and the referees.

For comments we thank Richard Fulton, Bernard Hofmanson, Richard Ioch, Paul Hilt, and the referees.

knowledge, but also more mundane facts: he noted that "knowledge

knowledge, Hayek had in mind, not just scientific and entrepreneurial

knowledge is dispersed among the people in the organization. By

Hayek (1945) argued that the costs of hierarchy arise from the fact

These generate larger dislocations.

model recognizes the complementary constraints that larger hier-

model recognizes the complementarity of scale and the constraints that

problems open the market. We offer a model in which organizational

problems open the market. We offer a model in which organizational

interactions produce an outcome that, in the planner's view, im-

interactions produce an outcome that, in the planner's view, im-

mainly using the price system to allo-cate resources but sometimes

mainly using the price system to allocate resources but sometimes

the same question: Why can't a central planner mimic the market?

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What are the costs of hierarchy? How can a hierarchy be less than

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1. INTRODUCTION

In a firm with a long hierarchy may not be viable in a competitive industry.

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everyone behaves rationally. Because hierarchies need rules in order to func-

everyone behaves rationally. Because hierarchies need rules in order to func-

profit maximization and the information in the firm, production is imperfect even though

profit maximization and the information in the firm, production is imperfect even though

Transaction Information Creates a Cost of Operating a Hierarchy, which becomes

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behavioral rationality. When information flows, a firm's capabilities become

behavioral rationality. When information flows, a firm's capabilities become

organizational dislocations of scale.
workers have and managers lack
productivity. In part, because it makes use of knowledge about the workplace that
shaped in the analysis of production management. Organizational factors
of the source of their component design, and, if design (1969) factors
of the process 1990s (p. 2) "Japanese firms' ability to utilize production-process-oriented research
and development (7996, 1991) in a way of
Wells and her associates (1995), and Still and Lurie (1991, 1992) in the view of
The importance of such information for the running of a firm is stressed by Hayek
199. C:


denies.
phenomenon, so longer hierarchies are greater information moves up the
discussion to explain any informational advantages that have. This
aptitude to transmit and receive information, not because of limits to people's
ability to make decisions. Dispersed information, the more capable and
incredible, information becomes distributed in our model — where is in
incredible, information becomes dispersed, within a hierarchy makes difficult
Dispersed information, within a hierarchy makes difficult to integrate
argue, create a fundamental impediment to effectiveness. We shall
made with this active cooperation, "individuals' cooperative incentives, we small
made with the active cooperation, "individuals' cooperative incentives, we small.
advantage over all others because he possesses unique information.
advantage over all others because he possesses unique information.
and Roberts (1988, 1990a). We should examine a specific form
and Roberts (1988, 1990a). We should examine a specific form
this is the basis of the influence-cost theory of Wells and Wollman, and
this is the basis of the influence-cost theory of Wells and Wollman, and
influencing the organization's decisions so their advantage;
unilateral decisions in firms are unimportant. Our model focuses on one particular source of risk
unilateral decisions in firms are unimportant. Our model focuses on one particular source of risk
from the decision-making responsibility? Organizational costs
from the decision-making responsibility? Organizational costs
Why does it matter that the source of the information is seen
Why does it matter that the source of the information is seen

It consists of information about things that are transitory and seem
It consists of information about things that are transitory and seem
including the lowest — as a product of their day-to-day decisions. Given
including the lowest — as a product of their day-to-day decisions. Given
for planning, much comes from below. Knowledge that is valuable to an
for planning, much comes from below. Knowledge that is valuable to an
much become aware of influencing processes in a new process, or of
much become aware of influencing processes in a new process, or of
a simple stock of new materials that could be used. A middle
a simple stock of new materials that could be used. A middle
of people, of local conditions, and of special circumstances is a valuable
of people, of local conditions, and of special circumstances is a valuable

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The experience of large European firms exemplifies the bargaining advantages of
profitably-held information that are the focus of our analysis of scale.

The model to be developed is stylized, in that it ignores other
costs of scale are ignored.

Quickly to changes in the market,
production function which would be most helpful in lowering costs of responding
not specified; and local personal
it's the format of the input.

The types of information which these companies have found it most
have an interest
there subsidies in the various countries in which they operate.

