The Allocation of Power in Organizations

by

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Abstract

I consider the allocation of power in organizations when individuals value power. Among the results is a greater value for power by individuals suggests that firms should share power more, moving away from either most power for bosses or most power for subordinates. Also, an increase in the number of subordinates tends to decrease power for a boss, at least when the boss has more power than subordinates. In academia, a value for power explains why administrators do not interfere always or none of the time when they disagree with faculty personnel recommendations.

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1. Introduction

Labor economists and industrial relations specialists have considered the gains to a firm from worker empowerment—managers shifting power to subordinates. Gibbs et al. (2010) note the evidence of a trend in recent decades towards more multi-tasking, which implies more worker discretion and productivity. Lazear (2012) argues that leaders choose the right direction for an organization, and then delegate authority. Freeman and Lazear (1995) analyze the effect on profit from power sharing with workers. The question then is how much power should be given to workers over decisions that affect the entire firm (Lazear, 1995).

U.S. evidence suggests workers have a great deal of autonomy. Maestas et al. (2017) describe the results of the 2015 American Working Conditions Survey. They find that 75% of workers can choose the order of their tasks, 72% can change methods of their work, 78% can choose the speed of their work, and 82% say their main job is solving unforeseen problems on their own.

One issue that appears to have escaped the attention of economists dealing with worker empowerment is that individuals—managers and subordinates—value power. In the social psychology literature, Hackman and Oldham (1974) suggest there are five key job dimensions, one of which is autonomy, which is defined as "...discretion of the employee in scheduling the work and in determining the procedures...in carrying it out."\(^1\) Their autonomy is what I call power.

Becker (1991)\(^2\) assumes individuals value power. He analyzes promotion tournaments in which power is fixed, and rises at higher levels in a firm. I propose to treat power as a choice

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2 Becker's paper was unpublished, and apparently was not distributed to others. It will be published in a volume of his unpublished papers (Elias et al., forthcoming).
variable, and I do not consider a tournament. Prendergast and Topel (1996) argue that supervisors value their power to affect the welfare of their subordinates. They do not consider the allocation of power in an organization.

Economists have considered job satisfaction. A recent example is the paper by Nikolova and Cnossen (2020). Job satisfaction may come from power, but it also comes from other aspects of the job. The allocation of power affects firm output and thus profit. If individuals value power, the allocation of power can affect profit via how much individuals must be paid. The more power they have, the lower their monetary compensation can be.

I do not argue that a value for power is the most important factor in determining how power is allocated in an organization. Rather, I simply assert that a value for power is an additional factor in determining the allocation of power, one that can help explain some observed behavior.

In Section 2, I consider a model in which power affects output and is valued by individuals. I show that a greater value for power tends to move a firm away from either little or a great deal of power sharing. The model is extended in Section 3 to consider the number of workers. This analysis provides an explanation for the observed relation between the number of employees and power sharing. In Section 4, I consider the sharing of power between university faculty and administrators in personnel decisions. There a value for power explains why the extreme cases---all power to faculty or all power to administrators---is not observed. Results are summarized in Section 5.

2. A model of a firm
I consider a firm with a boss and one subordinate. In the next section, I extend the model to allow for multiple subordinates. There are likely decisions that cannot be delegated. Rosen (1982) suggests management involves what to produce and how to produce it. The boss may have to decide what to produce. Then delegating power to the subordinate would involve how to produce. I only deal with output that depends on how power is shared between the boss and the subordinate. The boss's total output is not considered.

I first describe the assumptions of the model. Later I discuss some of the assumptions. Let $q$ equal the firm’s output that depends on how power is shared. Product price is the numeraire. Let $x$ equal power. Suppose the boss and the subordinate have the same value for power, $v$, with $v = v(x), v' > 0, \text{ and } v'' \leq 0$, where primes denote partial derivatives. Let the boss’s power equal $p$, and the subordinate’s power equal $1-p$. Then $v(x) = v(p) \equiv v_B$ for the boss, and $v(x) = v(1-p) \equiv v_S$ for the subordinate.

Additionally, there is a common element in output of the boss and the subordinate, $y$, with $y(x), y' > 0, y'' < 0$. Thus, for, a boss $y(x) = y(p) \equiv y_B$, and, for the subordinate, $y(x) = y(1-p) \equiv y_S$. I assume output is $q = \alpha y_B + (1-\alpha) y_S$, where $0 \leq \alpha \leq 1$.

