Micro vs. Macro
On the use and misuse of theories and models in economics

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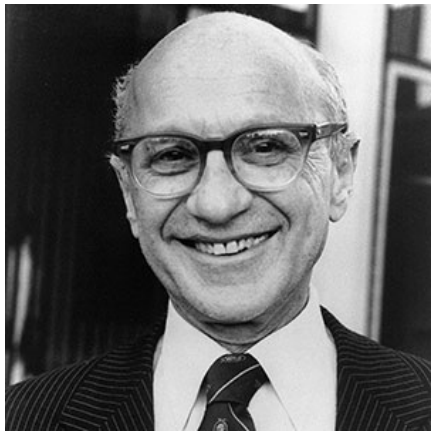
Assumptions in theories & models

- Often based on (mathematical) tractability (and so necessarily simplifying) or as more or less self-evidently necessary theoretical consistency reasons
  - But that only shrinks the assumptions set minimally – still necessary to decide on which assumptions are **innocuous** and which are **harmful**, and what constitutes interesting/important assumptions from an ontological & epistemological point of view (explanation, understanding, prediction)
  - Especially so if you intend to refer your theory/model to a specific target system (real world)

> Economic theory is concerned with fictitious parables. The premises upon which it is based have the advantage of allowing tractable, rigorous theorising, but the price of this is that important facts of life are excluded from the theoretical universe. Non-chosen outcomes is one of them.
>
> Michel De Vroey

- Remember that assumptions are selected for a specific purpose, and so selection-arguments put forward have to be judged against that background to check if they are **warranted**.

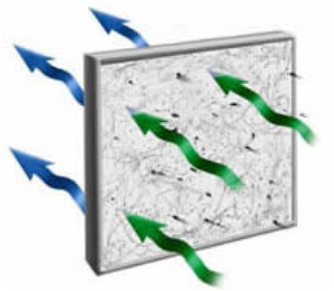
Given the dismal track record of Friedmanite instrumentalism it is hard to take that stand seriously.



Prove A ⇄ Choose assumption α

- But if A is just a theoretical proposition that doesn't tell anything about the Real World ?

  "Reverse engineering" is not enough – you need an **export license** since you need to show that both A and α apply to the Real World



The Real World Filter

To do this – apply a Real World Filter (RWF)

- **Smell Test**: Is the theory/model reasonable given what we know about the real world?
  - If not, why should we care about it?

    If not – we shouldn't apply it (remember economics is a science on scarcity & optimization …)

Unfortunately it's a widespread misapprehension that (deductive) **validity** is all we can demand of theories

I would argue in empirical sciences we also have to demand **soundness** (the premises also have to be shown true)

The representative agent, ergodicity, probabilistic risk, global market-clearing – are all assumptions that are contradicted by what we already know

They don't pass the Smell Test, so =>

When people take a theory from the Neoclassical Theory Library and apply it to the real world

Start by running it through the RWF

- If it passes, then proceed with empirical and econometric testing
- If it doesn't pass, then again

A microfunded DSGE model shows X (all employment is voluntary)

– Does this sound reasonable?

Given the assumptions α_1,α_2, α_3 … it can be shown, in the model, that X follows

unfortunately, over time the assumptions behind the result are often forgotten and people think they have shown that “in modern societies all employment is voluntary and Keynes was wrong in chapter 2 of *GT* when talking of the non-existent ‘thing’ involuntary unemployment.”

Well, we have to be censorious -- there is no *prima facie* reason to take X seriously if it doesn't pass the **Smell Test**

Suppose someone sits down where you are sitting right now and announces to me that he is Napoleon Bonaparte. The last thing I want to do with him is to get involved in a technical discussion of cavalry tactics at the battle of Austerlitz … Now, Bob Lucas and Tom Sargent like nothing better than to get drawn into technical discussions, because then you have tacitly gone along with their fundamental assumptions; your attention is attracted away from the basic weakness of the whole story. Since I find that fundamental framework ludicrous, I respond by treating it as ludicrous – that is, by laughing at it …