People are reluctant to share information, but the focus of our
management systems across
countries. Thus it is not surprising that middle-management
manage performance by middle-ranking managers,
their heads of a French company,
managers in particular seem to think. The heads of a French company,
advantages of profitably-held information that are the focus of our
organizations. Discussion of Scale

able to put a stop to it.

able in our model. Did not have precise enough information to be
easily understood when the model was being developed. Hence the prin-
top model of the general production cost. The top management as a
the division is the clearest and the top management as the principal,
the division as the agent and the top management as the principal.
ences. In terms of the model to be developed below, it is not perplex-
en estimated 20% to 25% of the division's budgeted operating ex-
This slack was large, amounting to

opportunity for the budgeting process. Improvement of the cost side, 
reduction of the interdepartmental process improvements. On the cost side, 
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reduction of the interdepartmental process improvements. On the cost side,
production and consumption units. According to Nautchon (1961),

led on the flow of information through bureaucratic channels from
China's economic reforms provide an experiment in changes in


the increase in productivity did not even get to the enterprise level. The

large enterprises (Berlin, 1977, pp. 249-252). The enterprise

change is a substantial discrepancy between actual capacity and plan-

The course of which is unknown to us if we are to understand
the whole system. Within the enterprise each official seeks to main-

systems, it is not enough to have a good management plan...


3. Modeling the Costs of Hierarchy

In the case of hierarchical organizations, the manager's decision-making process is constrained by the information available to him. The manager must make decisions based on the information provided by the workers in the lower levels of the hierarchy. This information is often incomplete, and the manager must make decisions with incomplete information. The manager's decisions are influenced by the workers' incentives, the structure of the hierarchy, and the information available to him.

Spurred by the need for management theory and practice to evolve, the contribution of Berry and his colleagues has been significant. Their work has provided a framework for understanding the informational and decision-making processes within hierarchical organizations. This framework is particularly relevant for organizations that rely on a high degree of specialization and coordination, such as large corporations and government agencies.

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\[ \frac{\partial f}{\partial \theta} \left( (t), \theta (t), (t), b \right) \frac{\partial f}{\partial \theta} = \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \]

It is shown in the Appendix that, if the agent chooses the optimal output, \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \), the expected value, over the range of possible types of the agent, of the agent's output, \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \), is the expected amount of profit left with the agent from the exercise of the options of the principal, not knowing possible agent types.

The principal: The contracts must offer the agent non-negative rents for all contracts. The principal faces an individual-rationality constraint: The principal's expected utility, \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \), is less than the principal's expected utility of the agent's choices, \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \). The principal chooses the contract, \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \), which maximizes this expression.

Given the incentive scheme imposed by the principal, \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \), the agent produces output, \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \), given the payment function designed by the principal. This is the principal's insight: the principal learns by trial and error, \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \), whether the agent's choices are justified. If the agent's output is not the optimal output, the agent chooses the type of output, \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \), that maximizes the expected utility of the principal, \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \).

The principal can then design the incentive contracts by free information: Knowledge outcomes bargaining power. Because the principal can design an incentive scheme, he has at his disposal the means from this perspective.

The fundamental result is that the agent earns rents from his contract.

The principal as the Stackelberg leader, specifies the agent's type, \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \).

We assume also that the marginal cost of output is supplemented by the agent's profit function, a consequence of the contract.

The (expected) profit function of the agent is \( \frac{\partial f}{\partial \theta} \left( (t), b \right) \frac{\partial f}{\partial \theta} \), which is defined by the principal, and is determined by the principal in selecting the outcome.
the principal's virtual cost, but in any particular realization they will imply be

6. Note that the payout from a principal to agent is in expectation, equal to

the top manager's (Table 2) the agent's report to face value and bases (the top principal to be 20% to 25% of the true cost, is — estimated 1969-1970). The size of the agent's reporting not true but virtual cost. The size of the model consistently with its misreporting. can

To re-examine the model described in the introduction. In rewriting the real-world firms described above the agent (a middle- in the revolution-principle analysis, just given, the agent correctly

In the revolution-principle analysis, the principal's expected reduction in production cost results in greater efficiency in the information given to his production. This game-playing adds the principal's expected cost, as in the analytical, to the expected cost of producing the full-information problem. It is as if the principal produces the

individuals' incentives, therefore, create a cost of operating a

due less utility than the (full-information) level, because the base information is useless the agent in pr-

because the base information is useless the agent in pr-

expected value of the full-information problem. In effect, been converted the

as such the agent has a known type, and cost function (i, b), R

In other words, the principal, in designing the incentive scheme, for each possible agent type, the principal maximizes

\[
E \left[ \left( (t', (t)_b)^c - (t)_b^c \right)^+ \right] =
\]

\[
E \left[ \left( (t', (t)_b)^c - (t)_b^c \right)^+ \right] = \left( t', (t)_b^c \right)^+ - \left( t, (t)_b^c \right)^+ = \left( t', (t)_b^c \right)^+
\]

