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# The Politics and Economics of Power

Edited by Samuel Bowles, Maurizio Franzini and Ugo Pagano



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# Contents

<i>List of contributors</i>	vii
<b>1 Introduction: trespassing the boundaries of politics and economics</b>	1
SAMUEL BOWLES, MAURIZIO FRANZINI, AND UGO PAGANO	
<b>PART I</b>	
<b>Politics and power in economic organizations</b>	11
<b>2 Power in competitive exchange</b>	13
SAMUEL BOWLES AND HERBERT GINTIS	
<b>3 Adaptation and opportunism in political and economic markets</b>	31
MAURIZIO FRANZINI	
<b>4 The internal politics of the firm</b>	46
PAUL MILGROM AND JOHN ROBERTS	
<b>5 Is power an economic good? Notes on social scarcity and the economics of positional goods</b>	63
UGO PAGANO	
<b>6 How politics limits markets: power, legitimacy, choice</b>	85
JOHN DUNN	
<b>PART II</b>	
<b>The economic analysis of political organizations</b>	101
<b>7 Modeling politics as a competitive endeavor</b>	103
ALBERT BRETON	
<b>8 Political parties and representative democracy</b>	129
GIANLUIGI GALEOTTI	

## 4 The internal politics of the firm

Paul Milgrom and John Roberts

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Political activity in society at large arises inevitably from the twin facts that individuals and groups have varying interests and that the institutions of societal decision making provide channels through which to pursue those interests. Political activity within the firm has similar roots. Workers and managers, lenders and stockholders, suppliers, customers, and local communities are all potentially affected in varying ways by a firm's decisions, and all have means to influence many of those decisions. As in the public sector, groups often organize to advance the group members' shared interests. Workers may be represented by unions, stockholders by a board of directors, customers by users groups, lenders by creditors' committees, local communities by their governments and regulatory bodies, and so on. All parties have access to the courts in case of contract disputes.

The vast scope of political behavior in the firm and writings about it would make a comprehensive review of the literature unwieldy. The upsurge in corporate takeovers during the 1980s and 1990s and the associated corporate governance issues has spawned a huge literature by itself, some of which is quickly becoming obsolete as the legal and institutional climate changes. In response to the threats of hostile takeovers, managers and boards of directors have sought legislation to thwart hostile bidders. That is just one example of the kind of business-government relations that is omitted in this survey. To keep our subject manageable, we focus primarily on the *internal* politics of the firm.

We divide the relevant literature into four general parts. The first part, reviewed in the first section, treats the institutions of the firm as *exogenous* and inquires into the behavior of individuals and groups pursuing their interests within those given institutions. The remaining three parts allow the possibility that the institutions themselves are chosen or adapted to attenuate the most harmful effects of politicking. In the second section, we discuss *value-maximizing* institutions, mostly using a very special framework in which total value is a meaningful measure of economic efficiency.<sup>1</sup> The third section gives special coverage to the subject of *influence costs* and their effects on how decision making is organized in firms. The value-maximizing institutions studied in these latter two sections may also be

*market equilibrium* institutions, that is the institutions that would evolve or emerge under the pressures of a market economy. As we shall see later, there is no assurance that even Pareto-efficient institutions are always value maximizing. The final part of the literature considers the additional insights that emerge when market equilibrium institutions may not be value maximizing.

### Exogenous institutions

In the standard neoclassical model of economics, there is little room for politics inside firms, because firms' decisions have few distributional consequences. For example, if a qualified worker is passed over for a promotion in a firm then, according to the neoclassical competitive model, that worker does not suffer because he or she can find an equivalent job at the same competitive wage at another firm. Moreover, the firm would never have any reason to promote an unqualified worker, because doing so merely reduces its profits. Similarly, when a purchasing agent chooses among qualified suppliers, the winning supplier does not enjoy rents, because the neoclassical model supposes that the firm can find as many customers as it likes if it charges the competitive price for its product, and can find no customers if it charges more.

To study the internal politics of the firm, the neoclassical model has to be extended to establish the possibility that the outcomes of the firm's decisions create winners and losers. Winners enjoy *rents* or *quasi-rents*. For employees, quasi-rents are payments or perquisites beyond those that they could expect to get by quitting and taking another job. Rents are payments or perquisites beyond those required to attract them to take the job in the first place. Quasi-rents may arise after employment if an employee makes some specific investment to prepare for a job. For example, the employee may incur moving costs. They may also arise from random events. For example, an employer may offer low wages but secure employment in a combination just sufficient to attract an employee to a job. Employment then entails no rents for the employee, but it may entail quasi-rents if general economic trends cause the employee's outside options to deteriorate. Until the last section of this paper, it will not be important to distinguish quasi-rents from rents, and we shall simply use the term 'rents' for both.

