

Why Less Informed Managers May Be Better Leaders?

Sergei Guriev and Anton Suvorov
New Economic School

Motivation

- Given the importance of their decisions, do top managers spend a lot of time and effort on gathering and analyzing information?
- Often *not*. E.g., as Mintzberg (1974, 1975) writes:
“Study after study has shown that managers work at an unrelenting pace, that their activities are characterized by brevity, variety, and discontinuity, and that they are strongly oriented to action and dislike reflective activities.”
- Puzzle: top managers should be able to design the organization in the way that optimizes the timely provision of relevant information for decision making
- Our theory: *strategic ignorance* as a second-best instrument to overcome commitment problem.

What do the recent data say?

EBRD's Management, Organization and Innovation Survey

- Data on management practices from 1800+ firms in 10 transition countries (Belarus, Bulgaria, Kazakhstan, Lithuania, Poland, Romania, Russia, Serbia, Ukraine and Uzbekistan), Germany and India

<http://www.ebrd.com/pages/research/economics/data/moi.shtml>

- Questions on the management and organizational processes
- Based on the original Bloom-van Reenen survey but more detailed

How many production performance indicators are monitored in this establishment? (%firms)

none	4.76
one or two	24.43
more than two	70.82

How frequently are production performance indicators ...

... collected here?		... shown to factory managers?	
never	5.16		
annually	0.54	yearly	6.78
semi-annually	0.11		
quarterly	6.88	quarterly	6.73
monthly	29.35	monthly	32.19
weekly	24.73	weekly	17.06
daily	32.04	daily	34.71
hourly	1.18	hourly	2.53

How often are production performance indicators reviewed by top/middle managers?

They are rarely reviewed	11.49
They are periodically reviewed	41.34
They are continually reviewed	47.17

Organizational overload (percentiles of the sample)

	Mean	Median	75%	90%
How many employees report directly to the national headquarters' top manager?	23	7	12	25
How many employees does the national HQ's top manager directly manage?	185	20	30	50

Main idea

- Better informed managers are not necessarily better leaders
 - If managers are better informed, they are more flexible
 - Hence the followers are afraid of making specific investments

Road map

- Literature
- Setup
- Equilibrium
- Comparative statics with regard to quality of information
- Extensions
 - Effect of uncertainty
 - Multiple followers
 - Dynamics/reputation

Literature: leadership

- Hermalin (1998): MH in teams. Possessing a superior information leader can inspire optimism in the followers via *example* or *sacrifice*.
 - Hermalin (2003) has a repeated-game version
- Rotemberg and Saloner (1993): *compassionate* leaders are less likely to change the firm's strategy and thus expropriate employee's specific investments.
- Rotemberg and Saloner (2000): by hiring *visionary* (i.e. biased towards certain decisions) leaders, the firm commits to implementing subordinates' projects in line with the "vision".
- Similarly, Van den Steen (2005) argues that hiring "visionary" leaders helps to attract like-minded subordinates
- Ferreira, Rezende (2007): disclose information about strategy to commit to strategy and encourage investment by followers
- Bolton, Brunnermeier and Veldkamp (2008): having a "resolute" (i.e. overconfident) leader helps an organization to coordinate subordinates' actions.

Literature: contract theory

- Formal and real authority, Aghion and Tirole (1997).
 - Principal's investment in info acquisition may undermine the agent's incentives invest in quality of information.
 - Implication: *strategic overload* may be optimal.
- Cremer (1995): having arms-length relationships with the agent (i.e. making information acquisition costly) may help the principal to avoid *ex post* efficient renegotiation, thus boosting *ex ante* incentives
- Also Holmstrom (1999), Dewatripont, Jewitt and Tirole (1999), Prendergast (1993) and Prat (2005)...

Our contribution

- Restricting the leader's access to information may help to commit to initially chosen course of action
 - Similarly to hiring an overconfident leader, but in a completely rational framework.
- We also explore how the value of the leader's access to information depends on the hierarchical structure of the organization and the predictability of the environment.
- We investigate how reputation mechanisms help the leader to convince the subordinates that she is not well informed.

