DEPARTMENT OF ECONOMICS

Working Paper

Power

by

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Working Paper 2007-03

UNIVERSITY OF MASSACHUSETTS
AMHERST

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Abstract. We consider the exercise of power in competitive markets for goods, labour and credit. We offer a definition of power and show that if contracts are incomplete it may be exercised either in Pareto-improving ways or to the disadvantage of those without power. Contrasting conceptions of power including bargaining power, market power, and consumer sovereignty are considered. Because the exercise of power may alter prices and other aspects of exchanges, abstracting from power may miss essential aspects of an economy. The political aspect of private exchanges challenges conventional ideas about the appropriate roles of market and political competition in ensuring the efficiency and accountability of economic decisions.

Note: This essay will appear in the *New Palgrave Encyclopedia of Economics*, McMillan, 2008. We are grateful to Ceren Soylu, Elisabeth Wood and Peyton Young for comments and to the Behavioral Sciences Program of the Santa Fe Institute, the University of Siena, and to the MacArthur Foundation for financial support.

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Background

Power is exercised in the competitive markets for goods, labour and credit. We consider this aspect of economic power, setting aside the widely recognized exercise of power by members of governments and other coercive bodies and the influence of economic groups on governmental policy.

'An economic transaction is a solved political problem ...', wrote Abba Lerner (1972, p. 259). ..'economics has gained the title Queen of the Social Sciences by choosing solved political problems as its domain.' Prior to the development of modern contract theory, the standard approach to power among economists was aptly summed up by Paul Samuelson (1957, p. 894), 'Remember that in a perfectly competitive market, it really does not matter who hires whom; so have labor hire capital.' As if responding to Samuelson, John Kenneth Galbraith (1967, p. 47), chided economists for not having asked 'why power is associated with some factors [of production] and not with others?' But with some notable exceptions (for example, Zeuthen, 1930; Shapley and Shubik, 1967; Samuels, 1973; Lindblom 1977; Basu, 1986;Takada, 1995; Hirshleifer, 1991; Chichilnisky and Heal, 1984; Lundberg and Pollak, 1994; Rotemberg, 1993; Pagano, 1999; Bardhan, 2005; Aghion and Tirole, 1997) economists have treated power as the concern of other disciplines and extraneous to economic explanation. The term does not appear among the 1,300 or so index entries of the leading graduate microeconomics text (Mas-Colell, Whinston and Green, 1995).

The reason is that Samuelson's claim is true in the Walrasian model: if contracts are complete, 'hiring' simply means 'buying'. 'What does it mean', Oliver Hart (1995) asked, 'to put someone "in charge" of an action or decision if all actions can be specified in a contract?' But as an empirical matter, as Marx (1867), Coase (1937), Simon (1951) and others have stressed, the firm is a political institution in the sense that some members of the firm routinely give commands while others are constrained by the threat of sanctions to obey. To say that the manager has the right to decide what the worker will do means only that he has the legitimate authority to do this, not the power to secure compliance. Given that in a liberal economy management is sharply restricted in the kinds of punishment they can inflict, and given that the employee is free to leave, the fact that orders are typically obeyed is a puzzle. Why, in Coase's initial formulation, is the command of the manager (to move 'from department Y to department X') obeyed (Coase, 1937)?

Noticing the lack of a good answer, Alchian and Demsetz (1972) challenged the Coasean idea that the firm is a mini 'command economy', suggesting that the employment contract is no different in this respect from other contracts.

> The firm ... has no power of fiat, no authority, no disciplinary action any different in the slightest degree from ordinary market contracting between any two people...Wherein then is the relationship between a grocer and his employee different from that between a grocer and his customer? (1972, p. 777)

Hart (1989), p. 1771) offered the following response to Alchian and Demsetz:

> … the reason that an employee is likely to be more responsive to what his employer wants than a grocer is that the employer...can deprive the employee of the assets he works with and hire another employee to work with these assets, while the customer can only deprive the grocer of his customer and as long as the customer is small, it is presumably not very difficult for the grocer to find another customer.

