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# Inefficiency in Public Organizations

**ABSTRACT:** Theories of market and government failure provide resources for diagnosing intra-organizational inefficiency in public organizations and for identifying possible solutions. Public goods, externalities, information asymmetries, monopolies, uncertainty, inappropriate reward systems, and interest group behavior create inefficiencies within organizations just as they do in the larger economy. Associated with many of these problems are generic solutions that can usefully inform leaders in their efforts to improve efficiency within their public organizations.

Public organizations (bureaus) usually operate under a number of handicaps that hinder their efficient use of resources. One handicap is inherent in the sorts of goods typically produced by bureaus: they usually are not sold in competitive markets, making it difficult for public managers and political overseers to place a value on them and determine if they are being produced at minimum cost. Another handicap arises because bureau managers typically face stringent constraints on their discretion. Civil service restrictions on hiring, firing, and differential employee rewards, which are intended to remove public organizations from partisan politics, make it difficult to create incentives for the efficient use of organizational resources (Rainey, 1983; Elling, 1986; Johnson and Libecap, 1989; Frant, 1993). Understanding the inefficiencies that arise from these handicaps is a desirable complement to theories of bureaucratic failure that emphasize the political context of bureaus (Downs, 1967; Niskanen, 1975; Moe, 1984; Dun-

leavy, 1992; Kraan, 1996). Our objective here is to demonstrate how the theories of market and government failures provide useful insights for understanding intra-organizational inefficiencies in bureaus.

The failure paradigm is a useful way of thinking about organizational efficiency because the literatures on market and government failures provide relatively precise and differentiated concepts. Wolf (1988) broadly adopts such an approach but, perhaps because of the incompleteness of his treatment, it has not been developed further in the literature. Conventional organizational literatures, on the other hand, provide somewhat vague and undifferentiated descriptions and analysis of organizational inefficiency that often do not provide useful prescription.

### EFFICIENT AND INEFFICIENT ORGANIZATIONAL MARKETS

Under what circumstances will activities be supplied efficiently among subunits within an organization (intermediate goods) or from the public organization to its clients (final goods)? We suggest that it is the presence of market-like failures (Weimer & Vining, 1999: 74–133) or government-like failures (Weimer & Vining, 1999: 159–195). In adopting such an approach, we focus primarily on the questions of effective property rights and incentives. Therefore, in general, we ignore here other potential sources of bureaucratic inefficiency such as bounded rationality, cognitive biases, or insufficient resources for the organizational mission.

Individuals in organizations inevitably trade a *bundle* of services (goods) with their co-workers (Holmstrom & Tirole, 1989: 63). The organization, thus, is an incentive system (Holmstrom & Milgrom, 1994). While internal markets for trading some of these goods are efficient, many are not (Baker, 1992; Baker, Gibbons & Murphy, 1994). Theoretically, one only expects an efficient internal market for homogeneous goods supplied by many individuals within the organization, so that the receiving co-workers or customers pay a price, which may be in units of exchange other than money, equal to the organizational opportunity cost of the goods. Thus, we can imagine a series of “spot” transactions in which each individual’s “units” of production are priced at his or her opportunity cost. Of course, the organizational accounting that is required to support such spot transactions is not trivial; indeed, it may not be feasible in many contexts. Further, the good in question may not be a pure private good that can be traded in a market-like manner, relying solely on market-like prices. Even centrally-administered efficient prices within the organization will not do the trick; Weitzman (1974: 479) points out, “. . . the allocation of resources within private companies (not to mention governmental or nonprofit organizations) is almost never controlled by setting administered transfer prices on commodities and letting self-interested profit maximization do the rest.”

The inefficiencies we consider can arise, and may not be fully correctable, because of the problems recognized in the principal-agent literature as hidden action and hidden information (Holmstrom & Tirole, 1989; Sappington, 1991). The actions of employees, including the effort they apply to their tasks, can usually only be imperfectly assessed by managers and coworkers. Organizational members may also have private information, sometimes about their coworkers, that is not known by managers. Organizational norms that arise and are maintained through repeated interaction among employees may help restrain organizational members from fully exploiting their short-run opportunities for taking advantage of their hidden actions and hidden information. Our identification of failures helps guide organizational designs to limit these inefficiencies.

We divide these problems into “market-like” organizational inefficiencies (ML) and “government-like” organizational inefficiencies (GL), roughly corresponding to failures of omission and failures of commission by the apex of the hierarchy, respectively. Specific inefficiencies often combine elements of both ML and GL inefficiency (for instance, by responding to ML inefficiency with inappropriate GL policies).

## ORGANIZATIONAL MARKET-LIKE INEFFICIENCIES

Five major categories of ML inefficiency are most relevant to bureaucracies: organizational public goods, organizational externalities, organizational information asymmetry, monopoly supply, and uncertainty.

### Organizational Public Goods

Two characteristics define private goods: rivalry—what one person uses cannot be used by anyone else; excludability—a particular individual has exclusive control over the good. A perfectly private good is characterized by complete rivalry in use and fully effective property rights. Public goods, on the other hand, are in varying degrees nonrivalrous in use, nonexcludable in use, or both. It is important to emphasize that public organizations can produce internal private *or* public goods.

An organizational good is nonrivalrous in use when more than one employee can simultaneously derive use benefits from a given level of supply (Jones & Thompson, 1999). For example, an organizational innovation is nonrivalrous in use if all employees benefit from it without reducing the benefits of others—a new employee would enjoy the benefits without reducing the benefits of existing employees (of course, each employee may value the innovation differently). A crucial distinction between rivalrous and nonrivalrous goods is that the valuations of individual employees cannot directly tell us how much of the nonrivalrous good should be provided. Additionally, once an output level has been chosen,

every employee receives that level. No market-like mechanism will unambiguously reveal the various values different employees place on the chosen output level. Thus, individual demand neither serves as an allocative mechanism nor reveals marginal benefits as it does for a rivalrous good.