Setup

1. Leader (L) chooses project $i \in \{1, \dots, m\}$
 - If successful, project brings return V .
 - One (ex ante unknown) project is a “star” project (additional payoff V^*).
 - Ex ante all projects are identical.
2. Follower (F) observes i and invests $a \in [0, \dots, 1]$.
 - The probability of success is a .
 - Cost of investment $C(a) = ca^2/2$
3. Leader receives informative signal
 - The signal indicates the “star” project with prob. p
 - The signal is uninformative with prob. $1-p$.
4. Leader may change project:
 - If the project is changed, F’s investment has no value
5. Bargaining
 - L and F share returns in proportion $\gamma : 1-\gamma$.

Assumptions

- The “star” project brings additional payoff V^* with certainty, i.e. the quality of the project choice (by the leader) and the effort/investment (by the follower) are *substitutes*.
- Only one project can be implemented.
- $V^* > V$, so that the leader always changes the project if learns that the star project is different from the initially chosen one.
- (Technical): c is large enough so that in equilibrium $a < 1$

Subgame perfect equilibrium

- Ex ante all projects are identical
 - Project choice i is random
- Ex post choice is straightforward
 - If L knows the star project i^* (this takes places with prob. p), she chooses the star project: $j=i^*$
 - Even if the original choice was wrong $i \neq i^*$, still pays off to change as $V^* > aV$
 - If L has no new information (prob. $1-p$), she sticks to the initial project choice $j=i$
 - It still may be the “star” project (with probability $1/m$)

Payoffs

	Prob. p Knows the “star” project	Prob. $1-p$ Does not know the “star” project
Prob. $1/m$ Original choice correct $i=i^*$	$aV+V^*$	$aV+V^*/m$
Prob. $1-1/m$ Original choice wrong $i \neq i^*$	V^*	

Expected payoffs

$$U^L = \gamma a V \left(1 - p + \frac{p}{m}\right) + \gamma V^* \left(\frac{1 - p}{m} + p\right);$$

$$U^F = (1 - \gamma) a V \left(1 - p + \frac{p}{m}\right) + (1 - \gamma) V^* \left(\frac{1 - p}{m} + p\right) - \frac{ca^2}{2}.$$

Notation:

p – quality of L’s signal

a – F’s effort

V^* – payoff to “star” project

V – payoff to “regular” project

γ – bargaining power

m – number of projects

$ca^2/2$ – cost of effort

Equilibrium

Substituting equilibrium effort

$$a = \frac{1-\gamma}{c} V \left(1 - p + \frac{p}{m}\right)$$

into expected utilities, we obtain:

$$U^L = \frac{1}{c} \gamma (1-\gamma) V^2 \left(1 - p + \frac{p}{m}\right)^2 + \gamma V^* \left(\frac{1-p}{m} + p\right);$$

$$U^F = \frac{1}{2c} (1-\gamma)^2 V^2 \left(1 - p + \frac{p}{m}\right)^2 + (1-\gamma) V^* \left(\frac{1-p}{m} + p\right),$$

$$U^F + U^L = \frac{1-\gamma^2}{2c} V^2 \left(1 - p + \frac{p}{m}\right)^2 + V^* \left(\frac{1-p}{m} + p\right).$$

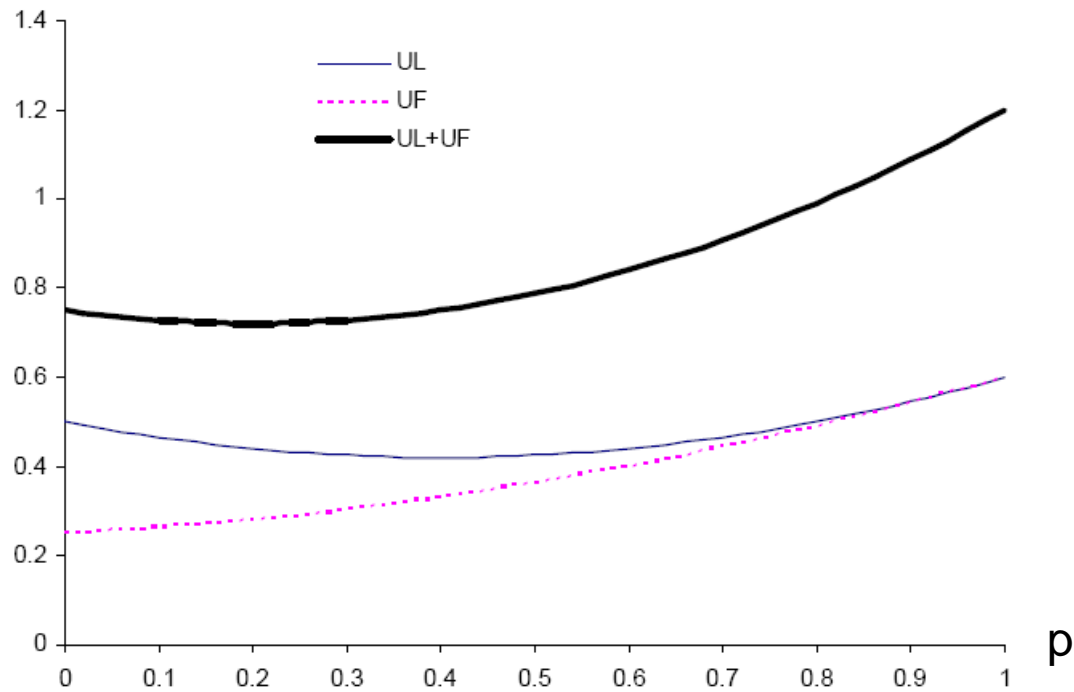
When is better information useful?