Like employees, suppliers, customers, and others may enjoy rents from their dealings with a firm. In the models discussed below, attempts to capture a larger share of the total rents turn out to be costly, because they disrupt the smooth functioning of the firm. The first step of the theory, therefore, is to justify the foundational assumption that rents in firms do exist.

*Sources of rents and quasi-rents*

Consider the case of employees. Why would decisions in the firm ever affect the rents they enjoy? The issue arises because any decisions that might potentially affect employee welfare, such as deciding who gets the corner office, which reporter gets to work on the juicy story, or who will be forced to work overtime, could, in principle, be fully compensated by cash payments. Firms do sometimes make compensating payments to workers. There are premiums for working late night shifts, doing hazardous jobs, working overtime, and so on, but these rarely add up to full compensation for all the variations in day-to-day decisions.

Milgrom (1988) explains why full compensation is so rare. One major reason is that pay policy serves various purposes besides eliminating rents, and the two kinds of functions are almost always incompatible. Pay policy can be used to provide incentives for loyalty and hard work, to insure workers against fluctuations in working conditions or outside market conditions, to reduce turnover, to attract a high-quality labor pool, and so on. We shall study one such example in detail below, but any of these can be used to explain the absence of compensating payments. A second reason not to use compensating payments is the sheer difficulty of assessing the appropriate cash compensation amount. Any procedure for determining the cash compensation would not only be administratively costly, it would likely become a lightning rod for the very internal politics it seeks to avoid.

We formalize one source of rents using a simple variant of a model of Becker and Stigler (1974), in which high wages are used to encourage hard work. The model is one in which a worker decides whether to be diligent and work hard or whether instead to shirk. Suppose that a shirker is detected with probability  $p$ , that the wage is  $w$ , and that the opportunity wage – equivalent to what the worker expects to get after being fired – is  $\bar{w}$ . Suppose the model is stationary and the worker's discount factor is  $\delta$  ( $0 < \delta < 1$ ), including both time preference and an allowance for the probability of separation. Such a worker stands to lose  $(w - \bar{w})/(1 - \delta)$  if fired, and to gain some amount  $s$  by shirking, where  $s$  is the value to the worker of not having to work so hard. In this case, shirking is worthwhile exactly if  $s \leq p(w - \bar{w})/(1 - \delta)$ . The firm is forced to pay a wage of  $w \geq \bar{w} + (1 - \delta)s/p$  to prevent shirking. The amount  $(1 - \delta)s/p$  is a rent enjoyed by the employee.

*Rent seeking in the firm*

Bowles (1985) observed that, in this model, the firm's minimum payment can be reduced by increasing the probability  $p$  with which shirking is detected. This presumably requires costly expenditures on monitoring, which could be avoided if the firm were run in the interests of the workers

and was not so concerned about 'exploiting' workers in the sense of capturing the rents workers would otherwise enjoy.

Bowles' analysis reveals what economists call a *technical* inefficiency of the capitalist firm. More intensive monitoring allows the firm to elicit the same level of diligence with a lower wage, but it does not create any extra output. Monitoring serves only to redistribute income away from workers and toward the capitalists/managers.

At this point, it may be helpful to reiterate the distinction between *Pareto* efficiency and *technical* efficiency. A production plan is technically efficient if it lies on the *production possibility frontier*; that is, if there is no alternative way to produce the same or larger amounts of each output while using less of some input and no more of any other input. Monitoring in the Bowles model leads to technical inefficiency because it entails an avoidable expenditure of real supervisory resources to produce the same quantity of goods with the same labor input. Despite this technical inefficiency, it is still possible that the outcome with monitoring is Pareto efficient; that is, there may not exist any alternative allocation of resources that makes the workers better off without making the capitalist/owners worse off. The possibility that a production plan is Pareto efficient but not technically efficient turns out to play an important role in several modern theories of the firm. In a neoclassical world where resources can be freely transferred among individuals, Pareto efficiency always entails technical efficiency. Only in that too simple model do the attractions of each efficiency concept lend support for the other.

Ironically, Ordover and Shapiro (1984) used an argument much like Bowles' to reach a contrary conclusion – that labor's political power is a source of inefficiency. They argued that workers will be led to resist productivity-enhancing technological improvements if those same enhancements also improve the firm's ability to monitor workers, because the better monitoring would lead to lower wages. For example, craftspersons may resist the introduction of technically more efficient production line methods for this reason.

