. Piga, and Carlo Reggiani	2019	Online platforms often impose Price Parity Clauses to prevent sellers from charging lower prices on alternative sales channels. We provide quasi-experimental evidence on the full removal of Price Parity Clauses in France in 2015 and in Italy in 2017 for hotels listed on Booking.com. Our analysis reveals a relatively limited effect in the short run, followed by a significant reduction in room prices in the medium run. Moreover, we find that hotels affiliated with chains decreased their prices more than independent hotels, both in the short and medium run.	wp	Andrea Mantovani, Claudio A. Piga, and Carlo Reggiani, "The Dynamics of Online Hotel Prices and the EU Booking.Com Case." Working Paper No. 17-04 (NET Institute, 2017), available at https://ssrn.com/abstract=3049339.
Platform MFNs	Platform MFN enforcement	Antitrust Enforcement Against Platform MFNs	Jonathan B. Baker and Fiona Scott Morton	2018	Most Favored Nation, or MFN, provisions require that providers using the platform offer the lowest and best price through the platform only, and cannot offer their product for a lower price anywhere else online. This paper explains how these MFNs are harmful for competition and consumer welfare by keeping prices high and raising the barrier to entry for new firms. The paper then details how U.S. governmental antitrust enforcement, as well as challenges to anticompetitive MFNs, can approach reform through litigation and the potential challenges in the path to doing so.	y	Jonathan B. Baker and Fiona Scott Morton, "Antitrust Enforcement Against Platform MFNs," *Yale Law Journal* 127 (7) (2018).

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Platform MFNs	Theory of platform MFNs	Search platforms: Showrooming and price parity clauses	Chengsi Wang and Julian Wright	2017	This paper provides a model in which consumers search for firms directly or through platforms. Platforms lower search costs but charge firms for the transactions they facilitate. Platform fees raise the possibility of showrooming, in which consumers search on a platform but then switch and buy directly to take advantage of lower direct prices. The authors show that price parity clauses, or MFNs, have several anticompetitive effects and should be viewed as a vertical restraint that the platform imposes to suppress disintermediation, and therefore the constraint that direct search puts on its fees. Price parity applied only with respect to direct sales can lead to desirable outcomes if competition between platforms is sufficiently effective and if showrooming would otherwise lead platforms to be unviable. By allowing platforms to use narrow price parity, platforms can rule out such showrooming, while their fees can still be competed down through platform competition.	wp	Chengsi Wang and Julian Wright, "Search platforms: Showrooming and price parity clauses" (2017), available at https://www.dropbox.com/s/3ur67nomzm7o72y/intermediation%20and%20search.pdf?dl=0.
Platform MFNs	Theory of platform MFNs	Platform price parity clauses with direct sales	Bjorn Olav Johansen and Thibaud Verge	2017	This paper uses a model where suppliers can sell using two competing platforms (intermediated sales) or through direct sales (e.g., on their own website). The authors find that when suppliers are allowed to choose whether to list on both platforms or only on one, in addition to selling directly, whether price parity clauses, or MFNs, lead to higher or lower commissions depends on the degree of competition between the suppliers. In particular, they find that price parity clauses may simultaneously lead to higher profits for platforms and suppliers, and increase consumer surplus.	wp	Bjorn Olav Johansen and Thibaud Verge, "Platform price parity clauses with direct sales," Working Papers in Economics 01/17 (University of Bergen Department of Economics, 2017).
Platform MFNs	Theory of platform MFNs	The Effects of Platform MFNs on Competition and Entry	Andre Boik and Kenneth S. Corts	2016	This paper provides a theoretical model for analyzing the effects of platform Most Favored Nation, or MFN, clauses. The model indicates that, if demand is sufficiently inelastic, platform MFN agreements will tend to raise fees charged by platforms and prices charged by sellers in equilibrium. Platform MFNs can also discourage entry if the entrant is sufficiently low cost/low quality; a competitor with the same business model, on the other hand, may be encouraged. The authors also explore the cross-subsidization impact of platform MFNs: Requiring a common price forces consumers who would otherwise prefer a low-cost channel to pay the price for a higher-cost channel, resulting in a regressive cross-subsidization.	y	Andre Boik and Kenneth S. Corts, "The Effects of Platform MFNs on Competition and Entry," *The Journal of Law and Economics* 59 (1) (2016).
Platform MFNs	Theory of platform MFNs	Price Coherence and Excessive Intermediation	Benjamin Edelman and Julian Wright	2015	This paper shows MFNs, or “price coherence” restrictions, leads to inflated retail prices, excessive adoption of the intermediaries’ services, overinvestment in benefits to buyers, and a reduction in consumer surplus and sometimes welfare. Competition among intermediaries intensifies these problems by increasing the magnitude of their effects and broadening the circumstances in which they arise. The authors discuss applications to payment card systems, travel reservation systems, rebate services, and various other intermediaries.	y	Benjamin Edelman and Julian Wright, "Price Coherence and Excessive Intermediation," *The Quarterly Journal of Economics* 130 (3) (2015).

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Loyalty rebates overview:	There is a growing literature focused on loyalty (or market-share) rebates, which set the rebate based on the percentage of a customer's purchases from a specific seller. Theory demonstrates that loyalty rebates can hamper the entrant and harm competition. There is also literature demonstrating the procompetitive uses of a loyalty rebate that focus on the benefits of price discrimination or settings where there is no noncontestable share; because the entrant can compete for the whole market, these papers fall into a different category. An important paper by Asker and Bar-Isaac shows that the presence of a distributor or retailer will not necessarily defeat exclusionary conduct by one manufacturer. The empirical literature is scarce, but a recent paper by Conlon and Mortimer analyzes a case where loyalty rebates cause foreclosure and inefficiency. Although there are many variants of loyalty rebate models that remain to be explored, recent work identifies a number of situations in which these practices can harm competition.						
Loyalty rebates	Cost tests	Exclusionary Bundled Discounts and the Antitrust Modernization Commission	Erik Hovenkamp and Herbert J. Hovenkamp	2008	The final Report of the Antitrust Modernization Commission, or AMC, proposed a three-part test for the illegality of a monopolist's bundling under Section 2 of the Sherman Act: (1) after allocating all discounts and rebates attributable to the entire bundle of products to the competitive product, the defendant sold the competitive product below its incremental cost for the competitive product; (2) the defendant is likely to recoup these short-term losses; and; (3) the bundled discount or rebate program has had or is likely to have an adverse effect on competition. The authors argue that the first of these three tests must be restated in order to take into account important possibilities such as economies of scope; even so, it is seriously overdeterrent, particularly when bundling is used to facilitate price discrimination, where the secondary market is competitive, or where bundling is used to disguise price cuts in oligopolistic or cartelized markets. The authors also argue that the AMC's recoupment test is not helpful in most circumstances, but that its requirement of a separate showing of an adverse impact on competition is essential.	y	Erik Hovenkamp and Herbert J. Hovenkamp, "Exclusionary Bundled Discounts and the Antitrust Modernization Commission," *Antitrust Bulletin* 58 (2008).
Loyalty rebates	Cost tests	The Economics of Loyalty Discounts and Antitrust Law in the United States	Bruce H. Kobayashi	2005	In this literature review, the author looks at tests developed in the economic literature to judge whether a loyalty discount is anticompetitive and studies how they are considered in court cases. In theory, an equally efficient competitor as one offering loyalty discounts could be forced to foreclose if it faces capacity constraints or if it operates in a subset of the markets the loyalty firm operates in. However, procompetitively, these discount programs could efficiently address double marginalization since the manufacturer and distributors' incentives are now better aligned and they can charge the joint profit maximizing retail price. He identifies measurement difficulties with the incremental cost tests (deviations from short-run profit maximization) and consumer welfare-based tests (used in cases of bundled discounts). Accurate tests of whether an equally efficient competitor can be excluded can prevent welfare-increasing actions. The paper states that the assumptions for these tests have not been empirically tested and the literature hasn't closely examined procompetitive reasons for loyalty programs. In the single-product case, courts have generally ruled that above-cost volume discounts are lawful. But in cases involving multimarket or bundled rebates, courts have not generally adopted that presumption and focused on proof that the conditions required by the tests apply.	y	Bruce H. Kobayashi, "The Economics of Loyalty Discounts and Antitrust Law in the United States," *Competition Policy International* 1 (115) (2005), available at https://ssrn.com/abstract=794944.
Loyalty rebates	Empirical evidence on loyalty rebates	Efficiency and Foreclosure Effects of Vertical Rebates: Empirical Evidence	Christopher T. Conlon and Julie Holland Mortimer	2013	The authors test the impact of loyalty rebates in vending machines and find that, in their setting, the loyalty rebate causes foreclosure and harms consumer welfare.	wp	Christopher T. Conlon and Julie Holland Mortimer, "Efficiency and Foreclosure Effects of Vertical Rebates: Empirical Evidence." Working Paper No. 19709 (National Bureau of Economic Research, 2013), available at http://www.nber.org/papers/w19709.

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Loyalty rebates	Loyalty rebate enforcement; empirical evidence	A Unifying Analytical Framework for Loyalty Rebates	Fiona Scott Morton and Zachary Abrahamson	2017	The authors demonstrate that the effective financial burden imposed by the incumbent's loyalty rebate can be easily quantified using terms in the loyalty contract (threshold percentage and rebate level), as well as information on the contestable share (the products the entrant makes or the share of the market without significant switching costs). This effective burden on the entrant, or EEB, is the financial hurdle constructed by the incumbent that the entrant must surmount to obtain sales. They argue that comparing the anticompetitive impact of rebates to predation or exclusion is not helpful to elucidating competitive effects, and that tying is the most useful analogy. The paper lists recent U.S. and EU loyalty rebate cases and shows that those cases where courts have found the incumbent is violating the antitrust laws typically have a high burden on the entrant.	y	Fiona Scott Morton and Zachary Abrahamson, "A Unifying Analytical Framework for Loyalty Rebates" *The Antitrust Law Journal* 81 (2017).
Loyalty rebates	Loyalty rebate theory	An Antitrust Analysis of Bundled Loyalty Discounts	Patrick Greenlee, David Reitman, and David S. Sibley	2006	This paper allows the tied market to be somewhat differentiated rather than perfectly competitive. The authors find that bundling by the monopolist can lower consumer welfare and lower the profits of rivals, which deters entry or induces exit.	wp	Patrick Greenlee, David Reitman, and David S. Sibley, "An Antitrust Analysis of Bundled Loyalty Discounts." Discussion Paper No. 04-13 (Economic Analysis Group, 2006), available at https://ssrn.com/abstract=600799.
Loyalty rebates	Loyalty rebate theory	Robust Exclusion Through Loyalty Discounts With Buyer Commitment	Einer Elhauge and Abraham L. Wickelgren	2012	The paper shows that loyalty discounts with buyer commitments create anticompetitive effects beyond those possible with pure exclusive dealing. The loyalty discount adds a seller commitment to maintain a distinction between the loyal and disloyal price. This seller commitment reduces the seller's incentives to compete for free buyers because the loyalty discount means that lowering prices to free buyers requires lowering prices to committed buyers. This softened seller competition reduces the rival's incentive to lower its own prices to free buyers. The result is inflated prices to free buyers, which, in turn, inflates prices to committed buyers because they are priced at a loyalty discount from those free buyer prices. As a result, the incumbent can use loyalty discounts to increase its profit and decrease both buyer and total welfare.	wp	Einer Elhauge and Abraham L. Wickelgren, "Robust Exclusion through Loyalty Discounts with Buyer Commitment." Discussion Paper No. 722 (Harvard University, 2012), available at https://ssrn.com/abstract=2125398.
Loyalty rebates	Loyalty rebate theory	Competing with Loyalty Discounts	Patrick Greenlee and David Reitman	2005	This paper shows that bundled discounts cause prices to rise, though the ability of the firms to price discriminate complicates the conclusions concerning the welfare impact of discounts.	wp	Patrick Greenlee and David Reitman, "Competing with Loyalty Discounts." Discussion Paper 04-02 (EAG, 2004), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=502303.
Loyalty rebates	Loyalty rebate theory	Raising Retailers' Profits: On Vertical Practices and the Exclusion of Rivals	John Asker and Heski Bar-Isaac	2014	The authors model how an incumbent manufacturer can incentivize a retailer or distributor to exclude the entrant. It can offer to share its economic profit with retailers, thereby incentivizing retailers to not stock an entrant's product. Entry would drive profits to zero, leaving none to share with the retailers, so retailers, perhaps counterintuitively, may not prefer upstream competition. The authors calculate when such a situation would, in equilibrium, prevent the entrant from stocking its product at even a single retailer. Their model then provides a framework to understand the damages caused by such vertical restraint. The authors consider lump-sum transfers from manufacturers to retailers (through slotting fees or loyalty rebates) and resale price maintenance with two simple models, concluding that the gain in average profit per retailer for the incumbent under a monopoly has to be greater than the total profits for the entrant to create the undesired equilibrium. If the incumbent can transfer more monopoly profit to each retailer than the entrant can give duopoly profit, the retailer will assist the incumbent in maintaining its monopoly.	y	John Asker and Heski Bar-Isaac, "Raising Retailers' Profits: On Vertical Practices and the Exclusion of Rivals," *The American Economic Review* 104 (2) (2014).