The boss is paid $w_B$, and the subordinate is paid $w_S$. Thus, profit, $\pi$, is given by:

$$\pi = q - w_B - w_S. \quad (1)$$

Let $\tilde{w}$ equal alternative earnings for the subordinate. The application constraint for the subordinate is then:
\[ w_S + v_S \geq \hat{w} \] (2)

I assume the application constraint hold as an equality. Then, assuming a zero profit constraint, substitute into the profit equation from the application constraint for \( w_S \), and solve for \( w_B \):

\[ w_B = q + v_S - \hat{w}. \] (3)

I assume the boss chooses \( p \) to maximize the sum of \( v_B \) and \( w_B \).

\[ v_B + w_B = q + v_S + v_B - \hat{w}. \] (4)

Consider three of the assumptions in the model. First, I assume the boss and subordinate have identical preferences for power. In this assumption, I follow the argument that \textit{de gustibus non est disputandum} (Stigler and Becker, 1977). I endeavor to explain the allocation of power without resorting to differences in tastes.\(^3\) Second, the assumption of a separable production function does not change how the value for power affects the allocation of power. This assumption allows a straightforward analysis of how differences in the effect of power in production affect the allocation of power.\(^4\) A multiplicative production function—Cobb-Douglas,

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\(^3\) In Section 4, when examining the behavior of Robert Hutchins as the top administrator at the University of Chicago, I consider to the possibility all may not have the same taste for power.

\(^4\) Lazear (2019, p.64) uses a separable production function in examining technological change.
for example---has ambiguous effects of differences in power in production. Since my main focus is on how a value for power changes how power is allocated, I chose the simplest production function. Third, and finally, consider the assumption that a boss maximizes the sum of his or her value for power and wage. Clearly the boss can choose how much power to allocate to subordinates. Alternatively, suppose the boss maximizes the sum of profit and the boss's value for power, subject to the subordinate's application constraint, with the boss's wage implicitly determined by the firm's profit. This approach yields the same first order condition (eq.(5)) as in the text.

Maximizing $(q + v_S + v_B - \hat{w})$ with respect to $p$, we have:

\[
\alpha y_B' - (1-\alpha)y_S' = v_S' - v_B'. \quad \text{(FOC)}
\]

\[
\alpha y_B'' + (1-\alpha)y_S'' + v_B'' + v_B' < 0. \quad \text{(SOC)}
\]

The SOC holds because $y'' < 0$. The LHS of the FOC is the net gain in output from a one unit increase in power for the boss. The RHS of the FOC is the net addition in wages that must be paid because reduced power of the subordinate is valued by $v_S'$, and the increase in power to the boss is valued by $v_B'$.

**Proposition One.** Valuing power does not affect the allocation of power unless $\alpha \neq \frac{1}{2}$ and $v'' \neq 0$. 

Proof. Suppose individuals do not value power so $v = v' = 0$. Then the RHS of eq.(5) = 0, and the LHS of eq.(5) = 0 for the FOC to hold, or \[ \frac{y_B'}{y_S'} = \frac{1-\alpha}{\alpha}. \] Note, with $y'' < 0$, we have $p > \frac{1}{2}$ if $\alpha > \frac{1}{2}$.

With $v' > 0$, but $v'' = 0$, again the RHS of eq.(5) = 0 as long as the boss and subordinate have the same value for power.

Now suppose individuals value power and $v'' < 0$. If $\alpha = \frac{1}{2}$, suppose $p = \frac{1}{2}$. Then the LHS of eq.(5) = $\frac{1}{2}(y_B' - y_S') = 0$. The FOC holds because the RHS of eq.(5) = 0.5 Only if $\alpha \neq \frac{1}{2}$ and $v'' < 0$ does how much individuals value power affect $p$. This will be further demonstrated in the proof of Proposition Two. $\square$

Proposition Two. If $v'' < 0$, $\frac{1}{2} < p < \frac{1}{2}$ if $\alpha > \frac{1}{2}$, but a greater value for power lowers (raises) $p$ when $\alpha$ exceeds (is less than) $\frac{1}{2}$.

Proof. Rewrite $v(x)$ as $\theta u(x)$, with $u' > 0$, $u'' < 0$, and $\theta > 0$. Also, rewrite $y(x)$ as $\psi z(x)$, with $z' > 0$, $z'' < 0$ and $\psi > 0$. Now the FOC is:

$$\psi [\alpha z_B' - (1-\alpha)z_S'] + \theta (u_B' - u_S') = 0.$$ (5')

Totally differentiate eq.(5').