An organizational “market” would only generate the optimal amount of the nonrivalrous good if all employees honestly revealed their marginal valuations. Employees do not normally have an incentive to reveal honestly valuations when they cannot be excluded from use, however. If organizational users anticipate having to make contributions toward provision of the innovation, then they have an incentive to understate their marginal valuations to avoid having to make contributions. If interested organizational users anticipate not having to make a contribution, then they have an incentive to overstate their marginal valuations to increase the chance that the innovation will actually be provided.

A good is nonexcludable if it is impractical in terms of organizational transaction costs to maintain exclusive control over its use. For example, specific employees cannot be excluded from receiving the benefits of many organizational innovations. Of course, in many organizational circumstances this is not a problem. If use is nonrivalrous (and, therefore, marginal use costs are zero), the organization would not wish to exclude. As we will see, however, lack of excludability can generate organizational inefficiency, especially when consumption is rivalrous. Where marginal costs of use are positive, an increase in use reduces the use benefits of others. We can think of these reductions in “consumer” benefits as costs.

We must distinguish between the marginal cost of use and the marginal cost of production. A purely nonrivalrous good exhibits zero marginal costs of use—additional use does not reduce the use benefits of anyone. Yet increments of the organizational public good must be produced in the same way as a private good by utilizing various factor inputs. Thus, the marginal cost of production of most organizational public goods and services such as innovation (whether intermediate or final) or leadership is not zero; the marginal cost of use is zero, however, for a given level of supply.

The presence of nonrivalry or nonexcludability is a necessary condition for the existence of an organizational public good problem and, unless corrected, results in organizational inefficiency. There is an additional problem with organizational public goods. When dealing with “ordinary” public goods, it is only necessary to distinguish between marginal private (individual) costs (MPC) and marginal social (aggregate) costs (MSB). When dealing with organizational public goods, it is useful to distinguish between marginal employee costs (MEC) and benefits (MEB), marginal organizational costs (MOC) and benefits (MOB), and marginal social costs (MSC) and benefits (MSB).

Figure 1 provides a typology of organizational public goods with the rivalrous/

	RIVALROUS	NON-RIVALROUS
EXCLUDABLE	<p><b>Rivalrous, Excludable</b></p> <p>NW</p> <p><b>Optimal Organizational Supply</b></p> <p>But see “externalities” (or internalities)</p>	<p><b>Non-rivalrous, Excludable</b></p> <p>NE</p> <p><b>Organizational Public Goods</b></p> <p>Organizational member may withhold, or supply strategically (politically), even though organization benefits from complete supply</p>
NON-EXCLUDABLE	<p><b>Rivalrous, Non-excludable</b></p> <p>SW</p> <p><b>Organizational Common Property Resources</b></p> <p>Organizational consumers respond to MEC rather than MOC or MSC = overconsumption or underinvestment</p>	<p><b>Non-rivalrous, Non-excludable</b></p> <p>SE</p> <p><b>Organizational “Pure” Public Goods</b></p> <p>No or suboptimal supply by organizational employees even though there are positive organizational and social benefits</p>

Figure 1. Organizational Public Goods

nonrivalrous distinction describing the columns and excludability/nonexcludability the rows. Each quadrant is discussed in turn.

**Rivalry, Excludability: Organizational Private Goods**

The NW cell defines organizational private goods, characterized by both rivalry in use and excludability. Here we would expect the internal market to be akin to the perfectly competitive market and, therefore, relatively efficient (absent other organizational failures). “Piece-work” payment is feasible in such organizational settings because individuals are producing essentially private goods. Piece-work payment is the simplest form of an internal market. But, as transaction units are less homogeneous (and, therefore, as quality can become more variable) a piece-rate system becomes less viable (Baker, Gibbons, & Murphy, 1994). The viability of any “per-transaction” system, if there is heterogeneous quality, depends critically on the information about quality known to the user (i.e., the extent of information asymmetry; see below).

The relative rarity of piecework systems *within* organizations suggests that purely private goods internal to the organization are rare (but see Lawler, 1990: 57–58), especially in public sector organizations. Indeed, these are the kind of goods that the organization can most easily purchase through contract. But such private goods form the “base case” against which various types of organizational

public goods can be compared. Organizational private goods should not be confused with private goods produced *by* the organization—a public organization may produce private goods, such as airplanes, for its external market and yet have no *internal* private good transactions.

### **Nonrivalry, Nonexcludability: Organizational “Pure” Public Goods**

Goods in the SE quadrant are characterized by *both* nonrivalry and nonexcludability. In the extreme case, all other employees benefit from an employee’s effort and no other employee can be excluded from the benefits. Any employee activity, for example, that enhances the reputation of the organization (as opposed to that of the individual employee) typically falls into this category as all employees benefit from reputational improvements. Organizational public goods of this kind are equivalent to “pure” public goods. These goods are costly for employees to supply (i.e.,  $MEC > 0$ ), yet they may produce large aggregate organizational benefits. But an organizational market will usually not elicit the correct level of supply unless such informal factors as peer pressure or guilt raise the cost to organizational members of withholding effort (Kandel & Lazear, 1992). Generally these are the kinds of organizational public goods that organizations have the most difficulty providing at all or at an efficient level.

