

Title: A Science Less Dismal: Welcome to the Economic Manhattan Project

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Abstract: An unexpected economic crisis provides an excellent opportunity to better understand the state of Economic theory as a science. While there appears to have been a broad systemic failure within the community of professional economists to predict the current collapse, it must be noted that there have been scattered successes which appear striking and demand our attention. The goal of this conference is to bring together economists, biologists, mathematicians, physicists, programmers, and financial professionals to explore the opportunities for bringing economic theory into closer contact with the more traditional sciences as the basis for ongoing work, partnership, and collaboration.



A Science Less Dismal:

**Welcome to the
Economic Manhattan
Project**

Eric Weinstein

Natron Group LP

A Tale of Two Crises: The Financial Crisis and its Intellectual Parent

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- This conference is about the argument between these two groups seen from a scientific perspective.

Alpha vs. Schmalpha

α vs. β

Timothy Geithner, Systemic
Financial Crises: Fall 2004

“These developments can have both positive and negative impacts. In many respects, they help to reduce risk. In some ways, they increase risk. On balance the positive aspects dominate the less positive. Shocks may act more quickly, but they can be more easily diffused and absorbed. Institutions and markets seem better positioned to handle a substantial degree of stress. Shocks may be less likely to result in the type of trend amplifying, self-reinforcing dynamic for sustained periods of time that can threaten the stability of the financial system. “

E. Weinstein, Quant
Congress: Fall 2004

“**Schmalpha**: Excess value extracted from *investors* in capital markets.”

Prediction: [The] Influx of Hedge Fund investors [will] demand *absolute return*, *low correlation* and *low volatility* in an increasingly crowded space. Without improved analytics, this may be expected to accelerate a co-evolution of both Alpha and Schmalpha providers.”

[Note the Presentation explained why not to put much money with Madoff’s fund which was renamed “BlackArts Capital” and called a ‘performance mimic’]

Overarching question: why would the world's governments systematically avoid the group which warned of disaster?

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[Hank Paulson aide and Former Treasury economist Phillip] Swagel says that the Treasury came to realise that underpricing insurance for bank assets roused less political opposition than overpaying for assets precisely because the insurance is less transparent.

-The Economist Magazine

Swagel's View

“Many people in Washington, DC did not understand the implications of non-recourse lending from the Fed. This latter lesson was somewhat fortuitous, in that it took some time before the political class realized that the Fed had not just lent JP Morgan money to buy Bear Stearns, but in effect now owned the downside of a portfolio of \$29 billion of possibly dodgy assets. This discovery of the lack of transparency of non-recourse lending by the Fed was to figure prominently in later financial rescue plans.”

- Phillip Swagel

Valuation of Illiquid Assets 2002: Removing uncertainty is not just a subsidy but a measurable one.

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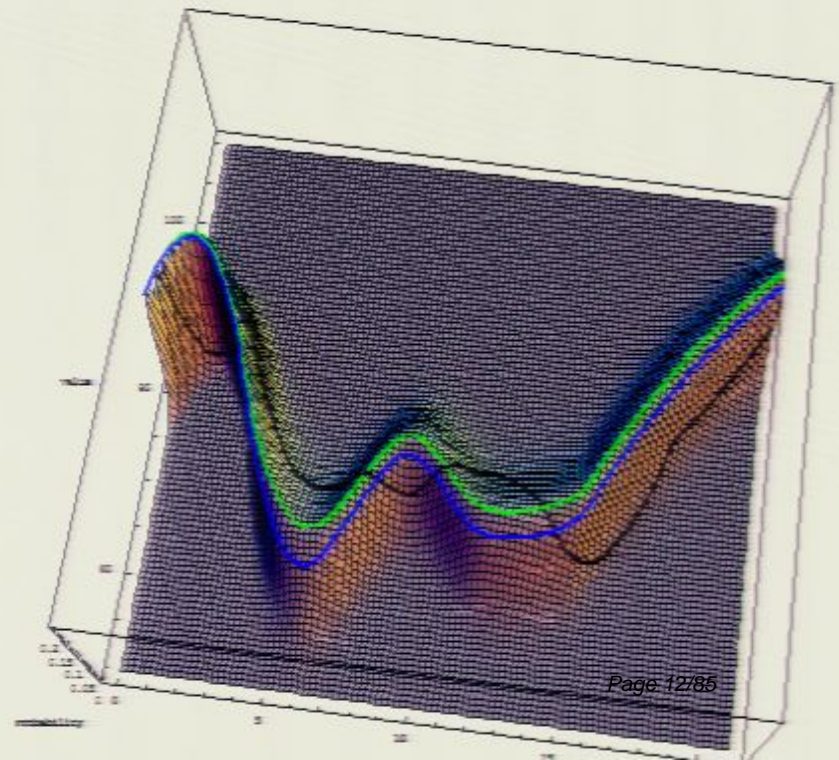
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$$\mathbb{P}_a^\Gamma(v_t) = \left(\frac{\sigma_t^2}{\mu_t} \right) \left(\frac{\Gamma[\frac{\mu_t^2 - (a-1)\sigma_t^2}{\sigma_t^2}]}{\Gamma[\frac{\mu_t^2}{\sigma_t^2}]} \right)^{\frac{1}{1-a}}$$