The Ordover-Shapiro argument differs from Bowles' argument in two important respects. First, it assumes a peculiar power structure in the firm, in which workers might affect the technology that will be used but, given the technology, management establishes the wages in its own interest. This variation in the structure leads to a second variation, this time in the conclusion: successful resistance by workers is not only technically inefficient, it is *Pareto inefficient* as well. The reason is that if workers were fully in control of the firm's decisions, they would be able to implement the technology without reducing their own wages – a Pareto-improving change. This describes a political advantage of labor ownership of the firm: employees of such firms are less likely to resist new technologies. As we shall see, there may be offsetting political disadvantages as well.

*Additional interest groups*

So far, we have considered capital and labor as the only two interest groups, but there is no need to stop there. Edlin and Stiglitz (1993) treat the management of a firm as yet another interest group and study how they might be led to distort the firm's investments and selection of projects to entrench themselves; that is, to make themselves so valuable to a firm that the board of directors would not be tempted to replace them even if more able management could be found. They do this, of course, because management jobs entail rents.

There are various ways in which managers might entrench themselves. They might invest excessively in projects that are highly complementary to their particular skills. They might devote too much effort and too many resources to acquire private information about the value of the firm. These latter investments would give them an advantage in any competition to acquire control of the firm. The results of all these efforts are, first, that the board of directors would be forced to keep management control intact even when performance has been poor and superior managers might have been found and, second, that the firm is paying to achieve this end in the form of inappropriate investments in projects and private information.

Just as the interests of capital and its hired managers are distinct, the interests of workers and union officials can be distinct as well. An example of this is found in a study by Golden (1992) of the mass workforce reductions that were announced in 1980 at British Leyland and at Fiat. Both of these companies were thought to have militant unions, which were ready to make large wage and benefit demands and to sponsor long strikes to force concessions from the firms' managements. Nevertheless, the two unions responded quite differently to the threatened workforce reduction: while the union at Fiat responded aggressively, the union at British Leyland did not. What might account for the difference? Golden argues that the layoffs at British Leyland – unlike those at Fiat – did not threaten the shop stewards or union officials, so it was not in the interest of union activists and leaders to call a strike. Similarly, the long strikes in the Japanese coal mining industry in 1953 and 1960 were provoked by the company (Mitsui) laying off union activists (Golden 1993). The same union acquiesced in workforce reductions in the interim period between these two strikes, because during that interim it had a contractual right to select who would be laid off, allowing it to protect union activists.

*Public versus private sector politics*

Are the politics of the firm distinguishable from those of governments and public sector institutions? Do the same principles apply in both arenas? The extensive literature on *rent-seeking* behavior, begun by Tullock (1967) and Krueger (1974), has characterized the costs of much political behavior

in very much the same terms that we have used to describe it in the firm. This literature emphasizes that government grants of monopoly lead people to waste resources in an attempt to capture the rents.

According to Buchanan (1980), the losses from rent-seeking behavior occur at three different levels: direct attempts to capture monopoly rents, attempts by bureaucrats to occupy positions where they can receive bribes for distributing rents, and attempts by various parties to secure the legislation that creates the rents. Each of these attempts lead to wasteful expenditures of resources. It would seem that analogous costs could be incurred in the private sector, but Buchanan has resisted that comparison, asserting that '[t]he unintended results of competitive attempts to capture monopoly rents are "good" because entry is possible; comparable results of attempts to capture artificially contrived advantageous positions under governmentally enforced monopoly are "bad" because entry is not possible.'

If there is one common theme in these papers that all the authors seem to agree on, it is that politics is just another form of wasteful rent-seeking behavior. Whether in the government or in the firm, attempts by individuals and groups to enjoy benefits at others' expense or to defend rents that are already being earned consume resources that could be put to more productive use. In the models of exogenous institutions, the emphasis is on the costs of political activity and the reasons that even well-intentioned governmental interventions in the economy so often work out badly.

*Value-maximizing institutions*

The next group of papers take a sharply different perspective on the role of politics in private sector organizations like firms, focussing on how institutions, processes, and routines are designed to attenuate the costs of politicking. A few of the papers also recognize the benefits of politicized decision processes as ways to take account of the information and preferences of people affected by some decision. This is an important difference. Its theoretical consequence is that the optimal design of decision routines becomes a subject of benefit-cost analysis, where the benefits of effective decision making are balanced against *influence costs* – the value destroyed as people try to capture or defend a share of the rents that the process distributes. For reasons discussed below, we expect the solutions of the optimum problem to be an important predictor of the actual design of the institutions and routines for decision making in private firms.

Will the same benefit-cost principle also predict the structure of public sector decision making? Probably, the predictive power of the principle will be attenuated by the pervasive effects of political power, ideology, and social policy in public sector deliberations. To illustrate the public versus private sector comparison, consider the selection of suppliers by a firm in private industry. This is a straightforward exercise, at least conceptually.