Hart motivates the difference between the grocer and the employer by the assumption that the employee needs access not just to a job (and hence *some* assets) but to *this particular employer's assets*. This might be the case due to a complementarity between the two (the employee may have made an investment in training which is of value only when combined with this particular asset, for example). Other less obvious (and probably more important) examples come to mind. Excluding an employee from access to a particular asset may require the employee to relocate, disrupting family and friendships. The loss of a job may also harm the employee's reputation.

While transaction-specific investments of this type undoubtedly explain some authority relationships – in company towns, and for some professional jobs and managers, for example – the explanation seems insufficiently general to provide an adequate explanation of the entire authority structure of the firm, especially in large urban labour markets and for non-professional employees. We thus need a complementary explanation based on the fact that the employee excluded from access to *her current employer's asset* may not find access to *any asset* even in a competitive economy in which transaction-specific assets are absent. This will require clarity about what we mean by power.

Power as a political means to gain economic advantage in private exchange

Because of its close connection to value-laden words such as 'coercion' and 'freedom' the term itself has proven to be controversial among philosophers and political theorists (Nozick, 1969; Lukes, 1974; Bachrach and Baratz, 1962; Barry, 1976; Taylor, 1982). Nonetheless, common usage suggests several characteristics that must when power is said to be exercised. First, power is *interpersonal*, an aspect of a relationship among people, not a characteristic of a solitary individual. Second, the exercise of power involves the *threat and use of sanctions*. Indeed, many political theorists regard sanctions as the defining characteristic of power. Lasswell and Kaplan (1950, p. 75) make the use of 'severe sanctions ... to sustain a policy against opposition' a defining characteristic of a power relationship, and Parsons (1967, p. 308) regards 'the presumption of enforcement by negative sanctions in the case of recalcitrance' a necessary condition for the exercise of power. Third, the concept of power should be *normatively indeterminate*, allowing for Pareto-improving outcomes (as has been stressed by students of power from Hobbes to Parsons), but also susceptible to abuse in ways that harm others in violation of ethical principles. Finally, power must be *sustainable as a Nash equilibrium* of an appropriately defined game. Power may be exercised in disequilibrium situations, of course, but, as an enduring aspect of social structure, it should be a characteristic of an equilibrium.

The following sufficient condition for the exercise of power captures these four desiderata: *For B to have power over A, it sufficient that, by imposing or threatening to impose sanctions on A, B is capable of affecting A's actions in ways that further B's interests, while A lacks this capacity with respect to B* (Bowles and Gintis, 1992).

The fact that sanctions are essential to the exercise of power in our sense makes it distinct from other means of influencing the behaviour of others that may operate even in the complete absence of strategic interaction, as in a Walrasian market setting. Consider, for example, the standard definition due to Robert Dahl (1957, pp. 202–3): ‘A has power over B to the extent that he can get B to do something that B would not otherwise do.’ But one can affect the behaviour of another in ways that do not involve power in the usual sense of that term. If we buy a commodity, there will be a whole series of market effects through the economy which entail others doing things they would not otherwise have done. But to say that our purchase of bread is an exercise of power over some unknown wheat farmer with whom we do not interact strategically is to expand the concept of power beyond recognition. By making the threat of sanctions a necessary aspect of power we also exclude forms of interpersonal influence such as persuasion and the provision of information.

Short-side Power in Labor, Credit, and Goods Markets

The power that may be exercised by an economic actor depends on the actor’s position in the institutions of society. Power may be exercised by economic actors who are on the short side of a non-clearing market, namely, the side of the market on which the number of desired transactions is less, that is, employers in a labour market with unemployment, lenders in a loan market with borrowers facing credit constraints, and so on. Because those holding power in these cases are those on the short side of the market, we term this ‘short-side power’. This clarifies the difference between the employer and the grocer in Hart’s response to Alchian and Demsetz: the sanctions imposed on the employee by depriving him of access to the capital good are severe because, in a labour market with perpetual excess supply of labour, finding another job will be difficult, while the costs imposed on the grocer by the departing customer are negligible or zero. The reason why the consumer, in switching to another seller, does not impose a sanction on the grocer is that the grocer (in competitive equilibrium) was maximizing profits by selecting a level of sales that equates marginal cost to the exogenously given price, and, this being the case, a small variation in sales has only a second-order effect on profits.