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5 With $\alpha = \frac{1}{2}$, could we have $p \neq \frac{1}{2}$ and have the FOC hold if $v'' < 0$? No. If $p > \frac{1}{2}$, the LHS of eq.(5) < 0 and the RHS of eq.(5) > 0 with $v'' < 0$: it is optimal to lower $p$. If $p < \frac{1}{2}$, the LHS of eq.(5) > 0 and the RHS of eq.(5) < 0: it is optimal to raise $p$. 

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SOCd_P + (y'_B + y'_S)d\alpha + [\alpha z'_B - (1-\alpha)z'_S]d\psi + (u'_B - u'_S)d\theta = 0. \quad (7)

Then we have:

\[
\frac{dp}{d\alpha} = \frac{y'_B + y'_S}{-SOC} > 0, \quad (8)
\]

\[
\frac{dp}{d\theta} = \frac{u'_B - u'_S}{-SOC}, \quad (9)
\]

\[
\frac{dp}{d\psi} = \frac{\alpha z'_B - (1-\alpha)z'_S}{-SOC}. \quad (10)
\]

I have shown that $p = \frac{1}{2}$ if $\alpha = \frac{1}{2}$. Thus, with $\frac{dp}{d\alpha} > 0$, we have $p > \frac{1}{2}$ if $\alpha > \frac{1}{2}$, and $p < \frac{1}{2}$ if $\alpha < \frac{1}{2}$. Now $\frac{dp}{d\theta} > 0$ if $u'_B > u'_S$, or if $p < \frac{1}{2}$. Similarly, $\frac{dp}{d\theta} < 0$ if $\alpha > \frac{1}{2}$ and $p > \frac{1}{2}$. Thus, a greater value for power ($d\theta > 0$) reduces (increases) $p$ when $\alpha$ exceeds (is less than) $\frac{1}{2}$, meaning a greater value for power implies more sharing of power.\(^6\) This result is due to the concavity of the value of power function.

Consider an increase in power to the boss when $p > \frac{1}{2}$. With no value for power by anyone, all that would be considered is the effect on output, and thus profit and the wage of the boss. Now, assume a positive value for power with the marginal value of power decreasing in power. The marginal value of power is greater for the subordinate than it is for the boss when $p > \frac{1}{2}$.

\(^6\) Could a large enough value for $\theta$ result in $p < \frac{1}{2}$ when $\alpha > \frac{1}{2}$, or $p > \frac{1}{2}$ when $\alpha < \frac{1}{2}$? No. Consider the FOC (eq.(5)). If $p \leq \frac{1}{2}$ and $\alpha > \frac{1}{2}$, the LHS > 0 and the RHS < 0, implying it is optimal to raise $p$. If $p \geq \frac{1}{2}$ and $\alpha < \frac{1}{2}$, the LHS < 0 and the RHS > 0, implying it is optimal to lower $p$. Thus a larger value for power pushes $p$ towards $\frac{1}{2}$, but it is always the case that $p > \frac{1}{2}$ if $\alpha > \frac{1}{2}$, and $p < \frac{1}{2}$ if $\alpha < \frac{1}{2}$.
Thus, increasing power to the boss requires an increase in the wage for the subordinate that exceeds the increased value of power to the boss. Via the zero profit constraint, the higher wage for the subordinate means the boss's wage is reduced more than the increased value of power to the boss. This effect attenuates the incentive to increase power for the boss. The opposite happens if \( p < \frac{1}{2} \), and the subordinate's power increases. Thus, an increased value for power tends to reduce the incentive to give either the boss or the subordinate a lot of power. 

Now consider an increase in the value of power in production, \( d\psi > 0 \). Concavity in production might suggest an effect for \( \psi \) similar to what was found for \( \theta \). Note that the \([\bullet]\) term in the FOC (eq.(5')) is the same as the numerator in \( \frac{dp}{d\psi} \). If \( p > \frac{1}{2} \), the second term in the FOC is negative, so \([\bullet]\) is positive. If \( p < \frac{1}{2} \), the second term in the FOC is positive, so \([\bullet]\) is negative. Thus, when \( p > \frac{1}{2} \), \( \frac{dp}{d\psi} > 0 \), and, when \( p < \frac{1}{2} \), \( \frac{dp}{d\psi} < 0 \). A larger value of power in production optimally allocates more power to the agent for whom power is more valuable---the boss if \( \alpha > \frac{1}{2} \), and the subordinate if \( \alpha < \frac{1}{2} \). The weights \( \alpha \) and \( 1-\alpha \) outweigh concavity, so that, other things equal, a greater value for power in production leads to more extreme allocations of power, away from \( p = \frac{1}{2} \).

