



UNSW  
A U S T R A L I A

# ECONOMIC PERSPECTIVES

## MACROECONOMICS 2019/20

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# TOPIC I: METHODOLOGY

## ECON1401, UNSW

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# AIM OF THESE LECTURES

1. Approach the Macroeconomic field and its main ideas
2. Think about how those ideas relate to contemporary real-world policies
3. Provide you with the intellectual tools to critically evaluate methods and results in Macroeconomics

## ROAD MAP OF TOPIC I (TODAY AND TOMORROW)

- ▶ What is Macroeconomics?
- ▶ Is Macroeconomics value-free?
- ▶ What are macroeconomic models?
- ▶ What is inflation? How do we model it?
- ▶ Do macroeconomic models need microfoundations?

⇒ “It’s just philosophy!”

# WHAT IS MACROECONOMICS?

- ▶ “What is macroeconomics? The best way to answer is not to give you a formal definition, but rather to take you on an economic tour of the world” Blanchard & Sheen (2013)
- ▶ Mandate of the *American Economic Journal: Macroeconomics* “to publish studies of aggregate fluctuations and growth and the role of policy in that context” Rogerson (2016)
- ▶ “Macroeconomics is the study of whole economies—the part of economics concerned with large-scale or general economic factors and how they interact in economies.” Federal Reserve (from website)

## A CRITICAL APPROACH

- ▶ The rest of your degree will be focusing on teaching you what is the current *paradigm* (what is established) in Economics
- ▶ Considering macro is one of the main topics, I want to make sure you know where the weak spots are
- ▶ For this reason I will sometimes take a more methodological (philosophical) approach
  - ▶ you will have time in the next courses to catch up with all the positive contributions of this field
- ▶ Identifying a problem is the first step to solving it
- ▶ The choice of the topics and the way they are presented will be informed by my views: **be critical!**

# WHY STUDYING MACROECONOMICS?

- ▶ It's the best we have for understanding how inflation, growth and other variables of crucial importance work
- ▶ It shapes the policies that change the lives of billions of people
- ▶ Indeed it informs decisions of governments, commercial and central banks, multinationals
- ▶ Need more?

# THE OUGHT-IS PROBLEM

- ▶ Hume (1739) was the first to separate discourses about what *is* (descriptive statements) from those about what *should* (or ought) be, hence separating Ethics (normative) from Science (positive) [video]
- ▶ Economics was born as a branch of philosophy (Adam Smith, John Stuart Mill, Marx,...) hence its relationship with Ethics is ambiguous
- ▶ It was Robbins (1932) to first state that Economics is a positive science, separated from moral judgements

⇒ Is this dichotomy (separation) justified?



# MAX WEBER'S THE METHODOLOGY OF THE SOCIAL SCIENCES (1949)

- ▶ Weber sees moral statements as entirely irrational
  - ▶ hence there cannot be a rational debate over values
- ▶ Economics is an "Empirical science of concrete reality"  
(*Wirklichkeitswissenschaft*)
- ▶ It is concerned with finding the causal links of economic phenomena
- ▶ However, the issues of interest are selected based on cultural values
- ▶ E.g.: the theory of marginal utility describes an idea of the historically given modern society based on free exchange
  - ▶ where that society exists, the predictions should hold

→ what is studied is value-based, how it is studied is positive

# MILTON FRIEDMAN'S THE METHODOLOGY OF POSITIVE ECONOMICS (1953)

- ▶ One of the most influential methodological books in Economics
- ▶ Quoting Keynes, he subscribes to the view that Economics is value-free
- ▶ Focuses on *predictive power* → instrumentalist
- ▶ The positive economist aims at making accurate predictions based on her theories
- ▶ Normative economics is considered entirely separate
- ▶ Wants a separate Positive Economics yet is content with making predictions (no study of the mechanism)

# THE PROBLEMS WITH POSITIVE ECONOMICS

- ▶ Economics is about people
- ▶ Economics is highly policy oriented
- ▶ At a macro level, policy choices have almost always distributional consequences
- ▶ At a micro level, choices are made based on some principle
- ▶ “Efficiency” itself is a moral principle → *ought* statements
- ▶ Philosophical assumptions are crucial to any economic study, however:
  - ▶ they are frequently implicit
  - ▶ they are not properly part of Economics
  - ▶ they are often not considered worth discussing

## THE PROBLEMS WITH POSITIVE ECONOMICS

- ▶ Important technical choices that reflect specific philosophical ideas are often subscribed for their mathematical tractability (e.g. utility curves)
- ▶ The economist is often unaware of the underlying philosophical positions to which he is implicitly subscribing
- ▶ E.g. Arguably, Economics ability to make scientific statements depends on the truthfulness of an anthropology claiming that humans share the same constant fundamental structure
  - ▶ this allows human behaviour to be studied and predicted, and general theories to be formulated
  - ▶ if man was entirely shaped by culture and the environment, this would not be possible

## THE PROBLEMS WITH POSITIVE ECONOMICS

- ▶ John Stuart Mill (1836) advocated for a *methodological* individualism based on the *homo oeconomicus*
  - ▶ aka Economics **only** studies those aspects of life and society related to the desire of wealth, namely those depending on utility maximisation
  - ▶ he also underlines how *disturbing causes* might contribute to produce a certain phenomenon
  - ▶ these are principles other than egoistic utility maximisation (e.g. altruism, equality,...)
  - ▶ he says that when they are important, they should be included in the analysis
- ▶ Today, economics has expanded to traditionally non-econ fields (e.g. marriage economics), yet only considers utility maximisation → *ontological* individualism
- ▶ The very cornerstone of economic analysis is a school of Ethics: *Utilitarianism*

# THE PROBLEMS WITH POSITIVE ECONOMICS

A neat example of ontological individualism from an economist who is research fellow at Stanford University's Hoover Institution and is widely known for hosting the podcast *Econtalk*



## Tweet



**Russell Roberts** @EconTalker · 5d



Such acts aren't rational in the narrow sense, i.e. benefits exceed costs. They show the role of propriety and norms as an alternative model to the hedonistic calculus of modern economics. They don't come naturally and require training and some loyalty beyond the self.