The efficiency implications may be further complicated by the fact that organizational and social benefits may not be congruent. First, suppose  $MOB > 0$ ,  $MSB > 0$ , and that bureau executives have this knowledge. In this case, executives clearly want the employee to supply the organizational public good. But, keeping in mind that the marginal cost of supply is not zero, who specifically within the organization values the good and is prepared to give up resources so that it is supplied? Problems are likely to be most severe when large numbers of organizational members receive (individually small) benefits—as is the case with many staff functions. Nonstaff employees can behave strategically in their statements about the value of the good to themselves and implicitly to the organization. If there is perceived to be competition for resources between the public good supplier and organizational users, then the users may deny that they receive any benefits. Executives may have no direct means of assessing the value of the good to specific employees. It may be an intermediate good that is an input to other goods supplied to external clients or consumers. Typically, in these circumstances executives are able to get reports from consumers on group performance, but not on the performance of individual employees. Thus, the organizational problem can take one of several forms. Executives may simply not follow up on their desire for individual supply. If the good is to be supplied, then it is vital that executives monitor and reward *individual* supply. Yet in the public sector civil service rules make it difficult to reward differentially, or to dismiss, employees. Group rewards, however, allow free-riding and encourage the

under-supply of the good. Further, the strategic behavior of other employees may actually convince them that the good is not organizationally valuable.

Alternatively, now assume that  $MOB = 0$  or  $MOB < 0$ , but  $MSB > 0$ . This is a situation where “society” values the good—such as prompt and courteous service—but the bureau receives no reward for providing it or, indeed, bears net costs for providing it. This can occur in public organizations if oversight bodies, such as Congress, cannot easily monitor outputs. This, in turn, can arise if it is never worth the while of consumers to communicate to the oversight body their disutility from poor service. If the disutility of individual consumers is widespread and absolutely low, but complaining to oversight bodies is individually costly (a well-known problem), there may be no communication mechanism.  $MOB < 0$  situations can arise if there is a politically active constituency that strongly dislikes the provision of a socially valuable good. For example, pressure from students and parents may lead to “grade inflation” at some schools; grade inflation in turn reduces the value of grades as a signal of achievement.

Most employees produce both organizational private goods *and* organizational “pure” public goods. There is a tendency for them to substitute away from the provision of these public goods to organizational private goods. Rational employees who provide primarily pure public goods will have a tendency to take on the provision of organizational private goods as a form of “insurance,” thus substituting away from the provision of the public goods. Clearly, these problems will be more severe where  $MOB < 0$  (and  $MSB > 0$ ). The aggregate result is likely to be undersupply of such goods. Where organizational executives do not implement sophisticated monitoring and rewards systems, the result is likely to be zero supply. Of course, they are unlikely to provide such rewards where  $MOB < 0$ . Such goods will only be provided if oversight bodies can successfully encourage their provision.

The crucial point about organizational pure public goods is that often *they do not get supplied*; they are rather like Sherlock Holmes’ “dog that did not bark.” Often it takes a Holmes to observe their absence. The lack of supply of organizational pure public goods is often a better explanation of organizational inefficiency than “bounded rationality” or “group think.” For example, consider Allison’s (1971) famous example from the Cuban missile crisis: Soviet troops came ashore, as ordered, in civilian clothing in small groups, but then they formed up in military columns and marched away from the docks. Why? Because any individual soldier who pointed out the foolishness of such an act would have been providing an organizational public good. But risks of offending officers made individual expected costs exceed individual expected benefits ( $MEC > MEB$ ). Military organizations, of course, tend to place a high premium on obedience; this tends inevitably to discourage individual initiative. Yet, such initiative may have valuable organizational public good characteristics, especially in unusual or crisis situations.

### **Nonrivalry, Excludability: Organizational Strategic Public Goods**

NE cell goods are those in which organizational suppliers can exclude other employees from receiving the good even though the marginal cost of consumption is zero. Learning and information are common examples of goods in this quadrant. An employee may learn more effective ways of doing a job that are transferable to other employees at effectively zero marginal cost, but may be in a position to hide this expertise. This is likely to be more of a problem as job skill levels increase: production line workers have relatively few opportunities to hide (or exclude) other employees from benefiting from their experience, but “information age” workers have many opportunities to behave strategically, even though this behavior is organizationally costly. The organizational member, thus, may effectively price the organizational good above MEC and MOC.

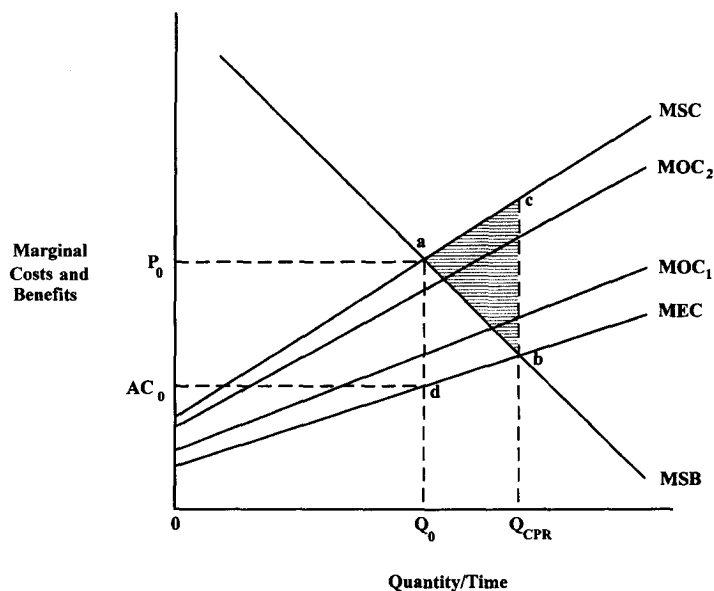
### **Rivalry, Nonexcludability: Organizational Common Property Resources**

Potentially, in the SW quadrant the result is “open access” to organizational assets and goods, which are rivalrous in consumption (Reschenthaler & Thompson, 1998: 64–65). Normally the distinguishing feature in this quadrant is that the relevant goods are tangible. No immediate organizational inefficiency occurs where supply exceeds demand at a zero, or effectively zero, price. Most organizations have “common pools” of rivalrous goods—whether it be ballpoint pens, secretarial help, automobile usage, or copying machine usage—which are vulnerable to common property resource inefficiencies (the problem is usually open effort rather than pure open access).