Robert Solow

“Lucasian” microfounded models

- Back in 1976 Robert Lucas wrote an enormously influential paper – *Econometric Policy Evaluation: A Critique*

  The Lucas Critique argued that only models founded on the invariant and deep parameters of individuals’ tastes and technology could support counterfactual policy analysis

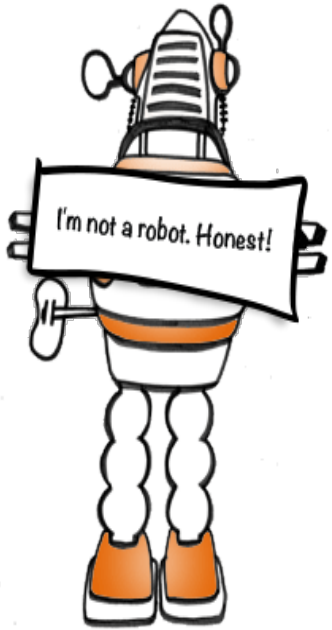
- From this followed that the only acceptable macroeconomics is a microfounded one

- The structure of the model is founded on “optimal decision rules of economic agents”

$$C_t = \sigma^{-1} \int_{s=0}^{\infty} (i_{t+s} - \pi_{t+s}) ds$$

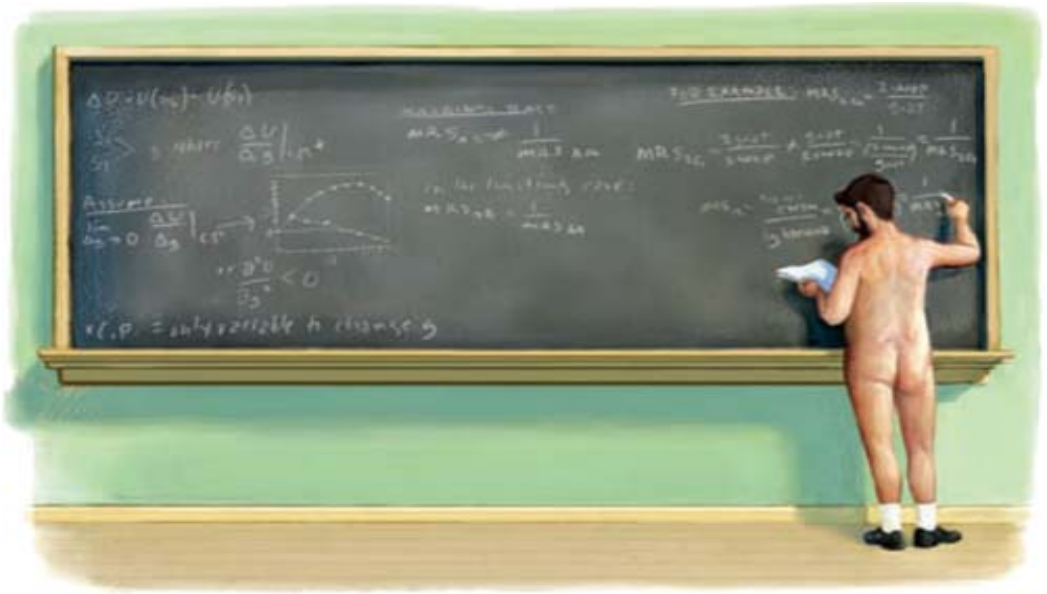
– The model standardly assumes

rational expectations, Walrasian market clearing, unique equilibria, time invariance, linear separability and homogeneity of both inputs/outputs and technology, infinitely lived intertemporally optimizing representative household/consumer/producer agents with homothetic and identical preferences, etc.



– The model standardly ignores

complexity, diversity, uncertainty, coordination problems, non-market clearing prices, real aggregation problems, emergence, expectations formation, etc



- Behavioural and experimental economics – not to speak of psychology – **show beyond any doubts** that some “deep parameters” – peoples’ preferences, choices and forecasts – are regularly influenced by those of other participants in the economy

- Many microfounded models have some rather counterintuitive implications …

In the model [Gali, Smets and Wouters, *Unemployment in an Estimated New Keyesian Model* (2011)] there is perfect consumption insurance among the members of the household.

