# Literature Report

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#### Abstract

#### Oblivious equilibrium for concentrated industries

 RAND Journal of Economics---2015---C. Lanier Benkard, Przemyslaw Jeziorski, Gabriel Y. Weintraub

type="main"> This article explores the application of oblivious equilibrium (OE) to highly concentrated markets. We define a natural extended notion of OE, called partially oblivious equilibrium (POE), that allows for there to be a set of strategically important firms (the "dominant" firms), whose firm states are always monitored by every other firm in the market. We perform computational experiments that explore the characteristics of POE, OE, and Markov perfect equilibrium (MPE), and find that POE generally performs well in highly concentrated markets. We also derive error bounds for evaluating the performance of POE for cases where MPE cannot be computed.

#### Competitive intelligence and disclosure

 RAND Journal of Economics---2015---Mark Bagnoli, Susan G. Watts

type="main"> Competitive intelligence (CI) activities open new opportunities for firms to acquire and disclose information. We show that disclosure depends on the relative usefulness of information to the competing firms and is generally less (more) likely with Cournot (Bertrand) competition and when firms adopt product differentiation strategies. When CI costs are independent of information characteristics, each firm seeks information solely useful to itself and discloses it unless it is a Bertrand competitor with customer information. Only when the cost advantage is sufficiently great does each firm seek information useful to itself and its rival.

# Strategic bidding in multi-unit auctions with capacity constrained bidders: the New York capacity market

 RAND Journal of Economics---2015---Sebastian Schwenen

type="main"> This article employs a simple model to describe bidding behavior in multi-unit uniform price procurement auctions when firms are capacity constrained. Using data from the New York City procurement auctions for power generating capacity, I find that firms use simple bidding strategies to coordinate on an equilibrium that extracts high rents for all bidders. I show theoretically and empirically that the largest bidder submits the auction clearing bid. All other bidders submit inframarginal bids that are low enough to not be profitably undercut. Inframarginal

ties and its profits of undercutting increase.

### Competition and subsidies in the deregulated US local telephone industry

• RAND Journal of Economics---2015---Ying Fan, Mo Xiao

type="main"> The 1996 Telecommunications Act opened the monopolistic US local telephone industry to new entrants. However, substantial entry costs have prevented some markets from becoming competitive. We study various subsidy policies designed to encourage entry. We estimate a dynamic entry game using data on potential and actual entrants, allowing for heterogeneous option values of waiting. We find that subsidies to smaller markets are more cost effective in reducing monopoly markets, but subsidies to only lower-cost firms are less cost effective than a nondiscriminatory policy. Subsidies in only early periods reduce the option value of waiting and accelerate the arrival of competition.

#### Hidden insurance in a moral-hazard economy

• RAND Journal of Economics---2015---Giuseppe Bertola, Winfried Koeniger

type="main"> We analyze the general equilibrium of an economy in which a competitive industry produces nonexclusive insurance services. The equilibrium is inefficient because insurance contracts cannot control moral hazard, and welfare can be improved by policies that reduce insurance by increasing its price above marginal cost. We discuss how insurance production costs that exceed expected claim payments interact with moral hazard in determining the equilibrium's inefficiency, and show that these costs can make insurance premia so actuarially unfair as to validate the standard first-order conditions we exploit in our analysis.

#### **Dynamic information disclosure**

• RAND Journal of Economics---2015---Pak Hung Au

bidders decrease their bids as the pivotal firm's capacitype="main"> We study dynamic information disclosure by a sender attempting to persuade a partially informed receiver to take an action. We consider vertical and horizontal information. With vertical information, an optimal disclosure plan is static. If the sender cannot commit to the disclosure plan, there exists a simple Markov equilibrium with sequential disclosure. Shrinking the time interval to zero gives rise to full disclosure almost instantly. With horizontal information, the sender often benefits from sequential disclosure. Assuming partial commitment and a special receivertype space, a Markov equilibrium exists and almost instant full disclosure arises in the limit.

#### Sequential procurement auctions and their effect on investment decisions

• RAND Journal of Economics---2015---Gonzalo Cisternas, Nicolás Figueroa

type="main"> We characterize the optimal mechanism and investment level in an environment where (i) two projects of independent costs are purchased sequentially, (ii) the buyer can commit to a two-period mechanism, and (iii) the winner of the first project can invest in a cost-reducing technology between auctions. We show that, in an attempt to induce more competition in the first period, the optimal mechanism gives an advantage to the first-period winner in the second auction. As a result of this advantage, the firstperiod winner invests more than the socially efficient level. Optimal advantages, therefore, create two different channels for cost minimization in buyer-supplier relationships.

#### Market size and pharmaceutical innovation

• RAND Journal of Economics---2015---Pierre Dubois, Olivier de Mouzon, Fiona Scott-Morton, Paul Seabright

type="main"> This article quantifies the relationship between market size and innovation in the pharmaceutical industry using improved, and newer, methods and data. We find significant elasticities of innovation to expected market size with a point estimate under our

preferred specification of 0.23. This suggests that, on average, \$2.5 billion is required in additional revenue to support the invention of one new chemical entity. This magnitude is plausible given recent accounting estimates of the cost of innovation of \$800 million to \$1 billion per drug, and marginal costs of manufacture and distribution near 50%.

### Private monitoring, collusion, and the timing of information

• RAND Journal of Economics---2015---Fahad Khalil, Jacques Lawarree, Troy J. Scott

type="main"> When a principal's monitoring information is private (nonverifiable), the agent should be concerned that the principal could misrepresent the information to reduce the agent's wage or collect a monetary penalty. Restoring credibility may lead to an extreme waste of resources—the so-called burning of money. A more realistic and efficient outcome is feasible when the private information arrives in time to rescale the agent's effort. Rescaling is more effective than pure monetary penalties because effort has different values to different parties whereas money is equally valuable to all parties. Furthermore, when rescaling is feasible, private monitoring is more efficient than public monitoring subject to collusion because nonmonetary penalties are ineffective to deter collusion.

#### Race effects on eBay

• RAND Journal of Economics---2015---Ian Ayres, Mahzarin Banaji, Christine Jolls

type="main"> We investigate the impact of seller race in a field experiment involving baseball card auctions on eBay. Photographs showed the cards held by either a dark-skinned/African-American hand or a light-skinned/Caucasian hand. Cards held by African-American sellers sold for approximately 20% (\$0.90) less than cards held by Caucasian sellers. Our evidence of race differentials is important because the online environment is well controlled (with the absence of confounding tester effects) and because the results

show that race effects can persist in a thick real-world market such as eBay.

# Vertical integration, foreclosure, and productive efficiency

• RAND Journal of Economics---2015---Markus Reisinger, Emanuele Tarantino

type="main"> We analyze the consequences of vertical integration by a monopoly producer dealing with two retailers (downstream firms) of varying efficiency via secret two-part tariffs. When integrated with the inefficient retailer, the monopoly producer does not foreclose the rival retailer due to an output-shifting effect. This effect can induce the integrated firm to engage in below-cost pricing at the wholesale level, thereby rendering integration procompetitive. Output shifting arises with homogeneous and differentiated products. Moreover, we show that integration with an inefficient retailer emerges in a model with uncertainty over retailers' costs, and this merger can be procompetitive in expectation.

### The provision of convenience and variety by the market

• RAND Journal of Economics---2015---Bart J. Bronnenberg

type="main"> Consumers commonly face purchasing costs, for example, travel or wait time, that are fixed to quantity but increase with variety. This article investigates the impact of such costs on the demand and supply of variety. Purchasing costs limit demand for variety like prices limit demand for quantity. When demand for variety is low, manufacturers generally invest substantially in lowering purchasing costs, to attract consumers. In the monopolistic competition free-entry equilibrium, providing convenience increases the demand for variety, but its costs reduce supply. The desirability of nonprice competition in convenience and its implications for variety and market concentration are discussed.

#### Patent pools, litigation, and innovation

• RAND Journal of Economics---2015---Jay Choi, Heiko Gerlach

type="main"> This article analyzes patent pools and their effects on litigation incentives, overall royalty rates, and social welfare when patent rights are probabilistic and can be invalidated in court. With probabilistic patents, the license fees reflect the strength of the patents. We show that patent pools of complementary patents can be used to discourage infringement by depriving potential licensees of the ability to selectively challenge patents and making them committed to a proposition of all-or-nothing in patent litigation. If patents are sufficiently weak, patent pools with complementary patents reduce social welfare as they charge higher licensing fees and chill subsequent innovation incentives.

# Auctions with selective entry and risk averse bidders: theory and evidence

 RAND Journal of Economics---2015---Tong Li, Jingfeng Lu, Li Zhao

type="main"> We study auctions with selective entry and risk averse bidders. Our model accounts for risk averse bidders' endogenous participation decision and thus encompasses the existing entry models. We establish entry and bidding equilibrium in first-price auction and ascending auction mechanisms and show that bidders' entry behavior differs between these two mechanisms with different forms of risk aversion. Our approach provides testable implications of risk aversion in terms of entry behavior. We analyze a timber auction data set and propose a simple test for the form of bidders' risk aversion based on our model implications.