Figure 2 illustrates the efficiency losses associated with overconsumption (the usual form of organizational inefficiency). The marginal social benefit schedule (MSB) represents the horizontal summation (appropriate for a *rivalrous* good) of all marginal benefits. Similarly, the marginal social cost (MSC) represents the aggregate social cost of the organizational good. The efficient level of use, therefore, occurs when  $MSB = MSC$ , or at  $Q_D$ . Employees, however, take account of only their own (opportunity) cost (MEC). In most circumstances this means that everybody in the organization equally shares the cost of the excessively used ballpoint pens. Individually, rational employees treat average group cost as their own marginal cost, such that equilibrium level of use will be at  $Q_{CPR}$ , which is greater than the efficient level  $Q_D$ . The triangle *abc* is the resulting surplus loss.

Two marginal costs are relevant: the employee’s (MEC) and society’s (MSC). Yet, in terms of organizational dynamics, it matters whether the social costs are specifically borne by society at large, or directly by other employees within the organization. First, suppose that other employees bear only a fraction of the costs (for example, because the organization can successfully generate a larger budget to cover the costs of the inefficiency). The marginal organizational cost in this





- MEC = Marginal Employee Cost
- MOC = Marginal Organizational Cost
- MSC = Marginal Social Cost
- MSB = Marginal Social Benefit
- $Q_0$  = Organizationally Optimal Level of Consumption
- $Q_{CPR}$  = Common Property Resource Level of Consumption

**Figure 2.** Organizational Common Property Resource Problem

case is represented by  $MOC_1$ . Clearly, other employees have few incentives to deal with organizational common property resource problems when costs can be shifted external to the organization. On the other hand, if the organization cannot successfully externalize these costs, other employees will bear most of these costs; this situation is represented by  $MOC_2$ . From a static perspective the social costs are the same in both cases, i.e., the area  $abc$ . But employees in the  $MOC_2$  situation have stronger incentives to attempt to deal with the problem than in the  $MOC_1$  situation. The distinction between the two cases is important. Some scholars have argued that organizational waste in the public sector is “a puzzle” (e.g., Borcharding, 1983). It is not much of a puzzle in the  $MOC_1$  context. It may well be that most public organizations are in  $MOC_1$  situations, while most private firms face  $MOC_2$  situations. Utilities or other firms with market power, however, may also be in an  $MOC_1$  environment.

Organizational common property resources illustrate the continuum from ML inefficiency to GL inefficiency. In some contexts aspects of the good preclude economically feasible exclusion mechanisms, while in other contexts exclusions are economically feasible but the distribution of property rights (for example,

union rights) preclude their implementation. In many organizational contexts technological progress may fundamentally alter the costs and, therefore, the practicality of exclusion. To take one example, employees have a choice of long distance telephone companies, but often calling by the cheapest method requires dialing extra digits. Employees are tempted to minimize their own dialing costs. It is now possible to “black box” each phone so that it automatically selects the cheapest long distance carrier no matter which supply company the employee selected when dialing.

The extent of public good problems (that is, the lack of supply) greatly depends on the number of employees involved. As the number relevant to a particular organizational public good goes up, the incentives to free ride increase rapidly (Milgrom & Roberts, 1992:145–146). This has important implications for organizations, especially successful organizations. Successful organizations are likely to be growing rapidly. For example, all individuals in a small organization may engage in reputation-building, but as the bureau grows individuals no longer voluntarily contribute to this public good.

### **Organizational Externalities**

An externality is any negatively or positively valued organizational impact resulting from an organizational transaction that affects some third-party, whether employee or external customer. Wolf refers to these costs as “internalities” but for consistency in the use of market failure language we retain the term externality; additionally, as discussed below, some are borne externally to the organization. As with common property resources, externality problems involve attenuated property rights because either the rights to exclusive use are incompletely specified or the costs of enforcing the rights are high relative to the benefits. Clear and enforceable property rights would permit transactions between the offending employees and a third-party employee to eliminate the inefficiency associated with the externality. It is often difficult to specify appropriate property rights *ex ante* in organizational contexts, however.

Though externalities can arise in either production or consumption, the majority of relevant organizational externalities arise in production. Production externalities affect either other employees (employee-to-employee externalities) or customers and clients of the organization (employee-to-consumer externalities). An example of an employee-to-employee negative externality is the distraction that workers bear when other workers make noise doing their job. Persons who suffer these externalities may incur different levels of organizational disutility. For example, manual workers may be inconvenienced by the noise, but designers may be unable to function at all.

Positive externality problems are endemic to organizations, but often it is difficult to assess the extent to which potentially-valued output is under-provided,

rather more like “the dog that didn’t bark loud enough.” Positive externality problems are likely to occur whenever any unit of output has both observable and nonobservable characteristics (Baker, Gibbons, & Murphy, 1994; Holmstrom & Milgrom, 1994). As formal reward systems tend to tie salary, bonuses, or status to observable aspects of output, employees will undersupply the nonobserved characteristics (frequently, of course, there is *some* intrinsic jointness of supply such that some of the nonobservable characteristics are supplied). The natural tendency will be for a downward spiral in the supply of the nonobserved, but valuable, output. Of course, organizations implicitly do encourage the production of positive externalities. Indeed, the employee relationship is a form of relational contracting (Milgrom & Roberts, 1992) which allows valuable output to be revealed over time. Employees also have incentives to reveal the production of this valuable output (unfortunately, employees who are not producing this output have the same incentive). However, if the bureau manager truly cannot distinguish, the result will still be the “adverse selection” downward spiral (Akerlof, 1970).

