Principles of Economics

Introduction

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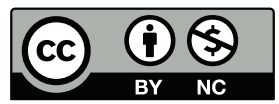

What is Economics

- Economics[1], as a study in human behavior, relates to all of us. Behind the theory of Economics are stories of people and their lives as consumers, workers, and entrepreneurs in an inter-connected world.

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  - The fundamental reason that people need to make choices is **scarcity**: our unlimited wants exceed our limited resources.
  - Individual choices are not independent. Each person's choices can affect other people. Hence it is important to study the interaction of individual choices and their collective consequences.

What is Economics

"Economics is a science which studies human behavior as a relationship between ends and scarce means which have alternatives uses." – Lionel Robbins, Essay on the Nature and Significance of Economic Science[2].

[2] For an account of the evolution of the definition of Economics, see Backhouse and Medema (2009).

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3. Who gets the goods and services?

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What is Economics

- **Microeconomics**
  - How individuals and households decide what to buy, how much to work, how much to save, etc.
  - How firms decide what to produce, how much to produce, how many workers to hire, etc.
  - The interaction of households, firms, and governments in markets for particular goods and services.

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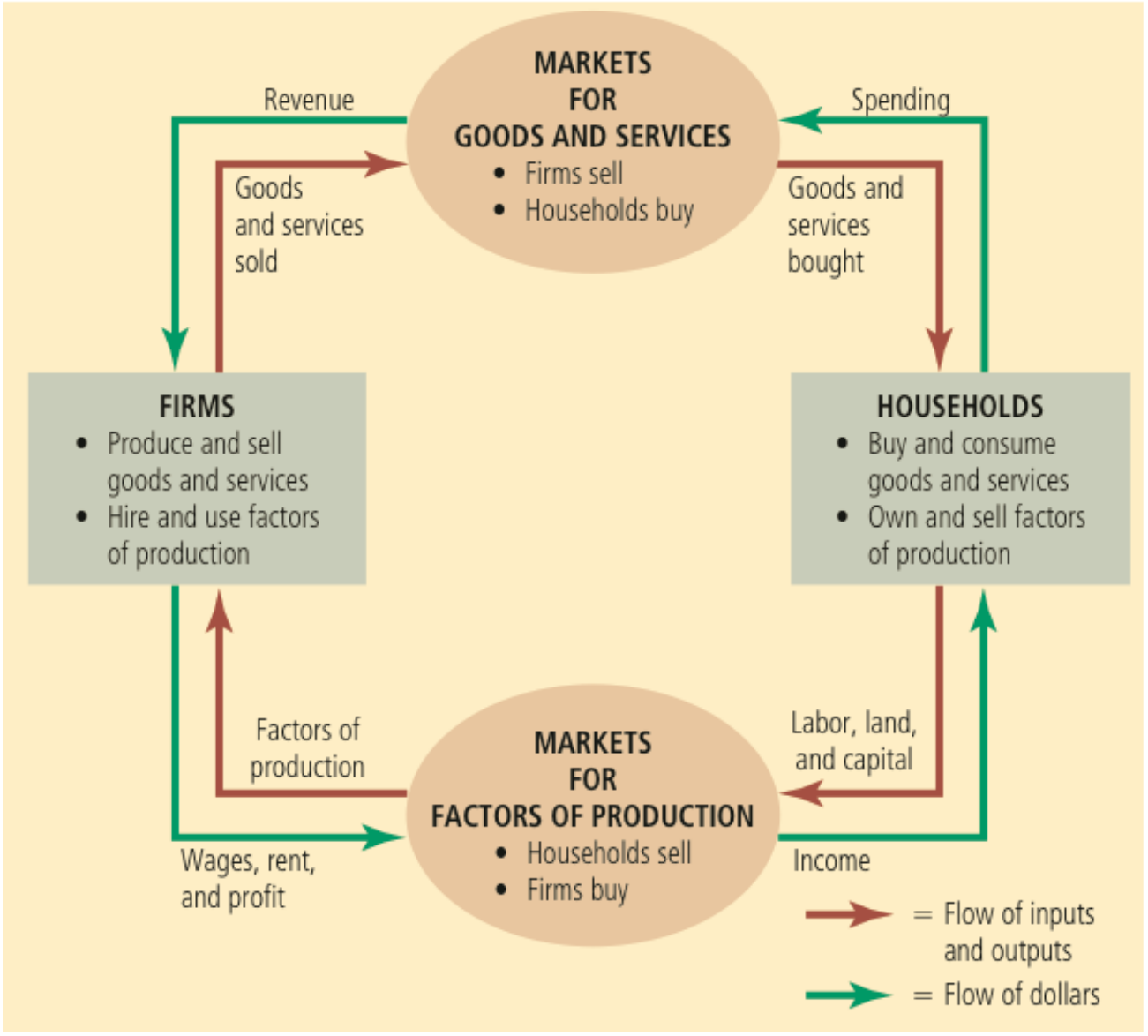
- **Macroeconomics**
  - Aggregate outcomes of household, firm, and government choices, including inflation, unemployment, business cycles, and economic growth.