3. Multiple Employees

I have considered a sole subordinate. Now consider multiple employees, \( n \). If power can only be delegated to the next level, then, in the model herein, \( n \) represents the number of individuals who report to the boss----the span of control of the boss. Alternatively, if power can be delegated from the top to all levels, then \( n \) represents the number of employees in the firm.
Ignoring the value of power to individuals, an increase in $n$ that means greater span of control for the boss means more time is taken by the boss in supervision.\footnote{Lazear and Gibbs (2015), p.146.} This suggests more power should be delegated by the boss because it is more costly to supervise subordinates as $n$ increases. Suppose division heads report to the boss, and a new division is created with $m$ individuals (including the division manager). Now the span of control for the boss has increased by one, with implications discussed above. However, the increase of $m$ in the number of employees has no obvious effect on the allocation of power.

Suppose there are $n$ employees and one boss. Previously, if $\alpha = p = \frac{1}{2}$, output of the boss equaled output of the subordinates. To keep that the same, I now assume that output of each subordinate equals $\frac{1-a}{n} y_S$, again with $y(1-p) \equiv y_S$. Thus, total output of subordinates is $(1-\alpha)y(1-p)$, the same as before, and $q$ is the same as before.

Whereas a subordinate cares about the power he or she has, it is not clear if the value of power for the boss is positively related to $n$. A boss may have a strong preference for power, one in which the value of power is linear in the number of subordinates and equals $nv(p) = nv_B$. A moderate preference for power is one in which the marginal value for power is positive but decreasing in $n$. Finally, it is possible that the number of employees has no effect on a boss’s value for power. In the latter case, a boss simply cares about how much he or she controls decisions, regardless of how many subordinates are affected by those decisions.

I begin with the case when the boss's power equals $nv(p) \equiv nv_B$. This specification means that, as before with one subordinate, with $p = \frac{1}{2}$, the value of power for the boss equals that for the
subordinates. The case when the power of the boss increases at a decreasing rate in \( n \) has similar results, but with some ambiguity, and is considered in the Appendix.

Now the application constraint (eq.(2)) for subordinates is unchanged, but there are \( n \) of them. If the application constraint binds, profit equals \( q + n[v_s - \hat{w}] - w_B \). With profit equal to zero, and the boss maximizing \( nv_B + w_B = q + n[v_B + v_s - \hat{w}] \), the FOC is \( \alpha y_B' - (1-\alpha)y_S' + n[v_B' - v_S'] = 0 \). Totally differentiating the FOC w.r.t. \( p \) and \( n \):

\[
\frac{dp}{dn} = \frac{v_B' - v_S'}{-SOC}.
\] (11)

Clearly, \( \frac{dp}{dn} < 0 \) if \( p > \frac{1}{2} \), which is the case when \( \alpha > \frac{1}{2} \), and \( \frac{dp}{dn} > 0 \) if \( p < \frac{1}{2} \), which is the case when \( \alpha < \frac{1}{2} \). Thus, a larger number of employees implies more power sharing (\( p \) moves towards \( \frac{1}{2} \)). The reason for this result is that a larger value for \( n \) increases the effect of concavity.

If \( p > \frac{1}{2} \), \( v_B' < v_S' \). Then an increase in \( p \) means the increase in wages that must be paid to the subordinates is \( nv_S' \), and the boss can be paid \( nv_B' \) less. If \( p < \frac{1}{2} \), the opposite effect occurs. Thus, more employees mean more of a move towards \( p = \frac{1}{2} \).