### Organizational Information Asymmetry

We do not use the terms “information costs” or “imperfect information.” The reason is that information is involved in ML organizational failure in two distinct ways. First, information itself is nonrivalrous—one person’s consumption does not interfere with another’s; the relevant analytical question is primarily whether exclusion is, or is not, possible. Thus, in the public goods context we are interested in the production and consumption of information itself. Second, and the subject here, are situations in which the amount of information about the characteristics of a good varies in relevant ways across organizational members. The supplier and the user in an organizational transaction, for example, may have different information about the quality of the good being traded. Similarly, there may be differences in the level of information relating to the attributes of an externality between the generator of the externality and the affected party—workers, for instance, may not be as well informed about the health risks they face as their managers. In this context we are interested in the degree of asymmetry in the information relevant parties have about any good. (This again raises the issue of the ratio of costs borne inside the organization relative to outside. For example, employees may not be directly affected until after retirement in the case of exposure to toxic substances.)

In all organizations individuals have different levels of information—whether from general organizational experience, professional or technical expertise, or specific access to organizational information. Organizational inefficiency arises when individuals either withhold such information from other members, or distort it to further personal goals. In either case, ML inefficiency due to information

asymmetry arises when the holder of the information does not supply it in sufficient quantity to maximize the difference between the reduction in organizational loss from providing the information and its cost of provision.

It is unlikely that all information asymmetry leads to organizational inefficiencies. Goods (and services) can be categorized into search goods, experience goods, and post-experience goods (Vining & Weimer, 1988). A good is a search good if organizational users can determine its characteristics with certainty prior to use. For example, some financial reports are search goods because users can judge their quality through inspection. A good is an experience good if organizational consumers can determine its characteristics only after use; other reports, say involving demand projections, will fall into this category. Post-experience goods pose difficulties for the determination of quality even after consumption. For example, people may never be able to evaluate the correctness of legal opinions. Experience goods and post-experience goods differ primarily in terms of how effectively organizational users can learn about quality through use. After some period of use, the quality of experience goods generally becomes known; in contrast, continued use does not necessarily reveal the quality of post-experience goods.

Unfortunately, many organizational goods have experience and post-experience characteristics. Organizational users can only determine the quality of experience goods by sampling—they must bear the search costs and pay the “full price” (the purchase price plus the expected loss of failure or damage collateral with consumption). Within most organizations, however, there is repeated sampling because relations are continuous. Providers of information usually have strong incentives to develop reputation. Yet, when organizational users perceive that information providers within an organization do *not* have a stake in maintaining reputation (for example they are not sanctioned organizationally for being unreliable) and the marginal cost of supply rises with quality (for example it takes some effort to get it right), then a “lemons problem” may arise and organizational users may not trust information they receive (Akerlof, 1970).

### Monopoly Supply

Within organizations a particular individual, such as a highly specialized professional, may be the sole supplier of a service because of organizational demand and cost conditions. If the service is embodied in human capital, then the fixed cost of providing it (the ongoing employment relationship) is likely to be high relative to the variable cost of any particular organizational transaction. If average cost falls over the relevant range of demand, then the organizational supplier is a *natural monopolist* who can obtain rent by limiting supply to levels that raise price above marginal cost. However, the rent that the employee can extract is limited by the existence of *potential* suppliers of the service (Baumol et

al., 1982). If the bureau can readily replace the slacker from the external labor market (the market is contestable), then monopoly power will be reduced or eliminated. Yet this will be difficult if the employee has acquired (learned) firm-specific skills and knowledge. Definitionally, potential employees outside the organization do not possess such skills. Additionally, civil service rules providing employees with *de facto* tenure reduce contestability.

Many of these points are illustrated by Crozier (1964) in his famous study of a French monopoly. Mechanics retained their monopoly by intimidating anyone (including supervisors) who sought to acquire, or exercise, expertise pertaining to the factory machines. Mechanics made sure that blueprints, which they didn't need, systematically disappeared.

Thus far we have described the potential costs of monopoly supply in terms of static deadweight losses. But there are two other aspects of inefficiency that can significantly raise organizational costs. First, the organization faces weak competition in the product market. The inefficiency that results from lack of competition is known as X-inefficiency. Public organizations often face little competition and weak contestability in their product markets. Second, this model assumes that employees actually "capture" the producer surplus as "laziness," "the quiet life," extra perks, etc. But if potential jobholders actually spend time, energy, and other resources to compete for the right to these particular positions, some or all of the surplus will be dissipated (Buchanan, 1980). If the job seekers are within the organization (and these are likely to be the people with the best information about the potential benefits), this loss adds to *organizational* inefficiency. If they are outside the organization, it must be added to (nonorganizational) social loss. This is one way of conceptualizing "office-politicking" for jobs that are known to be "cushy."

### Uncertainty

In a perfectly competitive market, we assume that individuals can contract for all goods in all periods and under all possible contingencies (states of nature). There are many reasons why complete contracting is not possible. Indeed, as mentioned earlier, organizations often arise in response to uncertainty. The exchange of a wage for a generalized employment contract reduces much uncertainty around unforeseen contingencies. But the existence of organizations *per se* does not eliminate all risks and uncertainties. If we view organizations statically, then the lack of complete organizational insurance markets may seem like a trivial problem. But viewed dynamically, especially when there is rapid technological, consumer, and social change, the lack of these markets may be major organizational problems. Indeed, much popular management literature focuses on how organizations can credibly convince employees that they should engage in (risky) entrepreneurial (intrapreneurial) activities (Osborne & Gaebler,

1992). This is particularly difficult for public organizations that cannot easily vary monetary rewards.

An additional aspect of uncertainty is individual myopia. Most organizations are permanent (at least in intention), while all individual members have shorter time horizons. Attitudes and behavior change once one has given notice or one's "term of office" nears its end. The combination of uncertainty *and* organizational public goods problems may generate many organizational inefficiencies.