Qualified bidders are identified and bids solicited. Bids are made and a possibly complex bid evaluation process ensues. A supplier is chosen, the final contract details are negotiated, and the needed product is ordered. The objective all along is relatively clear: to maximize the net value added for the firm. Government procurement objectives are typically much more complicated. A large order may be spread among different political districts, for example, to broaden the political support for continuing the underlying project. Or, public policy arguments may be invoked to justify buying from an inferior domestic supplier in order to encourage the development of domestic industry. In US government procurement, firms that lose at the bidding stage of procurement can often appeal to courts and regulators to object to the contract award decision, for example on the grounds that the product specification gives an unfair advantage to the design of one particular supplier or that the bid preparation time was too short. During the appeals, purchases of the needed equipment may have to be postponed. In one recent case, it took the US government five years to approve orders for new desktop computers, by which time the technology described in the government's original bid specification had become obsolete. Losses to the United States from its inadequate and aging computer systems have been estimated to be in the tens of billions of dollars.<sup>2</sup> A private firm would hardly tolerate losses of this magnitude merely to ensure due process and fair treatment of suppliers.

Why do governments give such weight to issues like fairness and due process? No doubt part of the answer lies in political ideology: the very legitimacy of a government may depend on citizens' perceptions that it operates fairly. Another part lies in the fact that governments are shielded from many forms of competition, so that they may continue to survive and grow despite highly inefficient practices that would sink a private firm, and especially one operating in a highly competitive market. Whatever the reasons, these differences do result in greater opportunities for rent seeking in the public sector than in the private sector.

#### *Why expect value maximization?*

In much economic analysis of the firm, one important hypothesis is that the institutions, rules, procedures, and routines found in the private sector are devised to be value maximizing. The first question to ask, therefore, is: why should we ever expect value-maximizing institutions to emerge? One possible answer lies in the motives of the founder of the firm or institution. Suppose the founder is one who designs the organization, establishes its legal structure, internal organization, product offerings, and so on, and then sells it in whole or in parts to outsiders. A self-interested founder would want to design the organization to maximize the price he or she can command from the eventual buyer. The founder would design decision-making procedures and institutions not simply to minimize efforts wasted

in politicking, but rather to maximize the net benefits of the decision procedures, taking into account all the costs and benefits that decision making entails.

Partly, this story of the value-maximizing founder is a parable. For an entrepreneur who founds a firm and plans eventually to sell shares to outsiders, or to sell out entirely to someone seeking to enter that business, or to transfer the business to heirs, increasing the value of the business is likely to be an important objective, but there may be other objectives as well.

There are instances, however, where this story becomes a plausible account of the actual process. One such instance is the development of the condominium association, which is the organization that governs a condominium. Typically, the founder is a real estate developer who acquires the property, plans and builds the condominium, and then sells the units to residents who will either live there (in a residential condominium) or conduct business there (in a commercial condominium). Barzel and Sass (1990) studied condominium associations in the US state of New Mexico, where the founder/developer of a condominium is required to file a declaration specifying the assessment rules and voting rules that will apply. The assessment rules specify how the members may tax themselves for projects adopted by the condominium, such as improvements to the common areas or building a swimming pool. Assessments in their sample were all conducted in one of three ways: equal amounts per residence or business unit, equal amounts per unit of area (floor space), or equal amounts per unit of initial value. Similarly, the voting rules specify the weights accorded to various voters and the majorities that apply for various kinds of issues. For example, votes in the association may be assigned as one vote per unit or they may be allocated based on area or value and the rules may specify a supermajority such as two-thirds or three-quarters for capital improvements that require a special assessment. Finally, the developer can seek to remove some decisions about amenities from the association's decision-making process by including them with the initial building.

This is an example in which the founder explicitly chooses the rules of governance. It certainly makes sense that the developer would want to select the rules that maximize the total amount buyers are willing to pay for their units, since that is the only thing the developer receives from the deal.

Notice that this formulation of the problem supposes that there really are benefits as well as costs to political decision making. A condominium association may have perfectly good reasons to make decisions about renovating its entry area, building a playground or swimming pool, or hiring a security guard. If the initial constitution of the condominium allows those decisions to be made only by unanimous consent and using voluntary contributions, then a free-rider problem could result in the failure of the group to undertake even highly beneficial projects. Allowing the

condominium association to assess members equally for their shares of capital projects, with the choice of projects made by majority rule, may improve project selection. Such a rule would make it more valuable to own a unit of the condominium, and the developer who adopted such a rule would receive a higher price.

