information & economics

concepts of information

Feb 26, 2015
Choose a book or seminal paper from what you see as your primary field or area of interest and analyze its use of “information.” You might consider whether the work is internally consistent with regard to “information,” whether its use is similar to the use in other work within the field, or whether use within either the work or the field as a whole differs from how “information” is used elsewhere. Consider the implications of the similarities and distinctions that you discuss.

Length: 15-20 pages

Deadlines: March 13, submit a topic
March 31, present preliminary outline
May 7, final presentations
May 15, finished paper due
today

how we got here

why economics?

economics as a field

economics & information

what does this tell us about “information”?

information & symmetry
how we got here

problematizing “information”

historicizing “information”

contrasting with “data” and with “knowledge”

ahead

“information” within certain fields

- economics
- education
- politics
- development
- cognitive science
- communication
overview

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information & symmetry
Katherine Hayles, “Contesting the Body of Information”

why economics

information age gurus?

Charles Hamlin  Thomas McCabe
William Harding  William McChesney Martin
Daniel Crissinger  Arthur Burns
Roy Young  G. William Miller
Eugene Mayer  Paul Volker
Eugene Black  Alan Greenspan*
Marriner Eccles  Ben Bernanke

Janet Yellen

*“veritable rock-star economist”
economics, information, & the public sphere

**econopundits**

*New York Times*: Paul Krugman

*New Yorker*: Malcolm Gladwell

*New Yorker*: James Surowieki (*The Wisdom of Crowds*)

**econoblogging:**

Brad deLong, Tyler Cowan, Matthew Yglesias, Marginal Revolution, Crooked Timber ...
“When I hear or read dramatic portrayals of economists’ enormous influence on policy, I don’t know whether to laugh or cry. On the one hand, it is flattering to be thought so influential. On the other hand, I can’t help remembering economist George Stigler’s contrary verdict, delivered in 1976: ‘Economists exert a minor and scarcely detectable influence on the societies in which they live.’”


“If economists could manage to get themselves thought of as humble, competent people on a level with dentists, that would be splendid.”

—J.M. Keynes
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broad explanatory power

robust modelling
"the competitive model virtually made economics a branch of engineering" -- Stiglitz

whiggish history
- Mandeville's "harlot & highwayman"
- progress: rising height, weight, health, gdp, equality

political economy to economics
law and economics; Coase Theorem
a field in step

academic consensus

conceptual consensus
markets, preferences, equilibrium & rationality

modelling consensus
"do the math" “anecdotes!!!”

repelling monsters
the decline of "high-development theory"
“By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention.”

“Human and machine are alike; as machines so people seek a stable state.”

H. Ross Ashby, *Cybernetics*, 1957

**homeostasis**

**invisible hand**

“I believe every mainstream economist sees the invisible hand as one of the great thoughts of the human mind. A “bad idea”? No, a great one.”

—Alan Binder, *NYRB*, 2014

**cp cybernetics and feedback**

[CS’s Rat] “the idea that both humans and cybernetic machines are goal-seeking mechanisms that learn, through feedback, to reach a stable state. Both are information processors that tend towards homeostasis”

—Hayles

**equilibriium / pareto efficiency**
"When I first saw the plan and superstructure of your very ingenious and very learned Treatise on the Wealth of Nations, it gave me the compleat idea of ... A System, that might fix some first principles in the most important of sciences, the knowledge of the human community and its operations. That might become principia to the knowledge of political economy as Mathematicks are to Mechanics, Astronomy, and the other Sciences."

--Thomas Pownall, Letter...to Adam Smith, 1776
"Systems in many respects resemble machines. A machine is a little system, created to perform, as well as to connect together in reality, those different movements and effects which the artist has occasion for. A system is an imaginary machine invented to connect together in fancy those different movements and effects which are in reality performed."

--Adam Smith, *Theory of Moral Sentiments*
understanding the system

"Economics has come nearer than any other social science to an answer to that central question of all social sciences, how the combination of fragments of knowledge existing in different minds can bring about results which, if they were to be brought about deliberately, would require a knowledge on the part of the directing mind which no single person can possess."

--Hayek, "Economics and Knowledge," 1937
"Economics is far more versatile than its critics believe. It is a method of analysis and not just a field of study. The method is to combine two core assumptions—individual optimization and equilibrium—with various sets of specific assumptions adapted to different fields of application. The method is applicable not only to the market system but also the social and political environment within which this system is embedded. Social and psychological insights can be encapsulated in the specification of interdependent preferences, which hold the key to modelling all kinds of institutional behavior in rational terms."