The principal chooses the contract so as to maximize her expected

\[
E \left[ \left( (t', (t)_b)^c - (t)_b^c \right)^+ \right] = \left( t', (t)_b^c \right)^+ - \left( t, (t)_b^c \right)^+ = \left( t', (t)_b^c \right)^+
\]

such that:

\[
E \left[ \left( (t', (t)_b)^c - (t)_b^c \right)^+ \right] = \left( t', (t)_b^c \right)^+ - \left( t, (t)_b^c \right)^+ = \left( t', (t)_b^c \right)^+
\]

Theorem from (2), the expected total cost—production cost plus

where (i) is the inverse hazard rate [which is assumed

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model collateral in a three-tier hierarchy. The information provided by the agents is structured in a hierarchy. The hierarchy is shown in the output of the middle principal, which is a function of the agents. The middle principal then passes this information to the top principal, which is a function of the middle principal.

4. The Multi-Tier Hierarchy

Consider a hierarchy consisting of three people: a middle principal and two people, a top principal and an agent. The middle principal does not have information on the decision of the top principal. An agent also knows nothing she can do about it. The middle principal knows the reported costs are incorrect, but also knows there is nothing she can do about it. Her output decision on the agent, the middle principal, and the top principal is the same. The multi-tier hierarchy allows for a more efficient decision-making process. The top principal can make decisions based on the middle principal's feedback, which in turn is based on the agent's feedback. This allows for a more efficient decision-making process, as the top principal can make decisions based on the most accurate information available. The middle principal serves as a mediator, providing feedback to the top principal. The agent serves as a relay, providing information to the middle principal. The hierarchy allows for a more efficient decision-making process, as the top principal is able to make decisions based on the most accurate information available.
lower-level revenue functions are described by the person at the next level up.

Notice also that the revenue function of the top principal is exponential. Moreover, the principal at the higher level is paid the amount of the middle principal, which is the agent's principal's cost. That is, the middle principal, let's be the virtual principal of the middle principal's profit is the difference between the payment received by the middle principal's profit is the difference.

Now consider the top principal's contract design. The top principal's principal maximizes his profit in (e). Given that the agent maximizes his principal's profit, the expression (e) chooses the payment scheme function. And the virtual cost, C, is defined by the pay-to-the-middle principal's principal. The middle principal's contract is the same problem that the contract for the agent. This is, exactly, exactly the same problem.

As usual in principal-agent problems, we solve in reverse of the agent's problem, the middle principal earns non-negative rents for every possible contract, and is unable to pay such a rent for any given contract. We assume the middle principal is the middle principal for a fixed fee. We assume the middle principal solves the hierarchy to the middle principal, but it is not feasible by the top principal. The middle principal (who is assumed to face a limited-ability constraint) is the agent's type is assumed to face a limited-ability constraint as the middle principal delivers the output to the middle principal. The middle principal, whom is offered a contract prior to learning from the output, instead, will be paid a lump-sum for specifying how much the agent will be paid as a function of the output.
Given that the functional forms are such that \( \hat{c} \) holds, then \((11)\) holds (i.e., \( \hat{c} = \hat{c}' \)) that is, \( \hat{c} = \hat{c}' \) holds. Since the lowest level of agent \( b \) costs when the cost function takes this form, it is also satisfied if \( b \) holds.

This is satisfied by the example \( \hat{c}' \) of (8), so there are indeed hereditary

\( (11) \)

\[ \phi \leq b \leq 0 \quad \text{for all} \quad b, \quad 0 \leq \phi(1', b), \phi'(1') - (0', b), \phi'(1') - (0', b), \phi'(1') \]

\[ \text{where always binds} \]

\( \psi(1', b), \psi'(1') - (0', b), \psi'(1') - (0', b), \psi'(1') \]

\[ \text{Then, it will turn out, indeed} \]

\[ = (0', b), \psi'(1') - (0', b), \psi'(1') - (0', b), \psi'(1') \]

\[ \text{supplied. If} \]

\[ \text{I} \]

\[ \text{denote the top principal,} \]

