

# Laboratory Methods I.

Daniel Friedman<sup>1</sup>

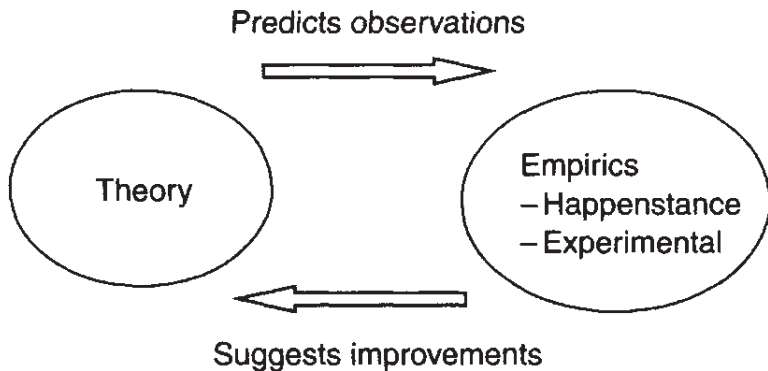
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1 History and Philosophy

2 Lab vs Field?

3 Validity



*Figure 2.1* The engine of science.

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- they quickly enable crucial observations
- controls allow sharper inferences.
- by contrast, current debates about “quantitative easing” in macro remain unresolved.

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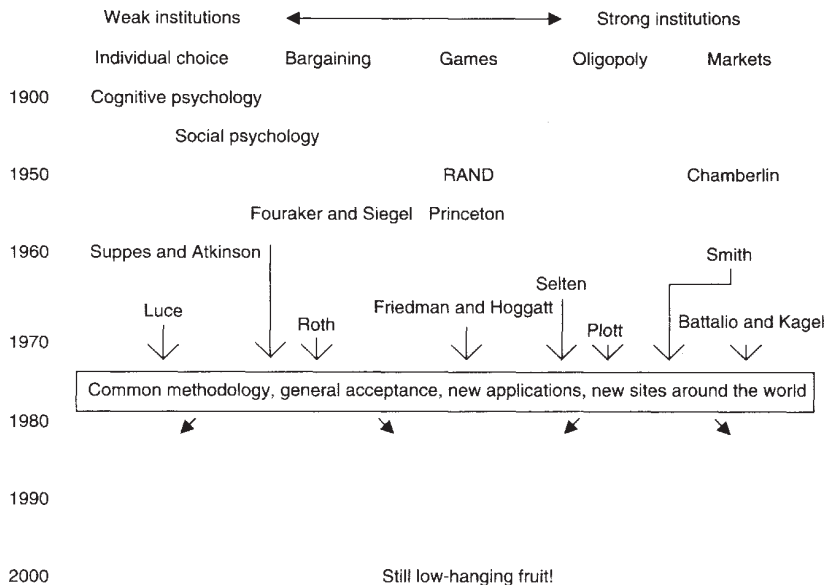
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- Pasteur, Mendel, and others developed experimental traditions in biology in late 1800s.
- Psychology was the first part of moral philosophy to go experimental, with work of Wundt, Fechner, et al about the same time.
- Economics is a bit of a laggard, went experimental only in second half of 20th century.

# Early Experimental Economics



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  - ▶ salient pay
  - ▶ no deception.

# Examples of Data Sources

	<b>Happenstance</b>	<b>Experimental</b>
<b>Field</b>	US GDP	Kenya Fertilizer usage
<b>Lab</b>	penicillin	DA asset prices



## Intermediate cases: Harrison-List (2004) taxonomy

- “Artefactual” field experiments: like lab but with target subject pool.
- “Framed” field experiments: also include naturally occurring context.
- “Natural” field experiments: Ss unaware of anything out of the ordinary.

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As formal analytics, simulations and verbal summaries are for theory.

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- External validity: does it generalize? That is, will we see similar effects in all (or most) other relevant settings?
- Experimental design is all about hitting the validity frontiers.
- What's best — lab or field? experiment or happenstance? It depends...  
e.g., on costs and assessment of validity.

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- Induction principle says **regularities persist as long as relevant conditions are substantially unchanged.**
- Theory tells us what is “relevant” and “substantial.”



# Bibliography

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also *Experimental Methods: A Primer for Economists*, DF & Shyam Sunder, Cambridge University Press, 1994.
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