### ORGANIZATIONAL "GOVERNMENT-LIKE" FAILURES

ML organizational failure can be thought of as being a natural result of organization. Yet organizational inefficiency can be induced by endogenous managerial actions. These inefficiencies are analogous to inefficiencies induced by "government failure." The analogy at the organizational level is inefficiencies generated by the inappropriate *actions* of executives, whether from their own individual self-interest or as a result of organizational interest groups. Although not a focus of this essay, these mistakes may also result from bounded rationality, genuine cognitive biases, or lack of resources. Managers may introduce reward systems that actually *penalize* organizational public good provision, as opposed to merely having reward systems that do not reward such provision. That is why we find it useful to think of GL inefficiencies as the result of commission rather than omission.

The public choice literature has recognized that interest groups have incentives to act in ways that may not be socially beneficial (Buchanan et al., 1980). Equivalent problems may arise within organizations. In the organizational literature this is normally labeled as "organizational politics" (Allen et al., 1979: 77; Mayes & Allen, 1977). We prefer the label organizational rent-seeking. We have already seen how ML inefficiencies occur because of *individual* self-interested behavior. But individuals acting on their own will generally find it difficult to get policies adopted that benefit them but which generate organizational surplus losses. (While the individual gains would be high, they must be weighted by the probability that the policy will be adopted.) Individuals within organizations tend to share organizational gains and losses with particular *groups* within the organization, rather than with the whole organization. Mobilizing groups typically raises the probability of getting policies adopted. Organizational groups, therefore, tend to lobby concerning costs or benefits that accrue to them (such as the policy analysis office rather than the whole bureau).

Policies that spread large aggregate benefits widely and uniformly among organizational members are unlikely to elicit active support because the costs of activity exceed the expected benefits for any particular employee. Similarly, no employee may find it in her own self-interest to protest policies that spread costs widely. At least some people, however, will likely find it in their self-interest to

become “politically” active if policies involve concentrated costs or benefits that accrue to their group: total benefits go up, individual costs go down, and the probability of adoption goes up. Assuming that senior managers respond at least somewhat to this lobbying activity, the consequences of individual rationality will be collective choices biased toward policies with concentrated benefits and dispersed costs. This bias opens the door for the adoption of policies for which total organizational costs exceed organizational benefits. These problems may appear in the form of any of the organizational market-like failures described above, such as organizational negative externalities (for one example, see Levy et al., 1974: 186–217). Yet it is important to identify the source of inefficiency (i.e., GL as opposed to ML), because different sources call for different corrective action.

In many public organizations, interest groups form according to role (Boardman et al., 1993). But groups may also coalesce around other factors such as hierarchical rank (Friedson, 1970: 72; Pfeffer, 1981; Mosher, 1982; Dunleavy, 1992). One indication of such groups is a definable subculture. Indeed, these groups may have such strong ongoing rent-seeking capacity that they can be thought of as quasi-firms (Eccles, 1981). Quasi-firms may well prefer to deal directly with their external markets (perhaps contributing to regulatory “capture”).

Executives may respond to the pressures of these quasi-firms because of ignorance or reciprocal rent-seeking. If they do, then almost all ML inefficiencies can become GL inefficiencies. For example, governments frequently intervene in markets by setting price ceilings or price floors (Weimer & Vining, 1999: 171–175). Within organizations, the equivalent GL problem is senior management explicitly setting inappropriate “prices” (or rewards) for specific activities as a result of rent-seeking behavior. At the broadest level this may involve purely qualitative evaluations that either over-reward or under-reward all dimensions of actually-valued output.

Most public organizations are committed to egalitarian pay schemes. This is a combination of a price floor (some employees are paid above their marginal product) and a price ceiling (some employees are paid below their marginal product). This essentially creates a GL “adverse selection” problem. Employees who are overpaid will remain with the organization, while employees who are underpaid will tend to leave the organization for other organizations where they will receive their marginal product. The result will be a “spiral down” of employee quality.

## **ORGANIZATIONAL INEFFICIENCY AND LEADERSHIP**

Our analysis considers organizational inefficiency in terms of ML and GL failures. Here we briefly wish to link our discussion to the issue of leadership because of the recent attention it has received in the public management literature

(Osborne & Gaebler, 1992; Behn, 1998). One way of conceptualizing leadership is as a multidimensional response to a wide range of ML and GL failures (Hunt, 1991). Most importantly, leadership has aspects of an organizational pure public good. Though some aspects of leadership may be private (for example, “one-on-one” motivation), most aspects of leadership benefit all employees nonexcludably. Conversely, if poor leadership is provided, it is extremely difficult to organize to get rid of it.

Good leadership corrects ML failures and avoids GL failures. It is, thus, the nexus between failures and corrective policies (see later in the article). Organizational leaders normally gain when aggregate organizational efficiency increases and lose when organizational efficiency falls (we hold constant here the higher-level principal-agent problems between bureau managers and politicians). Good leadership provides pure organizational public goods that cannot be effectively supplied by any other employee and holds in check organizational rent-seeking. Of course, as technology, relative prices, and demand shift, good leadership requires constant attention to these matters to ensure marginal employee costs equal organizational price. Additionally, credible commitment to supply these goods or correct inefficiencies is vital.

## RESPONSES TO ORGANIZATIONAL FAILURES

In the same way that there are generic solutions to specific market and government failures (Weimer & Vining, 1999), there are generic solutions to specific organizational inefficiencies (Ouchi, 1979), though some organizational inefficiencies can only be reduced by either manipulating the extent of monopoly or the structure of contracts between public owners and managers (Jensen & Meckling, 1996). Potentially inefficient organizational markets may be corrected within the organization in many ways—by management edict, by organizational standard operating procedures (SOPs), by the extant culture, etc. In many circumstances rules may appropriately correct inefficiencies. It is inappropriate, however, to *assume* that organizational rules can, and have, corrected all extant organizational market-like failures for three reasons: First, the “solutions” themselves may be the result of organizational GL problems, such as rent-seeking—for example, civil service regulations restrict employees in the kind of activities that they can perform, perhaps because of union demarcations. Second, they may have at one time been appropriate, but technological, social, and other changes have rendered the rules inefficient—for example, as when restrictions are no longer necessary because of new financial instruments. Recently, for instance, the Canadian government removed extensive oversight procedures on individual civil servants who make small procurements (office supplies) provided they use specified credit cards. Third, rules may not have the flexibility to do the job because the circumstances they are intended to cover are inherently variable.