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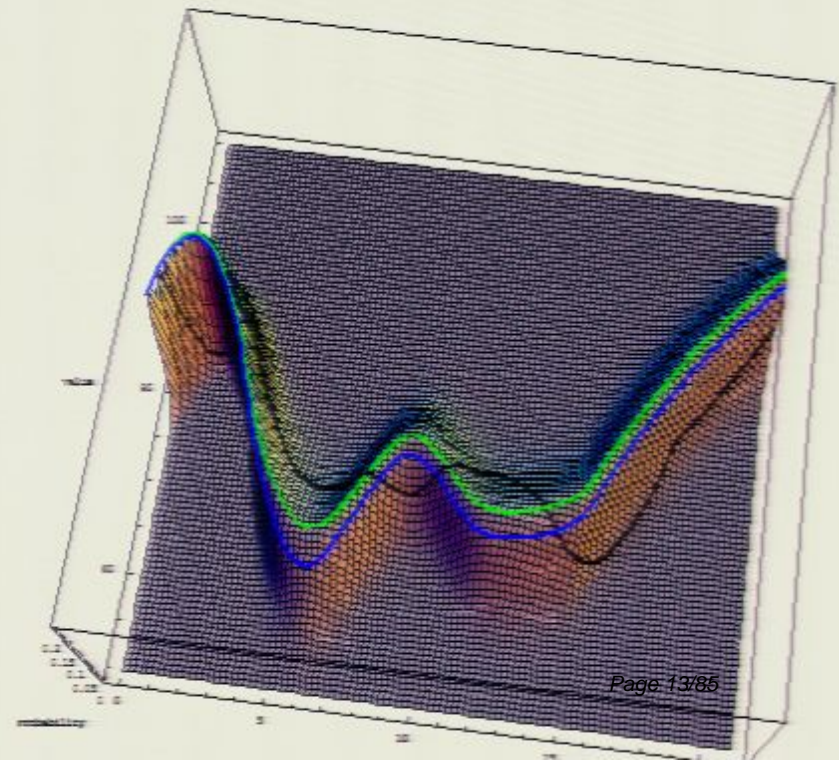
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- If we are invited in and given access and responsibility, we will put our talents to use in the public service akin to the aforementioned Manhattan Project.

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- We are interested in giving a voice to topics that others wish not to entertain (e.g. should we engage in national spite with a respectable budget?).

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- We are not SFI. Check the name. It's colder here. Great Institute, but different goals.

Confrence Rubric: A.R.M. Agency, Regulation, Measurement

Conference Rubric: A.R.M.

Agency, Regulation, Measurement

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- Agency: do we have accurate models for our basic actors.
- Regulation and Self-Regulation: When can we rely on self-regulation and when is external regulation essential.
- Measurement: If essentially all of our measurement gauges failed to catch a major financial disaster, how can we hope to do serious analysis with these measurements as inputs.

The two richest tool kits in science have no mutual interaction to date

Selection

(Natural and Sexual)

- Actors are differentiated by enormous combinatorial complexity.
- Interactions via a tremendous variety of ingenious mechanisms involving information and nutrient exchanges.
- Highest Level theory in hard sciences.
- Dominated by combinatorics and simple algebra due to absence of real valued variables

Geometric Dynamics

(Classical and Quantum Field Theory)

- Actors are differentiated by a tiny number of parameters.
- Interactions via a small variety of canonical mechanisms involving real and complex numbers
- Lowest Level theory in hard Sciences
- Dominated by deep extensions of Calculus and Linear Algebra