If \( n \) represents span of control for the boss, then a value for power reinforces the effect discussed above---more time taken by the boss in supervision suggests more power should be delegated by the boss. However, if \( n \) represents total employees at a firm, then a value for power offers an explanation for why more power would be delegated if the number of employees of a firm increases when \( p > \frac{1}{2} \).
Now suppose the marginal value of power for a boss decreases in $n$, a case considered in the Appendix. Then $\frac{dp}{dn} < 0$ even for some range of $p < \frac{1}{2}$. This finding means it is more likely the amount of power given to subordinates is positively related to the number of a firm's employees. Finally, if the boss's value of power is independent of $n$, then $\frac{dp}{dn} = \frac{v^\prime_S}{SOC} < 0 \quad \forall p$.

Smeets (2017) summarizes evidence that suggests that, in the last thirty years, there has been greater span of control and more delegation of authority at firms. Also, managers at larger firms supervise more individuals, and decisions are less centralized at these firms. Whether more power sharing is due to a greater span of control, more employees, or both is not clear.

Thus, hierarchical layers appear to have been reduced in firms over time. This change may have been due to changes in information technology. My model does not explain why this change occurred. Rather, I show that 1) if span of control has increased due to flattened firm hierarchies, a value for power may be a reason---in addition to greater costs of supervision---for more power sharing with subordinates. Also, 2) given a firm's span of control, more employees may lead to more power given to subordinates. Both 1 and 2 should occur at least when the boss initially has more power than subordinates.

Rajan and Wulf (2006) considered U.S. firms that were leaders in their sectors in 1986 and 1998. They found that the number of managers reporting to the CEO grew from an average of 4.2 to an average of 8.2, meaning span of control increased. The number of positions between the CEO and division heads had fallen by 25% on average, with a tripling in the number of division heads reporting to the CEO. The evidence is that the authority of division heads increased. For these firms, average firm size did not increase over time, so the effect of $n$ seems to be that of span of control.
Colombo and Delmastro (1999) examine Italian metal working plants. They find that plants have decentralized decision making over the period from 1975 to 1997. Decision making is more centralized the smaller the plant size. Here a larger $n$ reflects neither more span of control nor a larger firm size, but plant size is closer to firm size than it is to span of control. My model predicts a larger plant size will result in more delegation of power, at least when the boss has the most power ($p > \frac{1}{2}$).

4. Academic Personnel Decisions: Faculty versus the Administration

Most universities allow a great deal of discretion to the faculty (Lazear, 1995). Hamermesh (2018) finds evidence that faculty are underpaid. A survey of faculty shows that independence of new ideas is important to them, and that job security and flexibility of time are not relatively important. Faculty were not asked how they valued power in terms of appointment, promotion, and tenure of their colleagues. However, faculty generally care a great deal about the quality of their colleagues. As Robert Lucas noted:

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“Certainly in our profession, the benefits of colleagues from whom we hope to learn are tangible enough to lead us to spend a considerable fraction of our time fighting over who they shall be, and another fraction travelling to talk with those we wish we could have as colleagues…”
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I do not consider the value to faculty of some aspects of their jobs such as broad freedom in terms of research and teaching. What I am interested in is the value faculty and administrators

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have for power over hiring, promotion, and tenure decisions. I consider power in terms of
whether the administration overrules faculty recommendations in those decisions.

Suppose the administration chooses the fraction of the time it will overrule a faculty
recommendation, $p$. Thus $p$ is power for the administrator, and $1-p$ is power for the faculty. As
before, power is valued by $v(\bullet)$, with $v(p) \equiv v_A$, and $v(1-p) \equiv v_F$. The issues in the previous section
concerning the number of employees and the delegation of power are not important for
universities. Thus, I normalize faculty size to one. I also assume one administrator. Suppose
there are bad and good candidates. I assume that the probability of either the faculty or the
administrator correctly assessing a candidate is the same whether the candidate is good or bad.
Thus, the fraction of either type of candidate is irrelevant for my analysis. I define the following
terms.

- $\phi_A$ is the value of a correct decision to the administrator.
- $\phi_F$ is the value of a correct decision to the faculty.
- $f$ is the probability the faculty accurately assesses the candidate.
- $a$ is the probability the administrator accurately assesses the candidate.
- $r$ is the probability of a correct decision.
- $w_F$ is the faculty salary.
- $\omega$ is the alternative salary for the faculty.
- $\Omega$ is the administrator's objective function.
The administrator cares about both his or her own power, the expected value of a correct decision, and what the faculty must be paid. Thus, we have:

\[ \Omega = v_A + r \phi_A - w_F. \]  

(12)

The application constraint for the faculty is:

\[ w_F + r \phi_F + v_F \geq \omega. \]  

(13)

Assuming the application constraint holds as an equality, and substituting into \( \Omega \) for \( w_F \), the administrator maximizes:

\[ \Omega = v_A + v_F + r \phi - \omega, \]  

(14)

with \( \phi = \phi_A + \phi_F \). Thus, via the application constraint for the faculty, the administrator cares for the total value (to administrator and the faculty) of a good hire.

