Statement of Research

Jin Li
Kellogg School of Management
February, 2016
Contents

A. Dynamics of Informal Relationships................................................................. 3
B. Career Dynamics.................................................................................................. 11
C. Other Research..................................................................................................... 14
D. Reference............................................................................................................... 15
My research focuses on the dynamics of employment relationships. As such, my work lies at the intersection of organizational economics, personnel economics, and labor economics.

In Section A, I discuss my work on the dynamics of informal relationships. I show that because many aspects of the employment relationship are informal in nature, they lead to dynamics in the types of organizational and personnel practices firms put in place.

I then describe my work on the career dynamics of workers in Section B. One line of this work examines career movement within firms, focusing on how firms manage promotion opportunities for their workers when they are constrained by their organizational structure. My other line of research in this area studies career movement between firms, emphasizing the role of informational frictions.

Outside of my work on the dynamics of employment relationships, I have also worked on a couple of projects in industrial organization, focusing on tacit collusion. I discuss these in Section C.

A. Dynamics of Informal Relationships

Successful business relationships routinely rely on relational contracts—informal agreements and understandings about how to cooperate and how to share the gains. Since these agreements are informal, the parties must be willing to follow through with them, that is, they must be self-enforcing. What types of organizational and management practices do firms employ in order to sustain and strengthen their relational contracts, and how do these practices change over time? These are the broad questions that motivate my research on the dynamics of informal relationships.

Below, I divide my research in this area in terms of the organizational and management practices firms use. A1 studies the use of discretionary bonuses; A2 examines the design of performance reviews; A3 explores the allocation of decision rights. I conclude this section with a description of my ongoing projects.
A1: Discretionary Bonuses

When firms use discretionary bonuses to motivate the workers, classic models—Bull (1987), MacLeod and Malcomson (1989), and Levin (2003)—have shown that optimal relational contracts are stationary when monetary payments are frictionless. In practice, however, labor regulations, such as minimum-wage laws, and capital market imperfections impose restrictions on the monetary payments firms can use. How do these restrictions affect the ways firms motivate their workers, and in turn, how firms perform over time?

My work in this area [3] and [8] study how firms should use discretionary bonuses to motivate their workers when there are constraints on monetary payments. These papers shed light on why some relationships become more successful over time, while others decline. They also show that, even though the economic fundamentals—technology, capital, and labor—of many relationships seem very similar, the performance of the relationships can be very different. Moreover, these differences in performance persist over time.

“Managing Conflicts and Relational Contracts” [3]: In this paper, Niko Matouschek and I focus on a novel type of friction in relationships. The existing literature has mostly focused on private information on the worker’s side. We highlight that in employment relationships, managers are typically better informed about the challenges and opportunities that their firms face, and they, therefore, often have private information about the opportunity costs of paying their workers. As a result, conflict can arise when workers demand that a bonus be paid, while managers insist that the necessary funds are either non-existent or would be better spent on something else, such as an exceptional investment opportunity. This paper explores optimal relational contracts in this setting.

For this purpose, we examine a repeated relationship between a manager and a worker in which the manager’s opportunity costs of paying the worker are stochastic and privately observed by her. In this setting, if the manager does not pay a bonus, the worker does not know her motives. Did the manager not pay the bonus, because it is more efficient to spend resources on something else, or is she simply trying to extract some of the worker’s rents? To keep the manager honest, the worker then has to punish the manager whenever she does not pay a bonus. As a result, the manager faces a tradeoff between the current benefits of adapting bonus payments to their opportunity costs and the future costs of conflicts.

We characterize the optimal relational contract in this setting that sheds light on how the manager should resolve this trade-off. In particular, it is optimal for the manager to promise the worker a bonus if opportunity costs are high but no bonus if they are low. Conflicts therefore arise whenever the manager does not pay the
bonus. To manage these conflicts, the manager relies on a combination of informal promises and formal commitments that evolves with the duration of the conflict. As a result, effort and expected profits decline gradually during a conflict and then recover instantaneously. The same pattern is repeated over time. The relationship between the manager and the worker therefore never terminates, nor does it reach a steady state. Instead, it cycles indefinitely.

