

Leadership: A Personnel Economics Approach

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Canberra
October 1, 2009

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Personnel Economics

Approach to Leadership

- Bring theoretical and econometric rigor to “soft” subjects
 - Human resources
 - Leadership
- What is a leader?
 - Defined by having followers
 - How do they get them?
 - Leaders choose correct direction
 - Get correct answers more often and acquire followers

General Leadership: Main Results

- Ability and public decision situations are complements – the most able are also the most visible
- Most able leaders and entrepreneurs in highest variance industries
 - Consistent with LEHD data
- Leaders and entrepreneurs are generalists
 - Confirmed by Stanford data

Model

a_i is ability; q is number of decision situations; k is value of getting correct direction. $G(a_i)$ is the probability of a correct decision

(1) Maximize Leadership gain =

$$\underset{q}{Max} \quad q k G(a_i) - C(q)$$

(2) F.O.C. \rightarrow $k G(a_i) - C'(q) = 0$

Implications

Ability and contacts are complements

$$\left. \frac{\partial q}{\partial a_i} \right|_{F.O.C.} = \frac{k g(a_i)}{C''} \quad \text{which is positive}$$

■ Not automatic

- Could be that try to make up for stupidity by getting more chances.
- Payoff form, $q k G(a_i)$, sufficient but not necessary

■ Logic

- Knowledgeable show off
- Better to remain quiet and have others suspect stupidity than speak up and prove it

Implications

Leaders are Generalists

- Introduce two types of skill $x = a_i + b_i$
- λ of the time, issues are of type a; $1 - \lambda$ of type b
- Does market value diversified or concentrated ability?

Expected Value of answer = $[\lambda G(a_i) + (1-\lambda) G(b_i)] k$

or

Expected Value of answer = $[\lambda G(a_i) + (1-\lambda) G(x-a_i)] k$

f.o.c.

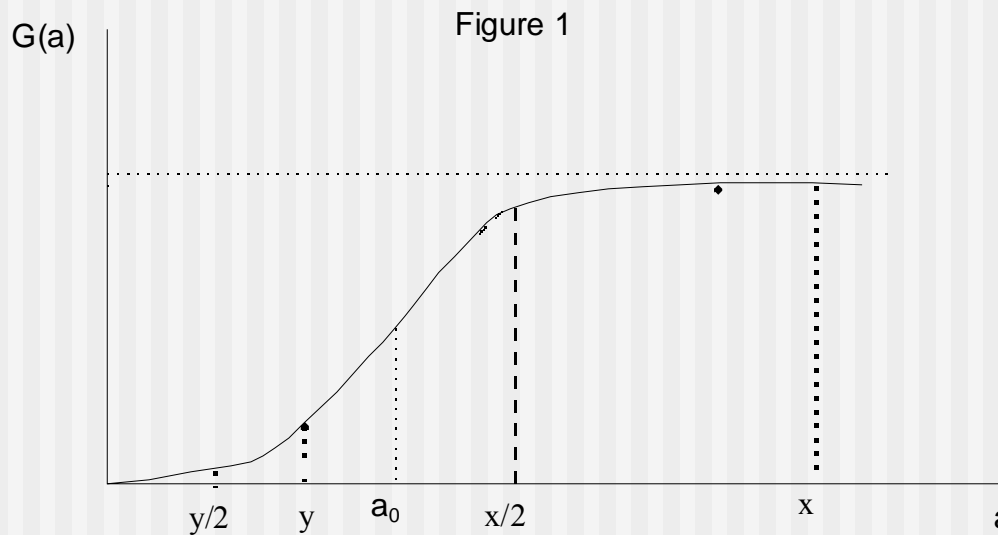
$$\frac{\partial \text{Gain}}{\partial a_i} = [\lambda g(a_i) - (1 - \lambda)g(x - a_i)]k = 0$$

s.o.c

$$\frac{\partial^2 \text{Gain}}{\partial a_i^2} = [\lambda g'(a_i) + (1 - \lambda)g'(x - a_i)]k$$

Concavity of $G()$ implies interior solution is maximum

Logistic Example: Better to be specialized if low ability and general if high ability



Better with two $x/2$ abilities than one x . Better with one y than two $y/2$ abilities.

$$2 G(x/2) > G(x); \quad 2 G(y/2) < G(y)$$

At high levels of ability, not much gain to incremental ability

Implications

Better Leaders Are More Valuable in High Variance Industries

From (2)

$$\frac{\partial^2 (\text{leadership gain})}{\partial a_i \partial k} = q g(a_i) \quad \text{which is positive}$$

- Decisions matter more in high variance industries
- Want to attract the most able to those industries
- Andersson, et.al., (2009) find stars are paid more in new and high variance industries

In New Fields, Leaders are More Specialized than in Old

- Questions in new relate to technology; in old what is left comes from anywhere
- λ closer to zero or one in new fields
- Interesting only when diversify. Assume $G()$ concave then interior solution with f.o.c.

$$\frac{g(a)}{g(x-a)} - \frac{1-\lambda}{\lambda} = 0$$

- As λ rises, move toward only a; as λ falls toward zero, move toward only b

Leaders are Generalists

- Test using CPS and Stanford data
- Distinguish between entrepreneurs and other leaders
- Entrepreneurs are a subset of leaders