### Optimal student loans and graduate tax under moral hazard and adverse selection

 RAND Journal of Economics---2015---Robert J. Gary-Bobo, Alain Trannoy

 $\label{type="main"> We characterize the set of second-best} $$ "menus" of student-loan contracts in an economy with $$ $$$ 

risky labor-market outcomes, adverse selection, moral hazard, and risk aversion. We combine student loans with optimal income taxation. Second-best optima provide incomplete insurance because of moral hazard. Optimal repayments must be income contingent, or the income tax must comprise a graduate tax. Individuals are ex ante unequal because of differing probabilities of success, and ex post unequal, because taxation trades off incentives and redistribution. In addition, second-best optima exhibit an interim equalization property: the poststudy but prework expected utilities of newly graduated student types must be equal.

# Dynamic labor demand in China: public and private objectives

• RAND Journal of Economics---2015---Russell Cooper,Guan Gong,Ping Yan

type="main"> This article studies dynamic labor demand by private and public manufacturing plants in China. The analysis uncovers the objectives of public and private enterprises and estimates labor adjustment costs by ownership. Public plants maximize the discounted present value of profits without a soft budget constraint. There is strong evidence of quadratic and linear firing costs at the plant level. The higher quadratic adjustment costs of the public plants may reflect their internalization of social costs of employment adjustment. Domestic private plants and collective plants have about the same discount factor, much lower than state-controlled plants.

### How limiting deceptive practices harms consumers

 RAND Journal of Economics---2015---Salvatore Piccolo, Piero Tedeschi, Giovanni Ursino

type="main"> There are two competing sellers of an experience good, one offers high quality, one low. The low-quality seller can engage in deceptive advertising, potentially fooling a buyer into thinking the product is better than it is. Although deceptive advertising might seem to harm the buyer, we show that he could be better off when the low-quality seller can engage

in deceptive advertising than not. We characterize the optimal deterrence rule that a regulatory agency seeking to punish deceptive practices should adopt. We show that greater protection against deceptive practices does not necessarily improve the buyer welfare.

### Building new plants or entering by acquisition? Firm heterogeneity and entry barriers in the U.S. cement industry

• RAND Journal of Economics---2015---Hector Perez-Saiz, Hector Perez Saiz

type="main"> I estimate a model of entry for the cement industry that considers two options of expansion: building a plant or acquiring an incumbent. The model takes into account that there is a transfer of the buyer firm-level characteristics to the acquired plants, which affects profits from the acquisition. Estimates show that a less-permissive Reagan—Bush administration's merger policy would decrease the number of acquired plants by 71%, greenfield entry would increase by 9.2% and consumer surplus would decrease by 23.5%. Results suggest that regulators should be concerned about policies that negatively affect the efficient reallocation of assets between incumbents and entrants.

# Controlling opportunism in vertical contracting when production precedes sales

• RAND Journal of Economics---2015---João Montez

type="main"> In a make-to-stock vertical contracting setting with private contracts, when retailers do not observe each other's stocks before choosing their prices, an opportunism problem always exist in contract equilibria but public market-wide Resale Price Maintenance (RPM) can restore monopoly power. However other widely used tools which do not fall under antitrust scrutiny and require only private bilateral contracts, such as buyback contracts, also allow the producer to fully exercise his monopoly power. We conclude that a more lenient policy toward RPM is unlikely to affect the producer's ability to control opportunism.

### Nonlinear pricing and exclusion: I. buyer opportunism

• RAND Journal of Economics---2015---Philippe Choné,Laurent Linnemer

type="main"> We study the exclusionary properties of nonlinear price-quantity schedules in an Aghion-Bolton style model with elastic demand and product differentiation. We distinguish three regimes, depending on whether and how the price charged by the dominant firm depends on the quantity purchased from the rival firm. We find that the supply of rival good is distorted downward. Moreover, given the quantity supplied from the rival, the buyer may opportunistically purchase inefficiently many units from the dominant firm to pocket quantity rebates. We show that the possibility for the buyer to dispose of unconsumed units attenuates the opportunism problem and limits the exclusionary effects of nonlinear pricing.

#### On absolute auctions and secret reserve prices

RAND Journal of Economics---2015---Philippe Jehiel, Laurent Lamy

type="main"> From a theory viewpoint, the use of auctions with zero public reserve prices, also called absolute auctions, or of auctions with secret reserve prices, is somewhat puzzling despite being common. By allowing that buyers differ in their processing of past data regarding how the participation rate varies with the auction format and how reserve prices are distributed when secret, we show in a competitive environment that these auction formats may endogenously emerge. We also analyze how buyers with various sophistications and sellers with various costs sort into the different formats, thereby offering a range of testable predictions. Alternative approaches are reviewed.

#### Implementation by Gradual Revelation

• RAND Journal of Economics---2015---Gorkem Celik

type="main"> We investigate the feasibility of implementing an allocation rule with a gradual-revelation

mechanism in which agents reveal their private information over time (rather than all at once). With independently distributed types, private values, and transferable utilities satisfying a single-crossing property, an ex-post monotonicity condition is sufficient for budget-balanced implementation of any incentive-compatible allocation rule with any gradual-revelation scheme. When we extend the single-crossing property over the set of randomized allocations, a weaker monotonicity condition is necessary and sufficient for budget-balanced implementation by gradual revelation.

# The strategic use of download limits by a monopoly platform

 RAND Journal of Economics---2015---Nicholas Economides, Benjamin Hermalin

type="main"> We offer a new explanation for why platforms, such as Internet service providers and mobile-phone networks, offer plans with download limits: through one of two mechanisms, doing so causes content providers to reduce prices or improve quality. This generates greater surplus for consumers, which a platform captures via higher consumer access fees. Even accounting for congestion externalities, a platform limits downloads more than would be welfare maximizing; indeed, by so much, that barring such practices can be welfare superior to what a platform would do. Paradoxically, a platform will install more bandwidth when it can restrict downloads than when it cannot.

### Efficiencies brewed: pricing and consolidation in the US beer industry

• RAND Journal of Economics---2015---Orley Ashenfelter, Daniel S. Hosken, Matthew C. Weinberg

type="main"> Merger efficiencies provide the primary justification for why mergers of competitors may benefit consumers. Surprisingly, there is little evidence that efficiencies can offset incentives to raise prices following mergers. We estimate the effects of increased concentration and efficiencies on pricing by using panel scanner data and geographic variation in how the merger of

mechanism in which agents reveal their private information over time (rather than all at once). With concentration and reduce costs. All else equal, the independently distributed types, private values, and average predicted increase in concentration led to price transferable utilities satisfying a single-crossing property, an ex-post monotonicity condition is sufficient nearly equal and opposite efficiency effect.

# Dynamic Olley-Pakes productivity decomposition with entry and exit

• RAND Journal of Economics---2015---Marc J. Melitz, Sašo Polanec

type="main"> We propose an extension of the Olley and Pakes () productivity decomposition that accounts for the contributions of surviving, entering, and exiting firms to aggregate productivity changes. We argue that the other decompositions that break down aggregate productivity changes into similar components introduce some biases in the measurement of the contributions of entry and exit. We apply our proposed decomposition to Slovenian manufacturing data and contrast our results with those of other decompositions. We find that, over a five-year period, the measurement bias associated with entry and exit is substantial, accounting for up to 10 percentage points of aggregate productivity growth.

#### Strategic capacity investment under uncertainty

• RAND Journal of Economics---2015---Kuno J.M. Huisman, Peter Kort

type="main"> This article considers investment decisions within an uncertain dynamic and duopolistic framework. Each investment decision involves to determine the timing and the capacity level. The simultaneous analysis of timing and capacity decisions extends work on entry deterrence/accommodation to consider a timing/delay element. We find that, when applying an entry deterrence policy, the first investor, or incumbent, overinvests in capacity for two reasons. First, it delays the investment of the second investor, or entrant. Second, the entrant will invest in less capacity. We also find that greater uncertainty makes entry deterrence more likely.

# The impact of soda taxes on consumer welfare: implications of storability and taste heterogeneity

• RAND Journal of Economics---2015---Emily Yucai Wang

type="main"> The typical analysis on the effectiveness of soda taxes relies on price elasticity estimates from static demand models, which ignores consumers' inventory behaviors and their persistent tastes. This article provides estimates of the relevant price elasticities based on a dynamic demand model that better addresses potential intertemporal substitution and unobservable persistent heterogeneous tastes. It finds that static analyses overestimate the long-run own-price elasticity of regular soda by 60.8%, leading to overestimated consumption reduction of sugar-sweetened soft drinks by up to 57.9% in some cases. Results indicate that soda taxes will raise revenue but are unlikely to substantially impact soda consumption.

# Differential pricing when costs differ: a welfare analysis

• RAND Journal of Economics---2015---Yongmin Chen, Marius Schwartz

type="main"> This article analyzes the welfare effects of monopoly differential pricing in the important, but largely neglected, case where costs of service differ across consumer groups. Cost-based differential pricing is shown to increase total welfare and consumer welfare relative to uniform pricing for broad classes of demand functions, even when total output falls or the output allocation between consumers worsens. We discuss why cost-based differential pricing tends to be more beneficial for consumers than its demand-based counterpart, third-degree price discrimination. We also provide sufficient conditions for welfare-improving differential pricing when costs and demands differ across consumer groups.

