Understanding the employment relation: the analysis of idiosyncratic exchange

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This paper is concerned with jobs for which nontrivial job-specific skills and task-specific knowledge evolve, in a learning by doing fashion, during the course of a worker's employment. Otherwise qualified but inexperienced workers can not be regarded as the equivalent of job incumbents under such circumstances. The underlying factors that give rise to job idiosyncracies and the contractual properties of four alternative contracting modes for jobs of this kind are evaluated with the assistance of what we refer to as the "organizational failures framework." Individualistic contracting modes of the contingent claims contracting, spot contracting, and authority relation types are examined. The implied demands on the rationality limits of human actors are shown to be severe and the associated costs of adapting to changing job and market circumstances are shown to be considerable for jobs of the idiosyncratic kind. Collectivizing the employment agreement alleviates these conditions in that it serves to economize on transaction costs in both bounded rationality and attenuate oppor-

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tunism. The upshot is that "internal labor markets," which others have interpreted in mainly noneconomic terms, can be supplied with an efficiency rationale—additionally if not instead.

1. Introduction

■ This essay is concerned with the implications of an extreme form of nonhomogeneity—namely, job idiosyncracy—for understanding the employment relation. Although we refer largely to production workers, the framework can be extended, with appropriate modifications, to cover nonproduction workers as well. Our purpose is to assess better the employment relation in circumstances where workers *acquire,* during the course of their employment, significant job-specific skills and related task-specific knowledge.[1] What Hayek[2] referred to as knowledge of "particular circumstances of time and place" and what we refer to as "first-mover advantages" play a prominent role in the analysis.

The paper is an amalgam of recent neoclassical contributions to labor economics,[3] the internal labor market literature,[4] and discussions of collective bargaining by labor law specialists.[5] It is not, however, mainly a synthesis. We examine the transactional attributes of alternative contracting modes in a more detailed way than previous treatments and interpret the employment relation in an intertemporal systems context. Also, whereas much of the internal labor market literature emphasizes noneconomic considerations, we interpret evolving institutional practices with respect to idiosyncratic production tasks in efficiency terms.

This is not to suggest, however, that extraeconomic considerations are thought to be unimportant. To the contrary, we subscribe to the view that supplying a *satisfying exchange relation* ought to be regarded as a part of the economic problem, broadly construed, and believe that internal labor markets often contribute to greater contractual satisfaction. Confronted, however, with the coexistence of structureless and structured labor markets, and assuming that the same considerations of contractual satisfaction with respect to the nature of the exchange relationship apply in each, we are unable to distinguish between these markets by invoking noneconomic arguments. By contrast, the use of sequential spot contracting, where jobs are fungible, and internal labor markets, where jobs are idiosyncratic, is relatively easy to rationalize in efficiency terms.[6]

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[1] The employment relation is scarcely an isolated case of idiosyncratic exchange conditions. The vertical integration of technologically separable production stages is largely to be understood in these terms (Williamson [39]). For a more general discussion of the organizational failures framework employed in this paper and other examples of idiosyncratic economic events, see Williamson [38].

[2] In [17].

[3] Especially Becker [6].

[4] Especially Doeringer and Piore [11].

[5] Principally Cox [9].

[6] To the extent, of course, that internal labor markets also have attractive properties in contractual satisfaction respects, their use in idiosyncratic job circumstances is reinforced. Indeed, contractual satisfaction is apt to have second-order efficiency effects. But the bifurcation of labor markets into structured and

Four alternative labor contracting modes are examined. Two of these, recurrent spot contracting and contingent claims contracting, rely entirely on market mediated transactions. The other two involve a mixture of market mediated exchange and hierarchy (internal organization). What is commonly referred to as the "authority relation" and the internal labor market mode are of this second kind. These several alternative contracting modes are assessed in cost-economizing terms, where costs include both production and transaction cost elements. Considering that the focus throughout is on contracting, transaction costs naturally receive primary attention.[7]

Our purposes, briefly, are as follows:

(1) To demonstrate that the interesting problems of labor organization involve the study of transactions and contracting and, except in a rather special idiosyncratic sense, do not turn mainly on technology.
(2) To isolate and assess the idiosyncratic job features which characterize internal labor markets with the help of the "organizational failures framework."
(3) To set out the transactional detail that would attend complex contingent claims contracting in idiosyncratic job circumstances, thereby to disclose why such contracts are prohibitively costly or infeasible.
(4) To demonstrate that sequential spot contracting is unsuited to the idiosyncratic tasks in question, whence Alchian and Demsetz' discussion[8] of the employment relation requires qualification.
(5) To examine the authority relation and indicate the limitations associated with Simon's evaluation[9] of alternative contracting modes.
(6) To develop the transactional rationale for internal labor markets (in terms mainly of economizing on bounded rationality and attenuating opportunism) where jobs are idiosyncratic in nontrivial degree.

A brief discussion of the prior literature, some remarks concerning technology, and a description of the job circumstances in which idiosyncratic skills and knowledge are acquired by the labor force are given in Section 2. A proposed framework by which both to interpret these conditions and to assess alternative contracting modes is supplied in Section 3. Three autonomous contracting modes are examined in Section 4. The structural attributes of internal labor markets are then interpreted in Section 5. Concluding remarks follow.

2. Background

■ **A brief review of the literature.** The internal labor market literature has its roots in the industrial relations-labor economics litera-

structureless parts, which is the phenomenon of interest, is not mainly to be explained in these terms.

[7] Transaction costs are here regarded in the broad sense of the term, namely, as the "costs of running the economic system" (Arrow [4], p. 48).

[8] In [1].

[9] In [32].

ture of the 1950s and early 1960s. The important contributions in this area include the work of Dunlop, Kerr, Livernash, Meij, Raimon, and Ross.[10] This work, which is descriptively oriented, has since been developed and extended by Doeringer and Piore.[11]

The distinction between structured and structureless labor markets is especially notable. Whereas spot market contracting characterizes the latter (as Kerr puts it, the "only nexus is cash"),[12] structured markets are ones for which a large number of institutional restraints have developed. Outside access to jobs in structured markets is limited to specific "ports of entry" into the firm, these generally being lower level appointments. Higher level jobs within the firm are filled by the promotion or transfer of employees who have previously secured entry. Training for these jobs involves the acquisition of task-specific and firm-specific skills, occurs in an on-the-job context, and often involves a team element. The internal due process rules which develop in these internal markets "are thought to effectuate standards of equity that a competitive market cannot or does not respect."[13]

Though coming from a somewhat more theoretical tradition, the study of human capital represents a second and related approach to labor market analysis. It likewise makes the distinction between specific and general training. Incumbent employees who have received specific training become valuable resources to the firm. Turnover is costly, since a similarly qualified but inexperienced employee would have to acquire the requisite task-specific skills before he would reach a level of productivity equivalent to that of an incumbent. A premium is accordingly offered to specifically trained employees to discourage turnover, although in principle a long-term contract would suffice.[14]

The present analysis is both similar to and different from both of these traditions. It relies extensively on the institutional literature for the purpose of identifying the structural elements associated with internal labor markets. Also, our interpretation of the institutional restraints that have developed in such markets is consonant with much of this literature. What distinguishes our treatment from prior institutional discussions is that it is more microanalytic, in that it expressly identifies and evaluates alternative contracting modes, and it employs the proposed organizational failures framework apparatus throughout.

Like Becker, we are much concerned with the organizational implications of task-specific training. But whereas he finds that long-term contracts are vitiated because the courts regard them

[10] In [12, 13], [18], [20], [24], [28], and [29], respectively.

[11] Although acknowledging some of the efficiency aspects of the internal labor market, Doeringer and Piore also stress nonneoclassical attributes. Subsequent work in this tradition moves even further away from an efficiency orientation. Harrison [16], Piore [25], Thurow [34], and Wachtel and Betsy [36] have pushed this nonneoclassical interpretation to the point that efficiency considerations become, at most, a minor theme and at times disappear altogether in the study of collective organization.

[12] In [18], p. 95.

[13] Doeringer and Piore [11], p. 29.

[14] See Becker [6], pp. 10–25.

as a form of involuntary servitude;[15] we emphasize that the transaction costs of writing, negotiating, and enforcing such contracts are prohibitive.[16]

□ **Technology.** It is widely felt that technology has an important, if not fully determinative, influence on the employment relationship. We agree, but take exception with the usual view in several respects. First, we argue that indivisibilities (of the usual kinds) are neither necessary nor sufficient for market contracting to be supplanted by internal organization. Second, we contend that nonseparabilities at most explain small group organization. Third, and most important, we find that the leading reason why an internal labor market supplants spot contracting is because of small numbers exchange relations.

Conventional treatments–indivisibilities.