Because of separability in utility, this implies that consumption is equalized across all workers, whether they are employed or not … Unemployed workers enjoy higher utility than the employed because they receive the same level of consumption, but without having to work.

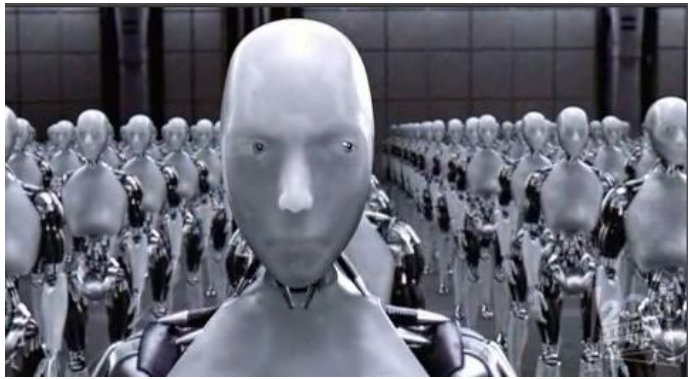
Lawrence Christiano

And how about the homogeneity assumption?

> Economics … deals with motives, expectations, psychological uncertainties. One has to be constantly on guard against treating the material as constant and homogenous.
>
> J M Keynes (letter to Harrod 1938)

[Breaching the Walrasian equilibrium dictum – making room for involuntary outcomes (unemployment) – Keynes relied on microfoundations of a different kind than Lucas's.]

- And if all actors are the same – *why* and *with whom* do they transact?



- And why does economics have to be exclusively *teleological* (concerned with *intentional* states of individuals)?
  Where are the arguments for that ontological *reductionism*?
  What about *collective* intentionality (John Searle) and *constitutive background rules*?

So – in what way can one maintain that these models give workable microfoundations for macroeconomics?

They are not models *tout court* showing X

but rather

highly idealized-axiomatic-deductive models omitting lots of things we know are important for understanding/explaining/ predicting things in the Real World

So – to be accepted they have to consciously be argued for in terms of relevance – and the first step in doing that is passing the Smell Test

YOUR EXPLANATION OF THOSE OVERLAPPING GENERATIONS IS INTRIGUING, BUT SIMPLY HAS NO BEARING ON OUR OPENING FOR WINDOW WASHER.

Some more problems with "Lucasian"microfoundations

- Internal validity is allowed to override external consistency
  - (wage rigidities, involuntary unemployment – only reluctantly accepted)
- Policing function
  - if not microfounded, not published

The ideology of microfoundations … is serving as a tool of persecution and intellectual repression … Ideology in this sense is bound to be … a deeply pernicious muddle.

Kevin Hoover (2009)

– In contradistinction to earlier microfoundational programs, Lucas's representative-agent program is *eliminative*

"microeconomics is all there is" – macroeconomics not even a science

> If these developments succeed, the term 'macroeconomics' will simply disappear from use, and the modifier 'micro' will become superfluous. We will simply speak … of *economic* theory.
>
> Robert Lucas (1987)

– But leading microeconomists have doubts on the relevance of these models …

We have developed our models using certain mathematical techniques and we have become slaves to those techniques. It is surely this more than anything else that has led us to persist with a model that, to any outsider, seems such a poor description of what actually happens in markets.

The real world is one in which various market forms coexist, where different prices for goods are observed, and where the individuals who participate have only very local information.