# Screening incentives and privacy protection in financial markets: a theoretical and empirical analysis

• RAND Journal of Economics---2015---Jin-Hyuk Kim,Liad Wagman

type="main"> We study a model in which firms offer financial products to individuals, post prices for their products, and screen consumers who apply to purchase them. Any information obtained in the screening process may be traded to another firm selling related products. We show that firms' ability to sell consumer information can lead to lower prices, higher screening intensities, and increased social welfare. By exploiting variations in the adoption of local financial-privacy ordinances in five California Bay Area counties, we are able to provide simple estimates of the effects of stricter financial-privacy laws on mortgage denial rates during 2001–2006. Consistent with the model's predictions, denial rates for home-purchase loans and refinancing loans decreased in counties where opt-in privacy ordinances were adopted. Moreover, estimated foreclosure start rates during the financial crisis of 2007–2008 were higher in counties where the privacy ordinance was adopted.

# Can markets stimulate rights? On the alienability of legal claims

• RAND Journal of Economics---2015---Daniel Chen

type="main"> The alienability of legal claims holds the promise of increasing access to justice and fostering development of law. I develop a principal-agent framework where litigation funders provide expertise in reducing uncertainty in agents' disutility of production. The model leads to the counterintuitive prediction that litigation funders prefer cases with novel issues, and social surplus is positively correlated with legal uncertainty. Consistent with the model, court backlog, court expenditures, and a slowing in average time to completion are associated with third-party funding; cases with third-party funding receive more citations and are reversed less often than comparable cases without such arrangements.

# Learning about common and private values in oligopoly

RAND Journal of Economics---2015---Dan Bernhardt, Bart Taub

type="main"> We characterize a duopoly buffeted by demand and cost shocks. Firms learn about shocks from common observation, private observation, and noisy price signals. Firms internalize how outputs affect a rival's signal, and hence output. We distinguish how the nature of information —public versus private —and of what firms learn about—common versus private values—affect equilibrium outcomes. Firm outputs weigh private information about private values by more than common values. Thus, prices contain more information about private-value shocks.

# A computationally fast estimator for random coefficients logit demand models using aggregate data

• RAND Journal of Economics---2015---Jinhyuk Lee,Kyoungwon Seo

type="main"> This article proposes a computationally fast estimator for random coefficients logit demand models using aggregate data that Berry, Levinsohn, and Pakes (; hereinafter, BLP) suggest. Our method, which we call approximate BLP (ABLP), is based on a linear approximation of market share functions. The computational advantages of ABLP include (i) the linear approximation enables us to adopt an analytic inversion of the market share equations instead of a numerical inversion that BLP propose, (ii) ABLP solves the market share equations only at the optimum, and (iii) it minimizes over a typically small dimensional parameter space. We show that the ABLP estimator is equivalent to the BLP estimator in large data sets. Our Monte Carlo experiments illustrate that ABLP is faster than other approaches, especially for large data sets.

### The costs of free entry: an empirical study of real estate agents in Greater Boston

 RAND Journal of Economics---2015---Panle Barwick, Parag Pathak

type="main"> This article studies the consequences of fixed commissions and low entry barriers in Greater Boston's real estate brokerage industry from 1998–2007. We find that agent entry reduces average service quality and use a dynamic empirical model to study the inefficiency in the current market structure. To accommodate a large state space, we approximate the value function using sieves and impose the Bellman equation as an equilibrium constraint. Our results suggest that a 50% cut in commissions would result in 40% fewer agents, social savings that amount to 23% of industry revenue, and 73% more transactions for the average agent.

#### The economics of wild goose chases

• RAND Journal of Economics---2015---Canice Prendergast

type="main"> Empirical evidence consistently finds that incentive pay is more frequent when authority is delegated to workers than when their superiors hold authority. We provide a model where incentive pay results in the abuse of authority by their superiors, and (under reasonable conditions) implies that (i) incentive pay is higher when an agent holds control rights than when her principal has authority, (ii) effort is less responsive on the margin to incentive pay when the principal holds authority, and (iii) more incentive pay can reduce effort under authority, even on tasks that can be easily measured.

#### Investing in a relationship

• RAND Journal of Economics---2015---Marina Halac

type="main"> A principal can make an investment anticipating a repeated relationship with an agent, but the agent may appropriate the returns through ex post bargaining. I study how this holdup problem and efficiency depend on the contracting environment. When investment returns are observable, informal contracts ex post can be more efficient than formal contracts, as they induce higher investment ex ante: the principal invests not only to generate direct returns, but also to improve relational incentives. Unobservability of returns increases the principal's ability to appropriate the returns but reduces her ability to improve incentives. The optimal information structure depends on bargaining power.

#### Ordering, revenue and anchoring in art auctions

 RAND Journal of Economics---2015---Harrison Hong, Ilan Kremer, Jeffrey D. Kubik, Jianping Mei, Michael Moses

type="main"> We estimate the effect of ordering by value on revenues in sequential art auctions held by Sotheby's and Christie's. We exploit a pre determined rotation of which of these two houses holds their auction first during auction week in New York City. When the house that goes first has relatively expensive paintings compared to the other house, we find that the sale premium for the week is around 21% higher relative to the mean sale premium, and the fraction of paintings sold during the week is around 11% higher. We provide evidence that this is due to an anchoring effect.

#### Regulating bidder participation in auctions

 RAND Journal of Economics---2014---Vivek Bhattacharya, James W. Roberts, Andrew Sweeting

type="main"> Regulating bidder participation in auctions can potentially increase efficiency compared to standard auction formats with free entry. We show that the relative performance of two such mechanisms, a standard first-price auction with free entry and an entry rights auction, depends nonmonotonically on the precision of information that bidders have about their costs prior to deciding whether to participate in a mechanism. As an empirical application, we estimate parameters from first-price auctions with free entry for bridge-building contracts in Oklahoma and Texas and

predict that an entry rights auction increases efficiency and reduces procurement costs significantly.

# Subcontracting and competitive bidding on incomplete procurement contracts

• RAND Journal of Economics---2014---Daniel Miller

type="main"> This article examines the impact of incomplete contracts on subcontracting and the design of procurement auctions. I estimate the effect of ex post contract revisions on unit costs for both subcontracted and in-house performed work items on bridge projects procured by the California Department of Transportation. I model a scoring auction showing how ex post revisions skew bidding decisions and estimate unit costs from bid data using the method of sieve estimation. The results highlight the cost implications of incomplete contracting frictions, subcontracting decisions, and bidding distortions. In conclusion, I propose alternative auction mechanisms that could improve outcomes.

### Moral hazard, adverse selection, and health expenditures: A semiparametric analysis

 RAND Journal of Economics---2014---Patrick Bajari, Christina Dalton, Han Hong, Ahmed Khwaja

type="main"> Theoretical models predict asymmetric information in health insurance markets may generate inefficient outcomes due to adverse selection and moral hazard. However, previous empirical research has found it difficult to disentangle adverse selection from moral hazard in health care consumption. We propose a two-step semiparametric estimation strategy to identify and estimate a canonical model of asymmetric information in health care markets. With this method, we can estimate a structural model of demand for health care. We illustrate this method using a claims-level data set with confidential information from a large self-insured employer. We find significant evidence of moral hazard and adverse selection.

# Does multimarket contact facilitate tacit collusion? Inference on conduct parameters in the airline industry

 RAND Journal of Economics---2014---Federico Ciliberto, Jonathan W. Williams

type="main"> We provide empirical evidence that multimarket contact facilitates tacit collusion among airlines using a flexible model of oligopolistic behavior, where conduct parameters are modelled as functions of multimarket contact. We find (i) carriers with little multimarket contact do not cooperate in setting fares, whereas carriers serving many markets simultaneously sustain almost perfect coordination; (ii) cross-price elasticities play a crucial role in determining the impact of multimarket contact on equilibrium fares; (iii) marginal changes in multimarket contact matter only at low or moderate levels of contact; (iv) assuming firms behave as Bertrand-Nash competitors leads to biased estimates of marginal costs.

### Competition leverage: how the demand side affects optimal risk adjustment

 RAND Journal of Economics---2014---Michiel Bijlsma, Jan Boone, Gijsbert Zwart

type="main"> We study optimal risk adjustment in imperfectly competitive health insurance markets when high-risk consumers are less likely to switch insurer than low-risk consumers. Insurers then have an incentive to select even if risk adjustment perfectly corrects for cost differences. To achieve first best, risk adjustment should overcompensate insurers for serving high-risk agents. Second, we identify a trade-off between efficiency and consumer welfare. Reducing the difference in risk adjustment subsidies increases consumer welfare by leveraging competition from the elastic low-risk market to the less elastic high-risk market. Third, mandatory pooling can increase consumer surplus further, at the cost of efficiency.

### Estimation of cost efficiencies from mergers: application to US radio

• RAND Journal of Economics---2014---Przemyslaw Jeziorski

type="main"> This article estimates fixed-cost efficiencies from mergers using a dynamic oligopoly model in which mergers and repositioning of products are endogenous. The inference is based on revealed preference approach selecting cost synergies that rationalize observed merger decisions. The estimates can be used to assess the total welfare impact of retrospective and counterfactual mergers. The framework is applied to estimate cost efficiencies after the 1996 deregulation of U.S. radio industry. Within the period of 1996 to 2006 the cost savings resulting from mergers amount to \$1.2 billion per year (equally split across economies of scale and within-format cost synergies).