The dynamics described above require that the firm is not liquidity-constrained. The manager can therefore always pay the worker any positive amount, even if the opportunity costs of doing so may be high. In our main extension, we relax this assumption. We show that liquidity constraints limit the manager’s ability to manage conflicts, which slows down recoveries and may lead to termination. They can also, however, induce the worker to respond to a conflict by providing more effort rather than less. Essentially, the worker understands that more effort relaxes the firm’s liquidity constraint, which, in turn, allows the manager to pay him a larger bonus.

Finally, we argue in the paper that there is some evidence from well-known case studies on relational contracts—Lincoln Electric’s experience after its failed international expansion in the early 1990s and Credit Suisse First Boston’s troubles with its traders in the same time period—that support the predictions of the model.

“Relational Contracts, Limited Liability, and Employment Dynamics” [8]: This paper (joint with Yuk-fai Fong) studies how the principal’s inability to commit to discretionary bonuses interacts with a common form of frictions in transfers in repeated principal-agent models: the agent is protected by a limited-liability constraint, that is, there is a lower bound on the pay of the agent. The agent’s limited liability constraint can arise from many sources. In an employment relationship, for example, a minimum-wage law imposes a lower bound on the pay of a worker. We study the dynamics of employment relationships in the presence of the limited-liability constraints.

Specifically, we study a model of relational contracts with imperfect public monitoring, which is an infinitely repeated principal-agent model in which output is publicly observable but not contractible. The agent privately chooses to work or shirk, and by working, the agent increases the probability of the output being high. We model the limited-liability constraint by requiring that the agent’s pay in each period be above an exogenously given wage floor.

Under the optimal relational contract, the relationship begins with a “probation phase,” during which the agent puts in effort and receives a constant wage equal to the wage floor. If the output history has been sufficiently favorable, the worker transitions into the “reward phase,” during which the principal rewards the agent with discretionary bonuses. If the output history has been sufficiently unfavorable, the relationship transitions to the punishment phase. Depending on the level of the
wage floor, the agent will either be suspended, so that he is paid the wage floor but is not asked for effort, or the relationship will be terminated.

More importantly, we show that when the principal cannot commit, the relationship is less likely to survive. Even if the relationship survives in the long run, the lack of commitment from the principal reduces its efficiency and lowers the wage of the agent. In particular, whereas the relationship always converges to an efficient steady state in the long run under long-term contracts, it can cycle under the relational contract—whenever the output history has been sufficiently unfavorable, the agent is suspended for a number of periods.

**A2: Performance Reviews**

In modern labor markets, most workers perform jobs where objective performance measures are hard to obtain (Prendergast, 1999). Consequently, firms often evaluate and compensate workers based on subjective performance measures. When performance measures are subjective, they do not always accurately reflect workers' true performance. When workers are compensated based on inaccurate performance measures, they become dissatisfied with the firm, and the performance of the firm suffers.

Designing a good performance review system is key for a firm’s competitiveness. But a good performance review system is difficult to design, because there are many choices to make. For example, should the boss directly evaluate a worker, or should he delegate the task to a supervisor? Once the evaluation is collected, should it be made public, and to what degree should it be used to determine compensation?

I explore these questions in the context of relational contracts. I show that performance review systems exhibit different features when relational contracts are used than when formal contracts are used. In [6], I show that firms may delegate the task of evaluation to supervisors, even if that leads to loss of information. In [4], I show that firms may ignore useful information for compensation purposes in order to elicit accurate evaluations.

**Information Revelation in Relational Contracts [6]:** In this paper, Yuk-fai Fong and I study the organizational response to subjective performance reviews in long-term employment relationships. The prior literature takes the organizational structure as given: the entity that carries out the review—the principal—also incurs the cost of compensating the employee. In practice, however, "in most organizations agency relationships are multi-layered," (Prendergast and Topel, 1993). Performance reviews are typically carried out by supervisors, and compensation decisions are instead made by those at the top of the organizations, using performance the reviews as an input.
We show that the firm benefits from separating the task of evaluating the worker from the task of paying him. This separation allows the supervisor to better manage the information flow and to increase the efficiency of the organization. Our results highlight two patterns of the review process that help strengthen the relational contract. First, the review process is lenient, in the sense that the supervisor sometimes sends a good review even when he observes bad performance from the worker. Second, the review process exhibits a spillover effect: the supervisor rewards past good performance by sending a good review today, even if the worker performs poorly.