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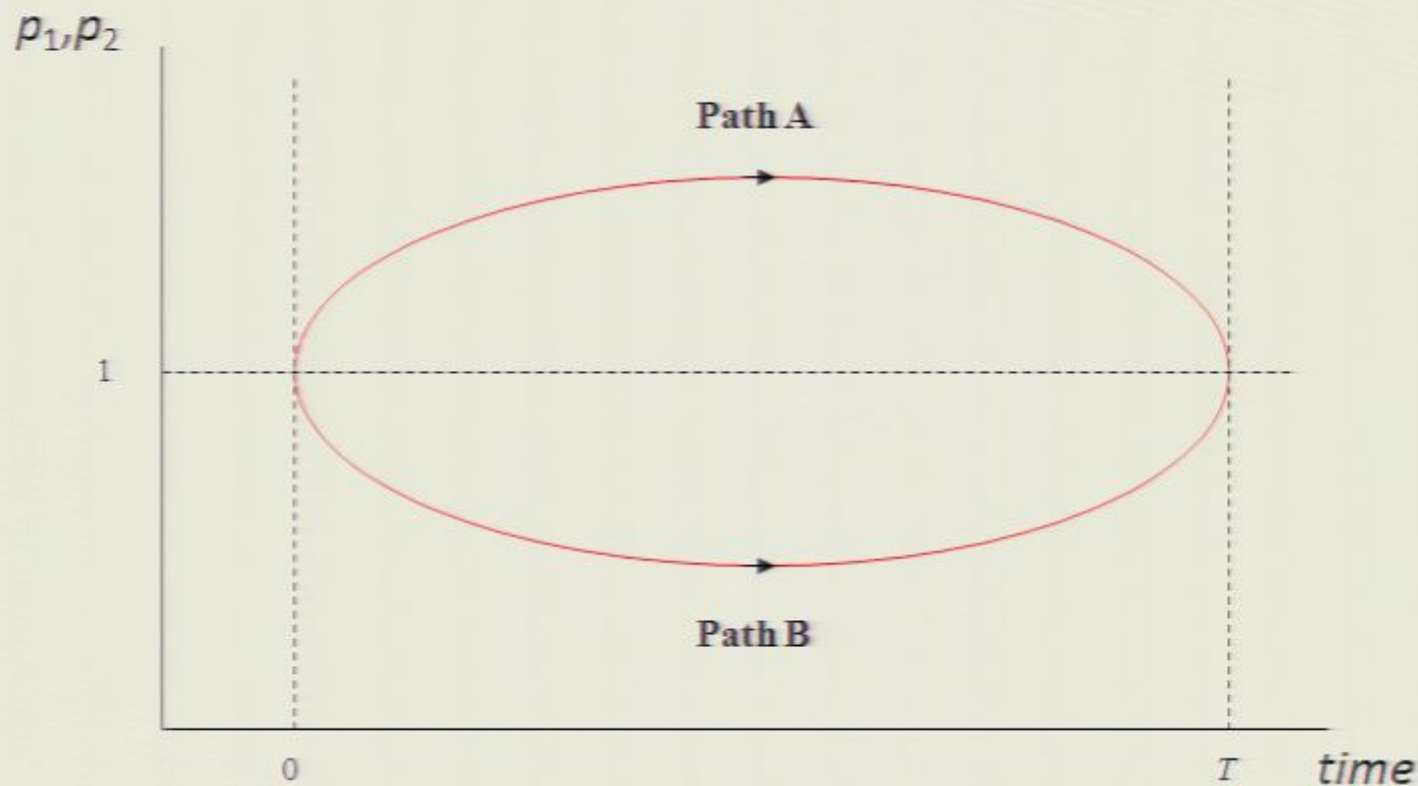
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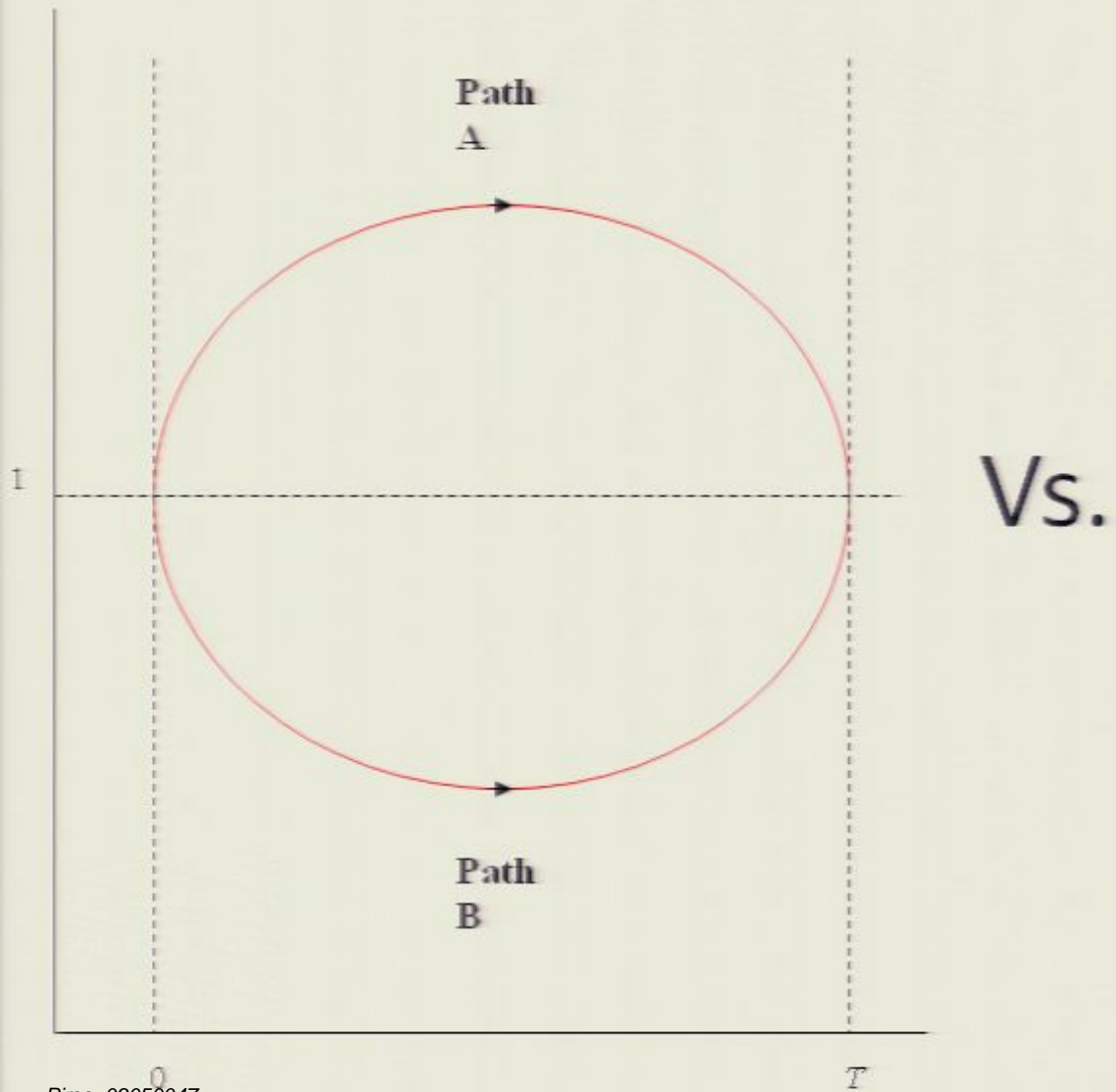