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Loyalty rebates	Loyalty rebate theory	Exclusionary Bundling	Barry Nalebuff	2005	This paper models a focal product market dominated by an incumbent firm (noncontestable) and an adjacent market in which buyers are indifferent between the incumbent's and entrant's products (contestable). The incumbent may achieve costless exclusion by bundling contestable and noncontestable demand under a contract with price equal to the sum of prices for contestable and noncontestable demand prior to the bundle. Although the high stand-alone price for the noncontestable product exceeds the incumbent's profit-maximizing monopoly price, buyers do not choose to pay the stand-alone price in equilibrium, as they prefer to purchase the bundle. Nalebuff concludes that bundling is exclusionary when "the defendant's pricing makes it unprofitable for [an entrant with the defendant's costs] to sell the competitive good at a price that would lead the customer to forgo the bundle."	y	Barry Nalebuff, "Exclusionary Bundling," *Antitrust Bulletin* 50 (3) (2005).

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Predation overview:	In Matsushita Elec. Indus. Co. v. Zenith Radio Corp., the Supreme Court adopted an assumption of the Chicago School remarkably lacking in evidence: that, effectively, predation could not exist. In Brooke Group v. Brown & Williamson Tobacco, the Court rejected yet more game theory by adopting the notion that an oligopoly could not tacitly collude in order to recoup its losses. Just as courts were cementing these assumptions into U.S. jurisprudence in the mid-1980s, advances in game theory were establishing that the strategy of successful predation was possible in a variety of market structures and settings. These papers were published too long ago to be included in this literature review (see work by, for example, Milgrom, Roberts, Kreps, Wilson, Tirole, Fudenberg). Despite its age and economic foundations, much of the learning from this literature has not been adopted into U.S. jurisprudence. For example, there is no theoretical reason why recoupment cannot be undertaken by an oligopoly; and economics poses no bar to predation claims to create or maintain an oligopoly. In this century, there has been a steady flow of theory and empirical research on predation that demonstrates it is not sufficiently rare or difficult that it should be exempt from enforcement. The early and influential work of McGee has been rebutted. In a review of the literature from 2010, Kobayashi concedes that recent developments have unsettled the previous assumptions about predation.						
Predation	Predation theory	The Economics of Predation: What Drives Pricing When There Is Learning-by-Doing?	David Besanko, Ulrich Doraszelski, and Yaroslav Kryukov	2014	This paper suggests that characterizing predatory pricing is challenging since aggressive pricing with possible recoupment may also be caused by procompetitive motivations such as learning by doing, network effects, or switching costs. To overcome this ambiguity, the paper characterizes predatory pricing in a modern industry dynamics framework that endogenizes competitive advantage and industry structure and decomposes the pricing equilibrium to differentiate between predatory pricing and mere pricing for efficiency on a learning curve.The cornerstone of the new framework is that firms seek two other incentives in addition to profit maximization: First, the firm may improve its competitive position in the future, giving rise to an "advantage-building motive"; and second, the firm may prevent its rival from becoming a more formidable competitor, giving rise to an "advantage-denying motive." Accordingly, the paper proposes three alternative definitions for predatory pricing that enable better demarcation between predatory pricing and mere pricing for efficiency on a learning curve.	y	David Besanko, Ulrich Doraszelski, and Yaroslav Kryukov, "The Economics of Predation: What Drives Pricing When There Is Learning-by-Doing?" *The American Economic Review* 104 (3) (2014).
Predation	Empirics of predation	Revisiting the Revisionist History of Standard Oil	Christopher R. Leslie	2012	This paper argues that a key portion of the 1911 *Standard Oil* opinion—which held that predatory pricing to acquire/maintain a monopoly violates Section 2 of the Sherman Act—has been lost over time. The paper attributes this decline in significance to the Chicago School—in particular, John McGee's 1958 paper, which questioned the factual accuracy of the opinion on the grounds that predatory pricing was economically irrational. This view was made mainstream in the *Matsushita* and later opinions, which suggested that predatory pricing was inherently irrational and therefore rarely tried and even more rarely successful. The paper's analysis however reveals that none of the major propositions of McGee's article are supported by the trial record of Standard Oil. Accordingly, there is limited basis to suggest that Standard Oil was not engaged in predatory pricing, that firms do not engage in predatory pricing, or that predatory pricing is inherently unprofitable. Accordingly, the paper suggests that McGee's analysis of *Standard Oil* should be discarded, as it is at odds with the empirical realities of the case, and antitrust law should continue to be concerned with predatory pricing.	y	Christopher R. Leslie, "Revisiting the Revisionist History of Standard Oil," *Southern California Law Review* 85 (2012).

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Predation	Empirics of predation	Standard Oil and Predatory Pricing: Myth Paralleling Fact	James A. Dalton and Louis Esposito	2011	John McGee's 1958 paper argued that predatory pricing is generally irrational, relying on the trial record of the 1911 *Standard Oil* case. Despite advances in economic theory and evidence over the past 50 years that challenge McGee's analysis, his conclusions remain widely accepted. There are four primary explanations for the paper's scope of influence. First, there was no sufficient theoretical challenge for 25 years. Second, scholars failed to replicate McGee's empirical findings. Third, the *Standard Oil* case has a unique status in the history of American antitrust law. Fourth, the paper's influence reflects the role of the Chicago School on legal and economic thinking. As a result, many economists, lawyers, and jurists continue to largely accept McGee's conclusions at face value despite substantial and mounting research indicating that predatory pricing can be rational, and that dominant firms across numerous industries have employed predatory pricing as a strategy.	y	James A. Dalton and Louis Esposito, "Standard Oil and Predatory Pricing: Myth Paralleling Fact," *Review of Industrial Organization* 38 (3) (2011): 245–266.
Predation	Predation example	L'Equipe case: Autorité de la concurrence fined Groupe Amaury	Autorité de la concurrence (French competition authority)	2014	Press release detailing the French Competition Regulator's investigation and punishment of Groupe Amaury for predatory pricing that drove out new market entrant, Le10Sport. The release notes that in response to Le10Sport's entry in the sport daily market, Groupe Amaury chose to launch its own competing daily, Aujourd'hui Sport. This response was never the most profitable option available to Groupe Amaury but was designed to inflict the greatest damage onto Le10Sport. The release notes that upon Le10Sport's exit from the market, Aujourd'jui Sport's circulation too ceased, restoring Groupe Amaury's monopoly—which was deemed to result from anticompetitive predatory behavior.	n	Autorité de la concurrence, "The Autorité de la concurrence has fined the Groupe Amaury for having driven out of the market a new entrant in the sports press," Press release, February 20, 2014, available at http://www.autoritedelaconcurrence.fr/user/standard.php?id_rub=592&id_article=2329&lang=en.
Predation	Predation example	Predatory Pricing in the Airline Industry: Spirit Airlines v. Northwest Airlines	Kenneth G. Elzinga and David E. Mills	2009	The authors describe a case of entry by the small Spirit Airlines against the incumbent Northwest Airlines and argues that the evidence fits a predation theory of harm against Northwest. The authors discuss existing jurisprudence and its relationship to economic concepts. The paper then turns to the evidence on market definition, market power, shares, and barriers to entry. The discussion then turns to Northwest's revenues and costs and the correct calculation of avoidable costs. Lastly, the paper explains how Northwest could recoup its investment in maintaining its preferred market structure.	book	Kenneth Elzinga and David Mills, "Predatory Pricing in the Airline Industry: Spirit Airlines v. Northwest," in John Kwoka and Lawrence J. White, eds., *The Antitrust Revolution* (Oxford: Oxford University Press, 2009).
Predation	Predation example	Predation and Its Rate of Return: The Sugar Industry, 1887 - 1914	David Genesove and Wallace P. Mullin	2006	This paper studies entry into the American sugar refining industry before World War I. The authors show that the price wars following two major entry episodes were predatory. They provide two lines of evidence. First, they use direct comparison of price to marginal cost. For the second approach, they use demand estimates and firm capacity figures to construct predicted competitive price-cost margins that they show to exceed observed margins. The authors argue that predation occurred only when the relative cost to the dominant firm was small, and that it was most probably used to deter future capacity additions. It was also used to lower the purchase price of pre-existing firms after one entry episode.	y	David Genesove and Wallace P. Mullin, "Predation and Its Rate of Return: The Sugar Industry, 1887-1914," *The RAND Journal of Economics* 37 (1) (2006).

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Predation	Predation enforcement	Beyond Brooke Group: Bringing Reality to the Law of Predatory Pricing	C. Scott Hemphill and Phil Weiser	2018	The Supreme Court's two-part predation test in *Brooke Group*, requiring a plaintiff to show that the defendant set a price below cost and had a sufficient likelihood of recouping its loss, has endured despite its flaws. Using airline predation cases to illustrate their argument, the authors articulate three grounds to limit the application of the *Brooke Group* framework. First, *Brooke Group* concerned alleged recoupment by an oligopoly and should not apply to monopoly cases. Second, the decision did not consider reputation or other modern economic theories under which recoupment may be a rational strategy. Third, for purposes of the price-cost test, the decision used average variable cost, but other measures such as incremental cost may be more appropriate. The article further cautions against extending the *Brooke Group* test to more complex pricing strategies such as loyalty discounts.	y	C. Scott Hemphill and Phil Weiser, "Beyond Brooke Group: Bringing Reality to the Law of Predatory Pricing," *Yale Law Journal* 127 (7) (2018).
Predation	Predation enforcement	Reconsidering Brooke Group: Predatory Pricing in Light of the Empirical Learning	Sandeep Vaheesan	2015	The paper proposes a revision of the predatory pricing test from *Brooke Group* for single-firm sell-side predation. The recoupment prong makes it almost impossible to successfully prove cases of predation—and the current approach reflects an empirically incorrect belief that predatory pricing is rare and rarely successful. Accordingly, the current approach overemphasizes the risk of false positives and discounts the risk of false negatives. Accordingly, the paper proposes a modified test, where plaintiffs would satisfy a rebuttable presumption of predation where a defendant firm exceeds a threshold market share and prices a significant volume of commerce below average avoidable cost or long run average incremental cost. The paper suggests that this presumption of predation can be rebutted by defendants who offer credible business justifications for the practice.	y	Sandeep Vaheesan, "Reconsidering Brooke Group: Predatory Pricing in Light of the Empirical Learning," *Berkeley Business Law Journal* 12 (1) (2015).
Predation	Predation enforcement	The Law and Economics of Predatory Pricing	Bruce H. Kobayashi	2010	This chapter reviews the law and economics of predatory pricing. It focuses on the economic analysis of predatory pricing as a form of anticompetitive exclusion and the economics of optimal antritrust rules. The author points out that in the past two decades, scholarship on the economics of predatory pricing has evolved from the relatively settled consensus in which predatory pricing was thought to be irrational, rarely tried, and even more rarely successful to a point where much less is settled. The author stresses that despite the fact that recent theoretical work has shown that predation can be rational, and empirical studies have presented evidence consistent with successful predation, the legal response to predatory pricing has remained relatively intact. However, he cautions that one of the reasons that the *Brooke Group* rule was created is to have bright-line rules that would be administrable by courts, and that this underlying purpose should not be minimized or ignored.	book	Bruce H. Kobayashi, "The Law and Economics of Predatory Pricing," in Keith N. Hylton, ed., *Antitrust Law and Economics*, 2nd ed. (Cambridge, UK: Cambridge University Press, 2010).