By strategically managing the information, the supervisor rewards the worker for his good performance with not just a good review—and thus a bonus in the current period—but also a promise of better reviews in the future. In other words, the worker’s continuation payoff increases after good performance. This type of review spreads the reward for the worker’s good performance across time, and therefore, it makes the current bonus less sensitive to actual performance.

The patterns our review process exhibits—the leniency bias and the spillover bias—have been well documented. Scholars in various literatures, and management scholars in particular, have suggested several possible rationales—mostly behavioral—for why they are so prevalent. While our results can coexist and reinforce these explanations, they have different organizational implications. In particular, rather than fighting these biases by insisting on transparency or rigid review standards, a firm might condone such biases among her supervisors in order to strengthen the credibility of the organization’s incentive scheme.

“Relational Contracts with Subjective Peer Evaluations” [4]: Team-based work practices are ubiquitous, and most organizations collect information about a worker’s performance from his teammates through peer evaluations. When the evaluations are subjective and private, workers do not necessarily have the right incentives to truthfully report the performance of their teammates, especially if the reports affect their own pay. In this paper, Joyee Deb, Arijit Mukherjee, and I study the optimal design of peer evaluations.

We show that firms can use peer evaluations to help sustain relational contracts. But firms should use peer evaluations sparingly, because they lead to destruction of surplus. Importantly, we show that it may be optimal to ignore signals that are informative about the worker’s effort, and in particular, a worker’s report does not affect his own pay. The reason is that effort incentives cannot be decoupled from truth-telling incentives—a worker who has shirked also has the strongest incentive to misreport the performance of his peers. Our results therefore suggest that it can be optimal to have designated supervisors, even if they could otherwise contribute directly to production. Our results are also consistent with compensation policies in many professional services industries such as the financial sector.
A3: Power and Decision Rights

My work above assumes that firms can use money, albeit imperfectly, to motivate their workers. As Prendergast and Stole (1999) note, however, “A striking characteristic of work life is that one cannot reward individuals in cash for some things, but can compensate them in other ways.” One important “other way” to reward the workers is to give them power. How and when should firms reward their workers with power, and, when power is used to motivate the workers, how does the allocation of power affect the firm’s performance?

“Power Dynamics in Organizations” [7]: In this paper, Niko Matouschek, Mike Powell, and I explore the evolution of power within firms and organizations more broadly. Our goal is to understand whether power can be earned, how it is lost, and why some are able to retain it, even when they are using it in openly selfish ways. Existing economic theories of organization are not well-suited to explore these issues, since they are either static or focus on settings in which the optimal allocation of power is stationary. In this paper, we therefore expand the existing literature by developing a dynamic model of power.

Our model is an infinitely repeated game between a principal and her agent. Every period, the agent recommends a project, the principal decides which project to choose and implement. The principal can choose among multiple projects, including a default project, the agent’s preferred project, and, potentially, the principal’s preferred project. The problem for the principal is that, apart from the default project, only the agent knows which project is which. Moreover, and crucially, the principal’s preferred project is not always available, and only the agent knows whether it is. If the agent does not recommend the principal’s preferred project, the principal therefore cannot tell whether the agent is hiding information, or the project is simply not available.

We show that if those at the top manage this trade-off optimally, then, initially, power is earned and lost in line with an agent’s current performance: the agent becomes more powerful if he recommends and implements the principal’s preferred project, and he becomes less powerful if he does not. Eventually, however, this link between power and performance is broken. Depending on the agent’s initial performance, the principal then either restricts his power permanently, or she permanently expands his power and allows him to make whatever decisions he sees fit. In either case, the organization is no longer able to make efficient use of the agent’s expertise, and its performance suffers.