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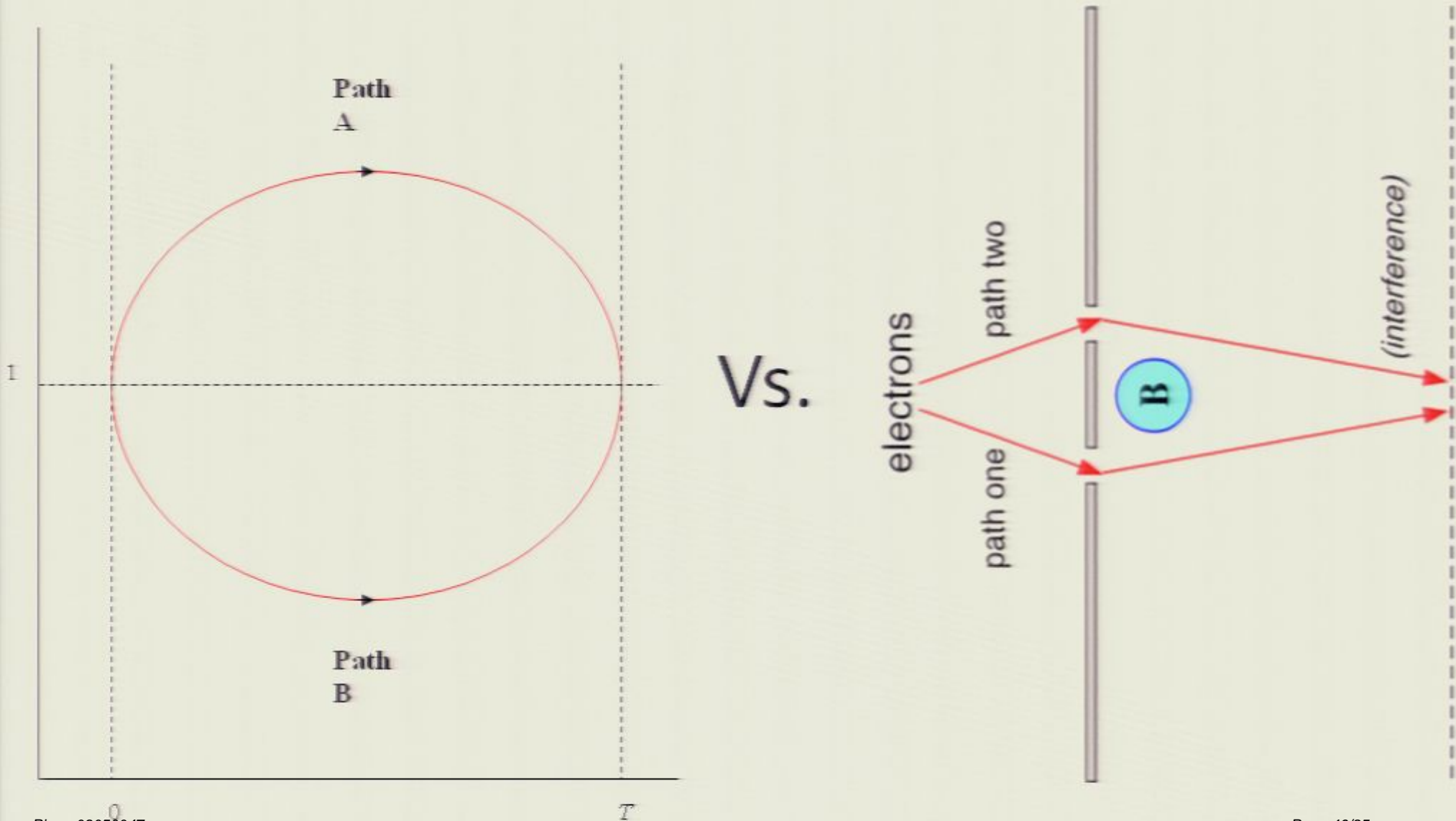
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Divisia indices are generally path-dependent (and chain indices may fail the circularity test):