Giving such powers to the condominium association also incurs potential influence costs, depending on the differences in interests among the members. If votes are distributed equally, for example, but assessments are assigned according to the area or value of the units, then owners of the small or low-value units might approve self-serving projects to be paid for by owners of the large or high-value units. If there is a proposal to add central air conditioning to a building, those who favor it may be located differently from those who oppose – for example, they may have a sunnier exposure or be on a higher floor of the building. The use of supermajority rules limits influence costs without much limiting the association's ability to adopt projects of general value.

Using data on condominiums, Barzel and Sass have tested some specific hypotheses about efficient governance. They predict that to limit influence costs, votes and assessment shares will be distributed in the same proportion.<sup>3</sup> They argue plausibly that if a group that bears a minority of the cost commands a majority of the votes, that would encourage rent-seeking behavior. They argue further that when votes are not so distributed, that will reflect a desire to economize on the costs of tabulating votes, so the deviation will be to a rule of one-unit-one-vote. The data strongly supports that prediction. They also predict that greater heterogeneity among units implies a greater likelihood of conflicting interests, leading to more supermajority rules and more amenities decided initially by the developer, but the evidence on these matters appears ambiguous.

### **Implications of influence cost theory**

The first prediction of influence cost models, developed in intuitive terms by Milgrom and Roberts (1990a) and formally modeled by Milgrom (1988), is based on the benefit-cost framework we have already described. The benefits of a wide open decision-making process with plenty of opportunity for comment by employees lies in the usefulness of the information for making better decisions. The cost lies in increased opportunities for rent seeking and therefore higher influence costs. The intuitive comparative statics, largely verified in the formal model, are as follows. A high value of information in the decision favors an open process. A large redistributive component favors a closed process with few opportunities to provide information.

These predictions accord well with the actual decision processes found in many organizations. For example, the determination of annual raises within a firm tends to use a closed and centralized process with limited

and highly structured access by the employees whose pay is being determined. Once raises have been decided, they are generally not subject to appeal, and not considered again until the next regularly scheduled salary review. The theory explains this kind of process as a consequence of the large distributive aspect of the salary-setting decision. In contrast, product-pricing decisions, which often have virtually no redistributive aspect, are commonly delegated to lower-level managers, who may not follow any highly structured process for arriving at the pricing decision, and who may be quick to offer sales or reduce the price if the sales volume appears to be too low.

Benefit-cost analyses also seem to be effective for explaining the procedures applied to internal decision making in public and quasi-public organizations. One example is the use of quorum rules. Recently, the American Economic Association instituted a 1 percent quorum rule for new initiatives proposed at its annual meeting, in order to prevent small organized groups from introducing and passing resolutions that would not be favored by the majority of members. As another example, at Stanford University, office allocations for the new economics building were made on the basis of seniority. It is hard to imagine any important efficiency differences among alternative office allocations, so the system is designed to minimize politicking.<sup>4</sup> It is interesting to contrast this with other departmental decisions. Course content, with virtually no distributive consequences (at least for faculty), is delegated to individual faculty members. Senior faculty appointments, which affect different faculty members differently but require the expert judgment of individual faculty, are carried out in a way that is designed both to obtain useful information and to close the matter once a vote has been taken. All of this seems consistent with the benefit-cost analysis of decision processes.

A second implication of the theory is that there will be a greater emphasis on equity in units of the firm where cooperative decision making is desired, in order to homogenize interests and minimize influence costs (Milgrom and Roberts 1990b). Notice that this is a conditional prediction. Firms may sometimes seek to promote competition among their units, but then they should arrange that the units are largely independent of one another and that performance can be objectively measured (hence not vulnerable to rent-seeking manipulations). These points are closely related to Lazear's (1989) observation that reducing rent differentials tends to mitigate destructive forms of competition ('backstabbing') among employees and Itoh's (1991) that strong incentives based on a comparative performance assessment tend to undermine mutual helping activities, and are undesirable when such activities are important.

In a similar vein, Hansman (1988, 1990) has argued that ownership patterns of the firm are explained by the desire to homogenize interests and minimize influence costs. Shared control by capital and labor, he argues, would lead to costly politicking, and labor management is quite

unusual except in firms where the labor pool itself is quite homogeneous, such as law firms and medical practices. Even in those cases, it is only one class of laborers that exercises control, for otherwise too many resources would be wasted in political battles for the organization to be viable.

Yet another example of organization design to minimize influence costs arises in connection with firm's divestiture decisions. Meyer *et al.* (1992) have argued that attempts by employees in declining divisions of a firm to save their jobs provides a potent reason for spinoffs and sales of poorly performing units. Divesting a unit makes it clear to the unit managers and employees that their futures are tied to the unit's performance, helping to engender a single-minded dedication to improving performance. As part of a larger firm, the same people might devote more of their energies to obtaining transfers to other units or getting extra resources for the unit.