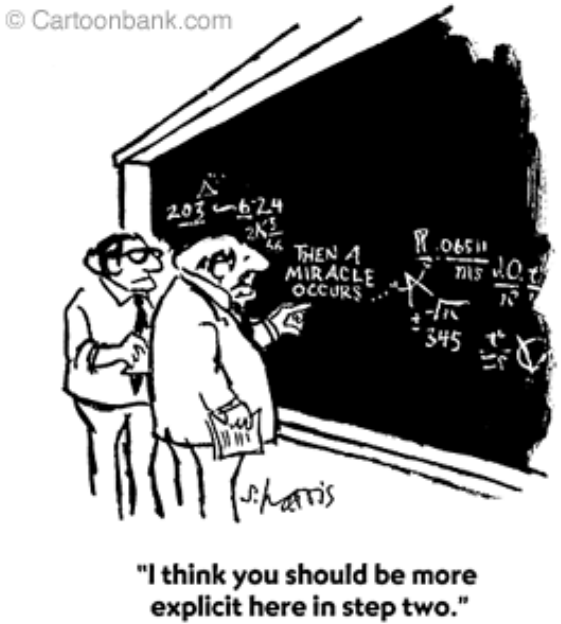
Alan Kirman

– these models try to get around something fundamental that we learned more than 40 years ago

Sonnenschein-Mantel-Debreu

To generate a unique equilibrium one **assumes** the representative agent -- without any explicit justification whatsoever!

But then again we have the problem of aggregation, and to just **assume** that microbehaviour can be assimilated to the level of macroeconomics is simply wrong.



- Slippery slope –
  "Lucasian" microfoundations is founded on methodological individualism and reductionism, but there is – even if one "forgets" things like possible complementarity, emergence, or the atomistic fallacy – a huge difference between macro being reducible to micro and macro being consistent with micro

So then why have "Lucasian" microfoundations become so dominant?

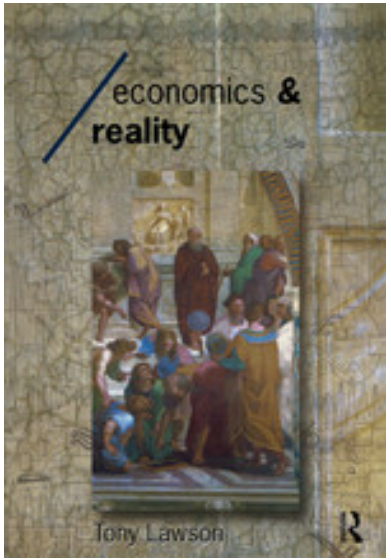
- One could of course say that

> trying to embed your ideas in a microfounded model can be a very useful exercise — not because the microfounded model is right, or even better than an *ad hoc* model, but because it forces you to think harder about your assumptions, and sometimes leads to clearer thinking.
>
> Paul Krugman

  - But if people put that enormous amount of time and energy that they do into constructing macroeconomic models, then they really have to be substantially contributing to our understanding and ability to explain and grasp real macroeconomic processes. If not … 

- Microfoundations is in line with the reductionism inherent in the *methodological individualism* that almost all neoclassical economists subscribe to.

But as argued by e. g. Johan Åkerman and Tony Lawson this is deeply problematic for a macroeconomics trying to solve the "summation problem" without nullifying the possibility of emergence.



- It is thought to give macroeconomists the means to fully predetermine their models and come up with definitive, robust, and stable answers.

But this is rather unwarranted –
in reality we know that the forecasts and expectations of individuals often differ systematically from what materialize in the aggregate, since knowledge is imperfect and uncertainty – rather than risk – rules the roost.

- It’s good for your academic career

> Nearly all young academic macroeconomists I know want to work with DSGE models, because that is what gets published
>
> Simon Wren-Lewis

- Microfoundations allegedly goes around the Lucas critique by focusing on “deep parameters” of an optimizing representative agent’s preferences and tastes.

  To many this is an empty hope without solid empirical or methodological foundation.

> The irony of the program of microfoundations is that, in the name of preserving the importance of individual intentional states and preserving the individual economic agent as the foundation of economics, it fails to provide any intelligible connection between the individual and the aggregate. Instead, it embraces the representative agent, which is as close to an untethered Hegelian World Spirit as one might fear in the microfoundationist’s worst nightmare.
>
> Kevin Hoover