Let us check to see that this conception of power applies to the employment relationship in which transaction specificity is absent. We know that in a standard labour-discipline model (Gintis, 1976; Shapiro and Stiglitz, 1984; Bowles, 1985), in equilibrium the worker receives a rent: the present value of the job exceeds her next-best alternative (job search) and, because she fears losing his job, she works harder than she would have in the absence of the employer's incentive strategy. These results together imply that employer has caused the worker to act in the employer's interest by credibly threatening to sanction the worker. The employee lacks this capacity with respect to the employer for, were the employee to threaten the employer with a sanction should he not raise the wage (to damage his machinery or beat him up or simply to work less hard), the threat would not be credible. The employer would simply refuse to respond, knowing that it would not be in the interest of the employee to carry out the threat.

Note that the exercise of power allows a Pareto improvement over a counterfactual condition in which power cannot be exercised, namely, that the worker is hired at her reservation wage and works at the reservation effort level. This follows directly as we know from the fact that the worker receives an equilibrium rent at the wage offered by the employer. Both expected worker lifetime utility and firm profits are higher in equilibrium (with power being exercised) than at the (power-absent) reservation position. This is yet another example of a situation in which the exercise of power helps to address coordination failures, albeit sometimes with objectionable consequences those without power. An example from Bowles (2004) follows.

Suppose the employer determines (in addition to the wage) some aspect of the job affecting workplace amenities, including not only such innocuous things as the quality of the music on the office sound system but also management practices affecting the employee's dignity, such as not being subjected to racial insults, sexual harassment or other on-the-job indignities. If the firm sets these amenities to maximize profits, it follows that the employer can inflict first-order costs on the worker (by reducing the amenity a small amount) at second-order cost to himself (the costs are second-order because due to profit maximization the derivative of profits with respect to the level of amenities is zero). Thus the competitive equilibrium in an employment relationship gives the employer the capacity not only to exercise power to attenuate coordination problems but also to exercise power arbitrarily, that is, to inflict costs on another at virtually no cost to himself. When this power is exercised in unethical ways it may be termed coercive.

Thus the strategic interaction between the employer and employee allows the exercise of power in a manner conforming to the four desiderata outlined above: sanctions are credibly threatened (and used) in a strategic interaction describing a Nash equilibrium, and the resulting exercise of power is Pareto-improving over a reasonable counterfactual but may also be used coercively.

It is easy to check the that power in the sense defined may be exercised in the standard principal–agent model of the credit market as well. The lender offers the borrower terms that are preferred to the borrower's reservation position, promising to make additional loans in the future if the borrower repays the loan. In this contingent renewal model, the borrower pursues a less risky strategy than would have been the case had the lender not offered a rent. Where the borrower's participation constraint holds as an equality, power in the sense defined cannot be exercised for the simple reason that the borrower is indifferent between the current transaction and the next-best alternative, so the only sanction permitted in a liberal economy – termination of the contract – has no force.

Short-side power may be contrasted with the 'markets and hierarchies' approach pioneered by Oliver Williamson (1985). Rather than seeing firms simply as 'islands of conscious power in this ocean of unconscious cooperation', in Robertson's (1923, p. 85) apt words, the incomplete contracts approach traces the exercise of power to both the structure of markets and the structure of firms. The firm is an important venue in which power is exercised, but, as the credit market model makes clear, power may be exercised in the absence of firms or indeed any organizational structure whatsoever. Short-side power is exercised *in* markets, not simply outside markets or despite markets.

Wealth, Power, and ‘Consumer Sovereignty’

Thus an agent’s location in the economic structure of a society – on the short side of a non clearing market -- may make it possible for him to exercise power over others. How are agents assigned to these positions of short-side power? Given that employing others requires capital and that borrowing substantial amounts typically requires that the borrower have sufficient wealth to invest in the project or to provide collateral, an important determinant of an individual’s assignment to a position of short-side power is the individual’s wealth. The wealthy may exercise power over those to whom they lend, who in turn may exercise power over those (managers or other employees) whom they hire. As a result, power cascades downward from the loan market to the market for managers to the market for non-managerial employees (Bowles, 2004).