McAfee and McMillan (1992) have argued that influence costs multiply with the number of layers in an organization, using that to explain 'organizational diseconomies of scale.' They also argue that such costs are lower in more competitive industries, because such firms have fewer rents to distribute. This provides an interesting connection between influence costs and Leibenstein's notion of X-inefficiency.

Both the McAfee and McMillan work and our own (Milgrom and Roberts 1990a) use influence costs to explain the theoretical limits on the size of an efficient firm. The theoretical problem is that by placing two organizations under common control and intervening in their operations only selectively – for example, when there are opportunities for improved coordination, or ways to exploit scale economies, or opportunities to reassign resources more productively – it would seem that the integrated firm could always be more productive than the separate ones (Williamson 1985). However, according to our theories, the very act of making these extra issues subject to administrative decision may raise influence costs, because the new issues become exposed to the politics of the decision-making process. For example, a lawyer in one law firm cannot expect to be assigned to a case being handled by another law firm, regardless of how much political effort the lawyer devotes to the matter. If the two firms were merged, however, the opportunities for influence would be increased. The merger increases influence costs.

A final prediction concerns the balance between different ways of limiting influence costs by discouraging employees from devoting excessive efforts to politicking. One way to accomplish that is to modify wage policies, introducing performance bonuses or arranging to equalize the distribution of rents as we have already discussed. An alternative, discussed earlier, is to modify the way decisions are made. What we shall argue below is that modifications to the organization are sometimes the primary way to control influence costs. The trade-offs involved between the alternative instruments are subtle enough, however, that it is useful to explore them in a

formal model. We use a variant of the model introduced in Milgrom and Roberts (1990b).

### *Influencing a job assignment: a model*

Suppose there are two kinds of jobs. In the low-level job, employees will remain without quitting only if the periodic wage is at least  $\bar{w}_L$ . An employee promoted to the higher-level job receives special training that increases his or her value to outside employers. To prevent the employee from quitting that job, the wage must be at least  $\bar{w}_H > \bar{w}_L$ . We assume that the need to train replacements for workers who quit is sufficiently costly that the firm will pay workers at least these amounts. In addition, the firm may choose to pay a bonus of  $b \geq 0$  to an employee who performs especially well.

The firm wishes to learn which of two employees is better qualified for promotion to the high-level job. To determine that, the firm offers a test. Each employee's score on the test depends on his or her inherent ability and any effort expended in preparing for the test. Moreover, effort expended preparing for the test may eliminate some random differences in preparation for the test and make the test a better indicator of future performance in the high-level job. However, efforts spent in preparation for the test are costly to the firm because that much less effort is available for directly productive activities. To model this, we suppose that the employee has  $\bar{e}$  units of effort that he or she supplies inelastically, of which some amount  $e$  is devoted to test preparation.

If promotion is based on the test, then the probability that employee  $i$  will be promoted over employee  $j$  is the probability of performing better on the test:  $F_T(e_i - e_j)$ . If performance is the basis of promotion, then the probability is  $F_P[(\bar{e} - e_i) - (\bar{e} - e_j)] = F_P(e_j - e_i)$ . The probability of being evaluated highly and earning the bonus  $b$  as a function of  $i$ 's time devoted to producing output is  $F_B(\bar{e} - e_i)$ . Let  $\pi$  be the probability that promotion will be based on the test and  $1 - \pi$  the probability that it will be based on performance. The firm's instruments are the probability  $\pi$ , the wages  $w_H$  and  $w_L$ , and the bonus  $b$ . Given these, employee  $i$  chooses  $e_i \in [0, \bar{e}]$  to maximize

$$w_L + [\pi F_T(e_i - e_j) + (1 - \pi) F_P(e_j - e_i)](w_H - w_L) + b F_B(\bar{e} - e_i) \quad (1)$$

We assume that the employee's objective is concave in  $e_i$ .

In the absence of influence costs, the firm would set  $\pi = 1$ ,  $b = 0$ ,  $w_H = \bar{w}_H$ , and  $w_L = \bar{w}_L$ , paying as little as possible and assigning the high-level job on the basis of tests of suitability. The problem is that this objective function of the employee is then globally increasing in  $e_i$ , that is the employee would be induced to devote all his or her efforts to test preparation and none to producing output. We have not yet said anything about the firm's objective, but this outcome will not generally be the one most desired by the firm.