Aharonov-Bohm effect



The Aharonov-Grilliches effect:



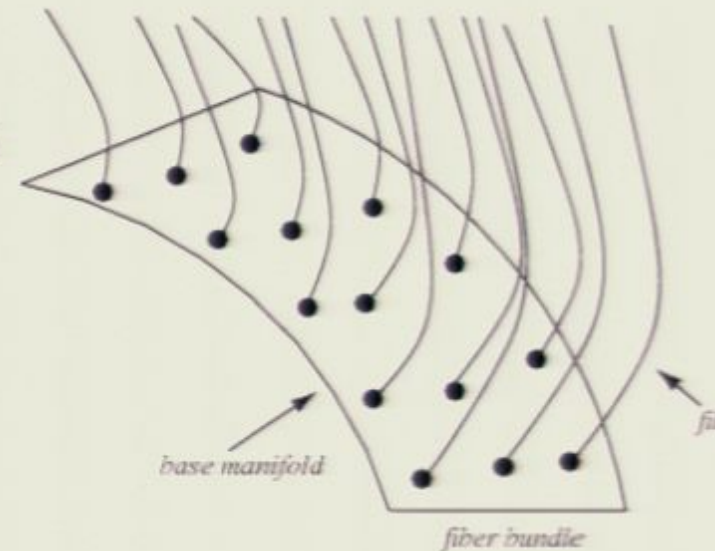
This is potentially the starting point for
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- But how do you get economists to learn gauge theory on fiber bundles to understand the error?