\( \phi \) is given by \( \phi \)

\[ \text{that the lowest type of agent (i.e., } \phi = 0 \text{ could ever be asked}\]

\[ \text{are the most under}\]

\[ \text{agreement not to be possible (as follows). Let } \phi \text{ be the most over}\]

\( \text{self-}

\[ \text{V sufficient condition for } \phi \text{ to be a}\]

\[ \text{greater inefficiency.} \]

\( \text{hierarchy costs.} \)

\( \text{The hierarchy exists on every level of hierarchy; the extra layer of hierarchy adds an extra}

\[ \text{more to the second level principal in}\]

\( \text{so zero profit and the solution is the second level principal in}\]

\( \text{if and only if}\]

\[ \text{the first level principal earns}

\[ \text{determining}\]

\( \text{if } \phi \text{ (10) binds, the first-level principal earns}

\[ \text{in general, either } \phi \text{ or } (0', b) \text{ could be the binding constraint.} \]

\( (10) \)

\[ \psi(1', b), \psi'(1') - (0', b), \psi'(1') - (0', b), \psi'(1') \]

\[ \text{condition for the first-level principal requires}

\[ \text{In addition, } \psi(1', b), \psi'(1') - (0', b), \psi'(1') - (0', b), \psi'(1') \]

\( \text{Thus the individual-rationality} \)

\( \psi(1', b), \psi'(1') - (0', b), \psi'(1') - (0', b), \psi'(1') \]

\[ \text{hold condition for the first-level principal requires}

\[ \text{from the one-layer analysis, } \]

\( \psi(1', b), \psi'(1') - (0', b), \psi'(1') - (0', b), \psi'(1') \]

\[ \text{which}

\[ \text{For increasing concave } \phi \text{ with } \psi(1', b), \psi'(1') - (0', b), \psi'(1') - (0', b), \psi'(1') \]

\( \text{since the switching point is not on } (1', \phi). \]

\[ \text{one case that satisfies them is } \phi \text{ on the}\]

\( \text{that case to ensure the solution is nonmonotonic. They are complicated}

\[ \text{ions are analogous to the standard assumptions imposed in the one-}

\[ \text{Organizational Discourses of Scale} \]

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Thus our model corresponds the idea that the degree of hierarchy depends immediately on the source of the information. The model indicates that the degree of hierarchy is determined in part by the relative costs of supervision and communication. In this model, the cost of supervision is the cost of obtaining the necessary information from the lower levels of the hierarchy. The cost of communication is the cost of transmitting the necessary information to the higher levels of the hierarchy. The model suggests that the degree of hierarchy is determined by a trade-off between these two costs. When the cost of supervision is low and the cost of communication is high, the degree of hierarchy is low. Conversely, when the cost of supervision is high and the cost of communication is low, the degree of hierarchy is high.

For our model to make sense, we need to consider the costs of supervision and communication in the context of the problem at hand. In many organizational settings, the cost of supervision is high because supervisors are often required to provide detailed instructions and to monitor the performance of their subordinates. On the other hand, the cost of communication is often low because information can be transmitted quickly and efficiently through electronic means.

In conclusion, our model of the degree of hierarchy in organizations provides a useful framework for understanding the complex interplay between supervision, communication, and organizational structure. By considering the costs of supervision and communication, we can gain a better understanding of how organizations are structured and how they operate.

References


6. LARGE FIRMS VS. SMALL FIRMS

are closer to fixed wages. Lead to pay workers piece rates; in large firms, workers' payments
per piece are greater. In smaller firms, with shorter hierarchies, will
reduce the desired output and reduce the marginal rate of

5. INCENTIVES IN THE HIERARCHY

Organizational Discoromies of Scale
The principal of the merged firm can direct the low-cost division to
produce output for the higher-cost division. This increases the overall
profitability of the merged firm. However, this division can also
produce output directly to the consumer market, thereby increasing
the merged firm's market power. This increased market power
reduces the incentives for the two divisions to cooperate and
increase overall profitability.

One way to mitigate this problem is to have a single, centralized
organization that can coordinate the activities of the two divisions.

Two effects work to produce gains from scale economies.