Data

- CPS
 - Incorporated self-employed
- Stanford MBAs
 - Job history
 - Courses and grades

CPS Incorporated Self-Employed: Occupation

Detailed Occupation	Percent
Other executive, admin. & managerial	32.97
Supervisors and proprietors, sales occs.	12.44
Construction trades	6.09
Health diagnosing occs.	5.38
Management-related occupations	4.92
Sales reps, finance and business serv.	4.67
Mathematical and computer scientists	0.92
Engineering and science technicians	0.21

(subset of occupations includes 6 largest)

CPS Incorporated Self-Employed: Industry

Detailed Industry	Percent of total
Construction	13.48
Other Retail Trade	12.98
Other Professional Services	11.02
Business Services	8.10
Insurance and Real Estate	6.72
Health Services, Exc. Hospitals	6.39
Wholesale Trade	6.18
Eating & Drinking Places	4.51

CPS Entrepreneurs are

- Managers
- Supervisors
- Contractors
- ...
- Not technical specialists
- Also, if do by industry
 - Construction
 - Professional and business services
 - Retailing
 - Insurance and real estate

Stanford Data Layout

Name	Firm	Role 1	Role 2	Role 3	Prior Roles	Founder?
Lazear	U of Chicago	Teacher	Editor	Researcher	0	No
Lazear	Stanford	Teacher	Researcher		3	No
Lazear	US Govt	Economic advisor	TV spokes-person		5	No
Gates	Microsoft	Software Engineer	General manager		0	Yes
Gates	Gates Foundation	General Manager			2	Yes
...						

Job Histories

Probability of Entrepreneurship by Number of Prior Roles Held

Roles		
≤ 3	3 to 16	more than 16
.03	.10	.29

Panel Analysis

Variable	Column #		
	1	2	3
	Correlation Structure		
	Independent	AR-1	Unstructured
EXP	.0452 (.0036)	.0502 (.0039)	.0534 (.0038)
NPRIOR	.0851 (.0079)	.0769 (.0088)	.0706 (.0092)
MALE	.4757 (.0843)	.4562 (.0950)	.4565 (.0998)
MBAYear	-.0070 (.0074)	-.0044 (.0084)	.0054 (.0090)
AGE	-.0265 (.0078)	-.0250 (.0089)	-.0256 (.0095)
Wald chi sq.	842	706	786
Number of obs.	26819	26663	26819

Prior Roles Matter

- Treat an employment event as unit of analysis
- NPRIOR is important
- Big: One std. dev. increase in NPRIOR implies 1.5 percentage point prob. of entrepreneurship (1/4 mean)
- Not independent because multiple events per person
- Correlation correction has little effect

Timing

- Two interpretations
 - Reflects endowed general skills
 - Perform many roles to gain general experience

Endowed or Acquired?

Variable	Entrepreneur	
	4	5
	Independent	Independent
EXP	.0070 (.0044)	.0205 (.0048)
NPRIOR	.0808 (.0082)	.1166 (.0088)
MALE	.5266 (.0865)	.4769 (.0846)
MBA Year	-.0214 (.0076)	-.0094 (.0074)
AGE	-.0117 (.0080)	-.0281 (.0078)
NAFTER	.0186 (.0119)	
YRLEFT	.0786 (.0060)	
AVJOBTEN		.1218 (.0152)
Wald chi sq.	944	876
Number of obs.	26163	26779

Primarily Acquired

- Before matters more than after
- Suggests that multiple roles enhance general skills
- But some evidence of pre-labor market effect
 - Post-event roles positively correlated with entrepreneurship
- All interpretations consistent with generalist view

MBA Curriculum and Entrepreneurship

Variable	1 Logit	2 Tobit
EXP	.0259 (.0185)	.0266 (.0196)
SPECDIF	-.1458 (.0581)	-.1452 (.0592)
MALE	.6025 (.1511)	.6305 (.1531)
MBAYear	-.0318 (.0215)	-.0384 (.0224)
AGE	.0250 (.0179)	.0264 (.1531)
Log likelihood	-841	-1181
Number of obs.	1952	1950

Leaders: Ever Held C-Level Position

Variable	coeff.	std. err.	z
SPECDIF	-.207	.070	-2.97
MALE	.692	.187	3.70
AGE	.103	.014	7.42
constant	-5.77	.547	-10.6

1992 Observations

- Leaders take a more general course load
- Similar results for ever started a business

Specifics

- Young leaders are more specialized than older ones (35 is cutoff)

Value of SPECDF

	Young	Old
Leaders	2.42	2.25
All	2.45	2.73

- Only 19 cases of c-level positions in high-tech (new) industries
- No evidence among high ability population that high GPA individuals more likely to be C-level

Conclusion

- Those who are seen to make correct decisions acquire followers and become leaders
- Knowledge and visible decision making are complements
- Consequently, leaders are more knowledgeable
- Most able are in high variance industries
 - Compensation of top people highest and most variable in industries where sales are highly variable
 - Evidence that stars are in high variance industries
- Leaders are generalists
 - Both entrepreneurs and c-levels have
 - many roles
 - generalized program in grad. School