Suppose the firm wishes to induce a level of effort that is somewhere in the interior of the interval  $[0, \bar{e}]$ . Assuming a symmetric equilibrium of the effort choice game between the two employees, we may differentiate (1) with respect to  $e_i$  and then substitute the equilibrium condition  $e_i = e_j = e^*$  to obtain

$$0 = (w_H - w_L)[\pi F'_T(0) - (1 - \pi)F'_p(0)] - bF'_B(\bar{e} - e^*) \quad (2)$$

Equation (2) shows how the firm can use its instruments to control  $e^*$ . One alternative is to set  $b = 0$  and to fix  $\pi$  so that  $[\pi F'_T(0) - (1 - \pi)F'_p(0)] = 0$ . With these choices, the employees would be willing to set any level of  $e^*$  suggested by the firm. For higher levels of  $\pi$ , the firm will be forced to set  $b > 0$  and to raise  $w_L$  toward  $w_H$ . A positive bonus for successful performance provides a countervailing incentive so that there is some payoff for production-related effort, while increasing  $w_L$  to  $w_H$  eliminates the pay differential associated with the high-level job and so eliminates the motive for influencing the promotion decision.

Let us suppose that, after the fact, the firm learns the value or importance  $I$  of assigning the right employee to the high-level job. The value  $I$  is distributed according to a cumulative distribution  $G: [0, \bar{I}] \rightarrow [0, 1]$  with a strictly positive density  $G'$  and associated mean  $\mu$ . Let  $A(e^*) \geq 1/2$  denote the accuracy of the test, that is the probability that the test accurately identifies the best candidate for promotion, when each employee prepares with effort  $e^*$ . Then, the loss of value to the firm from promoting the most productive worker, rather than the one who tests best for the job, is  $A(e^*)L(\pi)$ , where

$$L(\pi) = \frac{1}{2} \int_0^{G^{-1}(1-\pi)} x dx = \frac{1}{4} [G^{-1}(1-\pi)]^2 \quad (3)$$

The firm's objective is to maximize

$$\Omega(\pi, w_L, w_H, b, e^*) = P(e^*) + A(e^*) [\mu - L(\pi)] - w_H - w_L - 2bF_B(\bar{e} - e^*) \quad (4)$$

subject to  $w_H \geq \bar{w}_H$ ,  $w_L \geq \bar{w}_L$ ,  $b \geq 0$ ,  $\pi \in [0, 1]$ , and the incentive constraint (2). Without additional assumptions, we cannot identify the optimum, but we can make some progress toward characterizing the optimum by following the suggestion of Grossman and Hart (1983), identifying the least-cost way to implement any given proposed allocation of effort  $e^*$ .

It is apparent from (4) that the partial derivatives  $\partial\Omega/\partial b$ ,  $\partial\Omega/\partial w_L$ , and  $\partial\Omega/\partial w_H$  are all negative, but  $\partial\Omega/\partial\pi = 0$  at  $\pi = 1$ ,<sup>5</sup> that is the cost of using the instrument  $\pi$  to provide incentives is a second-order cost. Also, each of these instruments has a first-order effectiveness in providing incentives, that is satisfying (2). These facts allow us to draw some conclusions about how incentives for  $e^*$  will be implemented, independently of the actual optimal value of  $e^*$ . First, the firm's optimum will always entail a distortion of the promotion rule away from first best. At the optimum,  $\pi < 1$ . Furthermore, if the maximum gain  $\bar{I}$  from a proper job assignment is not

too large, then the optimum entails setting  $b = 0$ ,  $w_H = \bar{w}_H$ ,  $w_L = \bar{w}_L$ , and  $\pi < 1$ . This means that, in some cases, the only adjustment that will be optimally made to provide incentives is to distort the decision rule. Wage policy, which is already carrying the weight of preventing turnover, will not be further distorted in an attempt to mitigate rent seeking.

### Other equilibrium institutions

The value maximization framework provides a convenient way to convert organization design problems into ones of benefit-cost analysis. For example, we have argued that salary-setting processes are highly formalized and closed because the influence costs of a more open-ended process would be high while the additional benefits, if any, would be slight. The problem with this approach is that while it properly evaluates the issues of distribution and value creation after the decision routines are in place, it assumes that the routines themselves are chosen purely on grounds of value maximization, which is the institutional version of technical efficiency.

The model developed in the previous section incorporates this feature. The desire to prevent quits in that model leads the firm to pay higher wages than it otherwise would, and its preference to modify its promotion policy even at the cost of decreased efficiency of job assignments rather than to introduce performance bonuses or raise the wage  $w_L$  paid in the low-level job is a consequence of the way the costs and benefits are shared.

Other papers in the economics literature that incorporate similar features are mostly concerned with matters besides decision-making institutions. We review a few papers below only to show how much the perspective changes once the possibility of 'technically inefficient' equilibrium is admitted.

Rotemberg (1991) argues that a firm might integrate vertically to supply itself with goods even when there is a technically more efficient supplier. The reason is that, just as in the Becker-Stigler model, the firm might have to pay a rent to the supplier to maintain high quality. Even if the cost of manufacture was lower for the supplier, the price, consisting of the sum of the cost plus the supplier's rent, might be higher than the cost plus rent that would need to be paid to a unit within the firm.