# Quantifying search and switching costs in the US auto insurance industry

 RAND Journal of Economics---2014---Elisabeth Honka

type="main"> I estimate demand for auto insurance in the presence of two types of market frictions: search and switching costs. I develop an integrated utility-maximizing model in which consumers decide over which and how many companies to search and from which company to purchase. My modelling approach rationalizes observed consideration sets as being the outcomes of consumers' search processes. I find search costs to range from \$35 to \$170 and average switching costs of \$40. Search costs are the most important driver of customer retention and their elimination is the main lever to increase consumer welfare in the auto insurance industry.

# Inspection technology, detection, and compliance: evidence from Florida restaurant inspections

• RAND Journal of Economics---2014---Ginger Zhe Jin,Jungmin Lee

innovation in inspection technology can make substantial differences in inspection outcomes. For restaurant hygiene inspections, the state of Florida has introduced a handheld electronic device, the portable digital assistant (PDA), which reminds inspectors of about 1,000 potential violations that may be checked for. Using inspection records from July 2003 to June 2009, we find that the adoption of PDA led to 11% more detected violations and subsequently, restaurants may have gradually increased their compliance efforts. We also find that PDA use is significantly correlated with a reduction in restaurant-related foodborne disease outbreaks.

### Market structure and the competitive effects of vertical integration

• RAND Journal of Economics---2014---Simon Loertscher, Markus Reisinger

type="main"> We analyze the competitive effects of backward vertical integration when firms exert market power upstream and compete in quantities downstream. Contrasting with previous literature, a small degree of vertical integration is always procompetitive because efficiency gains dominate foreclosure effects, and vertical integration even to full foreclosure can be procompetitive. Interestingly, vertical integration is more likely to be procompetitive if the industry is otherwise more concentrated. Extensions analyze welfare effects of integration and the incentives to integrate. Our analysis suggests that antitrust authorities should be wary of vertical integration when the integrating firm faces many competitors and should be permissive otherwise.

#### **Delegation and dynamic incentives**

• RAND Journal of Economics---2014---Dongsoo Shin.Roland Strausz

type="main"> Using an agency model, we show how delegation, by generating additional private information, improves dynamic incentives under limited commitment. It circumvents ratchet effects and facilitates the revelation of persistent private information through

type="main"> In this article, we show that a small two effects: a play-hardball effect, which mitigates an efficient agent's ratchet incentive, and a carrot effect which reduces an inefficient agent's take-the-moneyand-run incentive. Although delegation entails a loss of control, it is optimal when uncertainty about operational efficiency is large. Moreover, delegation is more effective with production complementarity. We also consider different modes of commitment to yield insights into optimal organizational boundaries.

#### The tragedy of the commons in a violent world

• RAND Journal of Economics---2014---Petros Sekeris

type="main"> Earlier research has shown that the tragedy of the commons may be resolved by Folk theorems for dynamic games. In this article, we graft on a standard natural-resource exploitation game the possibility to appropriate the resource through violent means. Because conflict emerges endogenously as resources get depleted, the threat supporting the cooperative outcome is no longer subgame perfect, and thus credible. The unique equilibrium is such that players exploit noncooperatively the resource when it is abundant, and they revert to conflict when it becomes scarce. The players' utility is shown to be lower even if conflict wastes no resources.

#### Incentives, wages, employment, and the division of labor in teams

• RAND Journal of Economics---2014---Michael Rauh

type="main"> We develop a theory of incentives, wages, and employment in the context of team production. A central insight is that specialization and division of labor not only improve productivity but also increase effort and the sensitivity of effort to incentives under moral hazard. We show that employment and incentives are complements for the principal when the positive effects of specialization and division of labor outweigh the increase in risk associated with additional employment and are substitutes otherwise. We provide new characterizations of the partnership, the firm, and

the role of the budget-breaker that are quite different from the classical literature.

#### Search for differentiated products: identification and estimation

• RAND Journal of Economics---2014---Sergei Koulayev

type="main"> When consumers search for differentiated products, a given search decision can be explained either by low search cost or by low tastes for the set of products already found. We propose an identification strategy that allows to estimate the search cost distribution in the presence of unobserved tastes. The required data takes the form of conditional search decisions: observations of search actions combined with previously observed product displays. We develop an application using clickstream data from a hotel search platform. Estimates of price elasticity of demand in the search model differ from those in the static model, reflecting the bias due to endogeneity of search-generated choice sets.

#### Integration and search engine bias

• RAND Journal of Economics---2014---Alexandre de Cornière, Greg Taylor

type="main"> We study the effects of integration between a search engine and a publisher. In a model in which the search engine (i) allocates users across publishers and (ii) competes with publishers to attract advertisers, we find that the search engine is biased against publishers that display many ads – even without integration. Integration can (but need not) lead to own-content bias. It can also benefit consumers by reducing the nuisance costs due to excessive advertising. Advertisers are more likely to suffer from integration than consumers. On net, the welfare effects of integration are ambiguous.

#### Project design with limited commitment and teams

• RAND Journal of Economics---2014---George

Tang

type="main"> We study the interaction between a group of agents who exert effort to complete a project and a manager who chooses its objectives. The manager has limited commitment power so that she can commit to the objectives only when the project is sufficiently close to completion. We show that the manager has incentives to extend the project as it progresses. This result has two implications. First, the manager will choose a larger project if she has less commitment power. Second, the manager should delegate the decision rights over the project size to the agents unless she has sufficient commitment power.

#### Intertemporal substitution and new car purchases

• RAND Journal of Economics---2014---Adam Copeland

type="main"> This article presents a dynamic demand model for motor vehicles. This approach accounts for the change in the mix of consumers over the model year and measures consumers' substitution patterns across products and time. I find intertemporal substitution is significant; consumers are more likely to change the timing of their purchase in reaction to a price increase rather than buy another vehicle in the same period. Further, I find automakers' use of large cash-back rebates at the end of the model year, although boosting overall sales, induces large numbers of consumers to delay their purchases and so pay lower prices.

#### **Network competition with income effects**

• RAND Journal of Economics---2014---Thomas Tangerås

type="main"> I generalize the workhorse model of network competition to include income effects in demand. Empirical work has shown income effects to be positive and statistically significant. Income effects deliver theoretical results consistent with regulatory concern about excessive termination rates: unregulated network oper-Georgiadis, Steven A. Lippman, Christopher S. ators competing in nondiscriminatory retail contracts

negotiate termination rates above cost for any positive rent extraction and clicking volume, this mechanism income effect. This also holds when operators discriminate between on-net and off-net calls if networks are differentiated. Operators profit from increasing termination rates above cost under second-degree price discrimination if a sufficient share of consumers prefer on-net/off-net contracts and their subscription demand is relatively inelastic.

### Spatial differentiation and price discrimination in the cement industry: evidence from a structural model

• RAND Journal of Economics---2014---Nathan H. Miller, Matthew Osborne

type="main"> We estimate a structural model of the cement industry that incorporates spatial differentiation and price discrimination, focusing on the US Southwest over 1983–2003. We leverage the structure of the model to obtain consistent estimates of the underlying parameters using data on market outcomes that are substantially aggregated. Our results indicate that transportation costs around \$0.46 per tonne-mile rationalize the data. This friction enables relatively isolated plants to obtain higher prices from nearby customers. We further find that disallowing price discrimination would create \$30 million in consumer surplus annually and show how the model can identify suitable divestitures in merger analysis.

#### Optimal auction design in two-sided markets

• RAND Journal of Economics---2014---Renato Gomes

type="main"> A key feature of online markets for advertising (e.g., sponsored links) is that clicking rates depend on the searchers' expectations that the platform selects relevant advertisers. This article studies auction design by a platform that maximizes profits in the long run, where clicking rates are mechanism dependent. In line with the practice of the major search engines, the revenue-maximizing mechanism is a scoring auction that combines the willingness to pay and the relevance to searchers of advertisers. By trading off works as a cross-subsidization device between searchers and advertisers.

#### Conversation with secrets

• RAND Journal of Economics---2014---Bernhard Ganglmair, Emanuele Tarantino

type="main"> We analyze the sustainability of a conversation when one agent might be endowed with a piece of private information that affects the payoff distribution to its benefit. Such a secret can compromise the sustainability of conversation. Even without an obligation, the secret holder will disclose its secret if it prevents preemptive termination of the conversation. The nonsecret holder lacks this possibility and stops the conversation. Competition and limited effectiveness of the conversation amplify this result of early disclosure and render the conversation process less sustainable. We discuss policy and managerial implications for industry standard development and joint ventures.

### Discrete games with flexible information structures: an application to local grocery markets

• RAND Journal of Economics---2014---Paul L. E. Grieco

type="main"> Game-theoretic models are frequently employed to study strategic interaction between agents. Empirical research has focused on estimating payoff functions while maintaining strong assumptions regarding the information structure of the game. I show how to relax informational assumptions to enhance the credibility of empirical analysis in discrete games. I apply the method to data on the entry and exit patterns of grocery stores. The model provides useful bounds on equilibrium outcomes. In addition, the empirical analysis indicates that more restrictive informational assumptions can generate qualitatively misleading counterfactual outcomes.