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Common ownership overview:	Common ownership has arisen as a competition concern due to the dramatic growth of mutual funds over the past 40 years. Institutional investors now comprise 70 percent of the U.S. stock market and are frequently the largest shareholder in publicly traded firms that compete in the product market (e.g. The CocaCola Co. and PepsiCo Inc.). A common owner of Coke and Pepsi will have much greater incentives for soft competition (higher prices, less innovation) than separate owners would because market share gained by one firm is lost by the other, and a common owner incurs both. The theory of how common ownership may lessen competition is well-established in the early literature. A young and growing empirical literature attempts to quantify the impact of common ownership which may vary across industries and also by the size and identity of holdings. There is also literature explaining how mutual fund acquisition of the shares of competitors would violate the antitrust laws if the effect of the acquisition were to lessen competition.						
Common ownership	Common ownership and antitrust enforcement	Horizontal Shareholding	Einer Elhauge	2016	Horizontal shareholdings exist when a common set of investors own significant shares in corporations that are horizontal competitors in a product market. Economic models show that substantial horizontal shareholdings are likely to anticompetitively raise prices when the owned businesses compete in a concentrated market. Recent empirical work not only confirms this prediction, but also reveals that such horizontal shareholdings are omnipresent in our economy. The author argues that such horizontal shareholdings can help explain fundamental economic puzzles, including why corporate executives are rewarded for industry performance rather than individual corporate performance alone, why corporations have not used recent high profits to expand output and employment, and why economic inequality has risen in recent decades. He also argues that stock acquisitions that create anticompetitive horizontal shareholdings are illegal under current antitrust law, and he recommends antitrust enforcement actions to undo them and their adverse economic effects.	y	Einer Elhauge, "Horizontal shareholding," *Harvard Law Review* 129 (2016): 1267–1317.
Common ownership	Common ownership and antitrust enforcement	Horizontal Shareholding and Antitrust Policy	Herbert Hovenkamp and Fiona Scott Morton	2018	Building on a growing body of empirical literature on the anticompetitive effects of horizontal shareholding, this paper shows how antitrust laws could be applied to this practice. In particular, Section 7 of the Clayton Act bases illegality on proven "effects," rendering unnecessary proof of intent or a precise mechanism. The Clayton Act also applies explicitly to both complete and partial acquisitions, and the Act can reach back in time to aggregate small purchases, providing it with additional advantages over the Sherman Act for enforcement against horizontal shareholding. Anticipating potential efficiency justifications, the authors note that efficiencies in this context accrue to fund owners rather than the consumers who are harmed, undermining the use of efficiency as a basis to defend horizontal shareholding.	y	Herbert Hovenkamp and Fiona Scott Morton, "Horizontal Shareholding and Antitrust Policy," *Yale Law Journal* 127 (7) (2018).
Common ownership	Measurement of common ownership	Common Ownership in the Loan Market	Waldo Ojeda	2018	Firms and banks increasingly have institutional investors as shareholders in common. These shareholders receive profits from the interest rates set by the bank, and they also benefit from the firm's profits. This paper illustrates through a simple model the implications of firm and bank common ownership on loans. The author then provides new evidence on the rise and extent of common ownership between firms and banks. He shows that when a firm and a bank have common ownership, the firm obtains larger loans from the bank at a lower interest rate. The author uses the growth of index funds as a source of exogenous variation to estimate a plausibly causal link between common ownership and loan terms not confounded by unobserved factors such as strategic investments by active institutional investors. The results show that a one standard-deviation increase in common ownership leads to a five basis-point interest rate decrease and a 3 percent loan size increase. The author shows that these loan terms do not go to underperforming firms, but to firms that are less likely to receive a credit rating downgrade. He also finds that this improvement in loan terms is more pronounced for smaller and unrated firms. This suggests that the benefits of common ownership may result from decreased information frictions and decreased monitoring frictions for the lender if the lender's shareholders also have access to firm returns and firm information.	wp	Waldo Ojeda, "Common ownership in the loan market." Working Paper (University of California, Berkeley Department of Economics, 2017).

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Common ownership	Effects of common ownership	Common Ownership and Competition in the Ready-to-Eat Cereal Industry	Matthew Backus, Christopher Conlon, and Michael Sinkinson	2018 draft	The authors measure changes in common ownership in the ready-to-eat cereal industry to examine whether prices increase when common ownership increases. They use a sample time period when many mergers and divestitures occurred in RTE cereal and examine scanner data prices. They find no evidence that prices rise with common ownership.	draft	Matthew Backus, Christopher Conlon, and Michael Sinkinson, "Common Ownership and Competition in the Ready-to-Eat Cereal Industry" (2018).
Common ownership	Effects of common ownership	Anticompetitive Effects of Common Ownership	Jose Azar, Martin C. Schmalz, and Isabel Tecu	2018	In many U.S. industries, large investors, often institutions, will purchase large shares of several companies in a single industry that would theoretically compete against one another. This phenomenon is known as common ownership or horizontal shareholding. Economic theory shows that common ownership causes a reduction in the incentive to compete. In the U.S. airline industry, these investors are the largest shareholders in the four largest domestic airlines (that themselves have about 80 percent market share). Using recent empirical data on the U.S. airline industry, the authors find that prices rise when common ownership increases.	y	Jose Azar, Martin C. Schmalz, and Isabel Tecu, "Anticompetitive Effects of Common Ownership" *The Journal of Finance* 73 (4) (2018).
Common ownership	Effects of common ownership	Innovation: The Bright Side of Common Ownership?	Miguel Anton, Florian Ederer, Mireia Gine, and Martin C. Schmalz	2018	A firm is less inclined to innovate if other firms in the same industry benefit from its Research and Development, or R&D, without cost to themselves (a spillover). In theory, common ownership—where shareholders own stock of both an innovating firm and a competing firm—should reduce the negative impact of the spillover and increase the R&D of the innovating firm because the spillover is captured by the common owner. The research finds that common ownership is beneficial and promotes innovation when the spillovers of new ideas to other firms is large relative to the portion of the product market occupied by the competing firms. If this is not the case, common ownership leads to a decrease in R&D, as owners who hold shares in both companies find stealing of business ideas between their firms to be undesirable.	wp	Miguel Anton and others, "Innovation: The Bright Side of Common Ownership?" Working Paper (2017), available at https://ssrn.com/abstract=3099578.
Common ownership	Effects of common ownership	Institutional cross-holdings and generic entry in the pharmaceutical industry	Jin Xie and Joseph Gerakos	2018	Brand-name companies frequently levy charges against generic firms that challenge their monopoly status in the pharmaceutical industry. Invoking the Hatch-Waxman Act of 1984, these brand-name firms often opt to settle for reverse payment patent agreements, or "pay-for-delay" negotiations, whereby the brand-name company agrees to pay the generic firm to delay its entry into the market.The authors find that these settlements are far more likely to occur when the brand-name and generic firms share major investors. Ultimately, the delay in sales of brand-name substitutes under high levels of common ownership come at a cost to the consumer in the form of increased costs of drugs and fewer options of substitutes.	wp	Jin Xie and Joseph Gerakos, "Institutional cross-holdings and generic entry in the pharmaceutical industry" (2018), available at http://abfer.org/media/abfer-events-2018/annual-conference/accounting/AC18P5001_Institutional_Cross-holdings_and_Generic_Entry.pdf.
Common ownership	Effects of common ownership	Common Ownership and generic entry in the pharmaceutical industry	Melissa Newham, Jo Seldeslachts, and Albert Banal-Estañol	2018	This paper studies whether a higher level of common ownership between a potential generic entrant and the market's incumbent brand in a specific drug market has a significant negative effect on the likelihood that the generic firm will enter the market. The authors combine patent and drug approval data from the U.S. Food and Drug Administration's Orange Book with ownership data of publicly listed pharmaceutical companies from the Thomson Reuters Global Ownership Database to empirically test and corroborate the proposition that higher common ownership reduces the probability to enter. The average effect is large: A one standard-deviation increase in common ownership decreases the probability of generic entry by 9 percent to 13 percent. Their model shows that the classical result of entry decisions being strategic substitutes may be reversed into being strategic complements in the presence of high common ownership. The authors find some empirical evidence that this can indeed be the case for high enough levels of common ownership.	wp	Melissa Newham, Jo Seldeslachts and Albert Banal-Estañol, "Common Ownership and Market Entry: Evidence from Pharmaceutical Industry." Discussion Paper No. 1738 (DIW Berlin, 2018), available at https://ssrn.com/abstract=3194394 or http://dx.doi.org/10.2139/ssm.3194394.

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Common ownership	Effects of common ownership	The Effects of Common Ownership on Customer-Supplier Relationships	Kayla Freeman	2018	The author finds common institutional ownership in a customer and its supplier increases the duration of their supply chain relationship, particularly when the common ownership is long term and vertical frictions are greater. The authors uses an instrument constructed around a shock to common ownership following a large mutual fund scandal and finds evidence of a causal relationship from common ownership to relationship longevity. To shed light on channels of vertical cooperation, the author shows that common ownership increases innovative and financial collaboration between the firms, as well as inventory management efficiency. Overall, results provide evidence that common ownership in a customer and its supplier strengthens their supply chain relationship.	wp	Kayla Freeman, "The Effects of Common Ownership on Customer-Supplier Relationships." Research Paper No. 16-84 (Kelley School of Business, 2018), available at https://ssrn.com/abstract=2873199 or http://dx.doi.org/10.2139/ssrn.2873199.
Common ownership	Effects of common ownership	Institutional cross-ownership and corporate strategy: The case of mergers and acquisitions	Chris Brooks, Zhong Chen, and Yeqin Zeng	2018	This article provides new evidence on the important role of institutional investors in affecting corporate strategy. Institutional cross-ownership between two firms not only increases the probability of them merging, but also affects the outcomes of mergers and acquisitions, or M&As. Institutional cross-ownership reduces deal premiums, increases stock payment in M&A transactions, and lowers the completion probabilities of deals with negative acquirer announcement returns. Furthermore, deals with high institutional cross-ownership have lower transaction costs and disclose more transparent financial statement information. The effect of cross-ownership on the total deal synergies and post-deal long-term performance is positive, which can be attributed to independent and nontransient cross-owners. The authors claim their findings are robust after mitigating the cross-ownership asymmetry concern and that their results suggest that the growth of institutional cross-holdings in U.S. stock markets may greatly change corporate strategies and decision-making processes.	y	Chris Brooks, Zhong Chen, and Yeqin Zeng, "Institutional cross-ownership and corporate strategy: The case of mergers and acquisitions," *The Journal of Corporate Finance* 48 (2018): 187–216.
Common ownership	Effects of common ownership	Ultimate Ownership and Bank Competition	José Azar, Sahil Raina, and Martin Schmalz	2016	This paper measures how bank competition is affected by common ownership. The authors find that many large U.S. banks have common owners, and that this concentration drives down competition. This ultimately makes consumers worse off, with higher industry prices in the form of increased fees for deposit accounts along with lowered interest rates.	wp	José Azar, Sahil Raina, and Martin Schmalz, "Ultimate Ownership and Bank Competition" (2016), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2710252.
Common ownership	Effects of common ownership	Cross-Company Effects of Common Ownership: Dealings between Borrowers and Lenders with a Common Blockholder	Gjergji Cici, Scott Gibson, and Claire M. Rosenfeld	2015	This paper studies the effects of common ownership on syndicated loan market interactions. The authors find that borrowers and lenders that are commonly held by an institutional blockholder tended to do more business together going forward than those that are not commonly held. They hypothesize that the increased likelihood of striking a deal derives from conversations between borrowers and blockholders about financing plans, which, in turn, increases borrowers' familiarity and perhaps opinion of commonly owned lenders. Consistent with this view, the authors find that the increase in dealings occurred only when the blockholder followed an active rather than a passive investment strategy.	wp	Cici Gjergji, Scott Gibson, and Claire M. Rosenfeld, "Cross-Company Effects of Common Ownership: Dealings between Borrowers and Lenders with a Common Blockholder" (2015), available at https://ssrn.com/abstract=2705856 or http://dx.doi.org/10.2139/ssrn.2705856.
Common ownership	Mechanism of common ownership	Common Ownership, Competition, and Top Management Incentives	Miguel Anton, Florian Ederer, Mireia Gine, and Martin C. Schmalz	2018	This paper explores how the holdings of shareholders impact managerial behavior across competing firms. The research finds that when the largest shareholders of a firm also own significant shares of a competing firm, (common ownership), managerial incentives to compete are reduced. Conversely, if major shareholders of a firm have relatively few holdings in competitors, managers of that firm have more incentive to reduce cost and work to maximize the success of the firm. In essence, the absence of common ownership induces more aggressive competition on the managerial level. These findings are indicative of the link between shareholder and firm behavior.	wp	Miguel Anton and others, "Common Ownership, Competition, and Top Management Incentives." Working Paper (Ross School of Business and the European Corporate Governance Institute, 2018), available at https://ssrn.com/abstract=2802332.