Our purpose here is to provide only a broad outline of the linkages between organizational inefficiencies and organizational solutions. We also attempt to indicate how some of the prescriptions “fit” with the more conventional organizational behavior literature. We group generic organizational policies into five general categories: (1) allowing, facilitating, and simulating organizational markets; (2) using subsidies and taxes to alter organizational incentives; (3) utilizing organizational regulations, rules, and routines; (4) nonorganizational supply of certain goods and services; and (5) providing organizational insurance.

### **Allowing, Facilitating, and Simulating Markets Within Organizations**

Allowing organizational markets (“deregulation” or “legalization”) is only an optimal policy when the mere removal of restrictions allows efficient intraorganizational exchange. In other circumstances, organizational executives must be more proactive and specifically facilitate or even simulate organizational markets. The facilitation of *new* organizational markets can arise where the problem is either: (1) allocating individual property rights to existing goods within the organization; or (2) creating new marketable organizational goods. These problems tend to be especially important in organizations that are growing quickly. As organizations grow, goods, which were frequently supplied essentially for “free,” become organizational public goods. In a small organization a knowledgeable employee may be able to give advice to other employees at effectively zero (individual and organizational) opportunity cost. As the organization grows, more employees may feel entitled to this service, placing too high a burden on a no longer willing supplier. In the latter case, as organizations grow, specific skills that certain individuals have may become organizationally valuable (for example, communication and coordination skills). It will usually require executive action to facilitate the emergence of a new valuable organizational good, such as mechanisms for one unit to purchase services from another that has become oversubscribed.

Simulating markets may take several forms within organizations; the most common forms are internal transfer pricing (most useful for frequent organizational exchanges) and organizational auctions (for “once-off” bidding). It is typically more difficult to institute bidding where output is intangible because it is much more costly to monitor quality. Incentive-linked pay is another form of simulated market (e.g., see Coughlan & Schmidt, 1985; Murphy, 1985; Baker, Jensen & Murphy, 1988; Jensen & Murphy, 1990). Simulated markets can also be considerably more subtle. One important attribute of leadership is to appropriately reward outstanding employee performance (Kouzes & Posner, 1989).

### **Using Organizational Subsidies and Taxes to Alter Incentives**

The concern here is with taxes and subsidies in situations where the intention is to correct organizational inefficiencies. Thus, it is not concerned with organizational "taxation" where the purpose is to raise revenue, for example, to pay for headquarters overhead (although these taxes do induce distortions that are relevant). Instead, the concern is with taxes and subsidies that change incentives by altering the *relative* prices of goods. Taxes raise the individual employee cost of doing things that are organizationally oversupplied, while organizational subsidies lower the individual employee cost of things that are organizationally undersupplied. This idea has broad organizational applicability.

The big difficulty in applying organizational taxes and subsidies is to assess accurately either total organizational marginal costs or total organizational marginal benefits. If organizational marginal costs and benefits are inaccurately assessed, then inefficiencies will either be over or under corrected. Critics of individual incentives appropriately point out that they often generate "goal displacement" (Church & Heumann, 1989). In some cases, it may simply be that the production of the wrong private good is being rewarded, but if so, organizational learning should easily be able to correct the problem.

The form of organizational subsidies can be quite subtle. Many organizations find that employees tend to underinvest in risky, but potentially beneficial, activities because of their inability to spread risks. The wide range of activities private firms engage in to encourage intrapreneurship can be thought of as subsidies to counteract this uncertainty problem (Stevenson & Jarillo, 1990: 23–25). Kuratko et al. (1990) suggest, for example, that a whole variety of "risk subsidies" be used to encourage successful intrapreneurship, including risk-takers being recognized whether eventually successful or not.

Demand-side subsidies and taxes are not as common within organizations, but can occur. Many organizations offer subsidies to employees who upgrade their education qualifications (school districts commonly utilize this form of subsidy). Similarly, many organizations have instituted internal "user fees" (congestion taxes, organizational marginal cost pricing, optimal tolls) to internalize organizational externalities or to price organizational strategic public goods (NE, Figure 1) efficiently.

### **Establishing Rules**

Rules are pervasive in all organizations. Rules range from formal, written, explicit rules to organizational norms and organizational culture. Many organizational SOPs are embedded in organizational rules. We find it useful to divide rules into two categories: (1) framework rules (equivalent to civil and criminal law in nonorganizational contexts), and (2) regulations that apply to specific internal markets, including the flow of information. The importance of framework rules to contain and channel organizational conflict has become increasingly recognized in the management

literature (Metcalf, 1981). (Analogously, consider “administrative procedures” in McCubbin et al., 1987.) There is little doubt that such rules are efficiency-enhancing. They enforce organizational property rights and organizational contracts—the most basic of organizational public goods. A crucial question is: What are the optimal “liability rules” in organizations? Arguably, many organizations have liability rules that do not adequately deal with organizational ML inefficiencies (see earlier discussions of uncertainty and risk). Other framework rules are akin to anti-trust legislation—their purpose is to discourage organizational interest group rent-seeking. Framework rules can also be used to counter some of the problems associated with GL inefficiencies: for example, by protecting individual (noninterest group) organizational rights. Of course, much inefficiency is best addressed by appropriate culture, rather than framework rules. Camerer and Vepsäläinen (1988) argue that “corporate culture” is a way for organizations to signal that individual behavior which enhances organizational reputation will be rewarded (see also Kreps, 1990). The “contract” or “rule” communicating that such behavior will be rewarded can often be found in leadership stories: How the boss rewarded an employee who drove several hundred miles on her own time to deliver services to a client. Of course, such unwritten rules are vulnerable to opportunistic behavior by organizational leaders.