Indivisibilities of both physical capital and informational types are said to lead to the substitution of internal for market organization. The former involves scale economies associated with physical assets and is reasonably familiar. Larger scale units, provided they are utilized at design capacity, permit lower average costs to be realized. The group may thus be formed so as to assure that utilization demands will be sufficient.

Somewhat less familiar are the indivisibilities associated with information. Radner observes in this connection that "the acquisition of information often involves a 'set up cost'; i.e., the resources needed to obtain the information may be independent of the scale of the production process in which the information is used."[17] Consequently, groups may also be formed so as to economize on information costs.

That there are economies of either of these types to be realized, however, does not clearly imply, as a technological imperative, collective organization. Thus, technologically speaking, there is nothing that prevents one individual from procuring the physical asset in requisite size to realize the economies in question and contracting to supply the services of this asset to all of the members of the group. Similarly, there is no technological bar that prevents one individual from assuming the information gathering and dissemination function. All parties, suppliers of the specialized services and users alike, could be independent, yet scale economies of both types could be fully realized. If, therefore, such specialization fails to materialize, it is not because monopoly ownership of the physical assets and information services in question is impeded in technological respects. Rather, the problems are to be traced to transactional difficulties

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[15] See Becker [6], p. 23.

[16] Becker hints at this in his remark that "any enforceable contract could at best specify the hours required on a job, not the quality of performance" [6], p. 24. But rather than develop this line of analysis, and address the underlying transactional factors that explain such a condition, he merely notes that workers could always secure a release from long term contracts by "sabotaging" operations (p. 24). The implications for collection organization are nowhere addressed.

[17] In [27], p. 457.

that predictably attend market exchange in these circumstances. Accordingly, the incentive to collectivize activities for which indivisibilities are large in relation to the market is ultimately of a transactional kind.

Conventional treatments–nonseparabilities.

Alchian and Demsetz[18] contend that normal sales relationships are supplanted by an employment relation on account of nonseparabilities. The standard example is the manual loading of freight into a truck by two men, both of whom must work coordinately to lift the cargo in question. The inability to impute marginal products to each man on the basis of observed output is what, in Alchian and Demsetz' scheme of things, warrants hierarchical organization. A "boss" is introduced who monitors the work of both, thereby checking malingering and yielding a larger team output.

We agree, but make two further points. First, it is not the nonseparability by itself that occasions the problem. Rather it is this in conjunction with what we shall refer to below as "opportunism" and a condition of "information impactedness" that poses the difficulties. Absent these transactional considerations, the purported metering problems associated with nonseparability vanish. Second, and more important, we contend that most tasks are separable in the sense that—provided that successive stages of production are in balance—it is possible to sever the connection between stages by introducing buffer inventories.

Consider Adam Smith's pin-making example.[19] Pin manufacture involved a series of technologically distinct operations (wire straightening, cutting, pointing, grinding, etc.). In principle, each of these activities could be performed by an independent specialist and work passed from station to station by contract. Autonomous contracting would be facilitated, moreover, by introducing buffer inventories at each station, since coordination requirements and hence contractual complexity would thereby be reduced. Each worker could then proceed at his own pace, subject only to the condition that he maintain his buffer inventory at some minimum level. A series of independent entrepreneurs rather than a group of employees, each subject to an authority relation, could thus perform the tasks in question.

Transaction costs militate against such an organization of tasks, however. For one thing, it may be possible to economize on buffer inventories by designating someone to act as a coordinator,[20] which entails, albeit in limited degree, a shift toward hierarchy. But more germane to our purposes here are the economies attributable to the structure of internal labor markets—provided that the jobs in question are idiosyncratic in nontrivial degree. The ways in which the structured bargaining features of internal labor markets permit such economies to be realized are developed below. We nevertheless take this oppor-

[18] In [1].

[19] [33], pp. 4–5.

[20] For a discussion of some of the ways in which buffer inventory savings can be realized, see Williamson [37], pp. 1454–1455.

tunity to emphasize that small numbers exchange relations *evolve* much more frequently than is usually acknowledged, and that the prospect of costly haggling among autonomous agents is a consequence. The interesting institutional design question that is thereby posed is how can such haggling be attenuated? Examining the structural bargaining attributes of alternative contracting modes is plainly relevant in this connection.

Small numbers–general.

Arrow illustrates the problem of small numbers exchange with the lighthouse example. Indivisibility is no problem, since the light can be either on or off. He furthermore abstracts from uncertainty, by assuming that the lighthouse keeper knows exactly when each ship will need its services, and assumes that exclusion is possible since only one ship will be within lighthouse range at any one time. A trading problem nevertheless arises, because "there would be only one buyer and one seller and no competitive forces to drive the two of them into competitive equilibrium."[21] As will be evident, this condition, together with the stipulation that the firm is confronted with changing internal and market circumstances, is what we mainly rely on to explain the employment relation.

Small numbers–task idiosyncracies.

Doeringer and Piore describe idiosyncratic tasks in the following way:[22]

> Almost every job involves some specific skills. Even the simplest custodial tasks are facilitated by familiarity with the physical environment specific to the workplace in which they are being performed. The apparently routine operation of standard machines can be importantly aided by familiarity with the particular piece of operating equipment. . . . In some cases workers are able to anticipate trouble and diagnose its source by subtle changes in the sound or smell of the equipment. Moreover, performance in some production or managerial jobs involves a team element, and a critical skill is the ability to operate effectively with the given members of the team. This ability is dependent upon the interaction skills of the personalities of the members, and the individual's work "skills" are specific in the sense that skills necessary to work on one team are never quite the same as those required on another.

Hayek describes the consequences of idiosyncracy as follows:[23]

> . . . practically every individual has some advantage over all others in that he possesses unique information of which beneficial use might be made, but of which use can be made only if the decisions depending on it are left to him or are made with his active cooperation. We need to remember only how much we have to learn in any occupation after we have completed our theoretical training, how big a part of our working life we spend learning particular jobs, and how valuable an asset in all walks of life is knowledge of people, of local conditions, and special circumstances.

More generally, task idiosyncracies can arise in at least four ways: (1) equipment idiosyncracies, due to incompletely standardized, albeit common, equipment, the unique characteristics

[21] In [4], p. 58.
[22] In [1i], pp. 15–16.
[23] In [17], pp. 521–522.

of which become known through experience; (2) process idiosyncracies, which are fashioned or "adopted" by the worker and his associates in specific operating contexts; (3) informal team accommodations, attributable to mutual adaptation among parties engaged in recurrent contact but which are upset, to the possible detriment of group performance, when the membership is altered; and (4) communication idiosyncracies with respect to information channels and codes that are of value only within the firm. Given that "technology is [partly] unwritten and that part of the specificity derives from improvements which the work force itself introduces, workers are in a position to perfect their monopoly over the knowledge of the technology should there be an incentive to do so."[24]

Training for idiosyncratic jobs ordinarily takes place in an on-the-job context. Classroom training is unsuitable both because the *uniqueness* attributes associated with particular operations, machines, the work group, and, more generally, the atmosphere of the workplace may be impossible to replicate in the classroom, and because job incumbents, who are in possession of the requisite skills and knowledge with which the new recruit or candidate must become familiar, may be unable to describe, demonstrate, or otherwise impart this information except in an operational context.[25] Teaching by doing thus facilitates the learning by doing process. Where such uniqueness and teaching attributes are at all important, specific exposure in the workplace at some stage becomes essential. Outsiders who lack specific experience can thus achieve parity with insiders only by being hired and incurring the necessary start up costs.

The success of on-the-job training is plainly conditional on the information disclosure attitudes of incumbent employees. Both individually and as a group, incumbents are in possession of a valuable resource (knowledge) and can be expected to reveal it fully and candidly only in exchange for value. The way the employment relation is structured turns out to be important in this connection. The danger is that incumbent employees will hoard information to their personal advantage and engage in a series of bilateral monopolistic exchanges with the management—to the detriment of both the firm and other employees as well.

An additional feature of these tasks not described above but nevertheless important to an understanding of the contractual problems associated with the employment relation is that the activity in question is subject to periodic disturbance by environmental changes.[26] Shifts in demand due to changes in the prices of complements or substitutes or to changes in consumer incomes or tastes occur; relative factor price changes appear; and technological changes of both product design and production technique types take place. Successive adaptations to

[24] Doeringer and Piore [11], p. 84.

[25] See Doeringer and Piore [11], p. 20.

[26] Omitted from the discussion of the framework in this paper is a systems related condition referred to as "atmosphere." Failure to include atmosphere does not imply that we think it unimportant. But the concept is somewhat difficult to explicate in what is already a rather long paper.

changes of each of these kinds are typically needed if efficient production performance is to be realized. In addition, life cycle changes in the work force occur which occasion turnover, upgrading, and continuous training. The tasks in question are thus to be regarded in moving equilibrium terms. Put differently, they are not tasks for which a once-for-all adaptation by workers is sufficient, thereafter to remain unchanged.

