INFORMATION TECHNOLOGY AND
MARKET DISEQUILIBRIUM

Robert Bloomfield
Cornell University /
Columbia University
Introduction
The World is Changing
IBM’s Watson Plays Jeopardy…

HIS WITS & EXPERIENCE MAKE FOR A HARD KEYNOTE TO FOLLOW
... and diagnoses better than doctors

☐ (Doctors disagree)
We’re Next!
Predictions
The Academic’s Disadvantage
Disequilibrium Analysis
Disequilibrium Analysis
1. It’s going to be a wild ride
The Problem with “Be Here Now”

I’m KING of the MOUNTAIN!
2. We might paint ourselves into a corner
Some (Evolutionary Game) Theory
THERE'S NO SUCH THING AS A FREE LUNCH
MILTON FRIEDMAN
ESSAYS ON PUBLIC POLICY
Including Milton Friedman's Playboy interview
Of *course* there’s a free lunch!
The Point

- The only reason an economist can assume there’s no free lunch is because everyone in the economy is sniffing out every free lunch they can!
Requirements for Equilibration—and Why Technology Matters

- Stationary environment
- Reasonable learning processes lead to equilibrium
- Minimal triggering of behavioral forces
- Technology changes rapidly, as does what we do with it
- Quicker adjustment impedes equilibration
- Technology exposes strong behavioral forces
Applications
Applications

Monitoring
Monitoring is an Arms Race
Do you know your enemy?
The Arms Race
The Arms Race

Arms Race

Investment

Investment
Michigan over Syracuse by 9
“The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor.”

- Donald T. Campbell

- **Measure**: an observable variable intended to capture the construct

- **Construct**: the underlying element of performance we care about
How Corruptible are Big-Data Measures?

- Change is Easy
  - Writing Styles
  - XBRL tags

- Change is Hard
  - Speaking styles
  - Voice & Bone structure

But how much does discloser choice matter anyway?
Hide and Seek

Pre-technology

- Face of Financial Statements
- Footnotes

Today

- Machine Readable
- Not Machine Readable
Predator-Prey Cycles
Predator-Prey
Applications

Investment Strategy
Differentiation
The Differentiation Game
The Differentiation Game

[Diagram showing the differentiation game with lines representing different strategies for "Our Fund" and "Their Fund"]]
Capacity and Exploitation

Photo 1: Assembly line

Photo 2: Wheel department
Technology Lowers Adjustment Costs
Edgeworth Cycles

Figure 1
Retail Prices (Major Firm, Independent Firm) and Rack Price
Applications

Persistent Bias

ARE YOU GULLIBLE?
FIND OUT FOR ONLY $1
Bias: the dark side of heuristics

Heuristics are adaptive rules of thumb that help us make good decisions *most* of the time.

We are better off with them than without them—as long as circumstances don’t change too rapidly.
Miscalibration
Affinity Fraud
Do you know what is audited?
The Winner’s Curse
“Expert” Probability Matching

Experts just can’t help themselves—they have to tweak the models, to their detriment.

- An image indicates a 4% chance of cancer
- What % of the time should you proceed to an invasive biopsy?

Can he avoid micromanaging?
We might paint ourselves into a corner
Multiple Equilibria & XBRL
The Value of Protocols
Pragmatics

Completeness

All of what we need

Relevance

Only the good stuff
Inevitable Equilibria?
Conclusion