### Subjective evaluations with performance feedback

 RAND Journal of Economics---2014---Jan Zabojnik

type="main"> Firms use subjective performance evaluations to provide employees with both incentives and feedback. This article shows that if an objective measure of performance, however imperfect, is available, subjective evaluations with incentive effects can be sustained even without repeated interaction. Although full efficiency cannot be achieved in general, it is achievable if the firm can commit to a forced distribution of evaluations and employs a continuum of workers. When the number of workers is small, a forced distribution is useful only if the objective measure is poor. The model also shows that a leniency bias in evaluations can improve incentives.

# Domain knowledge, ability, and the principal's authority relations

• RAND Journal of Economics---2014---Nadav Levy

type="main"> I consider how different managerial traits affect the authority relation between a principal and his agent. An increase in the principal's domain knowledge—which enhances his capability to verify the agent's recommendations—leads to an increase in the proportion of the agent's recommendations that are approved, an increase in the agent's initiative, and is unambiguously beneficial to the principal and to the agent. In contrast, an increase in the principal's general ability to explore additional alternatives on his own leads to the principal making a larger proportion of the decisions. This discourages the agent's initiative and can adversely affect the principal.

# Contracting officer workload, incomplete contracting, and contractual terms

• RAND Journal of Economics---2014---Patrick Warren

type="main"> This article estimates the causal effect of retirement-induced workload spikes on the selection

of procurement terms. In a sample of 150,000 contracts from 85 procurement offices over 11 years, increases in workload decrease reliance on competitive acquisition procedures, decrease reliance on firm-fixed-price contracts, increase risk of renegotiation, and increase costs. These estimates are consistent with a model of endogenously incomplete contracting. The US federal government has experienced exceptional growth in acquisitions contracting over the past decade but limited growth in acquisitions manpower. This article provides some of the facts necessary to evaluate the consequences of these shifts.

# Information technology and agency in physicians' prescribing decisions

• RAND Journal of Economics---2014---Andrew J. Epstein, Jonathan D. Ketcham

type="main"> Patients rely on physicians to act as their agents when prescribing medications, yet the efforts of pharmaceutical manufacturers and prescription drug insurers may alter this agency relationship. We evaluate how formularies, and the use of information technology (IT) that provides physicians with formulary information, influence prescribing. We combine data from a randomized experiment of physicians with secondary data to eliminate bias due to patient, physician, drug, and insurance characteristics. We find that when given formulary IT, physicians' prescribing decisions are influenced by formularies far more than by pharmaceutical firms' detailing and sampling. Without IT, however, formularies' effects are much smaller.

# Patent examination outcomes and the national treatment principle

 RAND Journal of Economics---2014---Elizabeth Webster, Paul Jensen, Alfons Palangkaraya

type="main"> One of the principles enshrined in all international patent treaties is that equal treatment should be provided to inventors regardless of their nationality. Little is known about whether this "national treatment" principle is upheld in practice. We analyze whether patent examination outcomes at the

cally by inventor nationality and technology area, using a matched sample of 47,947 patent applications. We find that domestic inventors have a higher likelihood of obtaining a patent grant than foreign inventors and that the positive domestic inventor effect is stronger in areas of technological specialization in the domestic economy.

#### Competition under consumer loss aversion

• RAND Journal of Economics---2014---Heiko Karle, Martin Peitz

type="main"> We address the effect of expectationbased consumer loss aversion on firm strategy in imperfect competition. Consumers are fully informed about match value and price at the moment of purchase. However, some consumers are initially uninformed about their tastes and form a reference point consisting of an expected match value and price distribution, whereas others are perfectly informed all the time. We show that if firms have symmetric costs, a larger share of informed consumers leads to a more competitive outcome. The reverse holds if cost asymmetry in duopoly is sufficiently large.

### The flexible coefficient multinomial logit (FC-MNL) model of demand for differentiated products

• RAND Journal of Economics---2014---Peter Davis, Pasquale Schiraldi

type="main"> We show FC-MNL is flexible in the sense of Diewert ([Diewert, E., 1974]), thus its parameters can be chosen to match a well-defined class of possible own- and cross-price elasticities of demand. In contrast to models such as Probit and Random Coefficient-MNL models, FC-MNL does not require estimation via simulation; it is fully analytic. Under welldefined and testable parameter restrictions, FC-MNL is shown to be an unexplored member of McFadden's class of Multivariate Extreme Value discrete-choice models. Therefore, FC-MNL is fully consistent with an

European and Japanese patent offices vary systemati- underlying structural model of heterogeneous, utilitymaximizing consumers. We provide a Monte-Carlo study to establish its properties and we illustrate its use by estimating the demand for new automobiles in Italy.

### Naked exclusion with minimum-share requirements

• RAND Journal of Economics---2014---Zhijun Chen, Greg Shaffer

type="main"> We consider a class of contracts in which buyers commit to giving a seller some minimum share of their total purchases. We show that such contracts can be used by an incumbent seller to reduce the probability of entry by a rival seller when the incumbent can commit to its selling price as part of the contract. We further show that such contracts can be profitable for the incumbent even when exclusive dealing would not be, and even when buyers can coordinate their accept-or-reject decisions. The average price paid by the buyers will be higher and welfare will be lower whether or not the incumbent's exclusionary conduct turns out to be successful in preventing entry.

### The welfare effects of third-degree price discrimination in intermediate good markets: the case of bargaining

• RAND Journal of Economics---2014---Daniel P. O'Brien

type="main"> This article examines the welfare effects of third-degree price discrimination by a monopolist selling to downstream firms with bargaining power. One of the downstream firms (the "chain store") can integrate backward at lower cost than rivals. Bargaining powers also depend on disagreement profits, bargaining weights, and concession costs. If the chain's integration threat is not credible, price discrimination reduces the input price charged symmetric downstream firms and often reduces the average input price charged asymmetric downstream firms.

# Market structure and gender disparity in health care: preferences, competition, and quality of care

RAND Journal of Economics---2014---Ryan McDevitt, James W. Roberts

type="main"> We consider the relationship between market structure and health outcomes in a setting where patients have stark preferences: urology patients disproportionately match with a urologist of the same gender. In the United States, however, fewer than 6% of urologists are women despite women constituting 30% of patients. We explain a portion of this disparity with a model of imperfect competition in which urology groups strategically differentiate themselves by employing female urologists. These strategic effects may influence women's health, as markets without a female urologist have a 7.3% higher death rate for female bladder cancer, all else equal.

# Adverse selection in the used-car market: evidence from purchase and repair patterns in the Consumer Expenditure Survey

• RAND Journal of Economics---2014---Jonathan R. Peterson, Henry Schneider

type="main"> We analyze adverse selection in the used-car market using a new approach that considers a car as an assemblage of parts, some with symmetric information and others with asymmetric information. Using data from the Consumer Expenditure Survey and Consumer Reports, we examine turnover and repair patterns. We find evidence of adverse selection due to the conditions of the transmission, engine, and, during colder months, air-conditioning; and sorting due to the conditions of the vehicle body and, during warmer months, air-conditioning. Our quantification exercises indicate that adverse selection may have a meaningful effect on trade volume and quality in the secondhand market.

# Calling circles: network competition with nonuniform calling patterns

 RAND Journal of Economics---2014---Steffen Hoernig, Roman Inderst, Tommaso Valletti

type="main"> We introduce a flexible model of telecommunications network competition with nonuniform calling patterns, accounting for the fact that customers tend to make most calls to a small set of similar people. Equilibrium call prices are distorted away from marginal cost, and competitive intensity is affected by the concentration of calling patterns. Contrary to previous predictions, jointly profit-maximizing access charges are set above termination cost in order to dampen competition if calling patterns are sufficiently concentrated. We discuss implications for regulating access charges as well as on- and off-net price discrimination.

# Communication and authority with a partially informed expert

 RAND Journal of Economics---2014---Murali Agastya, Parimal Bag, Indranil Chakraborty

type="main"> A sender-receiver game a la Crawford-Sobel is analyzed where the sender has expertise on some but not all the payoff-relevant factors. This residual uncertainty can either improve (even allow full revelation) or worsen the quality of transmitted information depending on a statistic called the effective bias. For symmetrically distributed residual uncertainty or quadratic loss functions, (i) the quality of information transmission is independent of the riskiness of residual uncertainty, (ii) it may be suboptimal to allocate authority to the informed player, (iii) despite players' preferences being arbitrarily close, it is impossible to assert that the receiver prefers delegation over authority or vice versa.

### Insurer pricing and consumer welfare: evidence from Medigap

• RAND Journal of Economics---2014---Amanda Starc

type="main"> This article examines the welfare impact of imperfect competition in the Medicare supplement insurance (Medigap) market. Two firms control nearly three fourths of the Medigap market, and premiums exceed claims by over 25%. I find that a low price elasticity and consumers' brand preferences lead firms to engage in substantial marketing and price above cost. Therefore, the strategic behavior of insurers facing relatively inelastic demand is critical in explaining poor market performance. I also find that insurers do not capture all of the rents in this market; rents also accrue to actors who perform marketing functions, including agents and brokers.