3. The organizational failures framework

■ **General.** The organizational failures framework that has been proposed elsewhere[27] is sketched here for the purpose of helping to interpret task idiosyncracies and of assessing the efficacy of alternative methods of contracting. The framework points up the importance and recurrent appearance, in a variety of not obviously related economic circumstances, of the following three relations: (1) the pairing of uncertainty/complexity with bounded rationality; (2) the joining of small numbers exchange relations with an attitude of opportunism; and (3) a derivative condition referred to as information impactedness. The idiosyncratic tasks described above will be interpreted, with the help of some definitions, in these terms.

The principle of bounded rationality has been defined by Simon as follows: "*The capability of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behavior in the real world.*"[28] As the definition suggests, bounded rationality is assessed in relation to the nature of the problems for which solutions (contractual terms, adaptational arrangements) are sought. It refers to neurophysiological limits on the one hand and language limits on the other.

The former take the form of rate and storage limits on the powers of individuals to receive, store, retrieve, and process information without error. Language limits refer to the inability of individuals to articulate their knowledge of feelings by the use of words, numbers, or graphics in ways which permit them to be understood by others. Despite best efforts, parties may find that language fails them (possibly because they do not possess the requisite "vocabulary," possibly because the necessary vocabulary has not been devised) and resort to other means of communication instead. Demonstrations, learning by doing, and the like may be the only means of achieving understanding when such language difficulties develop.[29]

Opportunism is an effort to realize individual gains through a lack of candor or honesty in transactions. It is a somewhat deeper variety of self-interest seeking assumption than is ordinarily employed in economics;[30] *opportunism is self-interest*

[27] See Williamson [38], Chapter 2.

[28] In [32], p. 198, emphasis in original.

[29] See [3], pp. 38–43.

[30] As Diamond has observed, "It is standard in economic models to think of individuals as playing a game with fixed rules which they obey. They do not buy more than they know they can pay for, they do not embezzle funds, they do not

seeking with guile. It can appear during original negotiations, during contract execution, and at contract renewal stages. Strategic behavior is involved in all cases.

The emphasis on strategic behavior is important. In particular, advantages that are due to (1) preexisting and fully disclosed productive conditions (e.g., a unique location or differential skill) that obtain at the outset should be distinguished from advantages which result from (2a) selective or distorted information disclosure or (2b) self-disbelieved promises regarding future conduct. Advantages of the first type do not involve opportunism. Rather, parties are simply realizing returns to which their preexisting advantages entitle them; no special concern over the form which a contract takes develops on this account.

The strategic manipulation of information and misrepresentation of intentions, however, are to be regarded as opportunistic[31] and do have comparative institutional significance for assigning transactions to one contractual mode instead of another. Opportunism of the (2b) kind is of special relevance in this connection. Thus, if opportunism of the second kind were missing, then self-enforcing promises to the effect that "I solemnly pledge to execute this contract efficiently and to seek only fair returns at the contract renewal interval" could be extracted as a condition of being awarded the initial contract *and,* except as it affects the terms struck during the original negotiations, opportunism of the (2a) kind would vanish as well. Accordingly, the importance of completing transactions by one contracting mode rather than another, in opportunism respects, would be negligible.

Opportunistic inclinations by themselves, however, are not sufficient for an opportunism problem to be posed. It is further necessary to stipulate that a small numbers bargaining condition prevails. In circumstances where, both presently and prospectively, a large number of well-qualified, noncollusive bidders exist, competition will obtain and only fair returns will be realized. Where, however, such parity conditions break down, the self-policing benefits of competition are no longer assured and concern with opportunism is accordingly warranted.

As indicated, information impactedness is a derivative condition. It appears in conjunction with (1) changing economic conditions (uncertainty), (2) the inability of all the interested parties to be costlessly apprised of the changes which have occurred (which is a manifestation of bounded rationality),[32] and (3) the inclination of some of the parties opportunistically to withhold or distort the information to which they have preferential access. The *evolution* of an information impactedness condition, whether naturally or by design, during contract execution is transactionally significant because it results in a small numbers exchange condition. What may be referred to as first-mover

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rob banks," [10], p. 31. Opportunism specifically allows for such deviant behavior.

[31] For a discussion, see Goffman [15].

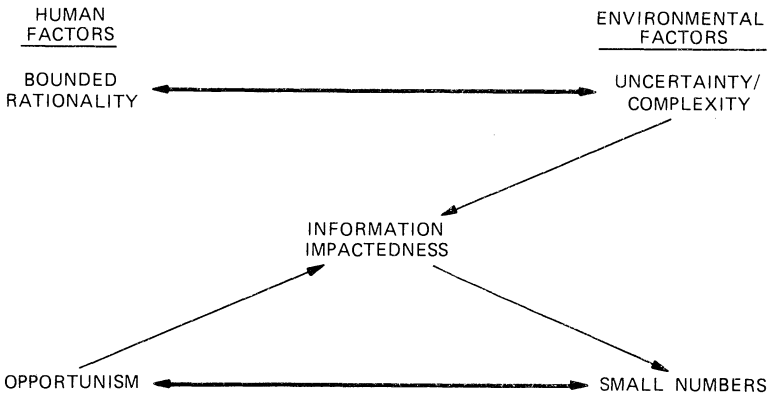
[32] Were rationality unbounded, all relevant economic data could be reported to and displayed by a central data processing unit (computer) at negligible cost, and all interested parties could fully apprise themselves of the information germane to each transaction.

advantages obtain in this way and have comparative institutional significance for organizing transactions.[33]

The above described relations can be summarized with the help of the schematic shown in Figure 1. The main pairings are

FIGURE 1

ORGANIZATIONAL FAILURES FRAMEWORK



given by the heavy, double-headed arrows which associate bounded rationality with uncertainty/complexity on the one hand and opportunism with small numbers exchange relations on the other. Information impactedness is a derived condition, due mainly to uncertainty and opportunism, which in turn commonly gives rise to a small numbers bargaining result.

We shall apply this framework to alternative contracting modes in the sections which follow. It will be useful first, however, to interpret task idiosyncracies in organizational failures terms.

□ **Application to task idiosyncracies.** The production tasks that are of transactional interest in this paper are ones that are either themselves rather complex or are embedded in a complex set of technological and organizational circumstances. Furthermore, successive adaptations are required to realize efficiency in the face

[33] Three types of information impactedness conditions may be distinguished: both parties have identical but incomplete information; information sets differ, but neither party enjoys an inherent advantage in relation to the other; information is asymmetrically distributed, such that one of the parties enjoys a strategic advantage. Arrow suggests that this last condition is especially troublesome, [4], p. 55, as indeed it is, and this will be the condition of principal concern to us here. But difficult problems can nevertheless arise when either of the first two conditions holds as well. To illustrate, an information impactedness problem of the first kind can arise if the parties have failed to stipulate how signals are to be mapped into state of the world descriptions. Thus suppose that A agrees to supply B with $\bar{X}$, on date d, if the mean temperature on date d is less than or equal to T_0, and $\bar{X} + \Delta$ otherwise. Suppose also that A and B both have free access to temperature readings on date d at 4:00 a.m., 12:00 noon, and 8:00 p.m. If on date d the unit weighted average of the temperatures is well below or well above T_0, the transaction goes through without difficulty. Suppose, however, that the unit weighted average is just slightly less than T_0, while weights of 0.95, 1.10, and 0.95 would increase it above T_0. Party B may now assert that "everyone knows" that the noon-time temperature deserves to be assigned a greater weight in computing the daily mean, and that $\bar{X} + \Delta$ should be delivered accordingly. Party A objects. Whence haggling and the need to collect additional information ensue.

of changing internal and environmental events. A nontrivial degree of uncertainty/complexity may thus be said to characterize the tasks. Training for such tasks occurs in an on-the-job context because of the impossibility, or great cost, of disclosing job nuances in a classroom situation. The relevant job details can simply not be identified, accurately described, and effectively communicated in a classroom context on account of information processing limitations of both originators (teachers) and receivers (trainees). Sometimes, indeed, the requisite language will not even exist. The pairing of bounded rationality with an uncertainty/complexity condition thus gives rise to the job-specific training situation. *Teaching by doing and learning by doing both economize on bounded rationality in these idiosyncratic job circumstances.*[34]

Specialized skills and knowledge accrue to individuals and small groups as a result of their specific training and experience. But while such skills and information accrue naturally, they can be disclosed strategically—in an incomplete or distorted fashion—should the affected parties so choose. Whether this will obtain depends on the structure of the bargaining relationship. Where job incumbents acquire nontrivial first-mover advantages over outsiders, and in addition, enjoy bargaining autonomy, what was once a large numbers bidding situation, at the time orginal job assignments were made, is *converted into a small numbers bargaining situation* if adaptations to unplanned (and perhaps unforeseeable) internal and market changes are subsequently needed to realize efficiency. The reasons for and consequences of this shift from a large numbers bargaining relationship at the outset to bilateral bargaining subsequently are developed further below.