1. The principal of the merged firm can direct the low-cost division to
produce output for the higher-cost division. This increases the overall
profitability of the merged firm. However, this division can also
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produce more and the high-cost divisions less. But the inefficiencies of hierarchy mean that output-coordination gains can only partially be achieved. Full technical efficiency requires that outputs be allocated so that marginal production costs be equated across the divisions. But recall from Section 3 that the costs the principal bears are not just production costs. Rather, the principal bears production cost plus informational rents, so that what she equates across the divisions are these marginal virtual costs. Except in the measure-zero case in which marginal information costs are the same for all divisions, the principal does not induce a fully efficient allocation of production to the divisions. Working in the opposite direction to these two coordination effects is the information-cost effect derived in Section 3, which tends to make the monopoly produce less efficiently than the independent firms. This inefficiency of hierarchy tends to make the competing firms more profitable than the monopoly.

To examine this trade-off further, consider an example. There are $n$ producing units, which we shall alternately view as independent firms and divisions of a monopoly. The monopoly is controlled by a single principal; the monopolized industry has one more layer of hierarchy than the competitive industry. The cost function is $zq + (1 - t)q^2$, where $t$ is distributed uniformly on $[0, 1]$. The demand curve is linear: price is $a - bQ$, where $Q$ is total output (the sum of the $q_i$'s). Let $\pi^c$ represent expected industry profits (averaged over types) when the firms compete as independent entities; $\pi^m$ total profit (to principal and agents) when the industry is monopolized; and $\pi^1$ the profit earned by the principal when the industry is monopolized. (If $\pi^m$ exceeds $\pi^c$, then it is feasible for the principal to organize a takeover of the $n$ independent firms, paying them their stock-market value $\pi^c$, and still earning positive profit.) Whether or not monopoly does better than competition depends on the parameters. In particular (as is shown in Section A3 of the Appendix): (1) for $n$ large, $\pi^m \geq \pi^1 > \pi^c$; (2) for $b$ large, $\pi^m \geq \pi^1 > \pi^c$; (3) for $b$ small, $\pi^c > \pi^m \geq \pi^1$. The first of these is easily explained. When there are many firms competing, the standard profit increase from monopolization outweighs the organizational costs. Results (2) and (3), showing the effect of the demand curve's slope on the organization of the industry, are more novel. If the demand curve has a very small slope, two of our three effects disappear. There is no Cournot inefficiency, and there are no profit

11. Consider the special case in which $F$ is uniform on $[0, 1]$ and the cost function is $C(q, t) = (z + 1 - t)c(q)$ for $z > 0$. The marginal cost perceived ex ante by the principal (from eq. (1)) is $(z + 2(1 - t)c'(q)$, and equating this across different divisions with different $t$'s does not in general equate marginal production costs, $(z + 1 - t)c'(q)$, so there is an inefficiency.
7. Competition and the Efficiency of Production

Competition and the efficiency of production are two core concepts in economics. Competition exists when there are many buyers and sellers in the market, each making small transactions. In contrast, monopoly occurs when a single entity controls the market. Both scenarios have implications for the efficiency of production and the allocation of resources.

Economists have long debated the merits of each system. Monopolies can lead to higher prices and reduced output, while competition promotes efficiency and innovation. However, the extent to which competition leads to efficiency varies depending on the specific circumstances.

In the short run, competition can lead to lower costs and higher efficiency. However, in the long run, monopolies may be more efficient due to economies of scale. The key is to strike a balance between competition and control to achieve optimal outcomes.

In summary, competition and efficiency are intertwined concepts that require careful consideration in economic policy making. Understanding the nature of competition and its impact on efficiency is crucial for developing effective strategies.
environmental factors and constraints. Firms have a cost function that is affected by the state of the economy, technological changes, and so forth.

The optimal profit is achieved when marginal revenue equals marginal cost. If marginal revenue is greater than marginal cost, the firm should increase production. If marginal cost is greater than marginal revenue, the firm should decrease production.

The demand curve shows the relationship between the price of a good and the quantity demanded. The demand curve is downward sloping because consumers are willing to buy more of a good at a lower price. The supply curve shows the relationship between the price of a good and the quantity supplied. The supply curve is upward sloping because producers are willing to supply more of a good at a higher price.

The equilibrium price and quantity are determined at the point where the demand and supply curves intersect. This is the market-clearing price and quantity, where the quantity demanded equals the quantity supplied.

The profit-maximizing firm will produce at the point where marginal revenue equals marginal cost. This is because any additional units produced will add more to the costs than to the revenue, resulting in lower profits. If the firm produces at a point where marginal revenue is greater than marginal cost, it can increase profits by producing more. If the firm produces at a point where marginal revenue is less than marginal cost, it can increase profits by producing less.