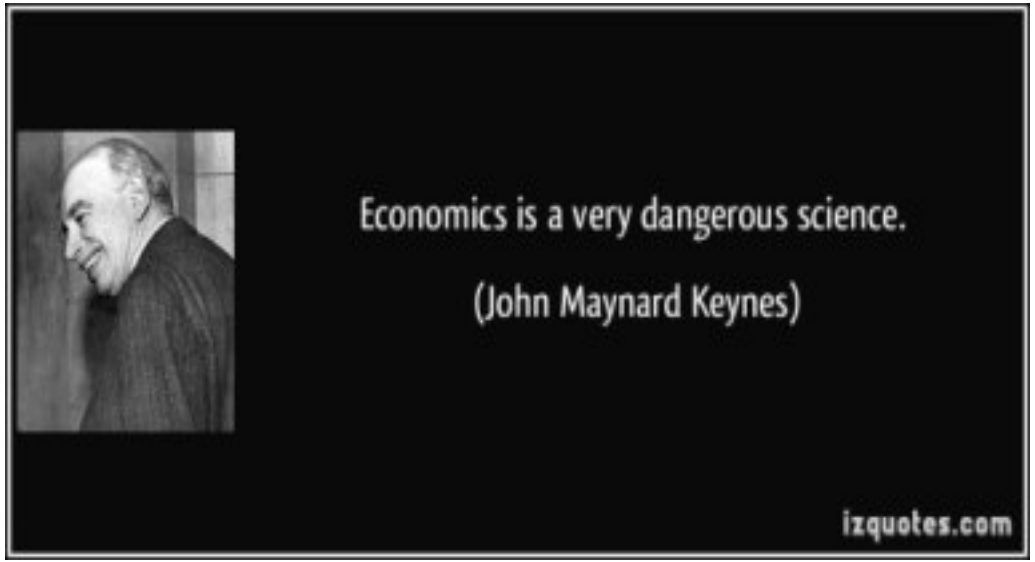
- Microfounded macromodels are said to

> provide a theoretical discipline on the structure of the model that is being estimated, which may be particularly helpful in those cases where the data are not very informative
>
> ECB webpage (2013)

- Hmmm …
  Given the "poor forecast performance" of microfounded DSGE models (Burgess *et al*, 2013) that doesn't sound very reassuring …

So – if microfounded models don't pass a set of Smell Test questions, the risk is they are uncritically taken for being relevant (which happens often since there seems to be a kind of "tacit agreement" **not** to apply the Smell Test in "modern" economics)

If we do not filter unrealistic and manifestly silly assumptions, the risk is they add noise and confusion on real world issues



Remember: it's not enough to be able to tell a "story" – one has to explicitly argue that the mechanisms at work in the model also exist in the real world -- and how to test the model

Yes, if you work hard enough at it you can produce a model for perverse outcomes … But what empirical motivation is there for doing all of this?

What I think happened here was actually that some economists said something silly … because they weren't really thinking about what their equations meant … But there's no reason to take this stuff seriously.

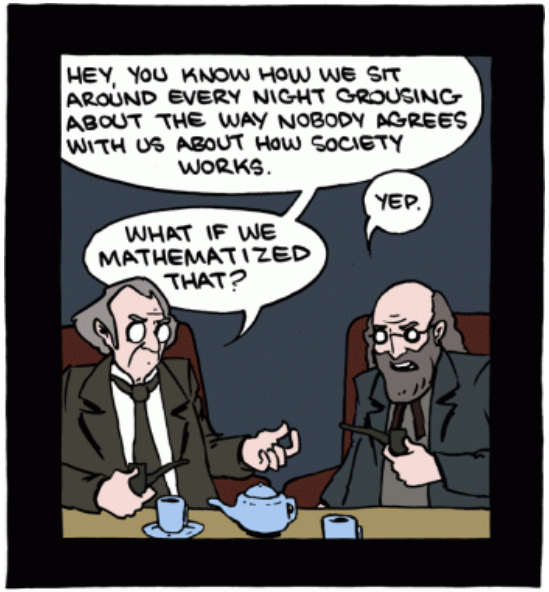
Paul Krugman

Conclusions

Assumptions, theories, and models, blatantly contradicting what we know and observe around us, do not have a warrant for being taken seriously and their usefulness may rightfully be in *prima facie* doubt. Hence – the advantages claimed for microfounded macroeconomics are not convincing

What we call 'microfoundations' are not like physical laws. Heck, they're not even true. Maximizing consumers are just a metaphor, possibly useful in making sense of behavior, but possibly not.