The dynamics we described above imply that firms that start out identical can end up with different organizations and thus different performance levels. Specifically, some firms will end up as low-performing centralized firms, and others will end up as better-performing decentralized ones. In line with the findings in Aghion et al.
(2015), therefore, decentralized firms perform better than centralized ones. These organizational and performance differences persist, not because firms are unable to observe each other’s actions, nor because those actions are protected by patents. Instead, they persist, because firms are constrained by their past promises. As such, our model supports the intuitive view that, as long as there are relational aspects to a firm’s organization, its history can serve as a hidden barrier to imitation.

Another key implication of the dynamics is that the organization gradually gets worse at adapting to changes in the environment. Initially, the principal is able to induce the agent to adapt to those changes in a profit-maximizing manner by making promises about his future power. Eventually, however, the principal has to live up to those promises and either restrict the agent’s power, and thus forgo the agent’s information, or allow the agent to abuse his power and bias decisions in his favor. In either case, the organization no longer adapts to changes in the environment in a profit-maximizing manner. These dynamics resonate with the observation that established firms often fail to respond to disruptive changes in their industries; see for example, Bower and Christensen (1995).

A4: Ongoing Projects

I have a number of ongoing projects that further explore the dynamics of informal relationships. As in the existing papers, these ongoing projects also study how firms can optimally use various management and organizational practices to sustain and strengthen relational contracts.

“Financing Constraints and Relational Contracts” [10]: In this paper, Dan Barron and I examine how a firm’s financial obligations to outside creditors affect its ability to manage internal-agency relationships, and vice versa. External finance and internal incentives are linked through relational contracting, because the promises a firm makes to its creditors can influence the credibility of the compensation it promises workers. In our model, a liquidity-constrained firm purchases an asset by borrowing money from a competitive capital market. After this asset is purchased, the firm must repeatedly motivate its worker to exert continuous and observable effort, the proceeds of which can be used to both pay the worker and repay an external creditor. We show that in the profit-maximizing equilibrium, the worker’s productivity is initially low and increases over time. Productivity continues increasing even after the debt has been repaid, eventually converging to a steady state that is independent of the size of the initial loan. Because external financing limits the firm’s ability to motivate its workers, our model implies that firms relying on relational contracts will typically underinvest in the scale of their existing businesses, even if the capital market is competitive.

“Implementing Change in Organizations” [15]: In this paper, Niko Matouschek, Mike Powell, and Xi Weng, and I examine how the process of change influences the efficiency of subsequent routines. In our model, a manager introduces a project and
needs the help of a worker to implement it. The two parties must first explore whether the project is feasible, and if it is, how to implement it. There are various ways to implement the project—corresponding to different routines—and there is a tension between the distribution of these gains and total surplus generated. We show that when the parties take longer to learn that the project is feasible, they will also implement a less-efficient routine. The inefficient routine skews the distribution of gains toward the worker. This motivates the worker to explore the project’s feasibility ex ante. An implication of the model is therefore that history in a pre-game can account for the selection of routines in a long-run relationship.

“Strategic Transparency and Organizational Rigidity” [17]: Crises and conflicts often cause organizations to become more transparent. Lincoln Electric, for example, introduced a formula-based bonus system after it failed its international expansion and paid its workers smaller-than-expected bonuses. In this paper, Arijit Mukherjee, Luis Vasconcelos, and I study the causes and consequences of conflict-induced transparency. We build on [3] by introducing the possibility of multitasking. In each period, the worker can either do the efficient thing, or he can target his effort towards one of the imperfect performance measures. We show that conflicts force the organization to be more transparent by tying the worker’s pay to the imperfect performance measure. Doing so saves the firm from complete loss of efficiency. However, it also makes the organization more rigid and prevents it from recovering to its full efficiency. The model provides a new perspective on the evolution of efficiency and management practices within firms.