4. Individualistic bargaining models

■ Four types of individualistic contracting modes can be distinguished:[35] (1) contract now for the specific performance of x in the future; (2) contract now for the delivery of x_i contingent on event e_i obtaining in the future; (3) wait until the future materializes and contract for the appropriate (specific) x at the time; and (4) contract now for the right to select a specific x from within an

[34] Doing while learning also contributes to the output of the firm. Classroom training is typically at a disadvantage in this respect.

[35] Lest the ensuing discussion of autonomous bargaining modes be thought to be contrived and/or unnecessary, since "everyone knows" such bargaining modes are inapposite, we make the following observations. First, though it is widely recognized that complex contingent claims contracting is infeasible (e.g., Radner notes that the Arrow-Debreu contracting model "requires that the economic agents possess capabilities of imagination and calculation that exceed reality by many orders of magnitude" [27], p. 457), the reasons for this are rarely fully spelled out—either in general or, even less, with respect to labor market contracting. We attempt to rectify this condition in Section 4 below. Second, as our discussion of Alchian and Demsetz below reveals, it is plainly not the case that everyone appreciates that idiosyncratic tasks need to be distinguished from tasks in general and that sequential spot contracting is singularly unsuited for jobs of the idiosyncratic kind. Third, so as to correct the widely held belief that the authority relation represents a well defined alternative to "normal" market contracting (as recently illustrated by Arrow's ([3], pp. 25, 63–64) reliance on Simon's treatment of the authority relation), we think it important that the ambiguities of the authority relation be exposed.

admissible set X, the determination of the particular x to be deferred until the future. Simon's study of the employment relation[36] treats contracts of the first type, which he characterizes as sales contracts, as the main alternative to the so-called authority relation (type 4). This, however, is unfortunate because type 1 contracts, being rigid, are singularly unsuited to permit adaptation in response to changing internal and market circumstances. By contrast, contingent claims contracts (type 2) and sequential spot sales contract (type 3) both permit adaptation. If complexity/uncertainty is held to be a central feature of the environment with which we are concerned, which it is, the deck is plainly stacked against contracts of type 1 from the outset. Accordingly, type 1 contracts will hereafter be disregarded.

□ **Contingent claims contracts.** Suppose that the efficient choice of x on each date depends on how the future unfolds. Suppose furthermore that the parties are instructed to negotiate a once-for-all labor contract in which the obligations of both employer and employee are fully stipulated at the outset. A complex contingent claims contract would then presumably result. The employer would agree to pay a particular wage now in return for which the employee agrees to deliver stipulated future services of a contingent kind, the particular services being dependent upon the circumstances which eventuate.

Contracting problems of several kinds can be anticipated. First, can the complex contract be written? Second, even if it can, is a meaningful agreement between the parties feasible? Third, can such agreements be implemented in a low cost fashion? The issues posed can all usefully be considered in the context of the framework sketched out above.

The feasibility of writing complex contingent claims contracts reduces fundamentally to a bounded rationality issue. The discussion by Feldman and Kanter of complex decision trees is instructive in this connection:[37]

> For even moderately complex problems . . . the entire decision trees cannot be generated. There are several reasons why this is so: one is the size of the tree. The number of alternative paths in complex decision problems is very large. . . . A second reason is that in most decision situations, unlike chess, neither the alternative paths nor a rule for generating them is available. . . . A third reason is the problem of estimating consequences. . . . For many problems, consequences of alternatives are difficult, if not impossible to estimate. The comprehensive decision model is not feasible for most interesting decision problems.

Plainly, the complex labor agreements needed to describe the idiosyncratic tasks in question are of this kind. Not only are changing market circumstances (product demand, rivalry, factor prices, technological conditions, and the like) impossibly complex to enumerate, but the appropriate adaptations thereto cannot be established with any degree of confidence *ex ante*. Changing life cycle conditions with respect to the internal labor force compound the complexities.

The enumeration problems referred to are acknowledged by

[36] In [32], pp. 183–195.
[37] In [14], p. 615.

Meade in his discussion of contingent claims contracts: "When environmental uncertainties are so numerous that they cannot all be considered . . . or, what comes perhaps to much the same thing, when any particular environmental risks are so hard to define and to distinguish from each other that it is impossible to base a firm betting or insurance contract upon the occurrence or nonoccurrence of any of them, then for this reason alone it is impossible to have a system of contingency . . . markets."[38] But for bounded rationality, Meade's concerns with excessive numbers, undefinable risks, and indistinguishable events would vanish.

But suppose, *arguendo,* that exhaustive complex contracts could be written at reasonable expense. Would such contracts be acceptable to the parties? We submit that a problem of incomprehensibility will frequently arise and impede reaching agreement. At least one of the parties, probably the worker, will be unable meaningfully to assess the implications of the complex agreement to which he is being asked to accede. Sequential contracting, in which experience permits the implications of various contingent commitments to be better understood, is thus apt to be favored instead.

Assume, however, that *ex ante* understanding poses no bar to contracting. *Ex post* enforcement issues then need to be addressed. First, there is the problem of declaring what state of the world has obtained. Meade's remarks that contingent claims contracts are infeasible in circumstances where it is impossible, on the contract execution date, "to decide precisely enough for the purposes of a firm legal contract" what state of the world has eventuated bear on this.[39] While it is easy to agree with Meade's contentions, we think it noteworthy to observe that, were it not for opportunism and information impactedness, the impediments to contracting to which he refers vanish. Absent these conditions, the responsibility for declaring what state of the world had obtained could simply be assigned to the "best informed" party. Once he has made the determination, the appropriate choice of x is found by consulting the contract. Execution then follows directly.

It is hazardous, however, to permit the best informed party unilaterally to make state of the world declarations where opportunism can be anticipated. If the worker is not indifferent between supplying services of type x_j rather than x_k, and if the declaration of the state of the world were to be left to him, he will be inclined, when circumstances permit, to represent the state of the world in terms most favorable to him. Similar problems are to be expected for those events for which the employer is thought to be the best informed party and unilaterally declares, from among a plausible set, which e_i has eventuated.[40]

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[38] In [23], p. 183.

[39] In [23], p. 183.

[40] The issue here is somewhat more subtle, however. The employer, when he assumes the role of the best informed party, will not wish to declare a false state of the world *unless,* at the time he got the worker to agree to a wage w, he represented to the worker that services of type x_i would be called for when event e_i obtained when in fact x_i' services, which the worker dislikes, yield a greater e_i

Moreover, mediation by a third party is no answer since, by assumption, an information impactedness condition prevails with respect to the observations in question.

Finally, even were it that state of the world issues could be settled conclusively at low cost, there is still the problem of execution. Did the worker really supply x_i in response to condition e_i, as he should, or did he (opportunistically) supply x_j instead? If the latter, how does the employer show this in a way that entitles him to a remedy? These are likewise information impactedness issues. Problems akin to moral hazard are posed.

Ordinarily, bounded rationality renders the description of once-for-all contingent claims employment contracts strictly infeasible. Occasions to examine the negotiability and enforcement properties of such contracts thus rarely develop. It is sufficient for our purposes here, however, merely to establish that problems of any of these kinds impair contingent claims contracting. In consideration of these difficulties, alternatives to the once-for-all supply relation ought presumably to be examined.

□ **Sequential spot contracts.** Alchian and Demsetz take the position that it is delusion to characterize the relation between employer and employee by reference to fiat, authority, or the like. Rather, it is their contention that the relation between an employer and his employee is identical to that which exists between a shopper and his grocer in fiat and authority respects:[41]

> The single consumer can assign his grocer to the task of obtaining whatever the customer can induce the grocer to provide at a price acceptable to both parties. That is precisely all that an employer can do to an employee. To speak of managing, directing, or assigning workers to various tasks is a deceptive way of noting that the employer continually is involved in renegotiation of contracts on terms that must be acceptable to both parties. . . . Long term contracts between employer and employee are not the essence of the organization we call a firm.

Implicit in their argument, we take it, is an assumption that the transition costs associated with employee turnover are negligible. Employers, therefore, are able easily to adapt to changing market circumstances by filling jobs on a spot market basis. Although job incumbents may continue to hold jobs for a considerable period of time, and may claim to be subject to an authority relationship, all that they are essentially doing is continuously meeting bids for their jobs in the spot market. This is option number three, among the contracting alternatives described at the beginning of this section, done repeatedly.

That adaptive, sequential decisionmaking can be effectively implemented in sequential spot labor markets which satisfy the low transition cost assumption (as some apparently do, e.g.,

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gain. The worker, being assured that he would be called on to perform x_i' services only when the unlikely event e_i' occurred, agreed to a lower wage than he would have if he realized that an x_i' response would be called for in both e_i and e_i' situations—because the employer will falsely declare e_i to be e_i' so as to get x_i' performed.