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The efficiency of the market is determined by the number of firms and the characteristics of the industry. The government can intervene to help the market by regulating the industry or providing subsidies to firms. The government can also impose taxes on firms to discourage them from producing more than the optimal level.
APPENDIX

Chapter 3, The Principal-Agent Theorem: The Simple Principal-Agent
HIERARCHY

A. RENTS IN THE SIMPLE HIERARCHY

Contracts with their own subcontracts. At the top of the chain, each subcontractor is responsible for his
contractor, rather than incurring all the costs of one’s own
activities. Production takes place via a chain of sup-
pliers. The vertical integration by organizing production Japanese-style
is cheaper. One way to reduce the informational costs of hierarchy is
regulated. Regardless of whether the firm’s formal organization chart has
been reduced, (in our terms), even if the share of nominal
pay distributed downward is lower, formal managers would
pass down decision responsibilities down to lower levels even if double
exposure is shifted down from the top to the enterprise. Hierarchies
are caused by the constraint that there is only one decision maker.

The model can be interpreted as defining a competitive industry. With
a large hierarchy may not be viable in a competitive industry. It
may be that the firm’s output market, the more sensitive is pay to the
cost of its production. The more complex,
the less feedback on the firm of the cost function. We have found
that with general enough behavior, everyone behaves reasonably. We have found that
the overall influence of the individuals in the hierarchy is small, the hierarchy is useful
when the firm’s product market becomes more competitive (i.e., the
individual is a principal). The hierarchy is useful when the workers at the bottom of the hierarchy. The higher
the pay, the more effective are the contractual incentives offered to

8. SUMMARY

The agent, the more effective are the contractual incentives offered to

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The principal earns the agent's marginal rate of payment, if the production cost, as given in Eq. (e), is equal to zero, or if the firm's marginal cost is less than the agent's marginal payment. Hence, in the sense of Section 3, the principal is willing to participate. This means that the agent is indeed optimizing in this choice of payment function. We assume that the agent given this type and the payment function. Thus, the agent is free to choose the output he believes is optimal for the firm, and he will be left with an agent of type 1, who produces an output of b given by Eq. (1).
We set the base of the induction at $k = 0$, where suppose the

(47)\[2] \begin{align*}
& (\forall Y > 0 \text{ for all } i (0,0)^{b}, C - (0,0)^{b})_{0} + (i(i), b)^{c} E_{0} = ((i, b)^{c})_{0} R
& \end{align*}

properties:

We show that, provided the $j$-level principal chooses quantities that

(48)\[3] \begin{align*}
& (i, b)^{c} C(i, b)^{c} - (i, b)^{c} = (i, b)^{c} i_{0} \leq \frac{\dot{p}}{\mu_{p}}
& \end{align*}

Denote, for $K > 0$.

We now consider the multi-level case and derive the log principal's

We assume that these conditions on $C_{i}^{b}$ hold.

multi-level case to follow, we assume that these conditions on $C_{i}^{b}$ hold.

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(AIV) \[ \Phi \left( (i) \mathcal{A} + 1 \right) \left( (i) \mathcal{X} b(t, (i), \mathcal{X}) \mathcal{C} \right) \mathcal{E} \int_{1}^{0} + (0', (0), (i) \mathcal{X} b) = (0', (i) \mathcal{X} b) \mathcal{E} \]

we have:

This establishes Eq. (AIV) for \( N > I \); integration by parts,

(AI) \[ (0, (0) \mathcal{X} b) \mathcal{C} + (0', (0) \mathcal{X} b) \mathcal{C} - (0', (i) \mathcal{X} b)_{1+\mathcal{X}} \mathcal{E} = (i', (i) \mathcal{X} b)_{\mathcal{X}} \mathcal{C} = (i', (i) \mathcal{X} b)_{\mathcal{X}} \mathcal{C} = (0, (0) \mathcal{X} b)_{0} \mathcal{C} + (0', (0) \mathcal{X} b)_{0} \mathcal{C} - (0', (i) \mathcal{X} b)_{1-\mathcal{X}} \mathcal{E} = (i', (i) \mathcal{X} b)_{\mathcal{X}} \mathcal{C} + (0, (0) \mathcal{X} b)_{0} \mathcal{C} - (0', (0) \mathcal{X} b)_{0} \mathcal{C} - ((0) \mathcal{X} b)_{0} \mathcal{R} + ((i) \mathcal{X} b)_{1-\mathcal{X}} \mathcal{E} = ((i) \mathcal{X} b)_{\mathcal{X}} \mathcal{R} \]

and the integration by parts in Eq.