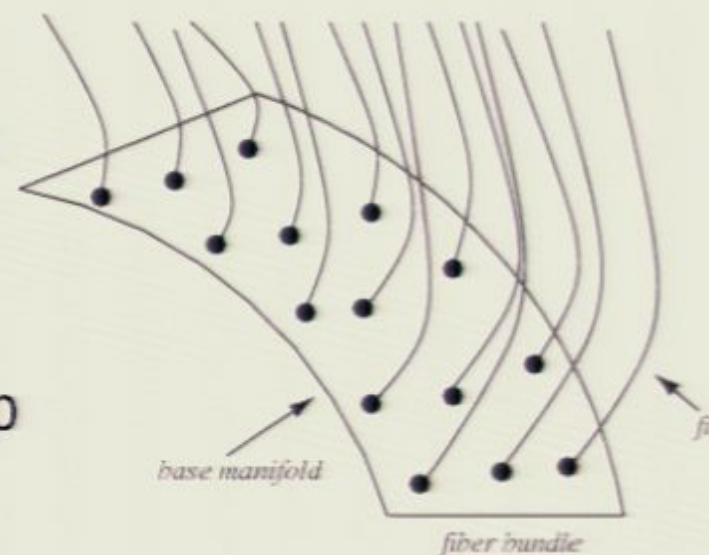
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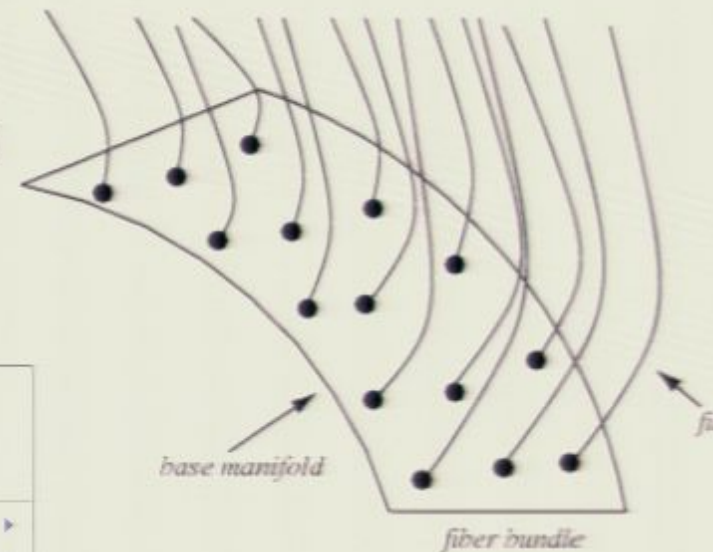
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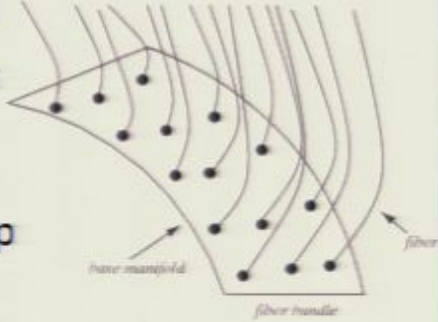
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- 1 • But how do you get economists to learn gauge theory on fiber bundles to understand the error?
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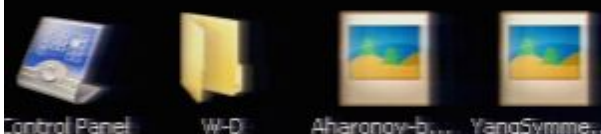
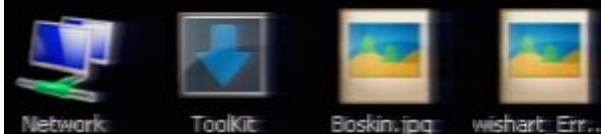
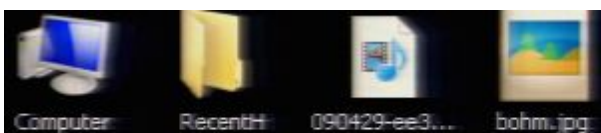
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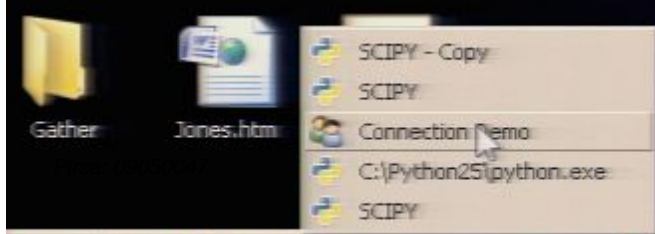
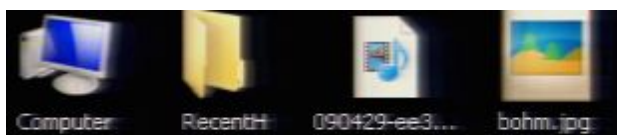
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g: 0