To determine \( r \), there are three ways to get a correct decision.

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9 The administrator also cares about his or her pay, but has no control over that so I exclude it from the administrator's objective function. Since universities are generally non-profits, I do not impose a zero profit constraint on them.

10 If there is a cost of \( c \) for every incorrect decision then the term \( -(1-r)c \) would be included in \( \Omega \). Then, in the FOC, instead of having the term \( \frac{\partial r}{\partial p} \), there would be the term \( (c + \phi) \frac{\partial r}{\partial p} \). A higher cost of an incorrect decision has the same effect as a greater benefit of a correct decision.

11 It may be the benefit of recommending a good candidate or rejecting a bad candidate is not the same, and, were they included, the cost of the two possible incorrect decisions is also not the same. However, this of no consequence
1) The faculty gets it right and the administrator agrees: this probability is \( fa \).

2) The faculty gets it right, the administrator gets it wrong, but does not overturn the faculty: this probability is \( f(1-a)(1-p) \).

3) The faculty gets it wrong, the administrator gets it right, and the administrator overturns the faculty decision: this probability is \( (1-f)ap \).

Adding the three ways to get a correct decision and simplifying, we have \( r = f(1-p) + ap \). Now maximizing \( \Omega = r\phi + v_A + v_F - \omega \) w.r.t. \( p \) yields:

\[
\frac{\partial \Omega}{\partial p} = \phi(a - f) + v'_A - v'_F = 0. \tag{15}
\]

If there is no value for power, so \( v = v' = 0 \), only if \( f = a \) does the FOC hold, and then the SOC does not hold. Also, \( \frac{\partial \Omega}{\partial p} < 0 \) if \( f > a \), and \( \frac{\partial \Omega}{\partial p} > 0 \) if \( a > f \). If the faculty is more accurate than the administrator in judging candidate quality, \( p = 0 \). If the opposite is true, \( p = 1 \). If power is valued, but \( v'' = 0 \), \( v'_A = v'_F \), so again \( \frac{\partial \Omega}{\partial p} = \phi(a - f) \).

Now let \( v'' < 0 \). If \( a = f \), the FOC implies \( v'_A = v'_F \), or \( p = \frac{1}{2} \). If \( a > f \), the FOC implies \( v'_A < v'_F \), or \( p > \frac{1}{2} \). If \( a < f \), the FOC implies \( v'_A > v'_F \), or \( p < \frac{1}{2} \).

As before, let \( v(\bullet) = \theta u(\bullet) \), with \( \theta > 0 \), \( u' > 0 \), and \( u'' < 0 \). Totally differentiate the FOC w.r.t. \( p, \theta, a, \) and \( f \).

for the analysis herein. If we considered a problem as in Perri (2018) where a tradeoff exists between accepting bad candidates and rejecting good candidates, then differences in benefits and costs of those decisions would be important.
\[
\frac{dp}{da} = \frac{\phi}{-SOC} > 0, \quad (16)
\]
\[
\frac{dp}{df} = \frac{\phi}{SOC} < 0, \quad (17)
\]
\[
\frac{dp}{d\theta} = \frac{u'_A - u'_F}{-SOC}, \quad (18)
\]
\[
\frac{dp}{d\phi} = \frac{a-f}{-SOC}. \quad (19)
\]

Not surprisingly, the more accurate the administrator or the faculty is, the more power is allocated to that entity. Clearly \(\frac{dp}{d\theta} > 0\) if \(a < f\) (\(p < \frac{1}{2}\)), and \(\frac{dp}{d\theta} < 0\) if \(a > f\) (\(p > \frac{1}{2}\)). As before, a greater value for power implies more power sharing (\(p\) moves towards \(\frac{1}{2}\)). If \(a > f\), so \(p > \frac{1}{2}\), a greater value for making a correct decision (a larger \(\phi\)) means an even larger value for \(p\).