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Common ownership	Measurement of common ownership	Common Ownership in America: 1980-2017	Matthew Backus, Christopher Conlon, and Michael Sinkinson	2019	This paper explores the common ownership hypothesis and its implications. The authors propose an approach to the measurement of this phenomenon for the universe of S&P 500 firms between 1980 and 2017. Over this period, the incentives implied by the common ownership hypothesis have grown dramatically. The authors find that contrary to popular intuition, this is not primarily associated with the rise of BlackRock, Vanguard, and State Street: Instead, the trend in the time series is driven by a broader rise in diversified investment strategies, of which these firms are only the most recent incarnation. The authors also find a strong relationship between common ownership and retail share. This is observable both in the theory, by decomposing the common ownership profit weights, as well as in the cross-sectional variation of common ownership weights between firms. A large retail share tends to inflate common ownership incentives by giving outsized control rights to a small set of large, diversified institutional investors. In extreme cases, which are becoming more common, this can even yield profit weights that exceed one. This is a necessary condition for "tunneling," and overturns the traditional defense of the "widely held firm"—that, in the absence of a controlling interest, investors are safe from expropriation.	wp	Matthew Backus, Christopher Conlon, and Michael Sinkinson, "Common Ownership in America: 1980-2017." Working Paper No. 25454 (National Bureau of Economic Research, 2019).
Common ownership	Theory of common ownership	The Common Ownership Hypothesis: Theory and Evidence	Matthew Backus, Christopher Conlon, and Michael Sinkinson	2019	This paper surveys recent literature examining the relationship between ownership of firms in the financial space and the strategic decisions made by firms in product markets, paying particular regard to the common ownership hypothesis. Under one model of corporate governance that embraces a strict interpretation of the common ownership hypothesis, the authors calculate that in 1980, an average S&P 500 firm would have valued a dollar of profits to another randomly chosen S&P 500 component firm at 20 cents. By the end of 2017, this more than tripled, to approximately 70 cents. If common ownership incentives translate to firm behavior, this rise would give firms an incentive to raise prices even in the absence of collusion (which would be illegal). The authors say that a stronger empirical framework is needed to provide rigorous testing of conduct and policy analysis.	wp	Matthew Backus, Christopher Conlon, and Michael Sinkinson, "The Common Ownership Hypothesis: Theory and Evidence." Working Paper (Economic Studies at Brookings, 2019).
Common ownership	Theory of common ownership	Overlapping Ownership, R&D Spillovers, and Antitrust Policy	Ángel L. López and Xavier Vives	2017	This paper considers cost-reducing R&D investment with spillovers in a Cournot oligopoly with overlapping ownership. The authors show that overlapping ownership leads to internalization of rivals' profits by firms and find that, for demand not too convex, increases in overlapping ownership increase (decrease) R&D and output for high (low) enough spillovers while it increases R&D but decreases output for intermediate levels of spillovers. There is scope for overlapping ownership to improve welfare, provided that spillovers are sufficiently large. The socially optimal degree of overlapping ownership increases with the number of firms, with the elasticity of demand and of the innovation function, and with the extent of spillover effects. In terms of consumer surplus standard, the desirability of overlapping ownership is greatly reduced even under low market concentration. When R&D has commitment value and spillovers are high, the optimal extent of overlapping ownership is higher. The authors suggest antitrust scrutiny of overlapping ownership arrangements, or OOAs, should increase in industries with high concentration since the spillover thresholds below which OOAs are welfare-decreasing are increasing in concentration (as measured by the HHI) and with low levels of spillover (typically industries with low levels of R&D or, alternatively, with tight patent protection). The documented increase in concentration in the United States in recent decades and the positive statistical relationship between concentration and patents found in recent data (Grullon et al., 2017) may suggest a potential decrease in spillovers and a need to tighten antitrust policy. In contrast, more OOAs can be allowed when R&D has commitment value and spillovers are high (since then, incentives to underinvest are very high).	wp	Ángel L. López and Xavier Vives, "Overlapping Ownership, R&D Spillovers, and Antitrust Policy." Working Paper No. 538/2017 (European Corporate Governance Institute, 2017), available at https://ssrn.com/abstract=3057944 or http://dx.doi.org/10.2139/ssrn.3057944.

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Common ownership	Theory of common ownership	The Competitive Effects of Common Ownership: We Know Less than We Think	Dan O'Brien and Keith Waehrer	2017	This paper examines the research on this subject to date and concludes that researchers and policy authorities are getting well ahead of themselves in drawing policy conclusions from the research to date. The authors argue that the theory of partial ownership does not yield a specific relationship between price and the modified Herfindahl-Hirschman index, or MHHI. In addition, the key explanatory variable in the emerging research—the MHHI—is an endogenous measure of concentration that depends on both common ownership and market shares. Factors other than common ownership affect both price and the MHHI, so the relationship between price and the MHHI need not reflect the relationship between price and common ownership. The authors point out that for that reason, regressions of price on the MHHI are likely to show a relationship even if common ownership has no actual causal effect on price. They argue that the instrumental variable approaches employed in this literature are not sufficient to remedy this issue.	y	Dan O'Brien and Keith Waehrer, "The Competitive Effects of Common Ownership: We Know Less Than We Think," *Antitrust Law Journal* 81 (2017).
Common ownership	Theory of common ownership	Portfolio Diversification, Market Power, and the Theory of the Firm	José Azar	2017	This paper develops a model of firm behavior in the context of oligopoly and portfolio diversification by shareholders. The management of each firm proposes a strategic plan to shareholders and is evaluated based on the strategic plan. This leads to internalization and aggregation of shareholder objectives, including holdings in other firms, and situations where consumers/workers are also shareholders. When all shareholders hold market portfolios, firms that are formally separate behave as a single firm. The author introduces new indices that capture the internalization effects from consumer/worker control and discuss implications for antitrust, stakeholder theory, and the boundaries of the firm.	wp	José Azar, "Portfolio Diversification, Market Power, and the Theory of the Firm." Working Paper (IESE Business School, 2017), available at https://ssrn.com/abstract=2811221 or http://dx.doi.org/10.2139/ssrn.2811221.
Common ownership	Policy solutions for common ownership	A Proposal to Limit the Anticompetitive Power of Institutional Investors	Eric A. Posner, Fiona Scott Morton, and E. Glen Weyl	2017	High levels of common ownership among institutional investors (mutual funds, banks, etc.) in oligopolistic industries significantly decrease competition among rival firms. Considering the unpredictability of private/government litigation against these shareholders, the authors of this paper recommend the adoption of public enforcement of the Clayton Act against institutional investors with the following criteria: (1) limit holdings to a maximum of 1 percent of the total industry size, or (2) hold shares of only a single effective firm in the industry. The authors hope that such a conservative solution will target the root causes of the problem gradually, and cause most investors to shift toward holding shares of only a single firm, thereby increasing competition in the industry.	y	Eric A. Posner, Fiona Scott Morton, and E. Glen Weyl, "A Proposal to Limit the Anticompetitive Power of Institutional Investors," *Antitrust Law Journal* (2017).

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Monopsony overview:	Monopsony power in labor markets is a very old topic in the economics literature. It was not a subject of research in the latter half of the 20th century because economists thought the neoclassical model and perfectly elastic labor supply was the most relevant paradigm. Recent research, however, demonstrates that monopsony power is far more prevalent than previously believed. Another group of papers find concentration in labor markets to be high by standards used in antitrust law. In particular, Prager and Schmidt find that hospital mergers slowed wage growth for skilled, nonhealth professionals, nurses, and pharmacy workers (although Matsudaira did not find monopsony power in the market for low-skilled nursing services in California). Further evidence of monopsony power in labor markets comes from the pervasive use of noncompete clauses that have become ubiquitous in low-skilled professions. Antitrust enforcement is a potential tool to address some of these issues. Hemphill and Rose establish that monopsony power is an anticompetive effect that the antitrust laws can address. Naidu, Posner, and Weyla specify the conditions under which a merger, increasing labor market concentration, or an employment noncompete agreement can violate the antitrust laws.						
Monopsony	Overview	Labor Market Monopsony: Trends, Consequences and Policy Responses	White House Council of Economics Adivsors	2016	This publication from the White House CEA discusses the increasing concern over labor's share of national income on account of monopsony, which increases the wage-setting power of firms. The paper offers a theoretical framework for how monopsonistic firms can act to lower wages to labor and the implications from the same, including inefficient reductions in employment and output, weakened links between labor productivity and wages, and the potential ability to wage discriminate between a firm's own employees. It identifies and provides evidence for the notion that market concentration, tacit collusion amongst employers, the use of noncompete agreements, search costs leading to labor market frictions, job lock from health insurance, and other regulatory barriers to worker mobility increase monopsony power of firms. It goes on to note that such power may be increasing, as empirically evidenced by rising labor market concentration, declining labor market dynamism, and the decline of unions and federal minimum wage laws. It ends by proposing a number of policy solutions that could play a role in reversing this trend.	n	White House Council of Economic Advisors, "Labor Market Monopsony: Trends, Consequences, and Policy Responses" (2016).
Monopsony	Concentration and monopsony power	Employer Consolidation and Wages: Evidence from Hospitals	Elena Prager and Matt Schmitt	2018	This paper examines the effects of hospital mergers between 2000 and 2010 on the wages of hospital workers. The authors estimate difference-in-differences models that compare wage growth in markets with mergers to wage growth in markets without mergers to isolate the effects of changes in concentration due to mergers. They find evidence of reduced wage growth in cases where both (i) the increase in concentration induced by the merger is large and (ii) workers' skills are at least somewhat industry-specific. For mergers in this category, they find annual wage growth is 0.9 percentage points slower for skilled nonhealth professionals and 1.8 percentage points slower for nursing and pharmacy workers than in labor markets without mergers. In all other cases, results fail to reject zero wage effects. For markets where they detect reduced wage growth, the authors argue that it is unlikely that the observed patterns can be fully explained by merger-related changes aside from labor market power.	Wp	Elena Prager and Matt Schmitt, "Employer Consolidation and Wages: Evidence from Hospitals" Working Paper (Washington Center for Equitable Growth, 2019), available at https://equitablegrowth.org/working-papers/employer-consolidation-and-wages-evidence-from-hospitals.
Monopsony	Concentration and monopsony power	Strong Employers and Weak Employees: How Does Employer Concentration Affect Wages?	Efraim Benmelech, Nittai Bergman, and Hyunseob Kim	2018	This paper examines the relationship between wages and local-level labor market concentration by employing the Herfindhal-Hirschman Index, or HHI, derived using Census data from the period 1977–2009. The authors find that local-level employer concentration varies significantly with county, industry, and year, and that concentration has increased significantly over time. Secondly, a negative relation exists between local-level concentration measures and wages, suggesting employers in concentrated markets are exploiting monopsony power. Third, this negative relation is stronger when unionization rates are low. Fourth, the link between productivity and wage growth is stronger when the HHI measure of concentration is low. Lastly, the authors confirm that a rise in industry-level import competition from China—the "China Shock"—is positively correlated with increased employer concentration in the local labor market. These results emphasize the rise and prevalence of monopsony power in the United States and may explain wage stagnation over the past several decades.	wp	Efraim Benmelech, Nittai Bergman, and Hyunseob Kim, "Strong Employers and Weak Employees: How Does Employer Concentration Affect Wages?" (2018), available at https://ssrn.com/abstract=3146679 or http://dx.doi.org/10.2139/ssrn.3146679.