#### A model of flops

• RAND Journal of Economics---2013---Patrick Hummel, John Morgan, Phillip C. Stocken

type="main"> A firm surveys a large number of consumers, some of whom sincerely report their tastes and others of whom report strategically. It makes product decisions using the sample mean of survey responses. When firms and consumers agree on the fraction of sincere consumers, information loss is severe, and many products are flops as they poorly match consumer tastes. When beliefs differ, however, equilibrium is in linear strategies, and information aggregates. Despite this, flops still arise. A firm, however, can solve the flops problem by limiting the effect of strategic consumers. Binary surveys offer one such solution.

# Fear of rejection? Tiered certification and transparency

• RAND Journal of Economics---2013---Emmanuel Farhi, Josh Lerner, Jean Tirole

type="main"> Product quality certifiers may not reveal the identity of unsuccessful applicants/sellers for three reasons. First, they respond to the desire of individual sellers to avoid the stigma from rejection. Second, nontransparency helps a certifier to increase his market power by raising the stigma from lower-tier certification. Third, transparency does not help screen

among heterogeneous sellers. Strategic complementarities arise as sellers move down the certification pecking order and lead to the stigmatization of the lower tiers. Mandating transparency benefits the sellers but has an ambiguous impact on buyers, who actually become less informed about product quality.

#### Incentives for experimenting agents

 RAND Journal of Economics---2013----Johannes Hörner, Larry Samuelson

type="main"> We examine a repeated interaction between an agent who undertakes experiments and a principal who provides the requisite funding. A dynamic agency cost arises—the more lucrative the agent's stream of rents following a failure, the more costly are current incentives, giving the principal a motivation to reduce the project's continuation value. We characterize the set of recursive Markov equilibria. Efficient equilibria front-load the agent's effort, inducing maximum experimentation over an initial period, until switching to the worst possible continuation equilibrium. The initial phase concentrates effort near the beginning, when most valuable, whereas the switch attenuates the dynamic agency cost.

# On the asymptotic distribution of the transaction price in a clock model of a multi-unit, oral, ascending-price auction within the common-value paradigm

 RAND Journal of Economics---2013---Han Hong, Harry Paarsch, Pai Xu

type="main"> Using a clock model of a multi-unit, oral, ascending-price auction, within the common-value paradigm, we analyze the behavior of the transaction price as the numbers of bidders and units gets large in a particular way. We find that even though the transaction price is determined by a fraction of losing drop-out bids, that price converges in probability to the true, but ex ante unknown, value. Subsequently, we demonstrate that the asymptotic distribution of the transaction price is Gaussian. Finally, we apply our

methods to data from an auction of taxi license plates held in Shenzhen, China.

#### Contracts offered by bureaucrats

• RAND Journal of Economics---2013---Fahad Khalil, Doyoung Kim, Jacques Lawarree

type="main"> We examine the power of incentives in bureaucracies by studying contracts offered by a bureaucrat to her agent. The bureaucrat operates under a fixed budget, optimally chosen by a funding authority, and she can engage in policy drift, which we define as inversely related to her intrinsic motivation. Interaction between a fixed budget and policy drift results in low-powered incentives. We discuss how the bureaucrat may benefit from stricter accountability as it leads to larger budgets. Low-powered incentives remain even in an alternative centralized setting, where the funding authority contracts directly with the agent using the bureaucrat to monitor output.

### Unobserved heterogeneity and reserve prices in auctions

 RAND Journal of Economics---2013---James W. Roberts

type="main"> This article shows how reserve prices can be used to control for unobserved object heterogeneity to identify and estimate the distribution of bidder values in auctions. Reserve prices are assumed to be monotonic in the realization of unobserved heterogeneity, but not necessarily set optimally. The model is estimated using transaction prices from a used car auction platform to show that the platform enables sellers to capture a large fraction of the potential value from selling their vehicle. Individual sellers benefit mostly from access to a large set of buyers, but the magnitude depends on accounting for unobserved heterogeneity.

#### Targeted search and the long tail effect

• RAND Journal of Economics---2013---Huanxing Yang

type="main"> We develop a search model to explain the long tail effect. Search targetability, or the quality of search, is explicitly modelled. Consumers are searching for the right products within the right categories. As search costs decrease, or search targetability increases, additional variety of goods catering to long tail consumers will be provided, and the concentration of sales across different categories of goods decreases. The effects of a decrease in search costs or an increase in search targetability on consumer utility, prices, and profits depend on whether the type coverage increases. Decreases in search costs and increases in search targetability have different qualitative effects.

# Patent pools and innovation in substitute technologies—evidence from the 19th-century sewing machine industry

• RAND Journal of Economics---2013---Ryan Lampe,Petra Moser

type="main"> Patent pools, which combine complementary patents of competing firms, are expected to increase overall welfare but potentially discourage innovation in substitutes for the pool technology. This article exploits a new historical data set on changes in patenting and firm entry for a clearly defined pool technology and substitutes in the 19th-century sewing machine industry. This analysis reveals a substantial increase in innovation for an—albeit technologically inferior—substitute technology. Historical evidence suggests that the creation of a pool-diverted innovation toward an inferior substitute technology by creating differential license fees and litigation risks.

# Search costs, demand-side economies, and the incentives to merge under Bertrand competition

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### On the origin of shared beliefs (and corporate culture)

• RAND Journal of Economics---2010---Eric Van den Steen

This article shows how corporate culture, in the sense of shared beliefs and values, originates (often unintentionally) through screening, self-sorting, and manager-directed joint learning. It shows that such culture will be stronger among more important employees and in older and more successful firms where employees make important decisions and the manager has strong beliefs. It further shows how a manager's beliefs influence culture, how culture persists despite turnover, and why the suggested link between culture and performance may be a case of inverse causality. It finally shows that, from an outsider's perspective, organizations may tend to overinvest in corporate culture. Copyright (c) 2010, RAND..

# Trigger happy or gun shy? Dissolving common-value partnerships with Texas shootouts

• RAND Journal of Economics---2010---Richard R. W. Brooks, Claudia Landeo, Kathryn E. Spier

The operating agreements of many business ventures include clauses to facilitate the exit of joint owners. In so-called Texas Shootouts, one owner names a single buy-sell price and the other owner is compelled to either buy or sell shares at that named price. Despite their prevalence in real-world contracts, Texas Shootouts are rarely triggered. In our theoretical framework, sole ownership is more efficient than joint ownership. Negotiations are frustrated, however, by the presence of asymmetric information. In equilibrium, owners eschew buy-sell offers in favor of simple offers to buy or to sell

shares and bargaining failures arise. Experimental data support these findings. Copyright (c) 2010, RAND..

#### Dynamic pricing: when to entice brand switching and when to reward consumer loyalty

• RAND Journal of Economics---2010---Yongmin Chen, Jason Pearcy

This article develops a theory of dynamic pricing in which firms may offer separate prices to different consumers based on their past purchases. Brand preferences over two periods are described by a copula admitting various degrees of positive dependence. When commitment to future prices is infeasible, each firm offers lower prices to its rival's customers. When firms can commit to future prices, consumer loyalty is rewarded if preference dependence is low, but enticing brand switching occurs if preference dependence is high. Our theory provides a unified treatment of the two pricing policies and sheds light on observed practices across industries. Copyright (c) 2010, RAND..

### The dynamics of the transfer and renewal of patents

• RAND Journal of Economics---2010---Carlos Serrano

This article explores new data on the transfer and renewal of U.S. patents and interprets this new evidence using a model of patent transfers and renewal. We find that the proportion of transferred patents is large and differs across technology fields and especially type of patentees. We also find that the probability of a patent being traded depends on a number of factors-the age of the patent, the number of citations received by a given age, the patent generality, and whether the patent has been previously traded or not. These findings are consistent with the predictions of a model of patent transfers and renewals. Copyright (c) 2010, RAND...

#### Market-share contracts as facilitating practices

derst, Greg Shaffer

This article investigates how the use of contracts that condition discounts on the share a supplier receives of a retailer's total purchases (market-share contracts) may affect market outcomes. The case of a dominant supplier that distributes its product through retailers that also sell substitute products is considered. It is found that when the supplier's contracts can only depend on how much a retailer purchases of its product (ownsupplier contracts), intra- and interbrand competition cannot simultaneously be dampened. However, competition on all goods can simultaneously be dampened when market-share contracts are feasible. Compared to own-supplier contracts, the use of market-share contracts increases the dominant supplier's profit and, if demand is linear, lowers consumer surplus and welfare. Copyright (c) 2010, RAND..

### The effect of satellite entry on cable television prices and product quality

• RAND Journal of Economics---2010---Chenghuan Sean Chu

How has the entry of satellite television affected the pricing and product quality of incumbent cable firms' programming packages? I estimate a model in which firms compete over both price and product quality (as determined by what channels are offered). Satellite entry typically causes cable firms to raise quality and lower price. However, in some markets, cable optimally responds by raising both price and quality or by lowering both price and quality. A counterfactual scenario that eliminates quality competition results in, on average, softer price competition and lower aggregate consumer surplus, but greater surplus for consumers with weaker preferences for quality. Copyright (c) 2010, RAND..

### Does vertical integration affect firm performance? Evidence from the airline industry

• RAND Journal of Economics---2010---Silke Forbes, Mara Lederman

• RAND Journal of Economics---2010---Roman In- We investigate the effects of vertical integration on operational performance. Large U.S. airlines use regional

partners to operate some of their flights. Regionals may be owned or governed through contracts. We estimate whether an airline's use of an owned, rather than independent, regional at an airport affects delays and cancellations on the airline's own flights out of that airport. We find that integrated airlines perform systematically better than nonintegrated airlines at the same airport on the same day. Furthermore, the performance advantage increases on days with adverse weather and when airports are more congested. These findings suggest that, in this setting, vertical integration may facilitate real-time adaptation decisions. Copyright (c) 2010, RAND..