“Setting Priorities in Relational Contracts” [16]: In modern labor markets, production processes are often complicated, and workers have limited knowledge about how their actions affect their performance. In this paper, Arijit Mukherjee, Luis Vasconcelos, and I explore how, in an ongoing agency relationship, the credibility of a firm affects the way it communicates to its workers on how to carry out their jobs. Specifically, when a job consists of a cluster of tasks, the firm can either ask a worker to work on all tasks, or it can ask him to prioritize a subset of the tasks. When should the firm ask its workers to prioritize? We show that the firm’s communication policy matters for the performance of the relationship, when its discount factor is within an interval. At the lower end of the interval, the firm prefers to set priorities so as to induce at least some effort from the worker. At the upper end of the interval, the firm prefers not to set priorities, because doing so reveals to the worker which tasks are more important to the firm, making it easier for the worker to game the system. Finally, in the middle of the interval, the firm will set priorities, but not immediately. Doing so helps prevent the worker from experimenting and learning about how to game the system. This provides a new rationale for why firms may gain from regularly “shaking up” the production environment and rotating its workers.
**B: Career Dynamics**

My second main research interest is in the career dynamics of workers. My research in this area can be divided into career dynamics within firms (B1) and between firms (B2).

**B1: Within Firms**

Alfred Sloan described firms as “a pyramid of opportunities.” An organization’s performance suffers when it fails to provide enough opportunities for its workforce. Drawing on extensive survey evidence, Peter Cappelli (2008) observed, “Frustration with advancement opportunities is among the most important factors pushing individuals to leave for jobs elsewhere.” The importance of career planning motivates the sociologists to examine how a firm’s organizational structure affects the career advancement opportunities for its workers (see for example, Harrison White’s celebrated work on vacancy chains). While the availability of opportunities obviously affects the worker’s incentives, these analyses have ignored it. In contrast, the study of incentive provision has been at the center of economics research in the past 40 years, and economists, by and large, have relegated the firm’s organizational structure to the background.

My research in this area aims to fill this gap by exploring the interaction between organizational structure and incentive provision. My first paper in this area ([11]) develops a model for analyzing this interaction. This paper leads to two follow-up projects ([18], [19]) that are currently in progress. In [18], we consider firms that are growing in size. We show that one advantage of faster-growing firms is that they can afford to pay lower wages, while still attracting workers. In [19], we examine the impact of various labor-market regulations, taking into account that firms optimally manage the opportunities of their workforces in response to these regulations.

**“Managing Careers in Organizations” [11]:** Firms often use promotions to attract, motivate, and retain their workers. The promotion prospects of the workers, however, are constrained by the availability of promotion opportunities: workers cannot get promoted if there are no positions available. The purpose of this paper is to develop a framework for highlighting the “budget constraint” on promotion opportunities within firms and exploring its consequences. This framework enables us to ask, and answer, questions such as how should firms design their personnel policies subject to the availability of promotion opportunities? And relatedly, how does a firm’s characteristics, such as the production technology it employs, affect the personnel policies it chooses, and in turn, the workers’ career dynamics?

Our model builds upon Shapiro and Stiglitz’s (1984) efficiency-wage model by allowing for two activities within a single firm. The two activities differ in the level of rents required to provide motivation, because one activity (the high-rent activity)
is either harder to do or harder to monitor than the other (the low-rent activity). To maximize its steady-state profits, the firm chooses the number of positions for each activity. In addition, the firm chooses a bundle of personnel policies that specifies (1) the number of new hires into each position, (2) the promotion, demotion, and retention rules for existing workers, and (3) the wages attached to each position.

The optimal personnel policies exhibit features that resemble an internal labor market. The low-rent activity is performed in the bottom job, which serves as a port of entry. Workers remain in the bottom job until they are promoted to the top job, in which they perform the high-rent activity and receive a higher wage. Once in the top job, workers are never demoted. As a result, a well-defined career path emerges.

A key feature of our analysis is that optimal personnel policies depend on firm-level characteristics, and in particular, a firm’s span—the ratio of the number of positions at the bottom to the number of positions at the top—serves as a sufficient statistic for the types of personnel policies the firm puts in place. Firms with larger spans naturally have more limited promotion opportunities. If a firm’s span exceeds a threshold, the firm optimally puts in place forced-turnover policies such as mandatory-retirement programs, forcing a fraction of the workers at the top to leave the firm. In addition, forced-turnover policies are optimally complemented with more generous compensation for workers at the top as well as a more generous promotion policy for workers at the bottom.