x: $\cos(2*\pi*t)+2$

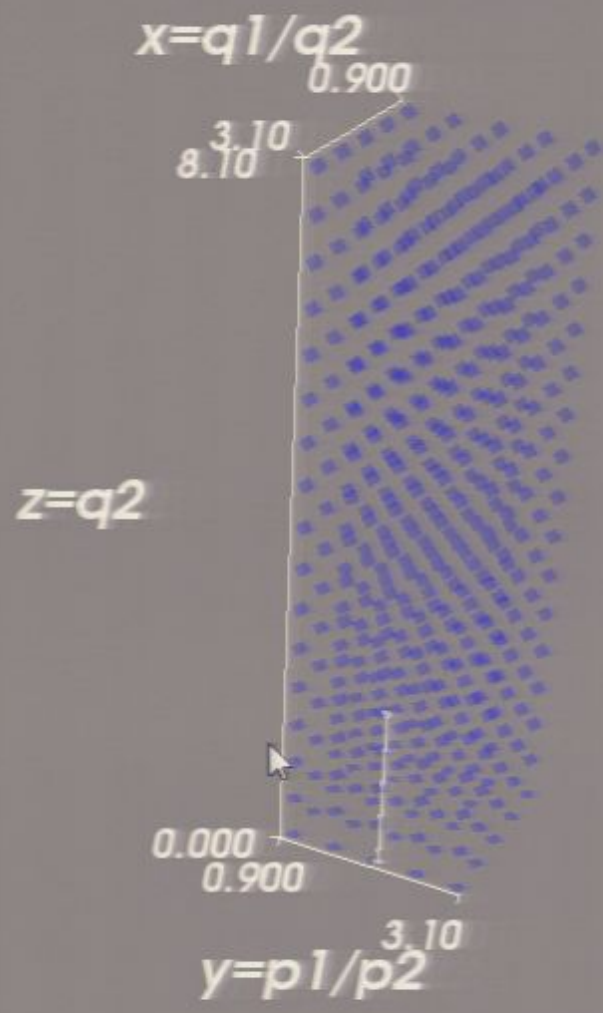
y: $\sin(2*\pi*t)+2$

t: 0.0

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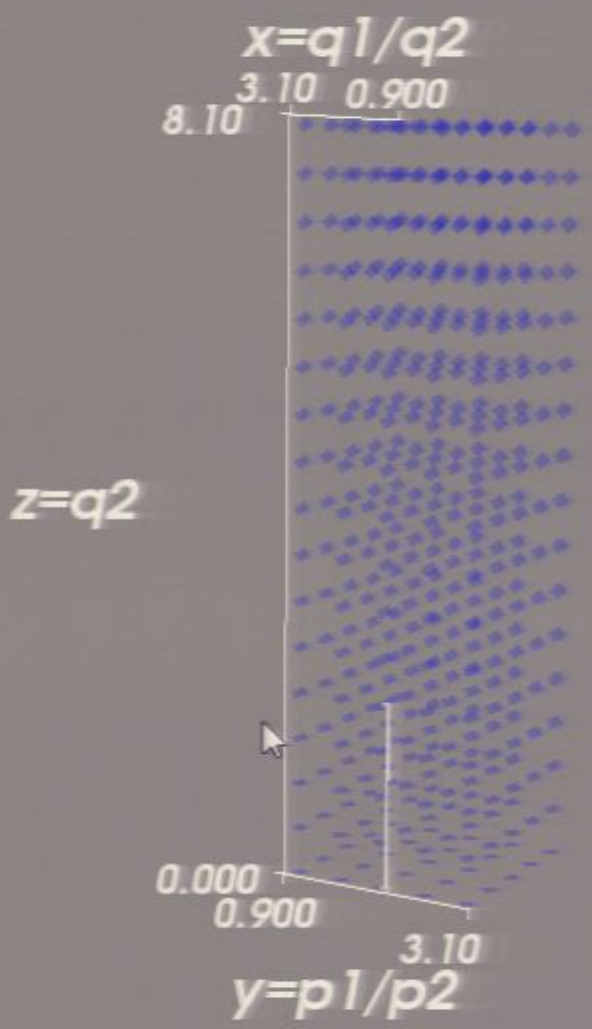
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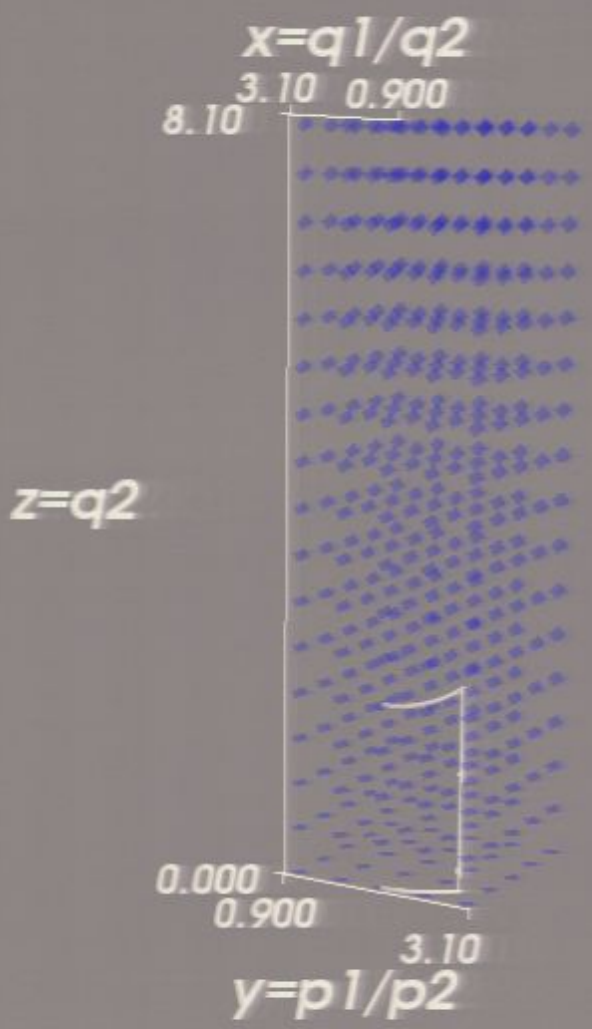
y: $\sin(2*\pi*t)+2$