# Do Americans consume too little natural gas? An empirical test of marginal cost pricing

 RAND Journal of Economics---2010---Lucas Davis, Erich Muehlegger

This article measures the extent to which prices exceed marginal costs in the U.S. natural gas distribution market during the period 1991-2007. We find large departures from marginal cost pricing in all 50 states, with residential and commercial customers facing average markups of over 40%. Based on conservative estimates of the price elasticity of demand, these distortions impose hundreds of millions of dollars of annual welfare loss. Moreover, current price schedules are an important preexisting distortion which should be taken into account when evaluating carbon taxes and other policies aimed at addressing external costs. Copyright (c) 2010, RAND..

### Specialization and matching in professional services firms

 RAND Journal of Economics---2010---Andrew J. Epstein, Jonathan D. Ketcham, Sean Nicholson

Economic theory indicates that firms can match workers to jobs and promote productivity-enhancing specialization better than markets, yet few data exist. We empirically test whether firms enhance matching and specialization in the context of obstetrics. We then examine whether consumers benefit from this. We find

that high-risk patients in group practices match with specialists more than patients of solo physicians, and this improves patients' health outcomes. Matching based on a patient's clinical need for a cesarean section delivery and a physician's cesarean section skill also occurs, but less extensively. These results support the hypothesis that firms facilitate matching and specialization. Copyright (c) 2010, RAND...

### State dependence and alternative explanations for consumer inertia

 RAND Journal of Economics---2010---Jean-Pierre Dubé, Günter J. Hitsch, Peter Rossi

For many consumer packaged goods products, researchers have documented inertia in brand choice, a form of persistence whereby consumers have a higher probability of choosing a product that they have purchased in the past. We show that the finding of inertia is robust to flexible controls for preference heterogeneity and not due to autocorrelated taste shocks. We explore three economic explanations for the observed structural state dependence: preference changes due to past purchases or consumption experiences which induce a form of loyalty, search, and learning. Our data are consistent with loyalty, but not with search or learning. This distinction is important for policy analysis, because the alternative sources of inertia imply qualitative differences in firm's pricing incentives and lead to quantitatively different equilibrium pricing outcomes. Copyright (c) 2010, RAND.

#### Net neutrality and investment incentives

 RAND Journal of Economics---2010---Jay Choi, Byung-Cheol Kim

This article analyzes the effects of net neutrality regulation on investment incentives for Internet service providers (ISPs) and content providers (CPs), and their implications for social welfare. Concerning the ISPs' investment incentives, we find that capacity expansion decreases the sale price of the priority right under the discriminatory regime. Thus, contrary to ISPs' claims that net neutrality regulations would have a chilling effect on their incentive to invest, we cannot dismiss the possibility of the opposite. A discriminatory regime can also weaken CPs' investment incentives because of CPs' concern that the ISP would expropriate some of the investment benefits. Copyright (c) 2010, RAND.

### Patent thickets, courts, and the market for innovation

 RAND Journal of Economics---2010---Alberto Galasso, Mark Schankerman

We study how fragmentation of patent rights and the formation of the Court of Appeals for the Federal Circuit (CAFC) affected the duration of patent disputes, and thus the speed of technology diffusion through licensing. We develop a model of patent litigation which predicts faster settlement when patent rights are fragmented and when there is less uncertainty about court outcomes, as was associated with the pro-patent shift of the CAFC. We confirm these predictions empirically using a data set that covers patent suits in U.S. district courts during the period 1975-2000. Finally, we analyze how fragmentation affects total settlement delay, considering both the reduction in dispute duration and the increase in the number of patent negotiations. Copyright (c) 2010, RAND.

#### Transparency and incentives among peers

• RAND Journal of Economics---2010---Eyal Winter

This article studies the effect of transparency among peers on the principal's cost of providing incentives. Using directed graphs to represent peer information, we show that under complementarity the cost of providing incentives is decreasing with the level of transparency within the organization. We also investigate the role of the architecture of the information in boosting incentives. In arguing that substitution impedes the benefits of transparency, we will compare function-based teams with process-based teams, showing that the latter are more effective in providing incentives. Copyright (c) 2010, RAND.

#### **Competition for scarce resources**

 RAND Journal of Economics---2010---Péter Eső, Volker Nocke, Lucy White

We model a downstream industry where firms compete to buy capacity in an upstream market which allocates capacity efficiently. Although downstream firms have symmetric production technologies, we show that industry structure is symmetric only if capacity is sufficiently scarce. Otherwise it is asymmetric, with one large, fat, capacity-hoarding firm and a fringe of smaller, lean, capacity-constrained firms. As demand varies, the industry switches between symmetric and asymmetric phases, generating predictions for firm size and costs across the business cycle. Surprisingly, increasing available capacity can cause a reduction in output and consumer surplus by resulting in such a switch. Copyright (c) 2010, RAND.

# The optimal disclosure policy when firms offer implicit contracts

 RAND Journal of Economics---2010----Arijit Mukherjee

The observability of history is crucial for the sustenance of implicit (or relational) contracts. When a firm hires a sequence of short-lived workers, turnover adversely affects the observability of history-the old worker may leave the firm before communicating the history to the young. However, turnover can also enhance profits if matching gains can be extracted up front. Disclosure of the workers' productivity information affects turnover by mitigating adverse selection. Thus, the optimal disclosure policy trades off matching efficiency with the sustainability of implicit contracts. I show that (i) opaqueness can be optimal only for firms with moderate reputation concerns, and (ii) an opaque firm's profit may decrease with its reputation concern. Copyright (c) 2010, RAND.

#### Monopolistic screening under learning by doing

• RAND Journal of Economics---2010---Dennis Gärtner This article investigates the design of incentives in a dynamic adverse selection framework where agents' production technologies display learning effects and agents' learning rates are private knowledge. In a simple two-period model with full commitment available to the principal, we show that whether learning effects are over- or underexploited crucially depends on whether more efficient agents also learn faster (so costs diverge through learning effects) or whether it is the less efficient agents who learn faster (so costs converge). We further show that an overexploitation of learning effects can occur also if the full-commitment assumption is relaxed. Copyright (c) 2010, RAND.

#### Information and delay in an agency model

 RAND Journal of Economics---2010---Mikhail Drugov

This article studies how delay in contracting depends on an exogenous signal. The agent whose cost is his private information may produce in the first period or be delayed until the second period. A signal about the cost of the agent is available between the two periods. The quality of the good can vary; in the benchmark case of no signal, the principal offers the standard Baron-Myerson contract and there is no delay. Delay is determined by the considerations at the margin and may increase or decrease with a better signal. The value of information can be negative, as a better signal may aggravate the principal's commitment problem. A better signal may also increase the agent's rent and decrease social welfare. Copyright (c) 2010, RAND.

#### Computable Markov-perfect industry dynamics

 RAND Journal of Economics---2010---Ulrich Doraszelski, Mark Satterthwaite

We provide a general model of dynamic competition in an oligopolistic industry with investment, entry, and exit. To ensure that there exists a computationally tractable Markov-perfect equilibrium, we introduce firm heterogeneity in the form of randomly drawn, privately known scrap values and setup costs into the model. Our game of incomplete information always

has an equilibrium in cutoff entry/exit strategies. In contrast, the existence of an equilibrium in the Ericson and Pakes' model of industry dynamics requires admissibility of mixed entry/exit strategies, contrary to the assertion in their article, that existing algorithms cannot cope with. In addition, we provide a condition on the model's primitives that ensures that the equilibrium is in pure investment strategies. Building on this basic existence result, we first show that a symmetric equilibrium exists under appropriate assumptions on the model's primitives. Second, we show that, as the distribution of the random scrap values/setup costs becomes degenerate, equilibria in cutoff entry/exit strategies converge to equilibria in mixed entry/exit strategies of the game of complete information. Copyright (c) 2010, RAND.

### Contracting with private knowledge of signal quality

• RAND Journal of Economics---2010---Leon Yang Chu, David Sappington

We characterize the optimal procurement contract in a setting where a supplier has privileged knowledge of the quality of a public signal about his production costs. The optimal contract exhibits important differences with standard contracts in adverse selection settings. For instance, the contract induces output both above and below first-best levels. Furthermore, the induced output may not vary with the realized public signal unless the signal quality is sufficiently pronounced. In addition, output may increase as expected costs increase. Copyright (c) 2010, RAND.

# Shareholder access to manager-biased courts and the monitoring/litigation trade-off

 RAND Journal of Economics---2010---Sergey Stepanov

Facilitating access to courts for outside shareholders is often viewed as a remedy against managerial opportunism. My model shows that, when courts are biased toward managers, reducing the barriers to shareholder suits can lower efficiency because it can lead to either excessive litigation or excessive monitoring of managers by shareholders. The latter effect implies that easy shareholder litigation may lead to a greater use of substitute mechanisms of corporate governance rather than more reliance on the judiciary. I also show that easy shareholder access to manager-biased courts leads to the formation of more, rather than less, concentrated ownership structures. Copyright (c) 2010, RAND.