--Buckley & Casson. "Economics as an Imperialist Social Science" 1993
"Economics is not only a social science, it is a genuine science ... refutable implications. ... By almost any market test, economics is the premier social science. The field attracts the most students, enjoys the attention of policy-makers and journalists, and gains notice, both positive and negative, from other scientists. In large part, the success of economics derives from its rigor and relevance as well as from its generality. The economic toolbox can be used to address a large variety of problems drawn from a wide range of topics."

--E.P. Lazear, "Economic Imperialism," 2000
appalling vistas

[dissent from methodological individualism] "implies that the behavior of men is directed by mysterious forces that defy analysis and description."


"Many resource-based theorists reject formal modelling altogether, and adopt the nihilistic stance that in a complex world any model of the firm will distort more than it illuminates."


"The costs of rejecting normality ... are substantial" — Fama, 1970
economic crisis > 2008

new rebels: \( r > g \)
questioning Pareto
Panglossian responses

old rebels
Stiglitz, new Keynesians
freshwater vs saltwater

return of the repressed?
marxists
behaviorists
Samuelson
Richardson?
economic ills

“The panel called the pattern of higher rates of disease and shorter lives ‘the U.S. health disadvantage,’ and said it was responsible for dragging the country to the bottom in terms of life expectancy over the past 30 years. American men ranked last in life expectancy among the 17 countries in the study, and American women ranked second to last. ‘Something fundamental is going wrong ... This is not the product of a particular administration or political party. Something at the core is causing the U.S. to slip behind these other high-income countries. And it’s getting worse.’”

— New York Times 2013
"The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist.”

—Keynes

“the Streeten-Kuhn maxim that a model is never defeated by facts, however damaging, but only by another model.”

robust modelling

So economics as a profession has reaped the benefits of being both inside and outside. It has been deeply involved in the world while declaring a studied scientific and political distance from it. It is confident about relevance but cautious about consequence, assertive about authority but impervious to accountability. An enviable but ultimately fragile position.
superiority

Table 1  Citations from flagship journals to articles published in the 25 top journals in each discipline, 2000–2009 (as a percentage of total citations in each journal)

<table>
<thead>
<tr>
<th>Cited journals</th>
<th>Top 25 economics journals</th>
<th>Top 25 political science journals</th>
<th>Top 25 sociology journals</th>
<th>Total number of papers/citations from this journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Economic Review</td>
<td>40.3%</td>
<td>0.8%</td>
<td>0.3%</td>
<td>907</td>
</tr>
<tr>
<td>American Political Science Review</td>
<td>4.1%</td>
<td>17.5%</td>
<td>1.0%</td>
<td>353</td>
</tr>
<tr>
<td>American Sociological Review</td>
<td>2.3%</td>
<td>2.0%</td>
<td>22.0%</td>
<td>399</td>
</tr>
</tbody>
</table>

Source: Compiled by the authors from the electronic Institute for Scientific Information’s Web of Social Science. The high number of papers and cites in the AER is due to the Papers and Proceedings. We also looked at these data without the P&P. The patterns do not differ significantly.
overview

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information & symmetry
knowledge

no state regulation

The Road to Serfdom, 1944

The Fatal Conceit, 1988

knowledge & information

“Economics and Knowledge,” 1937

“The Use of Knowledge in Society,” 1945
"Clearly there is here a problem of the division of knowledge which is quite analogous to, and at least as important as, the problem of the division of labour. ... instead of showing what bits of information the different persons must possess in order to bring about the result, we fall in effect back on the assumption that everybody knows everything."

--Hayek, “Economics and Knowledge,” 1937
"the so called "data", from which we set out in this sort of analysis, are (apart from his tastes) all facts given to the person in question, the things as they are known to (or believed by) him to exist. ... any change which leads him to alter his plan, disrupts the equilibrium relation between his actions.

"'data' ... [as] the objective real facts, as the observing economist is supposed to know [or] ... the subjective sense, as things known to the persons whose behaviour we try to explain."

--Hayek, 1937
"The money price at which an article sells furnishes us with comparatively little information" —Charles Babbage

On the Economy of Machinery and Manufactures, 1832

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information, knowledge, data

[price] "index ... in which all the relevant information is concentrated...
"prices can act to coördinate the separate actions of different people
".... The whole acts as one .... because .... individual fields of vision overlap so that through many intermediaries the relevant information is communicated"

"equilibrium analysis ... seems to have so extraordinarily little to say about the institutions, such as the press, the purpose of which is to communicate knowledge. ... a peculiar blindness to the rôle played in real life by such institutions as advertising. ..."