A Circular Diagram of the Economy



Economic Assumptions on Human Behavior

To study individual choices, we need models of decision-making. Most economic models assume that people are **rational** (*Homo Economicus*).

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- In many cases, this is a strong but reasonable approximation to the idea that "people generally attempt to do the best they can".

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Economic Assumptions on Human Behavior

The rationality assumption implies that:

- People respond to incentives.
- An option will be chosen if its benefit $>$ its opportunity cost.
- "How-much" choices are made at the margin.

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Steven Landsburg:

> *Most of economics can be summarized in four words: "People respond to incentives." The rest is commentary.*

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- A rational person chooses an option as long as its benefit is greater than its opportunity cost.

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- The cost of investing in a project
  - Explicit cost: direct cost of investment
  - Implicit cost: profit from the next best project

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Example

An individual is facing three options. The benefits associated with each option are (π_1, π_2, π_3). The direct costs associated with each option are (d_1, d_2, d_3). Suppose $\pi_1 - d_1 > \pi_2 - d_2 > \pi_3 - d_3$. Let c_i denote the opportunity cost of option i. Then

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- $c_3 = \pi_1 - d_1 + d_3$. The individual will choose option 3 if $\pi_3 > c_3$. Since this is not true, option 3 will not be chosen.

Opportunity Cost

Example

You are given a free ticket to see a performance at Banlam Theatre (which has no resale value). The Xiamen Philharmonic is performing on the same night and is your next-best alternative activity. Tickets to the Xiamen Philharmonic concert cost 60 yuan. On any given day, you would be willing to pay up to 100 yuan to attend a Xiamen Philharmonic concert. Assume there are no other costs of seeing either performance. What is the opportunity cost of going to see the performance at Banlam Theatre?

Opportunity Cost

Example: sunk costs are irrelevant

A 200-seat plane is about to take off with 10 empty seats. The flight costs the airline $100,000. A passenger arriving at the last minute is hoping to purchase a ticket for one of the remaining seats. How much should the airline charge her?

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- **Marginal benefit** (**MB**): the benefit from a small increase in the amount of the chosen option
- **Marginal cost** (**MC**): the opportunity cost of a small increase in the amount of the chosen option

Optimal decisions are made at the margin

Example: Marginal Analysis

You are trying to decide how much time to spend on watching TV tonight instead of studying. Let $\pi(t)$ be the benefit of watching t minutes of TV tonight. Let $c(t)$ be its opportunity cost[a]. Then $\pi'(t)$ is the marginal benefit of watching 1 more minute of TV when you have already watched t minutes and $c'(t)$ is the marginal cost of watching 1 more minute of TV when you have already watched t minutes.

To choose the optimal TV watching time, you should choose a t^* that maximizes $\pi(t) - c(t)$. Equivalently, you should continue watching TV as long as $\pi'(t) > c'(t)$, and until $\pi'(t) = c'(t)$ (if that ever happens)[b].

---

[a] Assuming no direct costs to watching TV or studying, $c(t)$ = the benefit of using the t minutes to study.

[b] If $\pi'(0) > c'(0)$, $\pi''(t) < 0$ (decreasing marginal benefit) and $c''(t) > 0$ (increasing marginal cost), then there must exist a $t^* > 0$ such that $\pi'(t^*) = c'(t^*)$.