(AV) \[ (0, (0) \mathcal{X} b)_{0} \mathcal{C} = (0) \mathcal{R} \]

The last step follows from the limited liability and the boundedness of the variables.

(AV) \[ 0 \leq \Phi \left( i, (i) \mathcal{X} b \right) \mathcal{C} (i) \mathcal{A} + 1 \]
A3. GAINS AND LOSSES FROM MERGER

We now derive the conditions under which a monopsonist's profit exceeds the sum of the supplier's profit, as stated in Section 6. The condition is:

\[
\text{Condition: } \sum \text{Gains} - \sum \text{Losses} = \text{Profit}
\]

This establishes \(\mathcal{V}_0 \geq \mathcal{V}_1\) for \(\mathcal{V}_0 < \mathcal{V}_1\), which completes the induction.

For the closure equation, we have (with the arguments of \(C_i\) suppressed),

\[
\text{Interpreting this as the integral of a function } H \text{ and applying (1), } \begin{align*}
\text{(A11) } & \int p \left[ \left( t, s \right) b \left[ \left( t, s \right) b \right] C_i \right] (t) \text{ d}t - \int \left[ \left( t, s \right) b \right] (t) \text{ d}t = 0 \\
& \int p \left[ \left( t, s \right) b \left[ \left( t, s \right) b \right] C_i \right] (t) \text{ d}t = 0
\end{align*}
\]

The first equality uses eq. (A11A). The second uses eq. (A11A) for \(\mathcal{V}_0 < \mathcal{V}_1\). This proves (1).
\[
\frac{[\varepsilon(g + 1)\delta_1 \frac{g}{I} (1 - u) + \tau]}{(g + 1)\delta_1 \varepsilon \mu} =
\]

\[
\frac{[\varepsilon(g + 1)\delta_1 (1 - u) + \delta \tau]}{(g + 1)\delta_1 \varepsilon \delta \varepsilon \mu} = \mu \varepsilon \mu = \mu
\]

Industry profits under competition are

\[
\frac{\varepsilon((g + 1)\delta_1 (1 - u)q + \tau)}{(g + 1)\delta_1 \varepsilon \nu} = \left[\frac{(g + 1)\delta_1}{\mu \varepsilon \nu} \right] \psi =
\]

\[
\frac{1 - I + q}{I} \varepsilon (\eta(1 - u)q - \nu) \frac{\tau}{I} = \frac{1 - I + q}{(\eta(1 - u)q - \nu)} \frac{\tau}{I} \frac{\varepsilon \mu}{I} = \mu \varepsilon \mu
\]

\[
\frac{(g + 1)\delta_1 (1 - u)q + \tau}{(g + 1)\delta_1 \nu} = \eta
\]

Thus,

\[
(g + 1)\delta_1 \nu = [(g + 1)\delta_1 (1 - u)q + \tau] \eta
\]

Thus,

\[
(g + 1)\delta_1 = (t - q + 1)\delta_1 = (q)\delta_1 - (I + q)\delta_1 =
\]

\[
\int_0^1 \frac{(1 - I + q)\delta_1}{I} = \frac{1 - I + q}{I} \int_1 = \frac{1 - I + q}{I}
\]

where

\[
(g + 1)\delta_1 (\eta(1 - u)q - \nu) \frac{\tau}{I} =
\]

\[
\frac{1 - I + q}{I} \varepsilon (\eta(1 - u)q - \nu) \frac{\tau}{I} = \left(\eta \right) \left(\delta \right) = \eta
\]

\[
\frac{1 - I + q}{\eta(1 - u)q - \nu} \frac{\tau}{I} = \left(\eta \right) \left(\delta \right) = \eta
\]

Thus, \(\eta \left(\delta \right) = \eta\)

where

\[
\delta b((t - 1) + q) - \delta [\eta(1 - u)q - \nu] =
\]

\[
\delta b(t - 1) - \delta z - (\eta q - \nu) \delta b = \mu
\]

The firm's profits are

\[
\text{Competition}
\]

\[
\text{where negative, let } \eta \text{ chosen so that price never}
\]

\[
\text{against the costs of the extra hierarchy. The price is}
\]

\[
\text{Organizational Diseconomies of Scale}
\]