"That an economist of [Prof S] standing should thus have fallen into a trap which the ambiguity of the term "datum" sets to the unwary."

--Hayek, 1945
less principled?

"information as that which is being communicated becomes identical with 'knowledge' in the sense of that which is "

--Fritz Machlup,

*The Production and Distribution of Knowledge*, 1963
"One should hardly have to tell academicians that information is a valuable resource: knowledge is power"

--- George Stigler, “The Economics of Information,” 1961

"Knowledge is, of course, a particular form of information"

--- Stiglitz

“Information and the Change in the Paradigm of Economics,” 2002
“the search for information ... the ascertainment of market price ...
“the search for knowledge on the quality of goods” — Stigler, 1961

“Information about quality ... poses an intrinsically more difficult problem than uncertainty about prices” — J. Hirshleifer

“Where Are We in the Theory of Information?” 1973
We are not equipped to discuss advertising in general because the problem of quality has been (and will continue to be evaded) by the assumption of homogeneous goods."

“Quality has not yet been successfully specified by economics, and this elusiveness extends to all problems in which it enters”

—Stigler
"As the market grows in these dimensions, there will appear a set of firms which specialize in collecting and selling information. They may take the form of trade journals or specialized brokers ... there is a strong tendency towards monopoly ... a 'standard' source for trade information".

--Stigler, "The Economics of Information," 1961
moreover

"perfect information ... free, complete, instantaneous, and universally available ... [is] one of the defining features of the perfect market ...

"at the same time, both the perfect and the actual market structure ... depend on information being a commodity, ... costly, partial, and deliberately restricted"

--James Boyle, 
*Shamans, Software & Spleen*, 1996
"A market in which prices always "fully reflect" available information is called efficient ...

"Three relevant information subsets:

"weak form: the information set is just historical prices ...

semi-strong form: in which the ... prices efficiently adjust to other information that is obviously publicly available ...

"strong form ... groups have monopolistic access to any information relevant for price formation."

-- Eugene Fama,
"Efficient Capital Markets," 1970
"When there is uncertainty, there is usually the possibility of reducing it by the acquisition of information. Indeed, information is merely the negative measure of uncertainty. ..."

--Kenneth Arrow
"Information & Economic Behavior," 1973
or more simply

“Essentially, anything that can be digitized
... is information.”

—Shapiro & Varian, *Information Rules*,

“... The assimilation of information is not an
easy or pleasant task for most people”

—Stigler
"I will think rather of information as a general descriptive term for an economically interesting category of goods which has not hitherto been accorded much attention by economic theorists....information is like a commodity ... But ... only to a limited extent"

--Arrow, 1973
“There is an incentive for sellers to market poor quality merchandise ... The difficulty of distinguishing good quality from bad is inherent in the business world. An asymmetry in available information has developed: for the sellers now have more knowledge about the quality of a car than the buyers ... Gresham’s law has made a modified reappearance.”

information plugs a gap?

"I was struck by the imperfections of information ... asymmetries ... between those governing and those governed.

"peculiar implications of the model ... it seemed not to address issues such as incentives and motivation. But much of the research was directed not at these big gaps."

--Stiglitz
“This perspective-neutrality is the feature of information that gives it a more-or-less uniform exchange value, so that a piece of information that I give you can in principle be as comprehensible or as useful to you as it is to me.”

— Nunberg, FTTII

“Where observers recognize problems of inequality in the information age, they may reimagine the areas to argue that the key issue is not maldistribution of material resources (money, food, housing, etc.) but rather a matter of unequal information access (for example to education, libraries, internet facilities). The proposed solutions tend to offer not redistribution of wealth but instead improved access to information.”

— New Key Words

“Idea Gaps and Object Gaps in Economic Development” — Paul Romer
range or binary?

"While there is a single way in which information is perfect, there are an infinite number of ways in which information can be imperfect."

Stiglitz
"It is hard to imagine what a world with perfect information would be like"

--Stiglitz

looking for symmetry

Exercise:

Stiglitz and Akerlof might each be read as struggling so show how “information” works in ways more complex than Stigler. To explain their models of used-car and job-seeking markets, they rely on an underlying notion of symmetry. To tease out their assumptions, choose an example in which symmetry (rather than asymmetry) appears feasible. Then consider, perhaps, the “mechanism” of circulation, the process of “assimilation” (and even of “creation”), and the “value” of information; its relation to knowledge, or ways in which information imperfections might be different from asymmetries. What would we need to assume about the market, the goods, and the people involved? How far could we expect such assumptions to generalize?

Work, if you can, in groups of two or three. Send slides or links, ahead.