A less obvious case concerns the power of the consumer, sometimes summarized by the term ‘consumer sovereignty’. Consider a principal–agent model involving difficult-to-measure product quality (Klein and Leffler, 1981; Gintis, 1976). In equilibrium, the buyer pays the seller a price exceeding the seller’s next-best alternative and promises continued purchases contingent on the seller providing high-quality goods. The seller’s prospect of losing the resulting rent conferred by the buyer induces the seller to provide higher quality than would have been provided in the absence of the threatened sanction. Thus the buyer has exercised power over the seller in the sense just defined.

As the example suggests, buyers may exercise power over sellers whenever the buyer’s threat to switch to an alternative seller is credible and inflicts a cost on the seller. Consider two monopolistically competitive sellers (that is, firms facing downward-sloping demand functions) and a consumer who is indifferent between purchasing from one or the other. Both sellers have chosen a level of output to maximize profits, setting marginal cost equal to marginal revenue (which is less than the price because the demand curve is downward sloping). For both sellers, price thus exceeds marginal cost, and as a result the consumer’s choice confers a rent on one and deprives the other of the rent. The reader may wonder how the rent can arise if the firm has chosen the output level to maximize profits, each setting the derivative of profits with respect to sales equal to zero. But the buyer's switch from one to the other seller is not a movement *along* a demand function (the basis of the firm's output choice), but rather is a horizontal *shift* in the demand function (inwards for the firm the consumer rejected, outwards for the firm to which he switched). As a result of the switch, for the fortunate firm it is profit maximizing to sell one more unit at the going price.

Ironically, the idealized Walrasian conditions under which consumer sovereignty is said to hold give the consumer no power in the sense defined here, while deviations from the canonical competitive assumption that price equals marginal cost (because firms face downward sloping demand functions) create an environment in which the consumer may exercise power. Of course, the strategic position of the consumer as one of many principals facing a single agent is quite unlike that of the employer facing many potential employees or the lender facing many potential borrowers. As Hart observed about the consumer and the grocer, a single consumer will not generally be in a position to command the supplier to improve the product quality and expect the supplier to obey. The power of consumers is thus limited by the difficulties the many principals face in acting in a coordinated fashion.

Non-clearing markets and inefficient competitive equilibria

Where power is exercised by a principal who confers a rent on an agent and monitors the agent's actions – as in the markets for labour, credit, and goods just analysed – the equilibrium allocation will generally be neither Pareto-efficient nor technically efficient. The reason for the first is that the principal is constrained not by the agent's reservation utility but by the agent's best-response function. As a result, small changes in the instruments controlled by the principal – the wage, the rate of interest or the price – incur only second-order costs or benefits for the principal but first-order benefits and costs for the agent. For the actions controlled by the agent the reverse is true. Therefore, there must exist some set of small variations away from the equilibrium allocation that improve the utility of both principal and agent. A labour market example of such a Pareto improvement is a small increase in the wage accompanied by a small increase in worker effort.

The allocation will be technically inefficient because the principal chooses the enforcement strategy with respect to the private costs (the costs of both the rent conferred on the agent and the monitoring) while there is no social cost associated with the rent (because, unlike the monitoring costs, it is a pure transfer and is not resource using). From the equilibrium allocation, therefore, there must exist a technical efficiency-improving increase in the agent's rent and a reduction in monitoring.

Exploiting these potential efficiency gains requires changes in the information and incentive structure of the interaction, for example by making the agent the residual claimant on his or her non-contractible actions, if this is possible.

The three cases for which we have analysed the exercise of power – by the buyer over the seller, the lender over the borrower, and the employer over the employee – are members of a generic class of power relationships which are sustainable in the equilibrium of a system of voluntary competitive exchanges. In all three, those with power are transacting with agents who receive rents and hence are not indifferent between the current transaction and their next-best alternative. This being the case, there must exist other identical agents who are quantity constrained, namely, the unemployed, those excluded from the loan market or restricted in the amount they can borrow, and sellers who fail to make a sale. For this situation to characterize an equilibrium it must be that markets do not clear, which, as we have seen will be the case.