Typically, organizations employ an array of regulations to govern organizational contracts. They can be broadly subsumed under output regulation (which attempts to regulate the price, quantity and quality of specific contracts) and input regulation (including mandating failure and information flows). Such regulations can, of course, be thought of as either the problem or the solution. To the extent that such regulations result from GL inefficiencies such as rent-seeking (work demarcations, for example), they are clearly “failures.” But even as solutions, analogous evidence suggests that regulation is by no means perfect. For example, the literature that suggests that output regulation as an attempt to deal with monopoly supply will usually generate input distortions seems equally applicable to the equivalent ML organizational inefficiencies. On the other hand, while quantity regulation is likely to be less flexible than organizational incentives, it usually provides much greater certainty of outcome because of reduced monitoring costs. Therefore, such policies are likely to be relatively more efficient when the costs of organizational error are high.

Input monitoring frequently implies the mandated provision of information (for example, by regular filing of activity reports). Of course, such a policy suggests a dilemma: the source of the information asymmetry is expected to correct the information asymmetry! Most organizations, of course, are aware of this problem and attempt to learn by third-party (nonrule) mechanisms. These may range from unobtrusive measures through internal “audits” and “time and motion studies” to video cameras and other electronic monitoring. Unfortunately, direct information about the quality of most services is difficult to gather. Typically, service quality is not

fixed: it may change over time with changes in the level of human capital (education or learning), the amount of effort and changes in nonhuman complements.

### **Nonorganizational Supply**

One response to organizational inefficiency is nonorganizational supply. This may seem unhelpful as the reason for organizational (internal) contracts is because they were more efficient than market (external) contracts—how can it now make sense to go back to “markets”? Although the two situations appear superficially to be the same, they are not. The reason is that contracts *when the organization already exists and has developed monitoring capability* are not the same thing as market contracts *per se*. Put another way, one needs the core organization to finance, but not necessarily to provide. It is important to recognize that intra-organizational costs may vary over time and are subject to a myriad of exogenous factors (such as the quality of the national telephone system). It is impossible to delve into this issue in detail here as it raises a whole set of new efficiency issues (see Williamson, 1975; Masten et al., 1991). The evidence does seem to suggest, however, that contracting may in itself generate organizational rent-seeking (Globerman & Vining, 1996).

### **Organizational Insurance**

The essence of insurance is the reduction of individual risk caused through pooling. Criteria for assessing the riskiest and most uncertain things that employees do cannot usually be set out in specific contract provisions. If organizations wish to encourage risk-taking, then they must provide organizational insurance. One way to think about organizational culture is as organizational insurance. But just as in other insurance markets, care must be taken to limit moral hazard—organizational insurance may induce people to take even greater risks or bear greater compensable costs than is appropriate from the organization's perspective. University faculty tenure illustrates the complex trade-off that is involved in providing insurance through job security.

What strategies can the leaders of public organizations use for creating corporate cultures supportive of innovation by employees? One strategy is to establish a reputation for placing weight on the *ex ante* validity of actions as well as on the *ex post* outcomes that result from them. To the extent that employees anticipate not being punished for playing reasonable games even if they lose, they will be more willing to take risks. Unfortunately, the ambiguity involved in retrospectively assessing actions from an *ex ante* perspective may make it difficult to build a reputation. Perhaps a simpler approach, such as a clear policy of not punishing employees for their first failures, offers better prospects for creating a corporate culture that provides organizational insurance in support of innovation.

### CONCLUSIONS

We have argued that organizational inefficiency can be analyzed using the standard concepts of welfare economics. Table 1 attempts to summarize major issues in the article. The first column shows the categories of inefficiency and the major manifestation of inefficiency. The second column provides some illustrations of each category (obviously by no means exhaustive). The third column matches generic policies to particular inefficiencies. The fourth column illustrates the dynamic nature of organizational design: specific organizational policies will, in turn, generate strategic responses by individual or groups of employees.

**Table 1.** A Summary of Organizational Inefficiencies and Generic Policies

<i>Source of Organizational Inefficiency</i>	<i>Examples</i>	<i>Generic Policies</i>	<i>Collateral Risk</i>
Public goods problems			
Organizational Pure Public Goods (undersupply, no supply)	Organizational reputation; Organizational innovation	Supply-side subsidies; Organizational insurance (culture)	Strategic employee behavior; Moral hazard
Organizational Strategic Public Goods (undersupply)	Organizational information	Supply side subsidies	Strategic employee behavior; Moral hazard
Organizational Common Property Resources (overconsumption, underinvestment)	Leftover department budget (e.g., year end); Free copying machines	Demand side taxes; Strengthen property rights (e.g., bankability)	Exclusion costs may exceed benefits
Externalities			
Negative externalities (oversupply)	Work noise	Supply-side taxes, subsidies	Strategic employee behavior (subsidies)
Positive externalities (undersupply)	Employee attitude	Supply-side subsidies	
Information asymmetry (underconsumption, sometimes overconsumption)	Quality of professional expertise	Non-organizational supply; Organizational insurance; Framework rules	Cost-raising
Monopoly Supply (x-inefficiency, undersupply)	Unique employee with firm-specific expertise	Non-organizational supply (increase contestability)	Cost-raising
Uncertainty (undersupply, underinvestment)	"Short-run" employee orientation	Organizational insurance	Moral hazard problem
GL inefficiencies	Any of the above, plus plain mispricing	Any of the above	

Additionally, of course, organizational technology is also dynamic, which creates new inefficiencies or offers the means to eliminate existing inefficiencies.

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