In summary, firm-level characteristics drive the firm’s choices of personnel policies, and in turn, affect the careers paths of workers. To the extent that larger firms also have larger spans, our results imply that workers in larger firms have higher starting wages and higher wages upon promotion, but their promotion prospects will be more limited, and their jobs will be less secure after promotion.

B2: Between Firms

My second research area in career dynamics is concerned with how information about the workers affects their job mobility. In the U.S., a typical male worker holds seven jobs in the first ten years of his labor market experience (see for example Topel and Ward (1992)). I have long been fascinated by the dynamic process in which heterogeneous workers move in and out of different jobs, and my papers in this area have explored how different factors, such as asymmetric information, learning, assignment, and long-term contracts affect the process of job-hopping and its impact on wage inequality and employment security.

“Job Mobility, Wage Dispersion, and Technological Change: An Asymmetric Information Perspective” [2]: In this paper, I study a model of job mobility and wage dispersion with asymmetric information. Contrary to the existing models in which the superior information of current employers leads to market collapse, this model generates a unique equilibrium outcome in which positive turnover exists,
and identical workers are paid different wages. The model implies that, in the presence of technological change that is skill-biased and also favors general skills over firm-specific skills, the wage distribution will become more spread out, and job mobility will increase. These patterns are consistent with recent empirical evidence on changes in wage inequality and in job mobility in the United States.

“A Theory of the Wage Distribution and Dynamics with Assignment and Pareto Learning” [9]: In this paper, I develop a model of wage distribution and wage dynamics based on assignment and Pareto learning. Unlike the commonly used learning technologies—normal learning, for example—Pareto learning provides a convenient tool to aggregate wages across individual workers. The tractability of Pareto learning allows me to derive a number of implications on the wage distribution and wage dynamics. I show that the wage distribution is skewed to the right and has a fat tail. In addition, the median wage of any given cohort increases, and the wage distribution becomes more dispersed over time. Notably, the model provides a framework for decomposing the earning variance into a permanent component and a transitory one, and it helps explain why technological change can lead to both higher wage inequality and higher wage instability.

“A Theory of Turnover and Wage Dynamics” [12]: It is well documented that a bad economy at the time of initial employment lowers the workers’ earnings, and these effects are persistent. Despite its negative effects on long-term earnings, a bad economy appears to have a positive effect on job security, which is inconsistent with existing theories. In this paper, Jun Yu and I develop a model that integrates insurance, match-specific productivity, and long-term contracts. When match-specific productivity is important, we show that a bad economy lowers long-term earnings, but workers hired in a bad economy have better employment security. The key mechanism is that workers in a bad economy need to be better matches to be hired. Consequently, the average match quality of workers hired in a worse economy is better, resulting in longer employment spells.

B3: Ongoing Projects

“Managing Firm Growth” [18]: In this paper, Rongzhu Ke, Mike Powell, and I extend the model in [11] by allowing for the number of positions in a firm to grow over time. We characterize the optimal personnel policy allowing for bonus and the assignment rules to be history-dependent. We show that when a firm offers limited promotion opportunities—for example when the firm’s growth stalls—the optimal promotion policy takes the form of a seniority rule. We also show that the average wage is lower in a faster-growing firm. Finally, we show that a firm is more profitable when its growth rates are more stable over time.

“Labor-Market Regulation and Workers’ Careers in Organizations” [19]: In this paper, Rongzhu Ke, Mike Powell, and I build on the model in [11] to study how labor-market policies impact workers’ careers through their effects on firms’
personnel policies. We show that progressive taxation, which disproportionately affects top workers, also has indirect effects on bottom workers—fewer workers are hired at the bottom, but the workers who are hired have greater promotion opportunities. In addition, an increase in the minimum wage can increase employment in the firm. In particular, employment at the bottom of the firm can increase, since limited-liability rents can serve as a substitute for career-based incentives for bottom workers: minimum wages may lead to the proliferation of “dead-end” jobs.