### Standard promotion practices versus up-or-out contracts

• RAND Journal of Economics---2010---Suman Ghosh, Michael Waldman

This article develops a theory concerning the choice between standard promotion practices and up-or-out contracts. Our theory is based on asymmetric learning and promotion incentives. We find that firms employ up-or-out contracts when firm-specific human capital is low and standard promotion practices when it is high. We also find that, if commitment to a wage floor is feasible and effort provision is important, up-or-out is employed when low- and high-level jobs are similar. These results are consistent with many of the settings in which up-or-out is typically observed, such as law firms and academia. Copyright (c) 2010, RAND.

# Inferring market power under the threat of entry: the case of the Brazilian cement industry

• RAND Journal of Economics---2010---Alberto Salvo

Consider a setting where threatened rather than actual import competition restrains a domestic oligopoly's prices. I show that not modelling the entry threat may underestimate the true degree of market power, as incumbents' blunted price responses to demand shocks resemble perfectly competitive behavior. Evidence from Brazilian cement markets points to an important role for imports in determining domestic cement prices, despite the near absence of imports. On assuming autarky, models with market power are rejected in favor of competition among incumbents. However, allowing a role for imports rejects the autarky assumption and

excessive litigation or excessive monitoring of managers by shareholders. The latter effect implies that power. Copyright (c) 2010, RAND.

### Natural concentration in industrial research collaboration

 RAND Journal of Economics---2010---Bastian Westbrock

Empirical work shows that networks of research and development alliances are asymmetric, with a small number of firms involved in the majority of partnerships. This article investigates the welfare-relevant effects of such concentrated networks in a model of network formation in an oligopolistic market. We find that concentration is a typical characteristic of a socially efficient network when the costs of collaborative activity are significant. Moreover, expanding on prior work relating to strategically stable interfirm networks, we compare the stable and the efficient structures. Our findings suggest that real-world networks might even exhibit too little concentration. Copyright (c) 2010, RAND.

# The effects of mergers on product positioning: evidence from the music radio industry

• RAND Journal of Economics---2010---Andrew Sweeting

This article shows that mergers between close competitors in the music radio industry lead to important changes in product positioning. Firms that buy competing stations tend to differentiate them and, consistent with the firm wanting to reduce audience cannibalization, their combined audience increases. However, the merging stations also become more like competitors, so that aggregate variety does not increase, and the gains in market share come at the expense of other stations in the same format. The results shed light on the effects of mergers and, more broadly, on how multiproduct firms may use product positioning as a competitive tool. Copyright (c) 2010, RAND.

#### The benefits of a right to silence for the innocent

• RAND Journal of Economics---2010---Shmuel Leshem

This article shows that innocent suspects benefit from exercising their right to silence during criminal proceedings. We present a model in which a criminal suspect can either make a statement or remain silent during police interrogation. At trial, the jury observes informative but imperfect signals about the suspect's guilt and the truthfulness of the suspect's statement. We show that a right to silence benefits innocent suspects by providing them with a safer alternative to speech, as well as by reducing the probability of wrongful conviction for suspects who remain silent with and without a right to silence. Copyright (c) 2010, RAND.

#### Procurement when price and quality matter

• RAND Journal of Economics---2010---John Asker, Estelle Cantillon

A buyer seeks to procure a good characterized by its price and its quality from suppliers who have private information about their cost structure (fixed cost and marginal cost of providing quality). We characterize the buyer's optimal buying mechanism. We then use the optimal mechanism as a theoretical and numerical benchmark to study simpler buying procedures such as scoring auctions and bargaining. Scoring auctions can extract a significant proportion of the buyer's strategic surplus (the difference between the expected utility from the optimal mechanism and the efficient auction). Bargaining does less well and often does worse than the efficient auction. Copyright (c) 2010, RAND.

#### Leadership based on asymmetric information

 RAND Journal of Economics---2010----Mana Komai, Mark Stegeman

Rational players, unconstrained by contracts or formal authority, choose to follow a better-informed leader, whose action reveals part of her information. If the leader satisfies a credibility condition, then the unique nondegenerate equilibrium solves distinct shirking and coordination problems and achieves the first best. If credibility fails, as is more likely for a large organization, then followers ignore the leader, and equilibria are very inefficient. Appointing multiple leaders, or a high-cost leader, can restore credibility. If players invest privately in information, then a leader often appears endogenously. The equilibrium concept is an original extension of sequential equilibrium to continuous states. Copyright (c) 2010, RAND.

# Can you get what you pay for? Pay-for-performance and the quality of healthcare providers

• RAND Journal of Economics---2010---Kathleen Mullen, Richard G. Frank, Meredith B. Rosenthal

Despite the popularity of pay-for-performance (P4P) among health policy makers and private insurers as a tool for improving quality of care, there is little empirical basis for its effectiveness. We use data from published performance reports of physician medical groups contracting with a large network HMO to compare clinical quality before and after the implementation of P4P, relative to a control group. We consider the effect of P4P on both rewarded and unrewarded dimensions of quality. In the end, we fail to find evidence that a large P4P initiative either resulted in major improvement in quality or notable disruption in care. Copyright (c) 2010, RAND.

# Endogenous cartel formation with heterogeneous firms

 RAND Journal of Economics---2010---Iwan Bos, Joseph E. Harrington, Jr

In the context of an infinitely repeated capacity-constrained price game, we endogenize the composition of a cartel when firms are heterogeneous in their capacities. When firms are sufficiently patient, there exists a stable cartel involving the largest firms. A firm with sufficiently small capacity is not a member of any stable cartel. When a cartel is not all-inclusive, colluding firms set a price that serves as an umbrella with non-cartel members pricing below it and producing at

gest that the most severe coordinated effects may come from mergers involving moderate-sized firms, rather than the largest or smallest firms. Copyright (c) 2010, RAND.

### On the benefits of allowing CEOs to time their stock option exercises

This article examines the costs and benefits of permitting executives to use inside information to time their stock option exercises. Whereas prior research has focused on the negative effects of timing discretion, I show that such discretion can have beneficial incentive effects in that it leads to improved project abandonment decisions. This result follows because at-the-money options used to induce managerial effort tilt the CEO's preferences toward project continuation. When the CEO is free to unload stock options at will, he will do so exactly in those states where the continuation bias is most detrimental (i.e., in the event of bad news), making the CEO willing to abandon the project. Copyright (c) 2010, RAND.

### Inference on vertical contracts between manufacturers and retailers allowing for nonlinear pricing and resale price maintenance

• RAND Journal of Economics---2010---Céline Bonnet, Pierre Dubois

We present a model of vertical contracts between manufacturers and retailers with nonlinear pricing strategies. Using home-scan data on bottled water produced by manufacturers and sold by retail chains in France, we estimate a structural demand and supply model allowing for two-part tariff contracts between manufacturers and retailers. Using price-cost margins recovered from estimates of demand parameters, we select the best supply model by performing nonnested tests, and find that manufacturers use two-part tariff contracts with resale price maintenance. We then perform counterfactual policy simulations that restrict the use of these vertical

capacity. Contrary to previous work, our results sug- contracts and assess welfare effects under alternative scenarios. Copyright (c) 2010, RAND.

#### First-price auctions with resale and with outcomes robust to bid disclosure

 RAND Journal of Economics---2010---Bernard Lebrun

• RAND Journal of Economics---2010---Volker Laux Although there exists a pure separating equilibrium of the two-bidder first-price auction with resale when the bids are kept secret, the ratchet effect prevents the existence of such an equilibrium if the bidders are heterogeneous and the bids are fully disclosed. Nevertheless, we construct a behavioral equilibrium under full disclosure that is equivalent to the pure separating equilibrium under no disclosure. Thus, if the bidders follow this equilibrium, the choice of the disclosure regime does not affect the final allocation of the item nor the expected payoffs. Copyright (c) 2010, RAND.

#### Bribery versus extortion: allowing the lesser of two evils

• RAND Journal of Economics---2010---Fahad Khalil, Jacques Lawarree, Sungho Yun

Both bribery and extortion weaken the power of incentives, but there is a trade-off in fighting the two because rewards to prevent supervisors from accepting bribes create incentives for extortion. Which is the worse evil? A fear of inducing extortion may make it optimal to tolerate bribery, but extortion is never allowed. Extortion discourages good behavior because the agent suffers from it even though he has done the right thing, whereas a bribe acts as a penalty for bad behavior. Our analysis provides lessons to fight corruption and explanations why developed countries may have an advantage in dealing with extortion. Copyright (c) 2010, RAND.

#### **Experts and quacks**

• RAND Journal of Economics---2010---Jeremy Sandford

What happens when type is endogenous in a reputational setting? Here, customers cannot tell experts from imitative quacks, but gain information through repeated interaction. Firm incentives to invest in expertise vary nonmonotonically in how tolerant customers are of bad outcomes; more tolerant customers are both more forgiving, making expertise less necessary, and longer tenured, increasing the value of retaining them. In equilibrium, the proportion of expert firms is bounded away from one; some quacks are necessary to keep incentives of experts in line. The fraction of experts is decreasing in customers' switching costs and the relative cost of expertise over quackery. Copyright (c) 2010, RAND.