[41] In [1], p. 777.

migrant farm labor),[42] without posing issues that differ in kind from the usual grocer-customer relationship, seems uncontestable. We submit, however, that many jobs do not satisfy this assumption. In particular, the tasks of interest here are not of this primitive variety. Where tasks are idiosyncratic, in nontrivial degree, the worker-employer relationship is no longer contractually equivalent to the usual grocer-customer relationship and the feasibility of sequential spot market contracting breaks down.

Whereas the problems of contingent claims contracts were attributed to bounded rationality and opportunism conditions, sequential spot contracts are principally impaired only by the latter. (Bounded rationality poses a less severe problem because no effort is made to describe the complex decision tree from the outset. Instead, adaptations to uncertainty are devised as events unfold.) Wherein does opportunism arise and how is sequential spot contracting impaired?

Recall from the discussion of opportunism in Section 3 that opportunism poses a contractual problem only to the extent that it appears in a small numbers bargaining context. Otherwise, large numbers bidding effectively checks opportunistic inclinations and competitive outcomes result. The problem with the tasks in question is that while large numbers bidding conditions obtain at the outset, before jobs are first assigned and the work begun, the idiosyncratic nature of the work experience effectively destroys parity at the contract renewal interval. Incumbents who enjoy nontrivial advantages over similarly qualified but inexperienced bidders are well situated to demand some fraction of the cost savings which their idiosyncratic experience has generated.

One possible adaptation is for employers to avoid idiosyncratic technologies and techniques in favor of more well-standardized operations. Although least-cost production technologies are sacrificed in the process, pecuniary gains may nevertheless result since incumbents realize little strategic advantage over otherwise qualified but inexperienced outsiders. Structuring the initial bidding in such a way as to permit the least-cost technology and techniques to be employed without risking untoward contract renewal outcomes is, however, plainly to be preferred. Two possibilities warrant consideration: (1) extract a promise from each willing bidder at the outset that he will not use his idiosyncratic knowledge and experience in a monopolistic way at the contract renewal interval; or (2) require incumbents to capitalize the prospective monopoly gains that each will accrue and extract corresponding lump-sum payments from winning bidders at the outset.

The first of these can be dismissed as utopian. It assumes that promises not to behave opportunistically are either self-enforcing or can be enforced in the courts. Self-enforcement is tantamount to denying that human agents are prone to be opportunists, and fails for want of reality testing. Enforcement of such promises by the courts is likewise unrealistic. Neither case by

[42] See Doeringer and Piore [11], pp. 4–5; also Kerr [18], p. 95.

case litigation nor simple rule-making disposition of the issues is feasible. Litigation on the merits of each case is prohibitively costly, while rules to the effect that "all workers shall receive only competitive wages" fail because courts cannot, for information impactedness reasons, determine whether workers put their energies and inventiveness into the job in a way which permits task-specific cost savings to be fully realized—in which case disaffected workers can counter such rules by withholding effort.

The distinction between consummate and perfunctory cooperation is important in this connection. Consummate cooperation is an affirmative job attitude—to include the use of judgment, filling gaps, and taking initiative in an instrumental way.[43] Perfunctory cooperation, by contrast, involves job performance of a minimally acceptable sort. Incumbents, who through experience have acquired task-specific skills, need merely to maintain a slight margin over the best available inexperienced candidate (whose job attitude, of necessity, is an unknown quantity). The upshot is that workers, by shifting to a perfunctory performance mode, are in a position to "destroy" idiosyncratic efficiency gains. Reliance on preemployment promises as a means by which to deny workers from participating in such gains is accordingly self-defeating.

Consider therefore the second alternative in which, though worker participation in realized cost savings is assumed to be normal, workers are required to submit lump-sum bids for jobs at the outset. Assuming that large numbers of applicants are qualified to bid for these jobs at the outset, will such a scheme permit employers fully to appropriate the expected, discounted value of future cost savings by awarding the job to whichever worker offers to make the highest lump-sum payment?

Such a contracting scheme amounts to long-term contracting in which many of the details of the agreement are left unspecified. As might be anticipated, numerous problems are posed. For one thing, it assumes that workers are capable of assessing complex future circumstances in a sophisticated way and of making a determination of what the prospective gains are. Plainly, a serious bounded rationality issue is raised. Second, even if workers had the competence to complete such an exercise, it is seriously to be doubted that they could raise the funds, if their personal assets were deficient, to make the implied full valuation bids. As Malmgren has observed, in a somewhat different but

[43] Consummate cooperation involves working in a fully functional, undistorted mode. Efforts are not purposefully withheld; neither is behavior of a knowingly inapt kind undertaken. Blau and Scott are plainly concerned with the difference between perfunctory and consummate cooperation in the following passage ([7], p. 140):

> the contract obligates employees to perform only a set of duties in accordance with minimum standards and does not assure their striving to achieve optimum performance. . . . [L]egal authority does not and cannot command the employee's willingness to devote his ingenuity and energy to performing his tasks to the best of his ability. . . . It promotes compliance with directives and discipline, but does not encourage employees to exert effort, to accept responsibilities, or to exercise initiative.

nevertheless related context, "some [individuals] will see opportunities, but be unable to communicate their own information and expectations favorably to bankers, and thus be unable to acquire finance, or need to pay a higher charge for the capital borrowed."[44] The communication difficulties referred to are due to language limitations (attributable to bounded rationality) that the parties experience. That bankers are unwilling to accept the representations of loan-seekers at face value is because of the risks of opportunism.

Third, and crucially, the magnitude of the estimated future gains to be realized by workers often depends not merely on exogenous events and/or activities that each worker fully controls but also on the posture of coworkers and the posture of the employer. Problems with coworkers arise if, despite steady state task separability, the consent or active cooperation of workers who interface with the task in question must be secured each time an adaptation is proposed. This effectively means that related sets of workers must enter bids as teams, which complicates the bidding scheme greatly and offers opportunities for free riding. Problems also arise if gains cannot be realized independently of the decisions taken by management with respect, for example, to the organization of production, complementary new asset acquisitions, equipment repair policy, etc. Lump sum bidding is plainly hazardous where workers are entering bids on life cycle earnings streams that are repeatedly exposed to rebargaining.[45]

Finally, but surely of negligible importance in relation to the issues already raised, there is the question of efficient risk bearing: which party is best situated to bear the risks of future uncertainties, individual workers or the firm? That individual workers may be poorly suited to bear such risks and, as a group, can pool risks only with difficulty, seems evident and further argues against the bidding scheme proposed.

Transactional difficulties thus beset both contingent claims and sequential spot market contracting for the idiosyncratic tasks of interest in this chapter. Consider therefore the so-called authority relation as the solution to the contracting problems in question.

□ **The authority relation.** Simon has made one of the few attempts to assess the employment relation formally. Letting B designate the employer (or boss), W be the employee (or worker), and x be an element in the set of possible behavior patterns of W, he defines an authority relation as follows:[46]

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[44] In [21], p. 416.

[45] There is the related problem of comparing the bids of workers who have different age, health, and other characteristics. Possibly this could be handled by stipulating that winners have claims to jobs in perpetuity, so that a job can be put up for rebidding by the estate of a worker who dies or retires. Such rebidding, however, is hazardous if the new worker must secure anew the cooperation of his colleagues. Established workers are then in a position strategically to appropriate some of the gains. (This assumes that coalition asymmetries exist which favor old workers in relation to the new.)

[46] In [32], p. 184.

We will say that B exercises *authority* over W if W permits B to select x. That is, W accepts authority when his behavior is determined by B's decision. In general, W will accept authority only if x_0, the x chosen by B, is restricted to some subset (W's "area of acceptance") of all the possible values.

An employment contract is then said to exist whenever W agrees to accept the authority of B in return for which B agrees to pay W a stated wage.[47]

Simon then asks when will such an employment relationship be preferred to a sales contract, and offers the following two conjectures:[48]

(1) W will be willing to enter into an employment contract with B only if it does not matter to him "very much" which x (within the agreed upon area of acceptance) B will choose, or if W is compensated in some way for the possibility that B will choose x that is not desired by W (i.e., that B will ask W to perform an unpleasant task).

(2) It will be advantageous to B to offer W added compensation for entering into an employment contract if B is unable to predict with certainty, at the time the contract is made, which x will be the optimum one, from his standpoint. That is, B will pay for the privilege of postponing, until some time after the contract is made, the selection of x.

He then goes on to develop a formal model in which he demonstrates that the employment contract commonly has attractive properties, under conditions of uncertainty, *provided that the alternatives are* (1) the promise of a particular x in exchange for a given wage w (what he considers to be the sales contract option), or (2) a set of X from which a particular x will subsequently be chosen in exchange for a given wage w' (the employment contract option).