Conversely, if \(a < f\), so \(p < \frac{1}{2}\), a greater value for making a correct decision means an even smaller value for \(p\). More power goes to the more accurate judge of a candidate the more valuable a correct decision is. The last result is similar to what was found in Section 2 when power was more important in production---\(\psi\) was larger.

Casual empiricism suggests that administrators infrequently go against faculty recommendations on appointments, promotion, and tenure. This suggests that \(p\) is low, which would be true if \(a < f\). Are there reasons to believe that administrators are less accurate than the faculty?

In an analysis of the effects of either one or two faculty personnel committees, one in a department, and the other outside the department, the evidence is that almost all of the
universities with top seventy-five economics departments have outside committees. As shown in Perri (2018), this means it is likely that the outside committee is more accurate than the department committee. The reason that can be so is the outside committee sees what the department committee has recommended before the outside committee makes a recommendation. This point was made by Lazear and Gibbs (2015) in the context of evaluating projects in a business.

Should one not expect the administrator to be more accurate than the faculty, given that the latter has seen the former's recommendation? I argue that administrators behave differently than faculty for two reasons. First, administrators are less likely to be active researchers than faculty, and thus are less capable of judging research quality. Second, and possibly of more importance, administrators are more likely to consider issues faculty may consider extraneous. Thus, assuming that the faculty uses the correct criteria to judge candidates---an argument with which administrators might not agree---administrators would tend to be less accurate judges of an applicant's quality than would the faculty.

Consider the case of the University of Chicago when Robert Hutchins was president (1929-1945) and later chancellor (1945-1952), the latter a position created for Hutchins that left him as the senior administrator, but with fewer direct responsibilities with the faculty. Hutchins ignored many department requests for appointments and promotions, sometimes offering his own candidates for appointments. He seldom explained his judgments about scholarly quality.

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12 E-mail to the author from David Mitch, February 7, 2020.
In 1938, Hutchins vetoed the promotion to full professor and tenure of Harry Gideonese, despite unanimous support for Gideonese in the Department of Economics.\textsuperscript{14} Gideonese was a vocal critic of Hutchins. There is more information about appointments in the economics department under Hutchins because of the important article by Mitch (2016\textit{a}) that details hiring in that department in 1946. Jacob Viner was about to leave Chicago for Princeton, and the Department of Economics (UCDE) sought good candidates to replace him. The UCDE chair was Theodore Schultz, a future Nobel \textit{laureate}, as were four of the individuals considered by the UCDE for appointment: John Hicks, Paul Samuelson, George Stigler, and Milton Friedman. It appears that it was possible to appoint more than one individual, but how many could have been appointed I do not know.

Hicks had no ties to Chicago, and declined an opportunity to interview. The other three future Nobel \textit{laureates} had been economics students at UCDE at the same time in the early 1930s, Samuelson as an undergraduate, but one who took graduate classes and fraternized with graduate students, and Stigler and Friedman who were both graduate students.

Samuelson visited UCDE in April, 1946, but was not offered a position then. Frank Knight opposed Samuelson, and Hutchins, who interviewed Samuelson, found him to be "vicious."\textsuperscript{15} In September, Schultz met with University of Chicago president Robert Colwell, and indicated that a majority of the UCDE supported hiring Samuelson. Schultz had waited to make Samuelson an offer because he wanted the support of Frank Knight.\textsuperscript{16} It is not clear if Schultz had obtained

\textsuperscript{14} Ebenstein (2015), p.132. Gideonese had been at the University of Chicago since 1928, and was an associate professor who had previously been turned down for tenure by Hutchins. Note, the AAUP seven year rule for tenure was proposed in 1940.

\textsuperscript{15} Backhouse (2017), pp.606-607.

\textsuperscript{16} Mitch (2016\textit{b}), p.48.
Knight's support, or whether Schultz had decided to make the offer anyway. The administration supported the offer\textsuperscript{17} for Samuelson to begin in the fall of 1947, but the offer was declined.

It does not appear that Hutchins vetoed Samuelson's appointment. Rather, Knight's opposition delayed an offer to Samuelson. However, Hutchins opinion of Samuelson was not shared by a majority of the UCDE, and did not seem to be based on scholarly promise. Samuelson was well known and regarded at that time.

In the spring of 1946, the UCDE wished to make an offer to George Stigler. Hutchins was ill, and Stigler met with President Colwell, who vetoed the appointment saying he did not think Stigler was brilliant, and that he lacked the drive of Viner or Schultz.\textsuperscript{18} This was the judgment of a Biblical scholar on a future Nobel laureate in economics.