Paul Krugman



Before Economics.

Hand-waving and wishful thinking in the form of as if stories is not enough – they also have to pass the Smell Test

Assumptions based on mathematics, precision, rigour, elegance, simplicity, tractability may be OK – but they should never be allowed to be the prime movers in developing economic theories unless they also apply to the real world and pass the Smell Test

Defending microfounded models by saying:

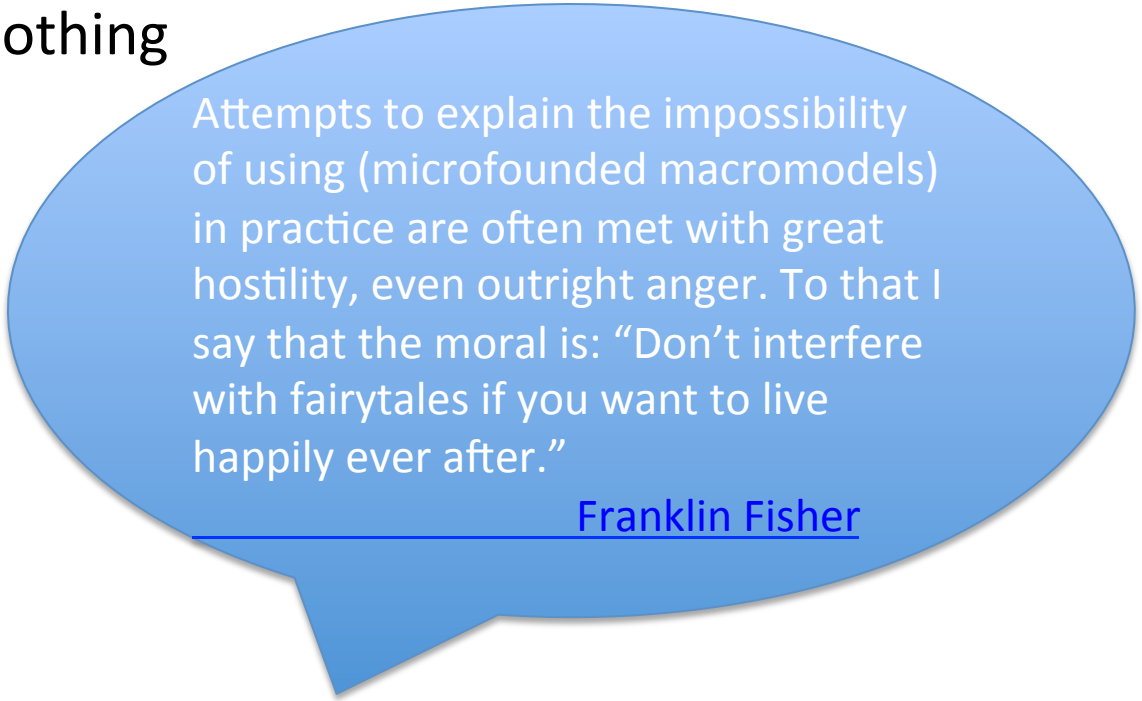
- “All models are abstractions”
- “We have to make idealized reductions and build our models on simplifying assumptions”
- “All models are false”
- “Models should only be evaluated by the predictions they make”
- “This is just a first approximation”

will not do –
as long as we can't show
that our models and
theories pass the
Smell Test and
hence is able to
bridge to the real world

- If microfounded models had produced heaps of verified forecasts and brilliant explanations could perhaps live with not applying the Smell Test –

  but they have done nothing

  of the kind!



- And some renowned microeconomists are not impressed …

If one maintains the fundamentally individualistic approach to constructing economic models no amount of attention to the walls will prevent the citadel from becoming empty. Empty in the sense that one cannot expect it to house the elements of a scientific theory, one capable of producing empirically falsifiable propositions …

The idea that we should start at the level of the isolated individual is one which we may well have to abandon … we should be honest from the outset and assert simply that *by assumption* we postulate that each sector of the economy behaves as one individual and not claim any spurious microjustification …

Alan Kirman