Put differently, the deterministic sales contract is shown to be inferior to an incompletely specified employment relation in which W and B do not agree on all terms *ex ante*, but "agree to agree later"—or better, "agree to tell and be told." But plainly the terms are rigged from the outset. As noted previously, the particular type of sales contract to which Simon refers in attempting to establish the rationale for an authority relation is the only one of the three types of sales contracts described at the beginning of this section that lacks for adaptability in response to changing market circumstances. Since employment contracts of both the contingent claims and sequential spot marketing kinds are not similarly flawed, a better test of the authority relation would be to compare it with either of these instead.

Simon's modeling apparatus, unfortunately, does not lend itself to such purposes. It is simply silent with respect to the efficiency properties of alternative contracts in which adaptability is featured. Not only is it unable to discriminate between the authority relation, contingent claims contract, and spot market contracting in adaptability respects, but Simon's model fails to raise transaction cost issues of the types described here.

This is not, however, to suggest that the authority relation has nothing to commend it. To the contrary, such a relation does not require that the complex decision tree be generated in advance, and thus does not pose the severe bounded rationality problems to which the contingent claims contracting model is

[47] See [32], p. 184.

[48] In [32], p. 185.

subject. The authority relation also, presumably, reduces the frequency with which contracts must be negotiated in comparison with the sequential spot contracting mode. Adaptations in the small can be costlessly accomplished under an authority relation because such changes, to the worker, do not matter "very much."

Assuming, however, that the parties are prospectively joined in a long-term association and the jobs in question are of the idiosyncratic kind, most of the problems of sequential spot contracting still need to be faced. Thus how are wage and related terms of employment to be adjusted through time in response to either small, but cumulative, or large, discrete changes in the data? What happens when hitherto unforeseen and unforeseeable contingencies eventuate? How are differences between the parties regarding state of the world determinations, the definition of the task, and job performance to be reconciled? Substantially all of the problems that are posed by idiosyncratic tasks in the sequential spot contracting mode appear, we submit, under the authority relation as well.

5. The efficiency implications of internal labor market structures

■ The upshot is that none of the above contracting schemes has acceptable properties for tasks of the idiosyncratic variety. Contingent claims contracting[49] fails principally on account of bounded rationality. Spot market contracting[50] is impaired by first mover advantages and problems of opportunism. The authority relation[51] is excessively vague and, ultimately, is confronted with the same types of problems as is spot market contracting. Faced with this result, the question of alternative contracting schemes naturally arises. Can more effective schemes be designed? Do more efficient contracting modes exist?

Our analysis here is restricted to the latter of these questions, which we answer in the affirmative. Although we do not contend that the internal labor market structures which we describe are optimally efficient with respect to idiosyncratic tasks, we think it significant that their efficiency properties have been little noted or understated by predominantly nonneoclassical interpretations of these markets in the past.

Our assessment of the efficiency implications of internal labor market structures is in three parts. The occasion for and purposes of collective organization are sketched first. The salient structural attributes of internal labor markets are then described and the efficiency implications of each, expressed in terms of the language of the organizational failures framework, are indicated. Several caveats follow.

□ **Collective organization.** To observe that the pursuit of perceived individual interests can sometimes lead to defective collective outcomes is scarcely novel. Schelling has treated the issue exten-

[49] See Meade [23], Chapter 10.
[50] See Alchian and Demsetz [1], p. 777.
[51] See Simon [32], pp. 183–195.

sively in the context of the "ecology of micromotives."[52] The individual in each of his examples is both small in relation to the system—and thus his behavior, by itself, has no decisive influence on the system—and is unable to appropriate the collective gains that would obtain were he voluntarily to forego individual self-interest seeking. Schelling then observes that the remedy involves collective action. An enforceable social contract which imposes a cooperative solution on the system is needed.[53]

Although it is common to think of collective action as state action, this is plainly too narrow. As Arrow and Schelling[54] emphasize, both private collective action (of which the firm, with its hierarchical controls, is an example) and norms of socialization are also devices for realizing cooperative solutions. The internal labor market, we contend, is usefully interpreted in this same spirit.

Thus, although it is in the interest of each worker, bargaining individually or as a part of a small team, to acquire and exploit monopoly positions, it is plainly not in the interest of the *system* that employees should behave in this way. Opportunistic bargaining not only itself absorbs real resources, but efficient adaptations will be delayed and possibly foregone altogether. What this suggests, accordingly, is that the employment relation be transformed in such a way that systems concerns are made more fully to prevail and the following objectives are realized: (1) bargaining costs are made lower, (2) the internal wage structure is rationalized in terms of objective task characteristics, (3) consummate rather than perfunctory cooperation is encouraged, and (4) investments of idiosyncratic types, which constitute a potential source of monopoly, are undertaken without risk of exploitation. For the reasons and in the ways developed below, internal labor markets can have, and some do have, the requisite properties to satisfy this prescription.[55]

□ Structural attributes and their efficiency consequences.

Wage bargaining.

A leading difficulty with individual contracting schemes where jobs are idiosyncratic is that workers are strategically situated to bargain opportunistically. The internal labor market achieves a fundamental transformation by shifting to a system where wage rates attach mainly to jobs rather than to workers. Not only is

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[52] In [30].

[53] See [30], p. 69.

[54] In [4], p. 62, and [30], p. 69, respectively.

[55] Commons' discussion with Sidney Hillman concerning the transformation of membership attitudes among the Amalgamated Clothing Workers illustrates some of the systems attributes of collective agreements ([8], p. 130):

> Ten years after World War I, I asked Sidney Hillman . . . why his members were less revolutionary than they had been when I knew them twenty-five years before in the sweatshop. . . . Hillman replied, "They know now that they are citizens of the industry. They know that they must make the corporation a success on account of their own jobs." They were citizens because they had an arbitration system which gave them security against arbitrary foremen. They had an unemployment system by agreement with the firm which gave them security of earnings. This is an illustration of the meaning of part-whole relations.

individual wage bargaining thereby discouraged, but it may even be legally foreclosed.[56] Once wages are expressly removed from individual bargaining, there is really no occasion for the worker to haggle over the incremental gains that are realized when adaptations of degree are proposed by the management. The incentives to behave opportunistically, which infect individual bargaining schemes, are correspondingly attenuated.

Moreover, not only are affirmative incentives lacking, but there are disincentives, of group disciplinary and promotion ladder types, which augur against resistance to authority on matters that come within the range customarily covered by the authority relation.[57] Promotion ladder issues are taken up in conjunction with the discussion of ports of entry below; consider, therefore, group disciplinary effects.

Barnard observes in this connection:[58]

> Since the efficiency of organization is affected by the degree to which individuals assent to orders, denying the authority of an organization communication is a threat to the interests of all individuals who derive a net advantage from their connection with the organization, unless the orders are unacceptable to them also. Accordingly, at any given time there is among most of the contributors an active personal interest in the maintenance of the authority of all orders which to them are within the zone of indifference. The maintenance of this interest is largely a function of informal organization.

The application of group pressures thus combines with promotional incentives to facilitate adaptations in the small.[59] Even individuals who have exhausted their promotional prospects can thereby be induced to comply. System interests are made more fully to prevail. This concern with viability possibly explains the position taken in labor law that those orders which are ambiguous with respect to, and perhaps even exceed, the scope of authority, are to be fulfilled first and disputed later.[60]

Contractual incompleteness/arbitration.

Internal labor market agreements are commonly reached through collective bargaining. Cox observes in this connection that the collective bargaining agreement should be understood as an instrument of government as well as an instrument of exchange: "the collective agreement governs complex, many-sided relations between large numbers of people in a going concern for very substantial periods of time."[61] Provision for unforeseeable

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[56] See Summers [34], pp. 538, 573.

[57] Authority relation is used here in the *qualified* short-run sense suggested in our discussion of Simon in Section 4 above.

[58] In [5], p. 169.

[59] Of course informal organization does not operate exclusively in the context of a collectivized wage bargain. Autonomous bargainers, however, are ordinarily expected to behave in autonomous ways. The extent to which group powers serve as a check on challenges to authority is accordingly much weaker where the individual bargaining mode prevails (see March and Simon [22], pp. 59, 66). By contrast, the individual in the collectivized system who refuses to accede to orders on matters that fall within the customarily defined zone of acceptance is apt to be regarded as cantankerous or malevolent, since there is no private pecuniary gain to be appropriated, and will be ostracized by his peers.

[60] See Summers [34], pp. 538, 573.

[61] In [9], p. 22.

contingencies is made by writing the contract in general and flexible terms and supplying the parties with a special arbitration machinery: "One simply cannot spell out every detail of life in an industrial establishment, or even of that portion which both management and labor agree is a matter of mutual concern."[62] Such contractual incompleteness is an implicit concession to bounded rationality. Rather than attempt to anticipate all bridges that might conceivably be faced, which is impossibly ambitious and excessively costly, bridges are crossed as they appear.