Power as we have defined it can be exercised in other ways, even when markets clear. An interesting (if perhaps not empirically important) example is provided by the case of optimal job fees, in which the fee eliminates the job rent *ex ante* so the market clears, the worker being indifferent between taking the job and paying the fee or not. But an *ex post* rent nonetheless exists, giving the employer the ability to sanction the employee. A job fee of this type is a pure case of an employee's transaction-specific investment, and the basis of the power of the employer in this case is an example of Hart's reasoning, above.

All three of those exercising power in the above examples – buyer, lender, employer – have in common that the party that contributes money to the transaction – the buyer's purchase price, the lender's loan, the employer's wage offer – is the one exercising power. This may seem an analytical foundation for the familiar adage that 'money talks', but the conclusion is misleading. Recall that in the centrally planned Communist economies it was generally the case that consumer durables (and many other consumer goods) sold below market-clearing prices. The resulting excess demand was allocated through a process of queuing and by other means (Kornai, 1980). In this case the producers (sellers) were on the short side of the market, and those bringing money to the transaction – the buyers – were the long-siders, some of whom failed to make a trade. The notorious inferiority in the quality of consumer goods in centrally planned economies to those in capitalist economies may be explained in part by the fact that consumers were long-siders in the former and short-siders in the latter. Or, to put it more graphically, one reason why Fords were better cars than their Cold War era Russian equivalents is that in Russia customers waited in line to purchase Volgas while in the United States Ford salesmen lined up to sell customers cars. Another reason is that in the United States workers waited in line to get jobs at Ford.

Other conceptions of power

Other uses of the term 'power' are common in economics. (We do not address the concept of 'coalitional power' advanced by Shapley and Shubik, 1954, as it has found application primarily in the analysis of committees voting and other arenas addressed by political scientists.) 'Purchasing power' is just another word for the position of one's budget constraint (or wealth), and it does not concern the exercise of sanctions or indeed any strategic interaction at all. 'Market power' arises in thin markets in which an actor can benefit by varying a price. In the standard monopolistic competition case the seller is said to have market power. The seller is less constrained in the sense that he faces a downward sloping demand rather than horizontal demand function, while the consumer is more constrained in that there may be less choice among suppliers. But we have just seen that in this case the consumer who switches from one seller to another confers a rent on his favoured firm. (This why Ford salesmen line up to sell you cars.) Thus, if the buyer can credibly threaten to withdraw the rent he may be able to exercise short-side power over the seller. It thus is not clear how to reconcile usual notions of power – the use of sanctions to gain advantage – with the statement that the monopolist has power over the consumer.

Finally, there ‘bargaining power’, typically meaning the share of the joint surplus which a party gains in a bargain (Binmore, Rubinstein, and Wolinsky, 1986). Reflecting this usage, the exponents used in the ‘Nash product’ to solve the generalized Nash bargaining model are said to refer to the bargaining power of the two parties. Used this way, bargaining power refers to outcomes – to how much advantage one may gain – rather than to any particular means of attaining it (for example by threatening a sanction). If the bargaining problem is embedded in an ongoing interaction, then bargaining power and short-side power appear not only unrelated but even opposed. In the competitive equilibrium of the standard principal–agent model of the labour market, for example, the principal receives his reservation return (given by the zero profit condition) while the agent receives a rent. Therefore, the bargaining-power perspective would say that the employee has *all* the bargaining power. But the short-side power perspective would conclude that, far from a sign that the employee is powerful, the rent conferred on the employee as a profit-maximizing choice of the employer is the reason why the employer has power over the employee. The employee receives the rent because his services cannot be costlessly contracted for, and the employer profits in this case by paying to exercise power over the employee.

The fact that the exercise of power is ubiquitous in private exchange shows that it is mistaken to think of society as composed of a political sphere, meaning governments and other bodies with formal powers of coercion, and a private economic sphere in which the exercise of power is absent. The rejection of this public–private division raises important issues concerning the appropriate scope of for democratic political competition (in addition to market competition) as a guarantor of accountability in the economy (Dahl, 1977; Bowles and Gintis, 1993).

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