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Monopsony	Concentration and monopsony power	Concentration in US Labor Markets: Evidence from Online Vacancy Data	José A. Azar, Ioana Marinescu, Marshall I. Steinbaum, and Bledi Taska	2018	This paper calculates labor market concentration using the Herfindahl-Hirschman Index, or HHI, for each commuting zone by 6-digit standard occupational classification, or SOC, occupation data from the near-universe of online U.S. job vacancies collected by Burning Glass Technologies in 2016. The average market has an HHI of 4,378, or the equivalent of 2.3 recruiting employers. Sixty percent of labor markets are highly concentrated (above 2,500 HHI), according to the DOJ/FTC guidelines. Highly concentrated markets account for 20 percent of employment. The authors provide various alternative market definitions and show that more than 40 percent of markets are highly concentrated, suggesting that employers have market power in many U.S. labor markets.	wp	José A. Azar and others, "Concentration in US Labor Markets: Evidence from Online Vacancy Data." Working Paper No. 24395 (National Bureau of Economic Research, 2018).
Monopsony	Concentration and monopsony power	Labor Market Concentration	José Azar, Ioana Marinescu, and Marshall Steinbaum	2017	From the most common occupation listed on the leading employment website, CareerBuilder.com, the authors measure the concentration of local labor markets (a county-occupation pair). On average, labor markets are highly concentrated. High concentration results in lower wages on average for the employee, thus demonstrating the anticompetitive nature of concentrated labor markets. The authors argue that labor market concentration (using the Herfindahl-Hirschman Index, or HHI) should be applied to antitrust regulation on the labor supply side of the economy to protect workers against monopsony.	wp	José Azar, Ioana Marinescu, and Marshall Steinbaum, "Labor Market Concentration." Discussion Paper No. 11254 (IZA, 2017), available at https://ssrn.com/abstract=3097372.
Monopsony	Existence of monopsony power	Monopsony in Online Labor Markets	Arindrajit Dube, Jeff Jacobs, Suresh Naidu, and Siddharth Suri	2018	Online platforms are becoming an increasingly important feature of the labor market. Katz and Krueger (2016) measured a roughly 50 percent increase in flexible work arrangements in the U.S. economy between 2005 and 2015 and estimated that this increase accounts for "94 percent of the net employment growth in the U.S. economy" during this time. Katz and Krueger define flexible work arrangements as involving "temporary help agency workers, on-call workers, contract workers, and independent contractors or freelancers", which includes work done via digital labor markets such as Uber Technologies Inc., TaskRabbit, or Amazon Mechanical Turk, or MTurk. This paper quantifies the extent of monopsony power in MTurk, one of the largest on-demand labor platforms, by measuring the elasticity of labor supply facing the requester (employer) using both observational and experimental variation in wages. The authors isolate plausibly exogenous variation in rewards using a double-machine-learning estimator applied to a large dataset of scraped MTurk tasks. They also re-analyze data from five MTurk experiments that randomized payments to obtain corresponding experimental estimates. Both approaches yield uniformly low labor supply elasticities, around 0.1, with little heterogeneity.	wp	Arindrajit Dube and others, "Monopsony in Online Labor Markets." Working Paper No. 24416 (National Bureau of Economic Research, 2018).
Monopsony	Existence of monopsony power	Firm Market Power and the Earnings Distribution	Douglas A. Webber	2015	Labor supply elasticity measures the change in employment for every unit of wage decrease; therefore low elasticities are associated with higher wage-setting power and thus may be indicative of monopsonistic behavior. Using Longitudinal Employer Household Dynamics, or LEHD, data from the United States Census Bureau, Webber estimates labor supply elasticities for private nonfarm firms in the United States. The paper reaches the following conclusions: (1) There exists a strong positive correlation between labor supply elasticity and worker earnings, and this holds up to robustness checks; (2) the average firm is fairly monopsonistic with a labor supply elasticity of 1.08, but there is significant variability across firms; (3) the negative earnings impact of a firm's labor supply elasticity is strongest in the lower half of the earnings distribution.	wp	Douglas A. Webber, "Firm Market Power and the Earnings Distribution." Discussion Paper No. 7342 (IZA, 2015), available at https://ssrn.com/abstract=2254195.

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Topic (Primary)	Sub-Topic	Title	Author(s)	Year	Summary or Edited Abstract	Peer Reviewed? (econ) or Law Review?	Citation
Monopsony	Existence of monopsony power	Monopsony in the Low-Wage Labor Market? Evidence from Minimum Nurse Staffing Regulations	Jordan D. Matsudaira	2014	Relying on data from California's Office of Statewide Health Planning and Development, the paper studies the extent of monopsony in the California market for less-skilled nurses in the long-term care industry in the aftermath of a 2000 law that required nursing homes to meet a minimum threshold of 3.2 nursing hours per resident day. First, it finds that the minimum staffing law caused sizable increases in the hiring of nurse aides (the least-skilled nurses), without a similar increase in the hiring rates of registered nurses or licensed vocational nurses (i.e., higher-skilled nurses). Second, the study finds that employers forced to increase their nursing hours to be in compliance with the law were able to recruit as many nurse aides as they require at market wage (i.e., without raising wage offers)—a result consistent with a basic model of perfect competition in the labor market. However, the study notes if firm-labor supply models depend on more than only the relative wage offered, the results may not fully reflect the presence or absence of monopsony power.	y	Jordan D. Matsudaira, "Monopsony in the Low-Wage Labor Market? Evidence from Minimum Nurse Staffing Regulations," *The Review of Economics and Statistics* 96 (1) (2014).
Monopsony	Existence of monopsony power	Low-Wage Labor Markets and the Power of Suggestion	Natalya Y. Shelkova	2014	This paper explains the "minimum wage spike"—or the clustering of employee wages around the minimum wage—using a game-theoretic model in which employers collude to establish monopsony power and keep wages low. The author posits that the minimum wage serves as a focal point for a Nash equilibrium wage and, as such, may have a pull-down effect on employee earnings. Using Current Population Survey, or CPS, data, empirical tests find that the average percent of workers with latent wages above the minimum but who currently earn the minimum or less (in the period from 1990–2002) is 19.3 percent. For the service industry, this number is closer to 31 percent. Furthermore, the number of affected employees tends to be higher in the years following a minimum wage hike. Thus, the use of a single national minimum wage may be ineffective for raising the earnings of low-wage workers. A better alternative would be the establishment of multiple focal points such as locally set living wages, industry-specific minimum wages, or employer-union negotiated wages, in order to make collusion and the establishment of monopsony power more difficult for firms.	wp	Natalya Y. Shelkova, "Low-Wage Labor Markets and the Power of Suggestion" (2014), available at https://ssrn.com/abstract=2478219.
Monopsony	Existence of monopsony power	Is There Monopsony in the Labor Market? Evidence from a Natural Experiment	Douglas O. Staiger, Joanne Spetz, and Ciaran S. Phibbs	2010	This paper considers the effect of an exogeneous change in nurses' wages through a case study of the legislated regulation of compensation at Department of Veterans Affairs, or VA, hospitals. The authors find that wages at non-VA hospitals responded to the increase in wages at VA hospitals, commensurate with their geographic proximity (2 percent if less than 15 miles away, 1 percent if 15–30 miles away). Furthermore, the (short-run) labor supply elasticity in the nursing labor market is estimated to be around 0.1, suggesting hospitals have considerable monopsony power in employing nurses. The authors caution, however, that long-run elasticity is likely to be higher, though estimates of this are harder to obtain.	wp	Douglas O. Staiger, Joanne Spetz, and Ciaran S. Phibbs, "Is There Monopsony in the Labor Market? Evidence from a Natural Experiment." Working Paper No. 7258 (National Bureau of Economic Research, 2010), available at https://ssrn.com/abstract=202434.
Monopsony	Existence of monopsony power	Estimating the Firm's Labor Supply Curve in a "New Monopsony" Framework: School Teachers in Missouri	Michael R. Ransom and David P. Sims	2010	In the context of certain dynamic models, it is possible to infer the elasticity of labor supply to the firm from the elasticity of the quit rate with respect to the wage. Using this property, the authors estimate the average labor supply elasticity to public school districts in Missouri. The authors take advantage of the plausibly exogenous variation in prenegotiated district salary schedules to instrument for actual salary. Instrumental variables estimates lead to a labor supply elasticity estimate of about 3.7, suggesting the presence of significant market power for school districts, especially over more experienced teachers. The presence of monopsony power in this labor market may be partially explained by institutional features of the teacher labor market.	y	Michael Ransom and David Sims, "Estimating the Firm's Labor Supply Curve in a 'New Monopsony' Framework: School Teachers in Missouri," *Journal of Labor Economics* 28 (2) (2010): 331–355.

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Monopsony	Existence of monopsony power	Monopsony and Employer Mis-optimization Explain Why Wages Bunch at Round Numbers	Arindrajit Dube, Alan Manning, and Suresh Naidu	2018	Wages in administrative data and in online markets exhibit considerable bunching at round numbers that authors argue cannot all be explained by rounding of responses in survey data. The paper considers two hypotheses—worker left-digit bias and employer optimization frictions—and presents tests to distinguish between the two. The authors show that a more monopsonistic market requires less optimization frictions to rationalize the bunching in the data and use this to derive bounds on employer market power. They then provide experimental validation of these results from an online labor market (Amazon MTurk platform), where rewards are also highly bunched at round numbers. By randomizing wages for an identical task, their online experiment shows that the extent of round-number bunching can be explained by a combination of a plausible degree of monopsony together with a small degree of employer mis-optimization. The authors show that when there is sizable market power, it requires only a modest extent of optimization error to rationalize substantial bunching in wages.	wp	Arindrajit Dube, Alan Manning, and Suresh Naidu, "Monopsony and Employer Mis-optimization Explain Why Wages Bunch at Round Numbers." Working Paper No. 24991 (National Bureau of Economic Research, 2018).
Monopsony	Existence of monopsony power	Firms and Labor Market Inequality: Evidence and Some Theory	David Card, Ana Rute Cardoso, Jörg Heining, and Patrick Kline	2016	The paper surveys two growing bodies of research on firm-level drivers of labor market inequality. The first examines how wages are affected by differences in employer productivity. Studies that focus on firm-specific productivity shocks and control for the nonrandom sorting of workers to firms typically find that a 10 percent increase in value-added per worker leads to somewhere between a 0.5 percent and 1.5 percent increase in wages. Given the wide variation in firm-specific productivity, elasticities of this size suggest that a significant fraction of wage inequality is tied to firm performance. A second literature estimates two-way fixed effects models that rely on the wage changes of people who move between firms to identify firm-specific wage premiums. This literature also concludes that firm pay-setting is important for wage inequality, with many studies finding that firm wage effects contribute approximately 20 percent of the overall variance of wages. To interpret these findings, the authors develop a model of firm wage-setting in which workers have idiosyncratic tastes for different workplaces. They show that simple versions of this model can rationalize the standard two-way fixed effects specification proposed by Abowd, Kramarz, and Margolis (1999), and can also match the typical “rent-sharing” elasticities estimated in the literature. Extended versions of the model can potentially explain differences in the wage premiums paid by a given employer to different subgroups of workers.	y	David Card and others, "Firms and Labor Market Inequality: Evidence and Some Theory," *Journal of Labor Economics* 36 (S1) (2018): S13–S70.
Monopsony	Existence of monopsony power	Monopsony Power in Higher Education: A Tale of Two Tracks	Austan Goolsbee and Chad Syverson	2019	The study measures monopsony power in the market for higher education faculty by estimating the residual labor supply curves facing U.S. 4-year colleges and universities. It finds that colleges do have monopsony power in the market for tenure-track faculty of all ranks. On the other hand, they face a perfectly elastic residual supply of nontenure-track faculty. Tenure-track monopsony is concentrated among the highest-status universities (as measured by their undergraduates’ standardized test scores) and is larger for universities that employ a greater share of all tenure-track faculty in their geographic area. The study considers how much of the past couple decades' shift toward nontenure-track faculty might be driven by monopsony considerations.	wp	Austan Goolsbee and Chad Syverson, "Monopsony Power in Higher Education: A Tale of Two Tracks" (2019).