But however attractive adaptive, sequential decision making is in bounded rationality respects, admitting gaps into the contract also poses hazards: where parties are not indifferent with respect to the manner in which gaps are to be filled, fractious bargaining or litigation commonly results. It is for the purpose of forestalling worst outcomes of this kind that the special arbitration apparatus is devised.

Important differences between commercial and labor arbitration are to be noted in this connection. For one thing, "the commercial arbitrator finds facts—did the cloth meet the sample—while the labor arbitrator necessarily pours meaning into the general phrases and interstices of a document."[63] In addition, the idiosyncratic practices of the firm and its employees also constitute "shop law" and, to the labor arbitrator, are essential background for purposes of understanding a collective agreement and interpreting its intent.[64]

In the language of Section 3, the creation of such a special arbitration apparatus serves to overcome information impactedness, in that the arbitrator is able to explore the facts in greater depth and with greater sensitivity to idiosyncratic attributes of the enterprise than could judicial proceedings. Furthermore, once it becomes recognized that the arbitrator is able to apprise himself of the facts in a discerning and low cost way, opportunistic misrepresentations of the data are discouraged as well.

Grievances.

Also of interest in relation to the above is the matter of who is entitled to activate the arbitration machinery when an individual dispute arises. Cox takes the position that[65]

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[63] Cox [9], p. 23.

[63] Cox [9], p. 23.

[64] Cox [9], p. 24.

[65] In [9], p. 24. We are informed that this practice is changing and offer three comments in this regard. First, institutional change does not always promote efficiency outcomes; backward steps will sometimes occur—possibly because the efficiency implications are not understood. Second, relegating control to the union as to whether a grievance is to be submitted to arbitration can sometimes lead to capricious results. Disfavored workers can be unfairly disadvantaged by those who control the union decision-making machinery. Some form of appeal may therefore be a necessary corrective. Third, that workers are given rights to bring grievances on their own motion does not imply that this will happen frequently. Grievances that fail to secure the support of peers are unlikely to be brought unless they represent egregious conditions on which the grievant feels confidently he will prevail. The bringing of trivial grievances not only elicits the resentment of peers but impairs the grievant's standing when more serious matters are posed.

. . . giving the union control over all claims arising under the collective agreement comports so much better with the functional nature of a collective bargaining agreement. . . . Allowing an individual to carry a claim to arbitration whenever he is dissatisfied with the adjustment worked out by the company and the union . . . discourages the kind of day-to-day cooperation between company and union which is normally the mark of sound industrial relations—a relationship in which grievances are treated as problems to be solved and contracts are only guideposts in a dynamic human relationship. When . . . the individual's claim endangers group interests, the union's function is to resolve the competition by reaching an accommodation or striking a balance.

The practice described by Cox of giving the union control over arbitration claims plainly permits group interests, whence concern for system viability, to supersede individual interests, thereby curbing small numbers opportunism.

Internal promotion/ports of entry.

Acceding to authority on matters that fall within the zone of acceptance[66] merely requires that the employee respond in a minimally acceptable, even perfunctory way. This may be sufficient for tasks that are reasonably well structured. In such circumstances, the zeal with which an instruction to "do this" or "do that" is discharged may have little effect on the outcome. As indicated, however, consummate cooperation is valued for the tasks of interest here. But how is cooperation of this more extensive sort to be realized?

A simple answer is to reward cooperative behavior by awarding incentive payments on a transaction-specific basis. The employment relation would then revert to a series of haggling encounters over the nature of the *quid pro quo,* however, and would hardly be distinguishable from a sequential spot contract. Moreover, such payments would plainly violate the nonindividualistic wage bargaining attributes of internal labor markets described above.

The internal promotion practices in internal labor markets are of special interest in this connection. Access to higher level positions on internal promotion ladders is not open to all comers on an unrestricted basis. Rather, as part of the internal incentive system, higher level positions (of the prescribed kinds)[67] are filled by promotion from within whenever this is feasible. This practice, particularly if it is followed by other enterprises to which the worker might otherwise turn for upgrading opportunities, ties the interests of the worker to the firm in a continuing way.[68] Given these ties, the worker looks to internal promotion as the principal means of improving his position.[69]

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[66] The zone of acceptance is discussed in the quotation from Barnard in Section 5 above.

[67] For a discussion, see Doeringer and Piore [11], pp. 42–47.

[68] Since access to idiosyncratic types of jobs is limited by requiring new employees to accept a lower job at the bottom of promotion ladders, individuals can usually not shift laterally between firms without cost: "employees in nonentry jobs in one enterprise often have access only to entry-level jobs in other enterprises. The latter will often pay less than those which the employees currently hold" (Doeringer and Piore, [11], p. 78).

[69] Assuming that unit costs are equalized across rival enterprises (as a condition of competitive viability), the internal wage structure will be everywhere lower, including port of entry wages, if straight seniority is adopted.

The practice of restricting entry to lower level jobs and promoting from within has interesting experience-rating implications. It permits firms to protect themselves against low productivity types, who might otherwise successfully represent themselves to be high productivity applicants, by bringing employees in at low level positions and then upgrading them as experience warrants.[70] Furthermore, employees who may have been incorrectly upgraded but later have been "found out," and hence barred from additional internal promotions, are unable to move to a new organization without penalty.[71] Were unpenalized lateral moves possible, workers might, considering the problems of accurately transmitting productivity valuations between firms, be able to disguise their true productivity attributes from new employers sufficiently long to achieve additional promotions. Restricting access to low level positions serves to protect the firm against exploitation by opportunistic types who would, if they could, change jobs strategically for the purpose of compounding errors between successive independent organizations.

Were it, however, that markets could equally well perform these experience-rating functions, the port of entry restrictions described would be unnecessary. The (comparative) limitations of markets in experience-rating respects accordingly warrant attention. The principal impediment to effective interfirm experience-rating is one of communication.[72] By comparison with the firm, markets lack a rich and common rating language. The language problem is particularly severe where the judgments to be made are highly subjective. The advantages of hierarchy in these circumstances are especially great if those who are the most familiar with an agent's characteristics, usually his immediate supervisor, also do the experience-rating. The need to rationalize subjective assessments that are confidently held but, by reason of bounded rationality, difficult to articulate is reduced. Put differently, interfirm experience-rating is impeded in information impactedness respects.

Reliance on internal promotion has affirmative incentive properties in that workers can anticipate that differential talent and degrees of cooperativeness will be rewarded. Consequently, although the attachment of wages to jobs rather than to indi-

[70] For a more general discussion of the special powers of internal organization in auditing and experience rating respects, see Williamson [38]. The treatment in the text is keyed to an efficiency interpretation of the Doeringer and Piore [11] discussion of ports of entry limitations.

[71] Agents seeking transfer may have gotten ahead in an organization by error. Experience rating, after all, is a statistical inference process and is vulnerable to "Type II" error. When a mistake has been discovered and additional promotions are not forthcoming, the agent might seek transfer in the hope that he can successfully disguise his true characteristics in the new organization and thereby secure further promotions. Alternatively, the agent may have been promoted correctly, but changed his work attitudes subsequently—in which case further promotion is denied. Again, he might seek transfer in the hope of securing additional promotion in an organization that, because of the difficulty of interfirm communication about agent characteristics, is less able to ascertain his true characteristics initially.

[72] Interfirm experience rating may also suffer in veracity respects, since firms may choose deliberately to mislead rivals. The major impediment, however, is one of communication.

viduals may result in an imperfect correspondence between wages and marginal productivity at ports of entry, productivity differentials will be recognized over time and a more perfect correspondence can be expected for higher level assignments in the internal labor market job hierarchy.

□ **Three caveats.** The above discussion is incomplete in several respects. For one thing, it does not pretend to be exhaustive in describing the structured aspects of internal labor markets. At most the more prominent features have been identified. Second, the treatment of efficiency effects has not been symmetrical. The focus has been strictly on efficiency gains, while a more complete treatment would be concerned with the *net* gains (and thus would consider efficiency losses as well). Inasmuch, however, as the efficiency gains of internal labor markets have hitherto been somewhat neglected, an affirmative statement of the ways in which the structure of internal labor markets serves to economize on bounded rationality and attenuate opportunism seems useful.

Third, the contractual atmosphere associated with individualistic and collective contracting modes differs. As compared with individualistic contracting modes, where rewards are contingent on performance in a transaction-specific fashion (e.g., on a piece rate basis), workers in internal labor markets are usually metered less intensively. Recall in this connection that compensation rates in internal labor markets are assigned to jobs and that rewards are made contingent on performance through the promotion process. Accordingly, no attempt is made to settle accounts with respect to each transaction as it occurs but workers are experience-rated instead in an overall performance fashion. Also, qualification for advancement on the internal promotion ladder often turns partly on seniority.[73] The resulting contractual atmosphere not only differs from but is apt to be favored by some workers over that which obtains when each transaction is monitored and the corresponding account is settled separately.