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\[ \hat{b}(t - 1) \alpha - \partial(\partial_p - \nu) = \nu \]

\[
\text{Thus, } \frac{\hat{b} + \alpha}{\partial_p} = \frac{\hat{b} + \alpha}{\partial_p} - (\hat{b} + \alpha) = \partial_p - \alpha
\]

\[
\frac{\hat{b} + \alpha}{\partial_p + \alpha} = \frac{\hat{b} + \alpha}{\partial_p + \alpha} - (\hat{b} + \alpha) = \partial_p - \alpha
\]

\[
\hat{b} = 0, \quad \partial_p = [\hat{b} + \alpha] \partial
\]

\[
\partial(\partial_p - \alpha) = (t - 1) \alpha (\partial_p - \alpha) = \partial
\]

\[
\frac{(t - 1) \alpha}{\partial_p - \alpha} = \hat{b}
\]

\[
\hat{b}(t - 1) \alpha - \partial_p - \alpha = \frac{\hat{b} + \alpha}{t + \phi} = 0
\]

\[
\hat{b}(t - 1) \alpha - \partial_p - \alpha = \frac{\hat{b} + \alpha}{t + \phi}
\]

The principal points are:

\[ (\text{Note } \text{Nol}) \]

\[ 1 - \sum_{i=1}^{n-1} \frac{1}{\partial_p} = \hat{b} \]

\[ \text{Monopod} \]

\[ g \frac{(1 + u)}{\partial_p} \sim \mu \]

\[ \text{Thus, for small } \phi \]

\[ \frac{(1 + u)}{\partial_p} = \frac{\partial_p^{o-g}}{u} \lim_{\phi} \]

\[ \frac{\alpha}{\partial_p} = \frac{(\partial + 1) \partial_p^{o-g}}{u} \lim_{\phi} \]

\[ \lim_{\phi} = \mu^{o-g} \]

\[ 0 = \mu^{o-g} \lim_{\phi} \]

\[ 0 = \mu^{o-g} \lim_{\phi} \]

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\[
\frac{\dot{z}q + q}{\dot{z}q + \dot{z}v} = \frac{1 - \dot{v}q + \dot{z}v}{\dot{v}q + \dot{z}v} \equiv \frac{(\dot{v}q + \dot{z}v)}{\dot{v}q + \dot{z}v} = \frac{\left(\dot{h}q + \dot{z}v\right)}{\dot{h}q + \dot{z}v} = \frac{\left(\dot{h}q + \dot{z}\right)}{\dot{h}q + \dot{z}} = [\dot{h} - (\dot{h}q + \dot{z})] \frac{\left(\dot{h}q + \dot{z}\right)}{\dot{h}q + \dot{z}} = \frac{\left(\dot{h}q + \dot{z}\right)(1 - \dot{z})}{\dot{h}q + \dot{z}} - \frac{\dot{h}q + \dot{z}}{\dot{h}q + \dot{z}} = \mu.
\]

Monopoly Profits

Thus, for small \( \mu \), we have

\[
\frac{\dot{v}}{\dot{v}} = \frac{\dot{z}h + \dot{z}_2}{\dot{z}h} \quad \text{and only if} \quad \mu < \dot{2}.
\]

\[
0 < \mu \quad \text{since} \quad \frac{\dot{h} + \dot{z}_2}{\dot{h}_2} = \dot{2} \quad \text{and} \quad \mu < \dot{2}.
\]

\[
\infty < \mu \quad \text{since} \quad \frac{\dot{h} + \dot{z}_2}{\dot{h}_2} = \dot{2} \quad \text{and} \quad \mu < \dot{2}.
\]

\[
\text{Organizational Discourses of Scale}
\]

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REFERENCES

\[ F \succ \mu \succ \mu F \succ \mu \]

This gives the following summary:

\[ 0 = \frac{\phi(q + 1) \log_{\theta} q}{\theta} \lim_{q \to q^{-}} F \succ \mu \]

\[ = \frac{(1 - q + 1) \log_{\theta} q}{\theta} \lim_{q \to q^{-}} F \succ \mu \]

Probability that \( \mu \succ \mu \). Since there is a positive

Although \( y \) is an improper random variable (no mean),

\[ \lim_{q \to q^{-}} F \succ \mu \]

\[ = \frac{(1 - q + 1) \log_{\theta} q}{\theta} \lim_{q \to q^{-}} F \succ \mu \]

As noted earlier,