Beyond Rationality

In many situations, people's choices may exhibit departures from the rationality assumption:

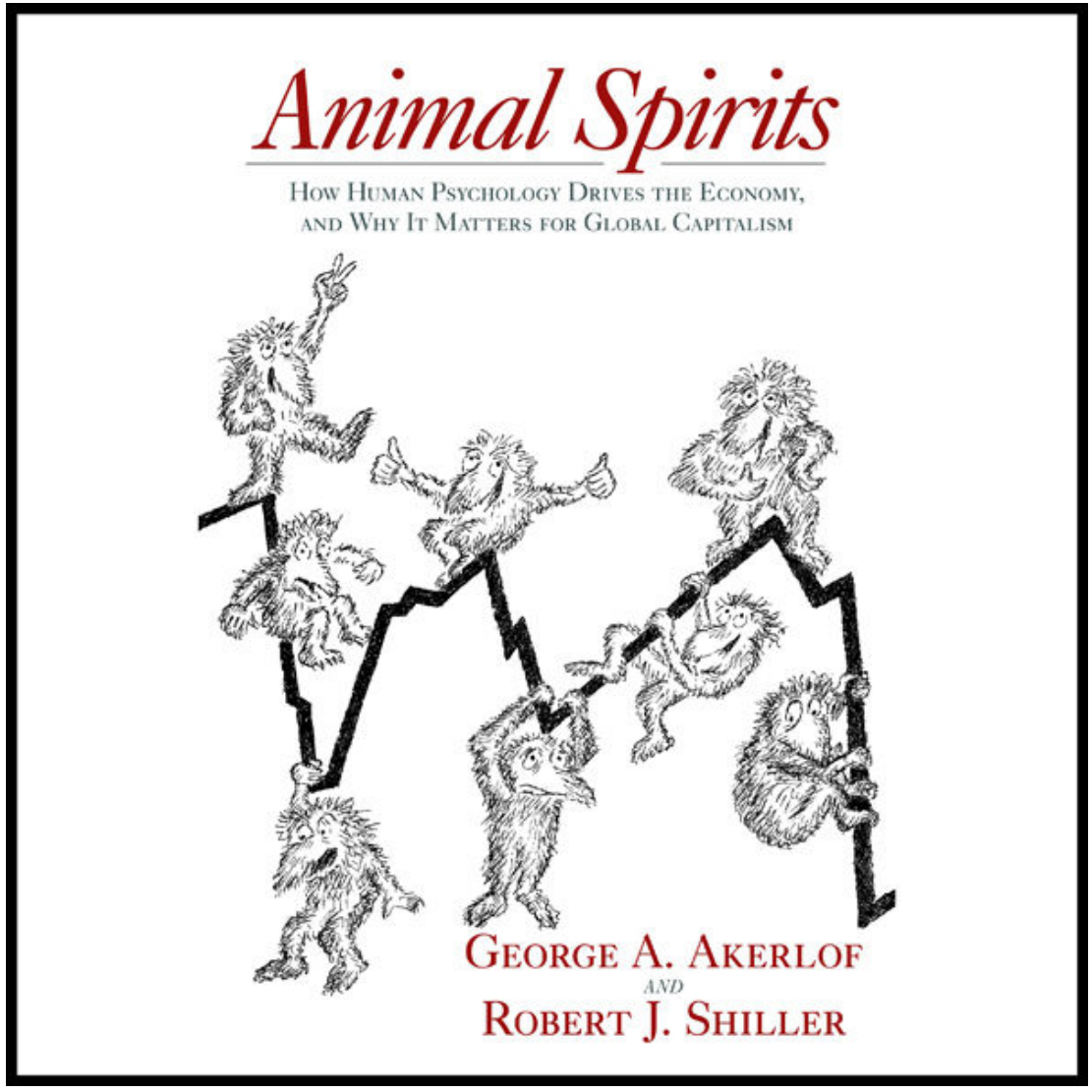
- reference dependence
- hyperbolic discounting
- overconfidence
- loss aversion
- herding instinct
- etc.

Beyond Rationality

The Ultimatum Game

Two players play a game. The first player receives a sum of money and proposes how to divide the sum between her and the other player. The second player chooses to either accept or reject this proposal. If the second player accepts, the money is split according to the proposal. If the second player rejects, neither player receives any money. How should the first player propose?

Beyond Rationality



Beyond Rationality

- **Behavioral Economics** studies the effects of psychological, social, cognitive, and emotional factors on the economic decisions of individuals, using tools such as laboratory experiments.
- **Neuroeconomics** aims to provide a neurobiological foundation to economic decision-making.