These examples illustrate my argument that academic administrators often lack the ability to judge faculty quality, or base personnel decisions on criteria that are not related to quality. Thus, I suspect that $f > a$, which is why we do not often see academic administrators go against faculty personnel recommendations.\textsuperscript{19}

What might explain Robert Hutchins relatively frequent overruling of faculty decisions on hiring, promotions, and the like? Hutchins appeared to have been quite smitten with his own expertise on many academic issues. He lectured at other universities on his philosophy of higher education, wanted to reorganize the groupings of departments at the University of Chicago (UC),

\textsuperscript{17} Presumably the offer was for a tenured position given Samuelson's reputation, the fact that the next candidate, Stigler, already held the rank of professor at Minnesota, and that the person actually hired---Milton Friedman, with less of a scholarly record at that time than Samuelson or Stigler---was appointed with tenure. I thank David Mitch for his insights on this (e-mail to the author February 7, 2020).

\textsuperscript{18} Mitch (2016a), p.1722.

\textsuperscript{19} Harvard's administration made news recently when it vetoed a tenured appointment for economist Gabriel Zuckerman in the Kennedy School of Government (Magness, 2020, and Tankersley and Casselman, 2020). The provost at Harvard, Alan Garber, has a PhD in economics (and an MD), and has a strong publication record. Thus, in this case, it is difficult to argue that he is incapable of judging the scholarly quality of an economist.
and was viewed as an autocrat by faculty at UC and elsewhere. In 1938, the Chicago Daily News described a war at UC between Hutchins and the faculty over the former's power. Hutchins argued as if he explained "...obvious things to the wrong-headed." He was almost alone in academia in abolishing college football. Finally, Hutchins enjoyed a great deal of attention in the popular press. Stories on him appeared in the New York Times and Time Magazine.

Thus, there is evidence that Hutchins was particularly interested in power. There is no reason to believe the UC faculty shared such a preference for power, so this may be a situation in which was not the same for all. With the administrator's value for power, then, using eq.(18),

\[ \frac{dp}{d\theta_A} = \frac{u_A'}{SOC} > 0. \]

Even if \( f > a \), so \( p < \frac{1}{2} \), and there is a relatively large value for making good tenure decisions (\( \phi \)), a big enough value for power by the administrator could raise \( p \) above the relatively low value that seems to exist in academia today.

6. Summary

There are several predictions based on my analysis of power, First, a greater value for power by individuals suggests that firms should share power more, moving away from either most power for bosses or most power for subordinates. Second, an increase in the number of subordinates will tend to decrease power for a boss, at least when the boss has more power than subordinates. If the number of subordinates means the number directly controlled by a boss, my results reinforces other analysis. If the number of subordinates means the total number of employees, my results offer an explanation for observed behavior when there was no

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explanation. Third, in academia, a value for power explains why administrators do not interfere either always or none of the time when they disagree with faculty personnel recommendations.
Appendix. Alternative View of Multiple Employees

Suppose the value of power by a boss with \( n \) employees is not \( n \) times the value of power from one employee. Instead \( v_B = v(np) \). Now \( v_B' = \frac{\partial v}{\partial(np)} > 0 \), and \( v_B'' < 0 \). The FOC is the same as before: \( \alpha y_B' - (1-\alpha)y_S' + n[v_B' - v_S'] = 0 \).

With an identical function for boss and subordinates for power, equal power for the boss and one subordinate requires that \( np = 1-p \), or \( p = \frac{1}{n+1} \).

Suppose \( \alpha = \frac{1}{2} \). If \( p = \frac{1}{n+1} \), \( v_B' = v_S' \), but \( y_B' > y_S' \), so the FOC > 0, implying that \( p \) must increase.

If \( p = \frac{1}{2} \), \( v_B' < v_S' \), \( y_B' = y_S' \), and the FOC < 0, implying that \( p \) must decrease.

Thus, if \( n > 1 \) and \( \alpha = \frac{1}{2} \), we must have \( \frac{1}{n+1} < p < \frac{1}{2} \) for the FOC to hold.

Totally differentiating the FOC w.r.t. \( p \) and \( n \) yields: \( \frac{dp}{dn} = \frac{v_B' - v_S' + npv_B''}{-SOC} \), which is negative if \( \frac{1}{n+1} < p \).
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