

Econ 219B  
Psychology and Economics:  
Applications  
(Lecture 1, Revised)

Stefano DellaVigna

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## Outline

1. Who am I?
2. Who are you? (Prerequisites)
3. What is this course?
4. Getting started!  
Psychology and Economics by Field
5. Two Examples of Applied P&E (Good and Bad)
6. Present Bias — Status Quo Effect

# 1 Who am I?

Stefano DellaVigna

- Assistant Professor, Department of Economics
- Bocconi (Italy) undergraduate (Econ.), Harvard PhD (Econ.)
- Psychology and Economics, Applied Microeconomics, Behavioral Finance, Aging
- Evans 515

## 2 Who are you?

- PhD student 2nd year and higher
- Graduate courses in
  - Econometrics
  - Micro Theory (Contract Theory, Game Theory)
  - Psychology and Economics – Theory (219A)
- Interest in
  - Psychology and Economics
  - Applied, empirical microeconomics (io, labor, public finance, finance)

### 3 What is this course?

- Syllabus
- Reading list:
  - photocopy of required (\*) papers for students enrolled (courtesy of Judi Chan)
  - complete, updated list on course webpage
- Please email me ([sdellavi@econ.berkeley.edu](mailto:sdellavi@econ.berkeley.edu)) for any issue with course

- Weekly homework assignment:
  - 8 one-page discussion reports
  - empirical problem set on stock response to earnings announcements
  
- One class presentation
  
  
  
  
  
  
  
  
  
- Paper

- Deadlines:

1. Homework Assignments: Tuesday by noon
2. Presentations: 25 minutes at beginning of class
3. Paper
  - (a) Meet with me about your paper by 2/18
  - (b) Brief summary of your research idea by 3/17  
(2 pages, research question, data availability)
  - (c) Paper due on 5/14

- Grading: 30% (5 best) written discussions, 15% problem set, 15% presentation, 40% paper

- (Free) Coffee after class

- Information sheet



## 4 Psychology and Economics by Field

- Prototypical economist conception of human behavior (aka “Classical Model according to Matt Rabin”):

$$\max_{l \in L} U := \sum_{t=1}^{\infty} \delta^t \sum_{s \in S_t} p(s) u(\cdot, s, t)$$

- $L$  is set of “life-time strategies”
- $S_t$  is set of state spaces
- $p(s)$  are rational beliefs
- $\delta \in (0, 1)$  is time-consistent discount factor
- $u(\cdot, s, t)$  is true utility at time  $t$  in state  $s$

- **Improving Psychological Realism:**

1. Present-Biased Preferences: time inconsistency  $\beta, \delta$
2. Reference Dependence:  $u(\cdot, r)$  with  $r$  reference point
3. Narrow Framing: maximization set  $\neq L$
4. Attention (cousin of Narrow Framing)
5. Social Preferences:  $u(\cdot, \mathbf{x})$  where  $\mathbf{x}$  represents allocation of others
6. Persuasion (cousin of social preferences)
7. Overconfidence: beliefs  $\tilde{p}(s) \neq p$
8. Heterogeneity and Firm Reaction

- **Psychology and Economics by Field:**

1. Consumer Choice:

- (a) Time preferences (health clubs, credit cards)
- (b) Reference Dependence (housing purchases)
- (c) Persuasion (advertisement)

2. Public Finance:

- (a) Time preferences (addiction, taxes, retirement savings)
- (b) Social preferences (charitable contributions)
- (c) *Narrow framing (flypaper effect, incidence of taxes)*

(d) (Social welfare)

3. Environmental Economics:

(a) Narrow Framing (WTA/WTP, value of a life)

4. Labor Economics — Development Economics:

(a) Time preferences (job search)

(b) Social learning (choice of job, choice of crops)

(c) Social capital (trust)

5. Industrial organization:

- (a) Market Reaction
- (b) Time preferences (teaser rates, mail-in rebates)
- (c) Attention (complex products)

6. Political Economy:

- (a) Market Reaction (manipulation of hatred)
- (b) Welfare Enhancement (SMT plan)

7. Finance – asset pricing:

- (a) Overconfidence (overtrading)
- (b) Heterogeneity and Market Reaction (noise traders)

(c) Attention (footnotes in accounting, demographics, large events)

8. Corporate finance:

(a) Overconfidence of CEOs (investment, mergers, options)

(b) Attention (media)

## **5 Two Examples of Applied P&E**

### **5.1 Michael Rashes: MCI-MCIC**

#### **5.1.1 Facts**

- See handout for description of companies.
- Different companies, similar ticker name
- Do investors confuse companies with similar names?
- If investors confuse companies, correlation in trading volumes

	<b>MCI</b>	<b>MCIC</b>
Full Name:	Massmutual Corporate Investors	MCI Communications
Industry:	Mutual Fund (closed end)	Telecommunications 2 <sup>nd</sup> largest US long-distance phone company (before acquisition Worldcom)
Volume	4,100 trades per day (average)	4.1 million trades per day (average)
Return	0.078% per day (average)	0.087% per day (average)
	<p>“Top MCI Volume Days” 10,000 to 59,200 trades</p>	



- Table III.
- What if two stocks have similar underlying fundamentals?
- Table III. Check correlation of MCI with another telephone company.
- Table III, inclusion of AT&T. (Could also include other companies)

- Go further.
- Predict returns of smaller company with bigger company (Why?)
- Which assumptions do we need to make predictions about returns?

- Returns Regression:

$$r_{MCI,t} = \alpha_0 + \alpha_1 r_{MCIC,t} + \beta X_t + \varepsilon_t$$

- Table IV. Positive  $\alpha_1$ .