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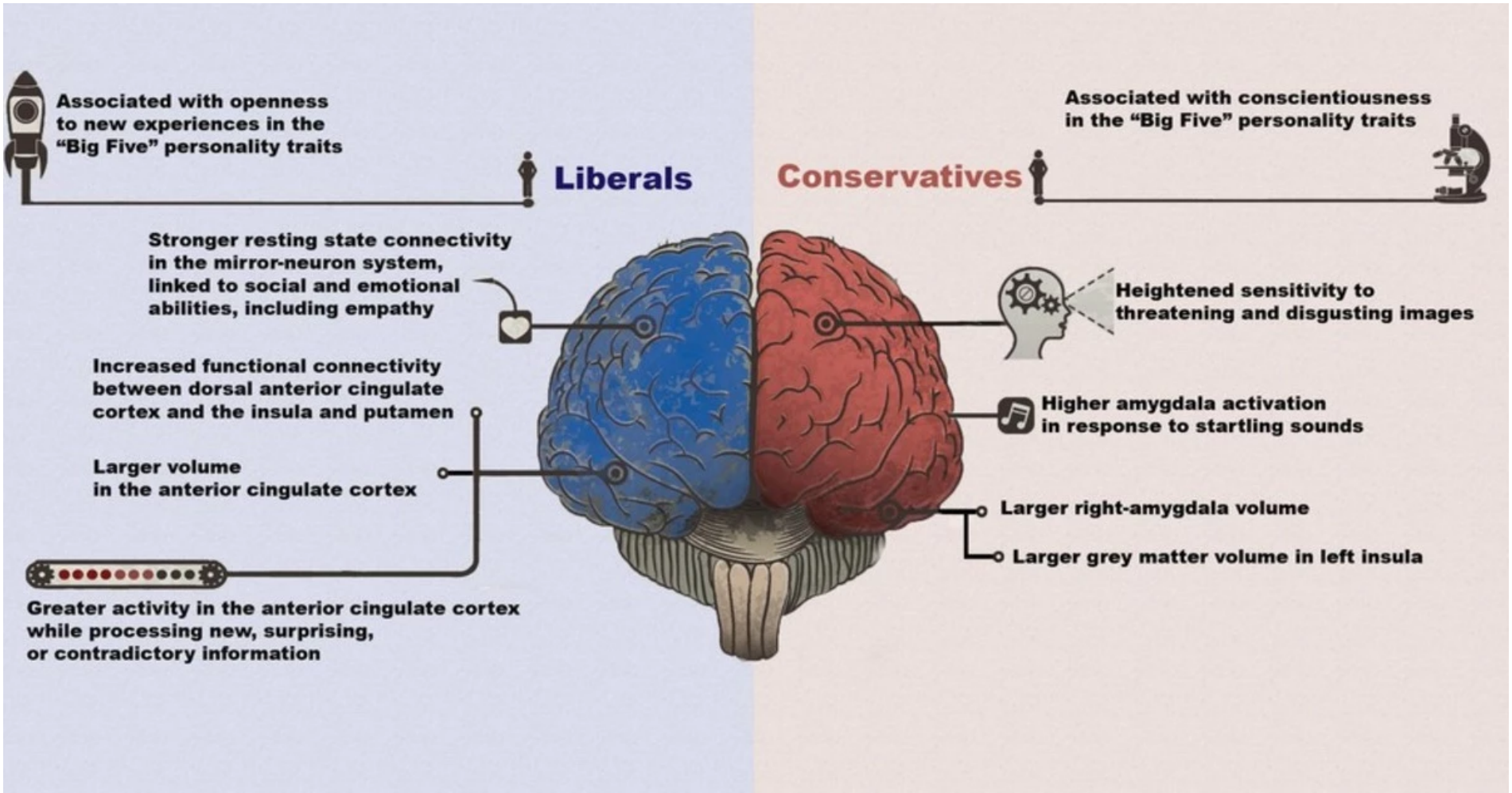