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Monopsony	Monopsony and antitrust enforcement	Mergers that harm sellers	C. Scott Hemphill and Nancy L. Rose	2018	The paper proposes that trading partner welfare—which takes into account both input and output markets—is a better paradigm for how antitrust law is enforced than downstream/end consumer welfare. Accordingly, mergers that create harm only in input markets are also sufficient to lead to an antitrust violation. These harms may manifest either in the form of classical monopsony power (where the merger reduces total input purchases to force down price) or in the form of increased bargaining leverage (where the merger increases the bargaining power of the merged entity by enabling it to inflict a worse outside option on the other side if negotiations break down). Additionally, lower input prices that result from a merger are not per se evidence of an antitrust benefit: If obtained through increased monopsony power or bargaining leverage, such price reductions are not cognizable benefits under current antitrust law. Monpsony power will not result in lower prices to consumers. If the monopsonist has no market power in the downstream market, prices will be the same. If the monopsonist has market power in the downstream market, prices will increase.	y	C. Scott Hemphill and Nancy L. Rose, "Mergers that Harm Sellers," *Yale Law Journal* 127 (7) (2018).
Monopsony	Monopsony and antitrust enforcement	Antitrust Remedies for Labor Market Power	Suresh Naidu, Eric Posner, and E. Glen Weyl	2018	Antitrust law applies to labor markets as well as product markets, but both the government and private litigants have done little to address the underappreciated labor market problem. The article recommends updating the Horizontal Merger Guidelines to provide a detailed framework for evaluating the effects of mergers on labor markets. Three approaches are proposed, corresponding to the standard approaches to product market merger analysis: market definition and concentration, downward wage pressure, and economic models of competition in labor markets based on merger simulation. The article also considers legal remedies for other types of monopsonistic behavior in the labor market context, including noncompete agreements, supplier wage suppression, collusion, predatory hiring, and vertical foreclosure.	y	Suresh Naidu, Eric Posner, and E. Glen Weyl, "Antitrust Remedies for Labor Market Power," *Harvard Law Review* (2018), available at https://ssrn.com/abstract=3129221 or https://equitablegrowth.org/working-papers/antitrust-remedies-for-labor-market-power/.
Monopsony	Monopsony and antitrust enforcement	Anticompetitive Mergers in Labor Markets	Ioana E. Marinescu and Herbert Hovenkamp	2018	This paper explores a rarely addressed form of unlawful mergers, those that injure competition in the labor market by enabling the postmerger firm anticompetitively to suppress wages or salaries. The authors offer a first but reasonably comprehensive and empirically based assessment of this problem, they consider the most likely problems that courts will encounter in such litigation, including market definition, assessment of market concentration, the role of noncompete and nonpoaching agreements as aggravating factors for concentration, and application of the government's Merger Guidelines. The authors assert that since concentration in labor markets is very likely as high or higher than in many of the product markets in which firms sell, this suggests that a mature policy of pursuing mergers because of harmful effects in labor markets could potentially yield many cases.	wp	Ioana E. Marinescu and Herbert Hovenkamp, "Anticompetitive Mergers in Labor Markets." Research Paper No. 18-8 (University of Pennsylvania Institute for Law and Economics, 2018), available at https://ssrn.com/abstract=3124483 or http://dx.doi.org/10.2139/ssrn.3124483 or https://equitablegrowth.org/working-papers/anticompetitive-mergers/
Monopsony	Noncompetes	Theory and Evidence on Employer Collusion in the Franchise Sector	Alan Kreuger and Orley Ashenfelter	2018	The paper studies the role of covenants in franchise contracts that restrict the recruitment and hiring of employees from other units within the same franchise chain in suppressing and hiring of employees from other units within the same franchise chain. The authors find that "no-poaching of workers agreements" are included in a surprising 58 percent of major franchisors' contracts, including McDonald's Corp., Burger King, Jiffy Lube, and H&R Block, Inc. These agreements prevent or limit franchisees from hiring employees of other franchisees. Theoretical models of oligopsony and dynamic monopsony, as well as incentives for investment in job training, are discussed in the context of these no-poaching agreements. Although the occurrence of no-poaching agreements is difficult to predict from franchise or industry characteristics, no-poaching agreements are more common for franchises in low-wage and high-turnover industries.	wp	Alan Kreuger and Orley Ashenfelter, "Theory and Evidence on Employer Collusion in the Franchise Sector." Working Paper No. 24831 (National Bureau of Economic Research, 2018), available at http://www.nber.org/papers/w24831.

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Monopsony	Noncompetes	Noncompetes in the U.S. Labor Force	Evan Starr, J.J. Prescott and Norman Bishara	2019	This study draws three main conclusions from an examination of the effects of noncompete agreements made between firms in the same industry. Primarily, the use of noncompetes as a profit maximizing mechanism is widespread, both in high-skill/high-wage industries as well as low-wage/low-skill sectors. Second, in less than 10 percent of noncompete agreements analyzed in the study was the worker able to negotiate the terms of the agreement, leaving it largely in the hands of the firms. Finally, significant differences in job satisfaction, wages, and training resulted from the differences in alternative job opportunities and awareness of noncompete agreements on the part of the employee prior to taking the job in question.	wp	Evan Starr, J.J. Prescott, and Norman D. Bishara, "Noncompetes in the U.S. Labor Force." Research Paper No. 18-013 (University of Michigan Law and Economics, 2019), available at https://ssrn.com/abstract=2625714 or http://dx.doi.org/10.2139/ssrn.2625714.
Monopsony	Noncompetes	Locked In? The Enforceability of Covenants Not to Compete and the Careers of High-Tech Workers	Natarajan Balasubramanian, Jin Woo Chang, Mariko Sakakibara, Jagadeesh Sivadasan, and Evan Starr	2018	This paper examines the relationship between the enforceability of covenants not to compete, or CNCs, and employee mobility and wages. Using matched employer-employee data, the authors find that workers starting a job in an average-enforceability state experience longer job spells and lower wages such that after 8 years, they have about 8 percent fewer jobs and 5 percent lower cumulative earnings relative to equivalent workers in a nonenforcing state. The author then examine the 2015 CNC ban for tech workers in Hawaii and find that this ban increased mobility by 11 percent and new-hire wages by 4 percent. These results are consistent with CNC enforceability increasing monopsony power.	wp	Natarajan Balasubramanian and others, "Locked In? The Enforceability of Covenants Not to Compete and the Careers of High-Tech Workers." Working Paper (U.S. Census Bureau Center for Economic Studies and Ross School of Business, 2018), available at https://ssrn.com/abstract=2905782 or http://dx.doi.org/10.2139/ssrn.2905782.

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Macroeconomic evidence overview:	Several papers have assessed the relationship between competition and the broader economy. Many find that concentration has risen, although it is widely understood that either vigorous competition could cause concentration to increase or increased concentration could reduce competition. A number of papers find evidence of a market power problem in the U.S. economy, including increasing price markups, falling labor and capital share of national income, and rising corporate profit as a share of national income. Similarly, other research attributes falling business investment, loss of business dynamism (new firm entry and exit), and other trends to growing monopoly power. Another paper documents the diminished reference to competition in Securities and Exchange Commission filings as evidence of a growing market power problem. The literature also makes the point that market power increases wealth inequality and that reducing income or wealth inequality by making markets more competitive brings additional social benefits, unlike other policies such as taxation, which have shadow costs. Although there is general agreement that markups have increased and that labor share of national income has fallen, there is greater disagreement about their causes. Some point to increasing monopoly power; others suggest that increases in fixed costs, financial frictions, globalization, the rise of superstar firms, or intangible assets, may explain the increase in measured markups. A final set of papers addresses the relationship between changes in antitrust enforcement and concentration and profits.						
Macroeconomic evidence	Overview	Antitrust in a Time of Populism	Carl Shapiro	2017	This paper discusses three key findings to address how best to implement antitrust policy as large corporations continue to acrue greater political influence. Primarily, stronger merger enforcement should be enacted, with the aim of increasing competition between rival firms to benefit consumers. Second, antitrust enforcement should not attack dominant, successful firms, but rather firms that harm consumers through their conduct, disrupt competition etc. Finally, we must recognize that antitrust enforcement is insufficient in addressing larger political and social imbalances, which are better addressed through specific public policy measures.	wp	Carl Shapiro, "Antitrust in a Time of Populism" (2017), available at https://ssrn.com/abstract=3058345.
Macroeconomic evidence	Overview	Benefits of Competition and Indicators of Market Power	Council of Economic Advisers	2016	This issue brief describes the ways in which competition between firms can benefit consumers, workers, entrepreneurs, small businesses and the economy more generally, and also describes how these benefits can be lost when competition is impaired by firms' actions or government policies. Several indicators suggest that competition may be decreasing in many economic sectors, including the decades-long decline in new business formation and increases in industry-specific measures of concentration. Recent data also show that returns may have risen for the most profitable firms. To the extent that profit rates exceed firms' cost of capital—which may be suggested by the rising spread on the return to invested capital relative to Treasury bonds—they may reflect economic rents, which are returns to the factors of production in excess of what would be necessary to keep them in operation. Such rents may divert resources from consumers, distort investment and employment decisions, and encourage firms to engage in wasteful rent-seeking activities.	n	White House Council of Economic Advisers, "Benefits of Competition and Indicators of Market Power" (2016).
Macroeconomic evidence	Rising markups	The Rise of Market Power and the Macroeconomic Implications	Jan De Loecker and Jan Eeckhout	2017	Loecker and Eeckhout study markups (defined as price over marginal cost) in a sample of compustat publicly traded firms over more than 40 years. They conclude that price markups have increased three-and-a-half fold since 1980, in contrast to relatively constant rate of markups in the 30 years prior. They find that no broad pattern exists, but smaller firms tend to have higher markups, and the average increase is driven by the top decile of firms (whose markups have risen sharply). The authors then analyze the consequences of increased market power of firms via higher markups, including a decline in the labor share, an increase in the capital share, a decrease in migration rates, and a slower rate of total output among others.	wp	Jan De Loecker and Jan Eeckhout, "The Rise of Market Power and the Macroeconomic Implications." Working Paper 23687 (National Bureau of Economic Research, 2017).
Macroeconomic evidence	Rising markups	Is Aggregate Market Power Increasing? Production Trends Using Financial Statements	James Traina	2018	Recent work in macroeconomics argues that firm market power dramatically increased since the 1980s. The author uses financial statement data and finds that public-firm markups increased only modestly over this time period and are within historical variation. These estimates are different from earlier work by accounting for marketing and management expenses, which the author documents are a rising share of costs in firm production. Markups are increasing in firm size and vary by sector. The author proposes reasonable calibrations accounting for the representativeness of public firms and show a flat or even decreasing aggregate markup.	wp	James Traina, "Is Aggregate Market Power Increasing? Production Trends Using Financial Statements." Working Paper Series No. 17 (University of Chicago, 2018), available at https://research.chicagobooth.edu/-/media/research/stigler/pdfs/workingpapers/17isaggregatemarketpowerincreasing.pdf?la=en&hash=FB051A5CA5C6E30A277318B456EBF0E493A92EB3.