C: Other Research

Outside my main research areas, I have also worked on a few projects in industrial organization, focusing on tacit collusion.

“Multilateral Cooperation under Uncertainty” [14]: In this paper, Mike Powell and I study the extent to which increasing the breadth of interactions can help foster cooperation in uncertain environments. Theoretical works pioneered by Bernheim and Whinston (1990) have shown that in broad relationships, parties may use the fact that cooperation is easy to sustain in some aspects of their relationship to help foster cooperation in more difficult aspects, but for the most part, this work has primarily focused on environments with no uncertainty. When there is uncertainty, we show that when players, on average, prefer to stick to a cooperative agreement rather than reneging by taking their privately optimal action, then collaboration can be approximately sustained in a sufficiently broad relationship. This is in contrast to existing results showing that a cooperative agreement can be sustained only if players prefer to adhere to it in every state of the world. We consider applications to favor exchange, multimarket contact, and relational contracts.

“When Does Aftermarket Monopolization Soften Foremarket Competition?” [5]: In this paper, Yuk-fai Fong, Ke Liu, and I investigate firms’ abilities to tacitly collude when these firms each monopolize a proprietary aftermarket. We show that when firms’ aftermarkets are isolated from foremarket competition, they cannot tacitly collude more easily than single product firms do. However, when their aftermarket power is contested by foremarket competition as equipment owners view new equipment as a substitute for their incumbent firm’s aftermarket product, the monopoly profit is sustainable among a larger number of firms. More strikingly, as long as existing customers have a shorter market life expectancy than incoming customers, for any discount factor, supranormal profits are sustainable among arbitrarily many firms each selling ex ante identical products. These results suggest the importance of distinguishing between two types of aftermarket power that are often considered to be qualitatively the same.
“Tacit Collusion in Auctions and Conditions for Its Facilitations and Prevention: Equilibrium Selection in Laboratory Experiments” [1]: In this paper, Charles Plott and I study bidder behavior in simultaneous, continuous, ascending price auctions. The paper makes two main contributions. First, we designed and implemented a “collusion incubator” environment with two key properties: 1) the preferences of the bidders display “strong ordinal symmetry”, and 2) the preferences of the bidders are “item-aligned” so that for any item that a bidder prefers the most, that bidder also has the highest value among all bidders. With these features, tacit collusion develops quickly and reliably within the environment. Second, we show that once tacit collusion developed, it proved remarkably robust to institutional changes that weakened it as an equilibrium of a game-theoretical model. The only successful remedy was a non-public change in the preference of bidders that destroyed the “strong ordinal symmetry” and “item-aligned” patterns of preferences, creating head-to-head competition between two bidders.

References


(6) “Information Revelation in Relational Contracts” joint with Yuk-Fai Fong (Accepted) Review of Economic Studies.

(7) “Power Dynamics in Organizations” joint with Niko Matouschek and Mike Powell (Dec, 2015) Conditionally Accepted, AEJ Micro.


(10) “Managing Careers in Organizations” joint with Rongzhu Ke and Mike Powell (Jan, 2016).


(12) “Reputation Turnaround through Voluntary Ownership and Management Turnover” joint with Pak Hung Au and Yuk-Fai Fong (June, 2015).

(13) “Multilateral Cooperation Under Uncertainty” joint with Mike Powell (March, 2015).


(15) “Implementing Change in Organizations” joint with Niko Matouschek, Mike Powell, and Xi Weng.

(16) “Setting Priorities in Relational Contracts” joint with Arijit Mukherjee and Luis Vasconcelos.

(17) “Strategic Transparency and Organizational Rigidity” joint with Arijit Mukherjee and Luis Vasconcelos.

(18) “Managing Firm Growth” joint with Rongzhu Ke and Mike Powell.

(19) “Labor-Market Regulation and Workers’ Careers in Organizations” joint with Rongzhu Ke and Mike Powell.