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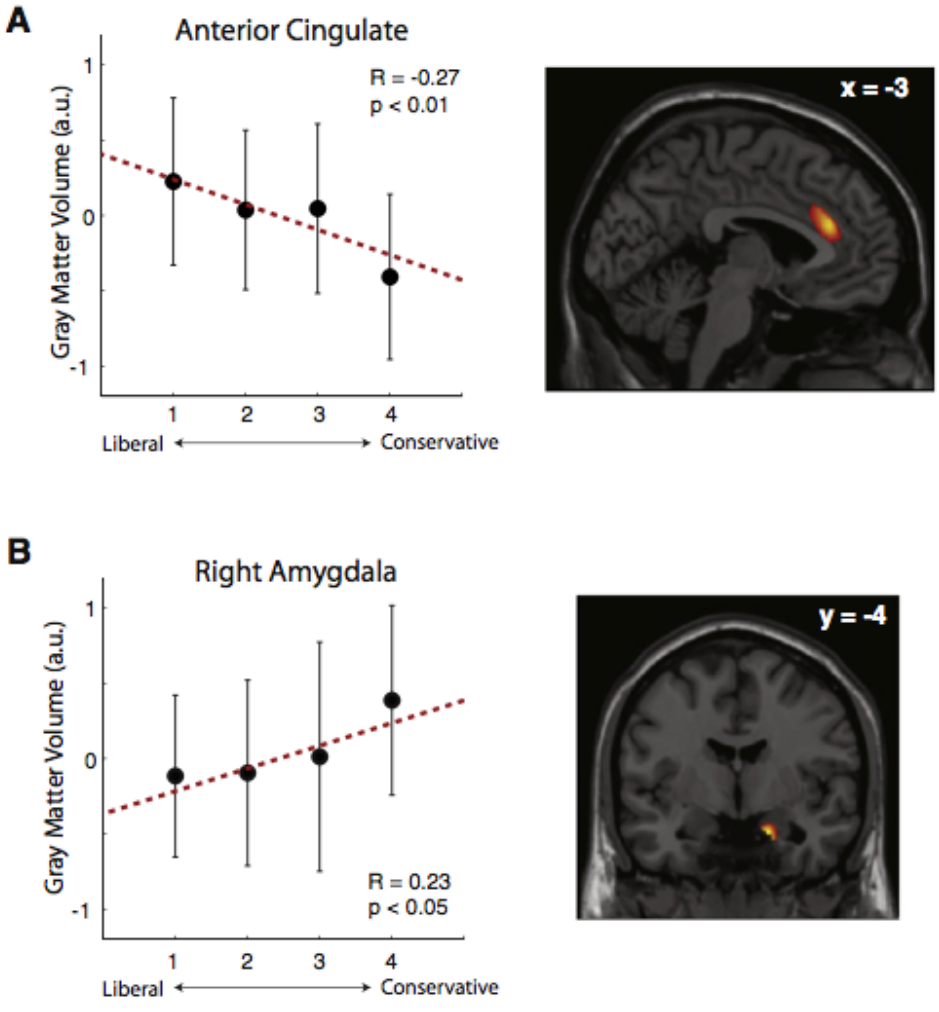

Brain Structure and Political Orientation. Source: Kanai et al. (2011).

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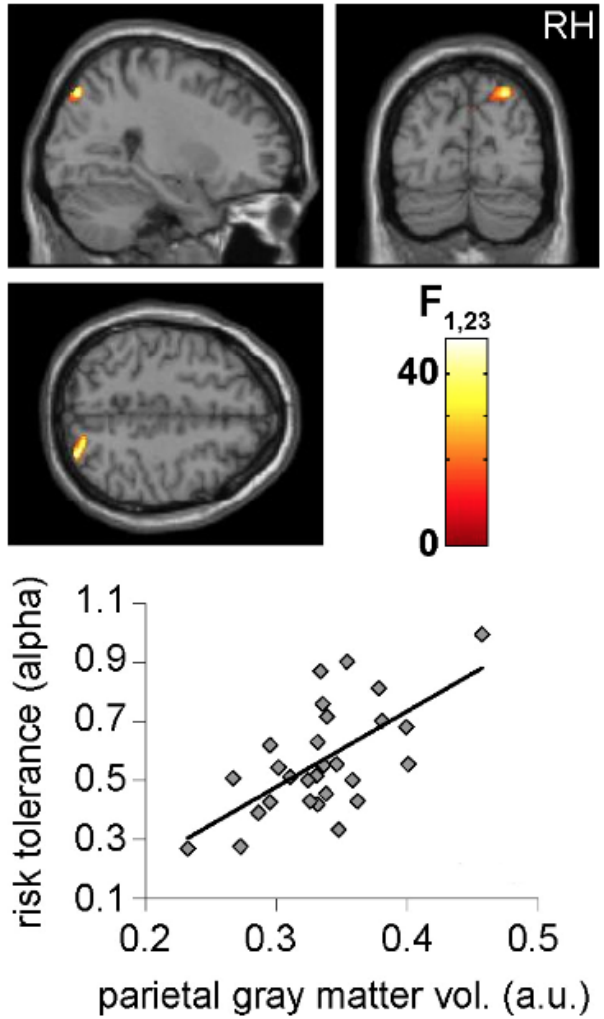

Gray matter volume of a region in the right posterior parietal cortex predictive of individual risk attitudes. Source: Gilaie-Dotan et al. (2014).

Economics as Social Science and Policy Tool

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  - Normative statements contain value judgement and hence cannot be judged using data alone.