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Macroeconomic evidence	Rising markups	New Evidence on the Markup of Prices over Marginal Costs and the Role of Mega-Firms in the US Economy	Robert Hall	2018	Markup ratios, defined as price over marginal cost, have grown between 1988 and 2015, indicating an increase in market power in the U.S. economy based on productivity data for 60 industries. Key caveats include significant heterogeneity, both across and within industries, and a less significant increase overall compared to earlier studies. The paper also finds no evidence that mega-firm-intensive sectors have higher markups, although there is some evidence that industries with growing mega-firm fractions have gained market power.	wp	Robert Hall, "New Evidence on the Markup of Prices over Marginal Costs and the Role of Mega-Firms in the US Economy." Working Paper No. 24574 (National Bureau of Economic Research, 2018), available at https://web.stanford.edu/~rehall/Evidence%20on%20markup%202018.
Macroeconomic evidence	Rising markups	Markups in the digital era	Sara Calligaris, Chiara Criscuolo, and Luca Marcolin	2018	This paper examines changes in the competitive environment by studying the relationship between markups in prices and "digital intensity" of sectors in 26 countries. It finds that markups have been increasing over time. The growth in markups is driven predominantly by firms in the top decile of the markup distribution for any given year, with firms in the bottom half of the distribution showing essentially a flat trend over time. Second, firms in the top-digital sectors are found to display on average higher markups than firms operating in low-digital sectors. Additionally, the gap in markups between the average firm in a top-digital vs bottom-digital sector is larger in 2013–2014 than in 2001–2003, suggesting that this positive correlation between markups and digitalized sectors is stronger nowadays than in the past. However, the authors urge caution with interpreting these results causally, suggesting there may be firm- and industry-level characteristics which are not explicitly treated in the empirical model which generate higher markups and allow for a sector to leap ahead in the digital transformation.	wp	Sara Calligaris, Chiara Criscuolo, and Luca Marcolin, "Markups in the digital era." Working Paper No. 2018/10 (OECD Science, Technology and Industry, 2018), available at https://doi.org/10.1787/4efe2d25-en.
Macroeconomic evidence	Rising markups	Accounting for Factorless Income	Loukas Karabarbounis and Brent Neiman	2018	This paper compares U.S. Gross Domestic Product to the sum of measured payments to labor and imputed rental payments to capital results in a large and volatile residual or “factorless income.” The authors analyze three common strategies of allocating and interpreting factorless income, specifically that it arises from economic profits, unmeasured capital, or deviations of the rental rate of capital. The authors express skepticism about rising economic profits, as it requires a tight negative relationship between real interest rates and economic profits, leads to large fluctuations in inferred factor-augmenting technologies, and results in profits that have risen since the early 1980s but that remain lower today than in the 1960s and 1970s. Their analysis contradicts the recent literature on rising markups, in particular De Loecker and Eeckhout (2017). The authors use the same Compustat data as De Loecker and Eeckhout (2017), but claim that the increase in sales relative to cost of goods sold, or COGS, almost entirely reflects a shift in the share of operating costs that are reported as being selling, general, and administrative, or SG&A, expenses instead of COGS. Using the sum of COGS and SG&A instead of COGS only, the authors report that the inferred markup is essentially flat over time. The assessment of the drivers of changes in output, factor shares, and functional inequality depends critically on the interpretation of factorless income.	wp	Loukas Karabarbounis and Brent Neiman, "Accounting for Factorless Income." Working Paper No. 24404 (National Bureau of Economic Research, 2018).
Macroeconomic evidence	Rising markups, concentration	Oligopolies, Prices, Output, and Productivity	Sharat Ganapati	2017	American industries have grown more concentrated over the past 40 years. In the absence of productivity innovation, this should lead to price hikes and output reductions, decreasing consumer welfare. This paper uses price data from public data from 1972–2012 to disentangle revenue from output. The author's findings from difference-in-difference estimates show that industry concentration growth is positively correlated to productivity and real output growth, uncorrelated with price changes and overall payroll, and negatively correlated with labor's revenue share. Productive industries (with growing oligopolists) expand real output and hold prices down, raising consumer welfare, while maintaining or reducing their workforces, lowering labor's share of output.	wp	Sharat Ganapati, "Oligopolies, Prices, Output, and Productivity" (2018), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3030966.

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Macroeconomic evidence	Rising markups	Increasing Differences between firms: Market Power and the Macro-Economy	John Van Reenen	2018	A rich understanding of macroeconomic outcomes requires taking into account the large (and increasing) differences between firms. These differences stem, in large part, from heterogeneous productivity rooted in managerial and technological capabilities that do not transfer easily between firms. In recent decades, the differences between firms in terms of their relative sales, productivity, and wages appear to have increased in the United States and many other industrialized countries. Higher sales concentration and apparent increases in aggregate markups have led to the concern that product market power has risen substantially, which is a potential explanation for the falling labor share of GDP, sluggish productivity growth and other indicators of declining business dynamism. The author suggests that this conclusion is premature and many of the patterns are consistent with a more nuanced view, where many industries have become "winner take most/all" due to globalization and new technologies rather than a generalized weakening of competition due to relaxed antitrust rules or rising regulation.	wp	John Van Reenen, "Increasing Differences between firms: Market Power and the Macro-Economy" (2018), available at https://www.kansascityfed.org/~/media/files/publicat/sympos/2018/papersandhandouts/824180729van%20reenenpaper.pdf?la=en.
Macroeconomic evidence	Concentration	Information Technology and Industry Concentration	James E. Bessen	2017	This paper finds that the use of information technology, or IT, systems is strongly correlated with industry concentration; firms with high IT tend to have larger market shares in their respective industries. Moreover, IT contributes to enhanced performance among the top firms in an industry, widening the productivity gap between these firms and the rest, further increasing industry concentration.	wp	James E. Bessen, "Information Technology and Industry Concentration." Research Paper No. 17-41 (Boston University School of Law, Law and Economics, 2017), available at https://ssrn.com/abstract=3044730.
Macroeconomic evidence	Concentration	Are U.S. Industries Becoming More Concentrated?	Gustavo Grullon, Yelena Larkin, and Roni Michaely	2017	U.S. industry concentration over the past two decades has markedly increased based on a variety of concentration metrics. Profitability, measured by return on assets, has risen in industries experiencing increased concentration, and there is a positive correlation between concentration and profitability. The paper decomposes profitability to confirm that higher profits in concentrated markets result from increased markups rather than either increased reliance on capital or efficiency improvements. M&A activity shows that mergers of firms in the same industry have become more profitable overall, with even greater profitability in industries with higher concentration levels. Increases in profitability stemming from increased market power have been transferred to investors through higher returns.	wp	Gustavo Grullon, Yelena Larkin, and Roni Michaely, "Are U.S. Industries Becoming More Concentrated?" (2017), available at https://ssrn.com/abstract=2612047.
Macroeconomic evidence	Concentration	What Has Been Happening to Aggregate Concentration in the U.S. Economy in the 21st Century?	Lawrence J. White and Jasper Yang	2017	White (2002) provided estimates of aggregate concentration in the U.S. economy that covered primarily the last quarter of the 20th century. This paper extends the earlier data series into the first two decades of the 21st century. The authors find that there has been a moderate but continued increase in aggregate concentration since the mid-1990s. This increase appears in data on employment and payroll that have been compiled by the U.S. Bureau of the Census, as well as employment and profits data that are drawn from the annual "Fortune 500" lists. This increase does not, however, appear to have raised aggregate concentration above the levels of the early 1980s. The authors caution that the focus on aggregate concentration addresses questions that are largely about the "feel" of a society. It can be used to analyze serious economic issues, but it differs from the measure of concentration used in antitrust enforcement.	wp	Lawrence J. White and Jasper Yang, "What Has Been Happening to Aggregate Concentration in the U.S. Economy in the 21st Century?" (2017), available at https://ssrn.com/abstract=2953984.

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Macroeconomic evidence	Concentration	Don't Panic: A Guide to Claims of Increasing Concentration	Gregory J. Werden and Luke M. Froeb	2018	The CEA issue brief from May 2016 expressed a concern about a decline in competition. The authors argue the report is based on U.S. Census data that is far too aggregated and it does not demonstrate increasing concentration of meaningful markets, as are used in antitrust to assess the impact of mergers and trade restraints. The authors document the excessive aggregation in the data and show that market concentration can remain the same or decline despite increasing concentration for broad aggregates. Concentration has not increased in sectors such as banking and airlines, where data is reliable and there has been substantial merger activity. They explain that an increase in market concentration does not demonstrate a failure of antitrust law or its enforcement; market concentration naturally increases when the most innovative and efficient firms grow.	y	Gregory J. Werden and Luke M. Froeb, "Don't Panic: A Guide to Claims of Increasing Concentration," *Antitrust Magazine*, April 5, 2018, available at https://ssrn.com/abstract=3156912 or http://dx.doi.org/10.2139/ssrn.3156912.
Macroeconomic evidence	Relationship between competition and macroeconomic performance	Investment-less Growth: An Empirical Investigation	Germán Gutiérrez and Thomas Philippon	2017	This paper finds that private investment in the past 30 years is disproportionately low compared to profitability measures. This is particularly evident when observing the values of Tobin's Q, which measures the ratio of the market value of the company's assets to the replacement cost of those assets. Analysis shows that investment is lower in industries with more common ownership (quasi-indexer institutional ownership) and more concentration (measured by higher "traditional" and common ownership-adjusted Herfindahl index values, as well as higher price-cost margins). Firms in these industries use free cash to buy back their shares to increase control over the industry instead of increasing investment toward improvement and increased production of their product.	y	Germán Gutiérrez and Thomas Philippon, "Investmentless Growth: An Empirical Investigation," *Brookings Papers on Economic Activity* 48 (2) (2017).
Macroeconomic evidence	Relationship between competition and macroeconomic performance	Ownership, Concentration and Investment	Germán Gutiérrez and Thomas Philippon	2018	The U.S. business sector has underinvested relative to profits, funding costs, and Tobin's Q since the early 2000s. Building on prior work, the authors argue that decreasing competition, rising intangibles, and tightening governance explain, respectively, about one-half, one-third, and one-sixth of the investment gap. In particular, quasi-indexer ownership appears to lower investment, and this effect is stronger in noncompetitive industries.	y	Germán Gutiérrez and Thomas Philippon, "Ownership, Concentration and Investment," *AEA Papers and Proceedings* 108 (2018): 432–437, available at https://doi.org/10.1257/pandp.20181010.
Macroeconomic evidence	Relationship between competition and macroeconomic performance	Declining Competition and Investment in the U.S.	Germán Gutiérrez and Thomas Philippon	2017	Two important stylized facts have emerged in recent years regarding the U.S. business sector. The first fact is that concentration and profitability have increased across most U.S. industries. The second stylized fact is that business investment has been weak relative to measures of profitability, funding costs, and market values since the early 2000s. While these two stylized facts are well-established, their interpretation remains controversial. The authors test four explanations: decreasing domestic competition, or DDC; increases in the efficient scale of operation, or EFS; intangible investment, or INTAN; and globalization, or GLOBAL. Taking into account INTAN and GLOBAL, the authors find that more (less) competition causes more (less) investment, particularly in intangible assets by industry leaders. The authors conclude that DDC has resulted in a shortfall of nonresidential business capital of 5 percent to 10 percent by 2016.	draft	Germán Gutiérrez and Thomas Philippon, "Declining Competition and Investment in the U.S." Working Paper No. 23583 (National Bureau of Economic Research, 2017).