Moreover, Doeringer and Piore's remarks concerning the due process attributes of internal labor markets[74] suggest that there are atmospheric differences between collective and individualistic contracting in this respect as well. The internal due process machinery associated with internal labor markets is apt to be valued not only for the efficiency reasons described above, but also because a greater sense of justice (absence of whimsy or prejudice) results.

As pointed out at the outset, however, reference to atmosphere does little to explain the absence of structure for fungible jobs and the appearance of structure where jobs are idiosyncratic. Assuming that atmospheric gains of the types described would be valued for jobs of both kinds, and if it is the case that the structure needed to realize such gains appears only in conjunction with the latter, then the rationale for observed struc-

[73] See Doeringer and Piore [11], pp. 54–57.
[74] In [11], p. 29.

tural difference presumably lies elsewhere. An examination of the efficiency attributes of alternative contracting modes in relation to task characteristics is accordingly warranted. It is the burden of this paper that the pairing of internal labor markets with idiosyncratic tasks is principally explained in transactional efficiency terms.[75]

6. Concluding remarks

■ Organizational failure and systems considerations appear repeatedly in the foregoing assessment of the properties of alternative contracting modes in relation to idiosyncratic tasks. These highlights are briefly recapitulated here.

□ **Applications of the organizational failures framework.** But for uncertainty, adaptive sequential decisionmaking problems would never be posed. Accordingly, the occasion to devise flexible contracts would never develop.

But for bounded rationality, complex contingent claims contracts could be written and there would be no occasion to investigate other forms of contracting.

But for opportunism, individuals would honestly disclose all information pertinent to the bargain and would self-enforce promises to forego the monopoly powers which accrue to incumbents. Alternatively, were it not for task idiosyncracies, information impactedness conditions would never develop and outsiders would be on a parity with incumbents in bidding for jobs. In either event, the distortions associated with monopoly advantage would vanish and spot market contracting would suffice. In circumstances, however, where incumbents realize idiosyncratic knowledge and skill advantages over otherwise qualified outsiders, small numbers conditions evolve. If, additionally, incumbents behave opportunistically, spot market contracting is hazardous.

□ **The collective agreement as a systems solution.** Frequently more important than the question of whether workers accept authority in the limited sense of "do this" or "do that," at the appointed time and place and in some highly prescribed manner, is their attitude toward cooperation. We have accordingly distinguished between perfunctory and consummate cooperation and have argued that collective organization, in the form of an internal labor market, is well suited to promote consummate cooperation.

In this respect and others, internal labor markets serve to promote efficiency. Job evaluation attaches wages to jobs, rather than to individuals, thereby foreclosing individual bargaining. The resulting wage structure reflects objective long-term job values rather than current bargaining exigencies. Internal promotion ladders encourage a positive worker attitude towards on-the-job training and enable the firm to reward cooperative behavior. A grievance procedure, with impartial arbitration as the usual final step, allows the firm and the workers to deal with

[75] See note 11, *supra*.

continually changing conditions in a relatively nonlitigious manner. Contract revision and renewal take place in an atmosphere of mutual restraint in which the parties are committed to continuing accommodation. Unionization commonly facilitates the orderly achievement of these results, though it is not strictly necessary, especially in small organizations.

References

1. ALCHIAN, A. AND DEMSETZ, H. "Production, Information Costs, and Economic Organization." *The American Economic Review,* Vol. 62, No. 1 (December 1972), pp. 777–795.
2. ARROW, K. *Essays in the Theory of Risk-Bearing.* Chicago, 1971.
3. ———. *Limits of Organization.* New York, 1974.
4. ———. "The Organization of Economic Activity," in *The Analysis and Evaluation of Public Expenditure: The PPB System,* Vol. 1, JEC, 91st Congress, 1st Session, 1969, 47–64.
5. BARNARD, C. *The Functions of the Executive.* Cambridge, 1962.
6. BECKER, G. "Investment in Human Capital: A Theoretical Analysis." *Journal of Political Economy,* Supplement, Vol. 70 (October 1962), pp. 9–44.
7. BLAU, P. AND SCOTT, W. *Formal Organizations.* San Francisco, 1962.
8. COMMONS, J. *The Economics of Collective Action.* Madison, Wisc., 1970.
9. COX, A. "The Legal Nature of Collective Bargaining Agreements." *Michigan Law Review,* Vol. 57 (November 1958), pp. 1–36.
10. DIAMOND, P. "Political and Economic Evaluation of Social Effects and Externalities: Comment," in M. Intrilligator, ed., *Frontiers of Quantitative Economics,* Amsterdam, 1971, pp. 30–32.
11. DOERINGER, P. AND PIORE, M. *Internal Labor Markets and Manpower Analysis.* Lexington, Mass.: Heath, 1971.
12. DUNLOP, J. *Industrial Relations Systems.* New York: Holt, 1958.
13. ———. "The Task of Contemporary Wage Theory," in G. W. Taylor and F. C. Pierson, eds., *New Concepts in Wage Determination,* New York: McGraw-Hill, 1957, pp. 117–139.
14. FELDMAN, J. AND KANTER, H. "Organizational Decision-Making," in J. March, ed., *Handbook of Organizations,* Chicago, 1965, pp. 614–649.
15. GOFFMAN, E. *Strategic Interaction.* Philadelphia, 1969.
16. HARRISON, B. *Education, Training and the Urban Ghetto.* Baltimore, 1972.
17. HAYEK, F. "The Use of Knowledge in Society." *The American Economic Review,* Vol. 35, No. 4 (September 1945), pp. 519–530.
18. KERR, C. "The Balkanization of Labor Markets," in E. Wight Bakke, *et al., Labor Mobility and Economic Opportunity,* Cambridge, Mass., 1954, pp. 92–110.
19. LEIBENSTEIN, H. "Allocative Efficiency vs. '*X*-Efficiency'." *The American Economic Review,* Vol. 56, No. 3 (June 1966), pp. 392–415.
20. LIVERNASH, E. "The Internal Wage Structure," in G. W. Taylor and F. C. Pierson, eds., *New Concepts in Wage Determination,* New York: McGraw-Hill, 1957, pp. 140–173.
21. MALMGREN, H. "Information, Expectations, and the Theory of the Firm." *Quarterly Journal of Economics,* Vol. 75 (August 1961), pp. 399–421.
22. MARCH, J. AND SIMON, H. *Organizations.* New York, 1958.
23. MEADE, J. *The Controlled Economy.* London, 1971.
24. MEIJ, J. *Internal Wage Structure.* Amsterdam, 1963.
25. PIORE, M. "Fragments of a 'Sociological' Theory of Wages." *The American Economic Review,* Vol. 63, No. 2 (May 1973), pp. 377–384.
26. RADNER, R. "Existence of Equilibrium of Plans, Prices, and Price Expectations in a Sequence of Markets." *Econometrica,* Vol. 40 (March 1972), pp. 289–304.
27. ———. "Problems in the Theory of Markets under Uncertainty." *The American Economic Review,* Vol. 60, No. 2 (May 1970), pp. 454–460.
28. RAIMON, R. "The Indeterminateness of Wages of Semiskilled Workers." *Industrial and Labor Relations Review,* Vol. 6 (January 1953), pp. 180–194.

29. Ross, A. "Do We Have a New Industrial Feudalism?" *The American Economic Review,* Vol. 48, No. 5 (December 1958).
30. SCHELLING, T. "On the Ecology of Micromotives." *The Public Interest,* No. 25 (Fall 1971), pp. 61–98.
31. SIMON, H. *Administrative Behavior,* 2nd ed. New York, 1961.
32. ———. *Models of Man.* New York, 1957.
33. SMITH, A. *Wealth of Nations,* 1937 ed.
34. SUMMERS, C. "Collective Agreements and the Law of Contracts." *Yale Law Journal,* Vol. 78 (March 1969), pp. 527–575.
35. THUROW, L. "Measuring the Economic Benefits of Education." Report prepared for the Carnegie Commission on Higher Education, December 1971.
36. WACHTEL, H. AND BETSY, C. "Employment at Low Wages." *Review of Economics and Statistics* (May 1972), pp. 121–129.
37. WILLIAMSON, O. E. "The Economics of Antitrust: Transaction Cost Considerations." *University of Pennsylvania Law Review,* Vol. 122 (June 1964), pp. 1439–1496.
38. ———. *Markets and Hierarchies: Analysis and Antitrust Implications.* New York: Free Press, 1975.
39. ———. "The Vertical Integration of Production: Market Failure Considerations." *The American Economic Review,* Vol. 61, No. 2 (May 1971), pp. 112–123.