Proposition:

1. If $V^* < 2(1 - \gamma)V^2/c$, the leader's payoff is non-monotonic in p : it decreases for low values of p and increases for high values.
2. If $V^* < (1 - \gamma^2)V^2/c$, the social welfare is non-monotonic in p : it decreases for low values of p and increases for high values.
3. The follower's payoff is always increasing in p .

Example

- Parameters: $\gamma = 0.5$, $V = 1$, $c = 0.5$, $V^* = 1.2$, $m = \infty$.
- Intuition: an increase in p crowds out follower's effort, but has a positive direct impact. When p is low, the negative effect is stronger.



Endogenous quality of information

- Straightforward extension:
What if L can invest in quality of information p ?
- Suppose the cost of better information is linear in p
 - As the payoff is a convex function of p , the solution is either $p=0$ or $p=1$
- If the cost is convex in p , intermediate solutions are possible

Effect of uncertainty

- What happens if the number of initially available projects m grows?
 - To keep the expected value of the star project fixed, we consider a proportional increase in m and V^* .
- If uncertainty is high, the leader is more likely to gain from an *increase* in the quality of information ρ :
 - She is more likely to change course anyway, hence the value of investment is low
 - Moreover, the follower invests less for the same reason
 - Higher V^* increases the return to better information

Multiple followers

- What happens if there are N followers and $a = a_1 + \dots + a_N$?
- Assume that investment decisions are simultaneous and costs are independent
- If costs are quadratic
(such a cost function implies that the equilibrium effort does not depend on N),
then an increase in N has no impact on $\partial U^L / \partial p$.
- If costs are proportional to a^k with $k > 2$, an increase in N magnifies crowding out of effort by better information.
- If costs are proportional to a^k with $k < 2$, an increase in N dampens crowding out of effort by better information.
- **Considering only quadratic costs may be misleading!**

Reputation building

- What if p is not common knowledge?
- Consider a two-period model.
 - It is common knowledge that p is distributed with $F(p)$, its precise value being the leader's private info.
 - Signals in two periods are independent (conditional on p).
 - The agent does not observe whether the leader received a signal in period 1, but observes whether the project was changed.

Reputation building

Proposition.

- In any PBE the leader switches to the star project in period 1 after getting an informative signal iff $p > p_0$ for some p_0 .
- Three types of equilibria:
 - Complete pooling, no switching
 - Complete pooling, always switching
 - Partial separation (better informed switch, less informed don't).

Intuition:

Less informed leaders (low p) are less likely to switch strategies in the second period. Hence, have higher return from follower's effort and higher incentives to build reputation.

Conclusions and further research

- Better information may tempt the leader to change the organization's strategy (or even mission) and undermines commitment.
 - This increases ex post efficiency, but undermines subordinates' ex ante incentives to make non-contractual investments in project-specific assets.
 - Hence some leaders may prefer be less informed
- How the leader can convince the followers that she is poorly informed?
 - Organizational design (communication channels, hierarchy, schedule)?
 - Signaling?
- Our analysis implies that the leader should prefer extremes: either get deeply involved in a series of related projects or constantly switch activities.
 - Explicit modeling of this dynamic choice?