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Macroeconomic evidence	Relationship between competition and macroeconomic performance	Kaldor and Piketty's Facts: The Rise of Monopoly Power in the United States	Gauti B. Eggertsson, Jacob A. Robbins, and Ella Getz Wold	2018	This paper tries to give a unified explanation to five puzzling trends in U.S. macroeconomic data. The new stylized growth facts proposed are: 1. an increase in the financial wealth-to-income ratio despite low savings rates, with a stagnating capital-to-income ratio; 2. an increase in Tobin's Q to a level permanently above 1; 3. a decrease in the real rate of interest, while the measured average return on capital is relatively constant; 4. an increase in the pure profit share, with a decrease in the capital and labor share; and 5. a decrease in investment-to-output, even given historically low borrowing costs and a high value of empirical Tobin's Q. The authors hypothesize that an increase in monopoly profits, along with a decrease in the natural rate of interest, are driving these broad macro trends. The authors make three parsimonious modifications to the standard neoclassical model (imperfect competition, barriers to entry, and "empirical Tobin's Q" above 1) to explain these trends. Using recent estimates of the increase in markups and the decrease in real interest rates, they show that their model can quantitatively match these new stylized macroeconomic facts.	wp	Gauti B. Eggertsson, Jacob A. Robbins, and Ella Getz Wold, "Kaldor and Piketty's Facts: The Rise of Monopoly Power in the United States." Working Paper No. 24287 (National Bureau of Economic Research, 2018).
Macroeconomic evidence	Relationship between competition and macroeconomic performance	The Fall of the Labor Share and the Rise of Superstar Firms	David Autor, David Dorn, Lawrence F. Katz, Christina Patterson, and John Van Reenen	2017	Using U.S. Economic Census data since 1982, this paper compares the fall of the labor share to the rise of large "superstar" firms. The authors predict that firms with high-quality and low-cost products tend to have higher profits and lower shares of labor in their production. In addition, the authors contend that the total share of labor decreases as these large firms enter the market in a wide range of sectors. Their predictions were confirmed by the Census data.	wp	David Autor and others, "The Fall of the Labor Share and the Rise of Superstar Firms." Working Paper No. 23396 (National Bureau of Economic Research, 2017), available at http://www.nber.org/papers/w23396.
Macroeconomic evidence	Relationship between competition and macroeconomic performance	Declining Labor and Capital Shares	Simcha Barkai	2017	This paper finds that the decline in labor share in the past 30 years was matched by a decline in capital share. These two trends lead to an increase in the share of returns that are rents. The decreasing capital share was found to be a result of a decline in the cost of capital. The author also reports that the profit share has increased by more than 12 percentage points over that period. Results from reduced-form empirical evidence suggest that the decline in the shares of labor and capital are due to a decline in competition.	wp	Simcha Barkai, "Declining Labor and Capital Shares" (2017), available at http://home.uchicago.edu/~barkai/doc/BarkaiDecliningLaborCapital.pdf.
Macroeconomic evidence	Relationship between competition and macroeconomic performance	On the Formation of Capital and Wealth: IT, Monopoly Power and Rising Inequality	Mordecai Kurz	2018	This paper proposes that technological progress (even neutral) has a big effect on distribution, not only on growth, and can explain the sharp rise in income and wealth inequality. The study shows that, since the 1970s, information technology, or IT, has caused rising monopoly power, which explains rising inequality, slow growth of wages, and low level of investment. This monopoly power is legally protected by patent laws, intellectual property rights, and by policy aiming to promote innovations. The author estimates the share of monopoly profits in output to be about 21 percent to 23 percent in 2015, rising from 0 in the early 1980s. Using a general equilibrium model where firms have rising (exogenous) monopoly power, he shows that rising monopoly power lowers permanently the equilibrium wage rate, investment, capital stock, output, and consumption. In an economy with embodied technical change, it also lowers the growth rate of the economy and its equilibrium interest rate.	wp	Mordecai Kurz, "On the Formation of Capital and Wealth: IT, Monopoly Power and Rising Inequality" (2017), available at https://ssrn.com/abstract=3014361.
Macroeconomic evidence	Relationship between competition and macroeconomic performance	Productivity and Misallocation in General Equilbrium	David Rezza Baqaee and Emmanuel Farhi	2017	Baqaee and Farhi (2017) generalise growth accounting beyond the perfectly competitive case and show how changes in aggregate productivity can be decomposed into two structurally interpretable components: changes in firms' technological productivities and changes in allocative efficiency. They use this framework to assess the implications of secular changes in markups for aggregate productivity. This paper asks the question: By how much would we expect aggregate productivity to increase if we eliminated markups? To answer this question, the authors calibrate a firm-level model of the U.S. economy, matching the distribution of markups, the network structure of interindustry trade, and the evidence on substitution elasticities. They find that eliminating markups would raise aggregate productivity by around 40 percent.	wp	David Rezza Baqaee and Emmanuel Farhi, "Productivity and Misallocation in General Equilbrium." Working Paper (London School of Economics, 2017), available at http://eprints.lse.ac.uk/87170/1/__lse.ac.uk_storage_LIBRARY_Secondary_libfile_shared_repository_Content_Centre%20For%20Macroeconomics%20discussion%20papers_Productivity%20and%20misallocation.pdf.

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Macroeconomic evidence	Relationship between competition and macroeconomic performance	How Destructive is Innovation?	Daniel Garcia-Macia, Chang-Tai Hsieh, and Peter J. Klenow	2016	Entrants and incumbents can create new products and displace the products of competitors. Incumbents can also improve their existing products. How much of aggregate productivity growth occurs through each of these channels? This paper uses data from the U.S. Longitudinal Business Database on all nonfarm private businesses from 1983 to 2013 to arrive at three main conclusions. First, most growth appears to come from incumbents. The authors infer this from the modest employment share of entering firms (defined as those less than 5 years old). Second, most growth seems to occur through improvements of existing varieties rather than creation of brand new varieties. Third, own-product improvements by incumbents appear to be more important than creative destruction. They infer this because the distribution of job creation and destruction has thinner tails than implied by a model with a dominant role for creative destruction.	wp	Daniel Garcia-Macia, Chang-Tai Hsieh, and Peter J. Klenow, "How Destructive is Innovation?" Working Paper No. 22953 (National Bureau of Economic Research, 2016).
Macroeconomic evidence	Dynamism	Declining Dynamism, Allocative Efficiency, and the Productivity Slowdown	Ryan A. Decker, John Haltiwanger, Ron S. Jarmin, and Javier Miranda	2017	A large literature documents declining measures of business dynamism including high-growth young firm activity and job reallocation. A distinct literature describes a slowdown in the pace of aggregate labor productivity growth. This paper relates these patterns by studying changes in productivity growth from the late 1990s to the mid-2000s using firm-level data. The authors find that diminished allocative efficiency gains can account for the productivity slowdown in a manner that interacts with the within-firm productivity growth distribution. The evidence suggests that the decline in dynamism is reason for concern and sheds light on debates about the causes of slowing productivity growth.	y	Ryan A. Decker and others, "Declining Dynamism, Allocative Efficiency, and the Productivity Slowdown," *The American Economic Review* 107 (5) (2017).
Macroeconomic evidence	Dynamism	Declining Business Dynamism in the United States: A Look at States and Metros	Ian Hathaway and Robert E. Litan	2014	Research has established that business dynamism is vital to productivity and sustained economic growth. But recent research shows that dynamism is slowing down. Business churning and new firm formations have been on a persistent decline during the past few decades, and the pace of net job creation has been subdued. This decline has been documented across a broad range of sectors in the U.S. economy, even in high tech. This paper analyzes the geographic aspects of business dynamism. It looks at how these trends have applied to the states and metropolitan areas throughout the United States and confirms that the previously documented declines in business dynamism in the United States overall are a pervasive force throughout the country geographically. The authors show that dynamism has declined in all 50 states and in all but a handful of the more than 360 U.S. metropolitan areas during the past three decades. Moreover, the performance of business dynamism across the states and metros has become increasingly similar over time. In other words, the national decline in business dynamism has been a widely shared experience. While the reasons explaining this decline are still unknown, if it persists, it implies a continuation of slow growth for the indefinite future, unless, for equally unknown reasons or by virtue of entrepreneurship-enhancing policies, these trends are reversed.	wp	Ian Hathaway and Robert E. Litan, "Declining Business Dynamism in the United States: A Look at States and Metros" (Washington: Brookings Institution, 2014), available at https://www.brookings.edu/wp-content/uploads/2016/06/declining_business_dynamism_hathaway_litan.pdf.
Macroeconomic evidence	Income Inequality	Inequality and Market Concentration, When Shareholding is More Skewed than Consumption	Joshua Gans, Andrew Leigh, Martin Schmalz, and Adam Triggs	2018	Economic theory suggests that monopoly prices hurt consumers but benefit shareholders. But in a world where individuals or households can be both consumers and shareholders, the impact of market power on inequality depends, in part, on the relative distribution of consumption and corporate equity ownership across individuals or households. This paper follows Ennis et al (2017) and calculates this distribution for the United States, using data from the Survey of Consumer Finances and the Consumer Expenditure Survey, spanning nearly three decades from 1989 to 2016. Their results show that in 2016, the top 20 percent consumed approximately as much as the bottom 60 percent, but had 13 times as much corporate equity. Because ownership is more skewed than consumption, increased markups increase inequality. Moreover, over time, corporate equity has become even more skewed relative to consumption.	wp	Joshua S. Gans and others, "Inequality and Market Concentration, When Shareholding is More Skewed than Consumption." Working Paper No. w25395 (National Bureau of Economic Research, 2018), available at https://ssrn.com/abstract=3306105.

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Macroeconomic evidence	Income inequality	Antitrust, Competition Policy and Inequality	Jonathan B. Baker and Steve C. Salop	2015	In addressing political and economic inequality, this paper concludes that antitrust and competition policy is more effective as a supplement to public policy measures (tax policy, labor, trade, etc.) than as a substitute. The article details a variety of competition policy measures to serve this supplementary purpose.	y	Jonathan B. Baker and Steven C. Salop, "Antitrust, Competition Policy, and Inequality," *Georgetown Law Faculty Publications and Other Works* 104 (2015), available at https://scholarship.law.georgetown.edu/facpub/1462.
Macroeconomic evidence	Income inequality	A Firm-Level Perspective on the Role of Rents in the Rise in Inequality	Jason Furman and Peter Orszag	2015	Rising prevalence of economic rents—payments to factors of production above what is required to keep them in the market—and the shift of those rents away from labor and toward capital has played a critical role in the rise in inequality (Stiglitz, 2012). This paper advances another hypothesis using firm-level data to argue that there has been a trend of increased dispersion of returns to capital across firms, with an increasingly large fraction of firms getting returns higher than 10 percent, 20 percent, or 30 percent annually—a trend that somewhat precedes the shift in the profit share. Longstanding evidence (e.g., Krueger and Summers, 1988) has documented substantial interindustry differentials in pay—a mid-level analyst may have the same marginal product wherever he or she works but is paid more at a high-return company than at a low-return company. Newer evidence (Barth et al., 2014 and Song et al., 2015) suggests that much of the rise in earnings inequality represents the increased dispersion of earnings between firms rather than within firms. This is consistent with the combination of a rising dispersion of returns at the firm level and the interindustry pay differential model, as well as with the notion that firms are wage setters rather than wage takers in a less-than-perfectly-competitive marketplace.	draft	Jason Furman and Peter Orszag, "A Firm-Level Perspective on the Role of Rents in the Rise in Inequality, presented at A Just Society Centennial Event in Honor of Joseph Stiglitz Columbia University" (2015), available at http://gabriel-zucman.eu/files/teaching/FurmanOrszag15.pdf.
Macroeconomic evidence	Effectiveness of antitrust enforcement	How EU Markets Became More Competitive Than US Markets	Germán Gutiérrez and Thomas Philippon	2018	Despite the United States' head start with antitrust law and the historical competitiveness of the country's markets, U.S. industries have displayed a continuous rise in concentration and profit margins starting in the late 1990s, while these metrics have remained stable in Europe over this time period. This paper documents these trends and proposes a model to explain the divergence, based on the greater political independence granted to EU supranational authorities. The model produces three predictions that are each confirmed using comparative data: 1. The EU antitrust authority is more independent and procompetition than national regulators; 2. U.S. firms spend more on lobbying than EU firms do; and 3. countries with weaker ex-ante institutions reap greater benefits from supranational regulation.	wp	Germán Gutiérrez and Thomas Philippon, "How EU Markets Became More Competitive than US Markets: A Study of Institutional Drift." Discussion Paper No. DP12983 (CEPR, 2018), available at https://ssrn.com/abstract=3193986.
Macroeconomic evidence	Effectiveness of antitrust enforcement	Industrial Concentration under the Rule of Reason	Sam Peltzman	2014	Robert Bork thought that antitrust restrictions on horizontal mergers should be confined to already highly concentrated markets. Actual policy, which had been much more restrictive, adopted Bork's recommendation in the early 1980s. This paper examines the connection between this policy shift and concentration in the manufacturing sector. The author finds that concentration, which had been unchanged on average for all of the 20th century, began rising at the same time that merger policy changed. The author argues that concentration has increased steadily over the entire post-Bork period, and the increase has been especially pronounced in consumer goods industries, which were already becoming more concentrated in the pre-Bork era. Findings show little difference in the underlying trends between already highly concentrated industries and the rest of manufacturing, and neither slowing growth in domestic manufacturing nor growing imports seem sufficient to explain the increased concentration.	y	Sam Peltzman, "Industrial Concentration under the Rule of Reason," *The Journal of Law and Economics* 57 (S3) (2014).

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Macroeconomic evidence	Effectiveness of antitrust enforcement	A Measure of Competition Based on 10-K Filings	Feng Li, Russell Lundholm, and Michael Minnis	2013	This paper presents a measure of competition based on management's disclosures in their 10-K filing and finds that firms' rates of diminishing marginal returns on new and existing investment vary significantly with this measure. The measure is obtained by counting the number of references to competition in the firm's 10-K filing, and then scaling by the total number of words in the document. The authors show that these firm-level disclosures are related to existing industry-level measures of disclosure (e.g. Herfindahl index), but capture something distinctly new. In particular, they show that the measure has both across-industry variation and within-industry variation, and each is related to the firm's future rates of diminishing marginal returns. As such, this measure is a useful complement to existing measures of competition. The authors present a battery of specification tests designed to explore the boundaries of the measure and how it varies with the definition of industry and the presence of other measures of competition.	y	Feng Li, Russell Lundholm, and Michael Minnis, "A Measure of Competition Based on 10-K Filings," *Journal of Accounting Research* 51 (2) (2013): 399–436.