- Difference between reaction to positive and negative news? Returns Regression:

- Asymmetry of arbitrage

- Returns Regression:

$$r_{MCI,t} = \alpha_0 + \alpha_1 r_{MCIC,t} + \alpha_2 r_{MCIC,t} * \mathbf{1}(r_{MCIC,t} < 0) + \beta X_t + \varepsilon_t$$

- Table IV. Negative  $\alpha_2$ . Effect of arbitrage.

- Conclusions.
- Important deviation from standard model: confusion.
- Large effect of confused investors (noise traders):
  - Volume of MCI trades triples:
    - \* = 5845 to 55045 “additional” trades
    - \* = 140% to 1325% above MCI mean
- Positive correlation of returns despite arbitrage
- Biases matter in the market

## 5.1.2 Bad economics

1. Size of the effects. Are the effects large?

- Calibrate results relative to larger firm!
- “Conspicuously well-chosen example” (aka data-mining): fraction of large-firm investors act upon small firm.

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Volume	4,100 trades per day (average)	4.1 million trades per day (average)
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	<p style="text-align: center;">“Top MCI Volume Days” 10,000 to 59,200 trades</p>	
	= 5845 to 55045 “additional” trades (above MCI mean)	
	= 140% - 1325% above MCI mean	= <b>0.1% to 1.3% of MCIC mean</b>
	= 1.3 - 12.2 SDs above MCI mean	= <b>0.001 – 0.01 MCIC-SDs</b>

	MCI	MCIC
	Daily Return Regressions (Table IV)	
	Size: <ul style="list-style-type: none"> <li>▪ Magnitude MCIC: 0.086 (t=2.28)</li> <li>▪ Magnitude S&amp;P Smallcap: 0.107 (t=2.03)</li> <li>▪ Magnitude Lehman Long Bond Index: 0.091 (t=2.28)</li> </ul>	
	Why higher correlation when good news?	
Good News	Noise trader buys MCI	
		Arbitrageur who owns MCI sells – <b>unlikely</b>
		Arbitrageur who does not own MCI tries to sell – <b>short-selling constraints</b>
Bad News	Noise trader who owns MCI tries to sell – <b>realizes mistake</b>	
	Noise trader who does not own MCI tries to sell – <b>short-selling constraints</b>	
		Arbitrageur buys MCI

→ limits to arbitrage

→ limits to noise-trading!



2. Are the effects significant?

- Standard errors count! (sometimes)

3. Confusion = mistake, no theory of human behavior behind.

- Where can apply same model?

#### 4. Overblown conclusions:

- “Small changes in sentiment affect stock prices significantly and persistently.” Neither *significantly* nor *persistently* is obvious.
- Significantly only if relative to small firm.
- Persistently: “*These results are consistent with the ... evidence that abnormal returns due to investor confusion tend to be reversed within a short period of time ..*”

## 5. Dangerous emphasis.

- Emphasize data, size of effects, explanation
- Do NOT emphasize irrationality, massive confusion, etc.
- Do NOT pick up fights!

### 5.1.3 Good Economics

- Neat idea, easy to remember
- Allocation of cognitive resources:
  - costs of monitoring;
  - benefits of monitoring
- Heterogeneity: Noise traders and arbitrageurs

## 5.2 Huberman-Regev: Cancer Cure

### 5.2.1 Facts

- Stock market valuation of company EntreMed (biotech)
- Effect of news

November 28, 1997: *Nature* “prominently features;” *New York Times* reports on page A28

→ small jump from \$11.875 to \$15.25 (28%)

May 3, 1998: *New York Times* front page

→ big jump from \$12.063 to \$ 51.81 (330%)

November 12, 1998: *Wall Street Journal* front page about failed replication

→ plunge to \$24.875 (24%)

## 5.2.2 Bad economics

- Case study
- Is this one observation?



### 5.2.3 Good economics

- Great idea: use media data.
- Wildly underappreciated source of data. Find new data sources!
- Large size of effects
- Limited attention: First order, generalizable phenomenon

## 6 Present Bias – Status Quo Effect

- Start from intertemporal preferences
- Three names, one object: Present bias – (quasi-)hyperbolic discounting –  $(\beta, \delta)$  preferences
- Present bias + naivete'  $\rightarrow$  status quo bias (procrastination)
- (Next lecture: calibrated model)
- Status Quo in Retirement Savings (Madrian and Shea, 2001)

- Single most important piece of field evidence on P&E
- Health Care company
- Switch of 401(k) plan features for new hires (Table 1)

- OLD Cohort hired 4/1/96-3/31/97:
  - default: no enrollment
  - 1-year wait period for eligibility
- WINDOW Cohort hired 4/1/97-3/31/98:
  - default: no enrollment
  - wait period for eligibility till 4/1/98
- NEW Cohort hired 4/1/98-3/31/99:
  - default: enrollment in 3 percent money market fund
  - immediate eligibility

- Summary Stats. Different cohorts not too different from each other (Table 3)
- Results:
  1. Participation rates in 401(k) by June 30, 1999 (Figure 1 and Table 4):
    - OLD: 57%
    - WINDOW: 49%
    - NEW: 86%
  2. Contribution level (Figures 2b and 2c):
    - WINDOW: 63% are at 0 percent, 4% at 3 percent

- NEW: 65% are at default (3 percent)

### 3. Allocation of funds in stocks (Figure 3):

- OLD: 75%
  - WINDOW: 73%
  - NEW: 16%
- 
- Results equally strong with controls (Table 6)
  - Results replicated in samples of other companies (Choi et al., 2002)

- Interpretation:
  - Status-quo
  - Power of suggestion
- Can status-quo effect be rational?
- Hard sell: large magnitudes, opportunity of social learning, persistent effect
- Present-Bias + (Partial) Naivete  $\rightarrow$  Status-quo effect
- Next lecture!