t: 0.0

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X X Y Y Z Z



How does this link physics to biology?

How potentially rich is the link?

- Price and quantity indices -> Abelian G. Theory
- Trade indices -> Non-Abelian G. Theory
- Human Preferences -> Infinite dim. $\text{Diff}(S^1)$ Theory
- Seasonal Preferences -> Extended objects
- Rep. consumers -> Propagating distributions.
- Consumer Markets -> Distinguished Connections (a la BPST)

What is there for selection to do?

- We believe “Markets are the continuation of selection by other means”.
- Core Neo-classical model, “H. Economicus”, is forever emerging from it’s a-biological origins.
- It begins as a purely somatic creature with total fidelity to proximate preferences which are unchanging and homogeneous. Germ, ultimate fitnesss preferences and changing tastes are put in weakly as afterthoughts.
- Corrections are sometimes called ‘anomalies’.
- We are taking on the challenge of trying to build a new model “H. Selectus” which recovers “H. Economicus” as a degenerate case.

Perfect Information:

Scenes from the Original Free Market

- It is almost impossible for a biologist to work with a model which is a perturbation on 'perfect information' with 'rational expectations'

Perfect Information: Scenes from the Original Free Market



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Perfect Information: Scenes from the Original Free Market



Theory of the Family: Scenes from the Original Free Market

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Perhaps the most surprising claim in all modern science:

“...tastes
neither change capriciously nor differ importantly between people. On this interpretation one does not argue over tastes for the same reason that one does not argue over the Rocky Mountains—both are there, will be there next year, too, and are the same to all men.” -Gary Becker and George Stigler, 1977, *De Gustibus Non Est Disputandum*

How did this meeting come to be?

Backstory continued....

- Then one day, I told Adil I spotted an anomaly in our data. Adil asked if I knew what it was. I didn't.
- Adil came immediately to our offices and told me: "Do you know the whole world is going to blow? All the banks are about to die. They are all sick with metastatic cancer."

- There are exactly two other times I've heard Adil say something wild like this: 1998 pre-ITCM and after

Last Slide

- Anyone can join. Could have been the 'apollo project'.
- Just send email to:
- economicmanhattanproject@gmail.com
- Send your name, specialty and how you would like to help.

Last Slide

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Home Insert Design Animations Slide Show Review View

Animates: No Animation Custom Animation

Transition Sound: [No Sound] Advance Slide

Transition Speed: Fast On Mouse Click

Apply To All Automatically After: 00:00

Transition to This Slide

Last Slide

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Click to add notes

Pirsa: 09050047

Slide 25 of 38 "Office Theme" 62%

Custom Animation

Add Effect Remove

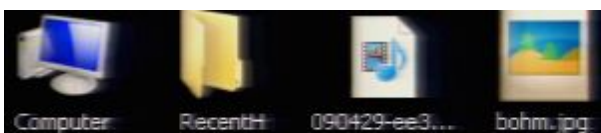
Modify effect

Start: Property: Speed:

Select an element of the slide, then click "Add Effect" to add animation.

Re-Order Play Slide Show

AutoPreview



Computer

RecentH

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Network

Toolkit

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Control Panel

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Recycle Bin

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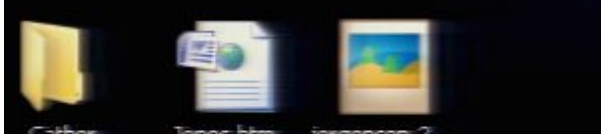
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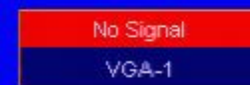
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