Dow (1993) shows that even if labor-run firms create more total value than capital-run firms, a competitive equilibrium might still drive labor-run firms out of business. The reason is that the laborers may have insufficient wealth to start a firm on their own. Without surrendering control rights to the capitalists over the use of their equipment, the laborers may be unable to commit credibly to provide a minimum rate of return on capital. This conclusion contrasts sharply with the arguments made by Williamson (1985), which rely on an implicit assumption that there are no effective wealth constraints.

Yet another variant is the argument made by Perotti and Spier (1993)

and Wells (1992) that firms may incorporate too much debt in their capital structure (relative to the value-maximizing level), in order to strengthen their bargaining position in labor negotiations. Here, too, it is the limited capital of one party that links the distribution of benefits to the value that can be created. The capital structure decision reduces total value, but increases the value that can be captured by the representatives of capital in their negotiations with labor.

These models surveyed here might be regarded as power-based alternatives to the value-maximizing theories described earlier. In addition to these two, there is one more possible obvious category of explanations that is omitted because we know of no formal models in the category. This is the category of history-based explanations. Instead of imagining that whole systems of institutions are created by perfectly rational founders, this alternative approach looks for *equilibrium* patterns of institutions, where each part of the system supports the others and no part can be changed alone in a way that increases value. Pagano (1993) reports such a model, in which complementarities between the assignment of property rights and the choice of technology create the possibility of multiple equilibria. Inefficient combinations in this theory may persist simply because it is too difficult to identify better ones. Although such arrangements are vulnerable to entry, they may nevertheless persist if the more efficient institutions differ from familiar arrangements in so many respects that they remain undiscovered.

## Conclusion

There is ample reason to suppose that decision making in firms affects the distribution of rents, and is therefore subject to politicking. We have seen several examples of that and of how institutions can be and sometimes are designed to garner the advantages of the political process – acquiring useful information – while controlling the influence costs it creates. Despite its youth, the theory of the firm as a political organization has already been quite successful at lending insight into some aspects of organization.

## Notes

- 1 See Milgrom and Roberts (1992), especially ch. 2, for an extensive discussion and critique of the conditions involved.
- 2 'Computer Morass Hobbles U.S.', *San Jose Mercury News*, March 16, 1993, page 1A.
- 3 See also Grossman and Hart (1988) and Harris and Raviv (1988), who make a similar argument for the one-share-one-vote rule in corporate shares.
- 4 In this case, the cost of politicking would have been born in large part by the department chairman, who is also the one who structured this decision process.
- 5  $\partial \Omega / \partial \pi = -\frac{1}{2} A(e^*) G^{-1} (1 - \pi) / G' [G^{-1} (1 - \pi)] = 0$  at  $\pi = 1$ , because  $G^{-1} (0) = 0$ .

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## 5 Is power an economic good?

### Notes on social scarcity and the economics of positional goods

Ugo Pagano

#### Introduction

In a recent textbook of sociology there is the following statement:

In nearly all societies the good things of life, the things that people desire are unequally distributed; some have more, others less. When we ask – what good things? – the answers that sociologists have given, since Max Weber, is that they are thought of under three main heads; wealth, prestige and power.<sup>1</sup>

Out of these three heads economists, since Smith's *Wealth of Nations*, have concentrated on wealth. The purpose of this paper is to examine a possible way of integrating the analysis of goods such as prestige and power in economic theory. This will be done by introducing a new type of good – positional goods – which will be defined as having the opposite characteristics to public goods.

Consider a two-person economy. Current economic theories usually consider two types of goods and their intermediate combination. The first type of good is defined by the fact that if an individual  $i$  consumes a quantity  $x_i$  of  $x$ , the second agent consumes no units of  $x_i$ . This defines a private good. The second type of good is defined by the fact that, if an individual  $i$  consumes a quantity  $x_i$  of  $x$ , the second agent also consumes the same amount of  $x_i$ . This defines a public good. The purpose of this paper is to argue, following Fred Hirsch's<sup>2</sup> analysis, that there is a third category of good which has been almost ignored by economists but which is as important as the other two for understanding economic systems. This good is defined, in our two-person economy, by the fact that, if an individual  $i$  consumes  $x_i$ , the second individual must consume an equal but negative quantity  $-x_i$ . Thus, these types of goods are zero-sum goods. Following Hirsch, I will call this type of good a positional good.<sup>3</sup>

Positional goods have characteristics polar to those of public goods. In the case of public goods, other individuals cannot be excluded from consuming a positive amount of the goods equal to that consumed by the