**Julia Galef** ✓ @juliagalef · 5d

Reading about the heroic acts of some of the people in the Christchurch shooting, and wondering:

...



7



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33



# METHODS IN MACROECONOMICS

The methods used in modern macroeconomics can be roughly divided in:

1. Empirical structural models → Vector Autoregression Models
2. Theoretical microfounded models → Dynamic Stochastic General Equilibrium models
3. Regression models → used to study economic growth alongside theoretical models

## METHODS IN MACROECONOMICS

- ▶ As you can see *modelling* is what macroeconomists, as all economists, do
- ▶ “The status of the adult male is determined by his skill at making the “modl” of his “field.” The facts (a) that the Econ are highly status-motivated, (b) that status is only to be achieved by making ”modls,” and (c) that most of these “modls” seem to be of little or no practical use, probably accounts for the backwardness and abject cultural poverty of the tribe. Both the tight linkage between status in the tribe and modl- making and the trend toward making modls more for ceremonial than for practical purposes appear to be fairly recent developments, something which has led many observers to express pessimism for the viability of the Econ culture” Leijonhufvud (1973)



# METHODS IN MACROECONOMICS

- ▶ Models tell something true about the world (and are in this sense *scientific*) as long as they somehow represent the world, or more specifically the phenomenon they target
- ▶ In what sense do macroeconomic models represent the “real world”?
- ▶ Following the taxonomy in Frigg & Hartmann (2005), macro models are *idealised* models
  - ▶ these can be:
    1. Aristotelian abstraction
    2. Galilean idealisation

# METHODS IN MACROECONOMICS

- ▶ Aristotelian abstraction
  - ▶ the object is “cleaned” of all the features not relevant to the problem of interest
  - ▶ equivalently, all the factors related to the problem are isolated
  - ▶ as J.S.Mill notes, if a relevant factor is omitted, the model stops being valid
- ▶ Galilean idealisation
  - ▶ the features of interest of the object are magnified → e.g. the *homo oeconomicus*
  - ▶ is this legitimate? does it produce knowledge?
  - ▶ according to Laymon (1992) it does as long as it is an *ideal limit*, aka if the behaviour of the object is identical to the behaviour of the model as the features of the modelled object tend to the features of the model
- ▶ Beware of “All models are wrong but some are useful”, Box (1979)

## METHODS IN MACROECONOMICS

- ▶ A important criterion for assessing the normal progress of knowledge in a scientific field is:
  - ▶ Given two models targeting the same object, it is possible in principle to determine which one is more correct/true → horse-race
- ▶ Another basic criterion for macro models is the ability to reproduce some *stylized facts*
  - ▶ = approximately reproducing the time series of the main macro variables plus others of interest
  - ▶ the problem is that given a number of facts, there are infinite wrong models able to reproduce them
  - ▶ it is then up to the theory to discard most of the competitor models
  - ▶ to credibly guide the modelling, the theory itself must be based on solid assumptions

# INFLATION

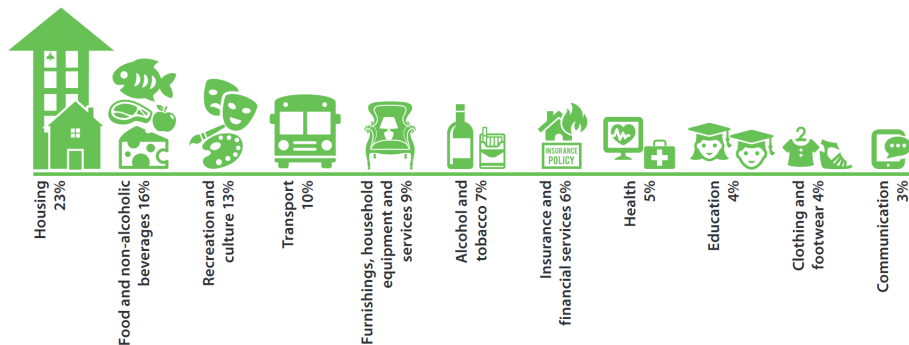
- ▶ Cambridge dictionary's definition: *a general, continuous increase in prices*
- ▶ Inflation is a phenomenon that we observe in the economy
- ▶ We want to measure it: (tell me) why? how?
  1. it impacts borrowing/lending
  2. it erodes the value of our money over time
  3. it impacts us when negative (*deflation*) or high (*hyperinflation*)

# CONSUMER PRICE INDEX

- ▶ Most famous inflation indicator is CPI (Laspeyres Index)
- ▶ Tracks the percentage change of a selection (basket) of goods & services typically purchased
- ▶ ABS quarterly tracks prices of thousands of goods, divided in 87 categories and 11 groups
- ▶ They are then aggregated to summarise that info in a number, the CPI index
- ▶ Aggregation: then more the avg household spends on one item, the more the weight
- ▶ For each item:  $Inflation = \frac{Price_{Period2}}{Price_{Period1}} Price_{Period1} \times 100$

# A FIXED BASKET OF GOODS

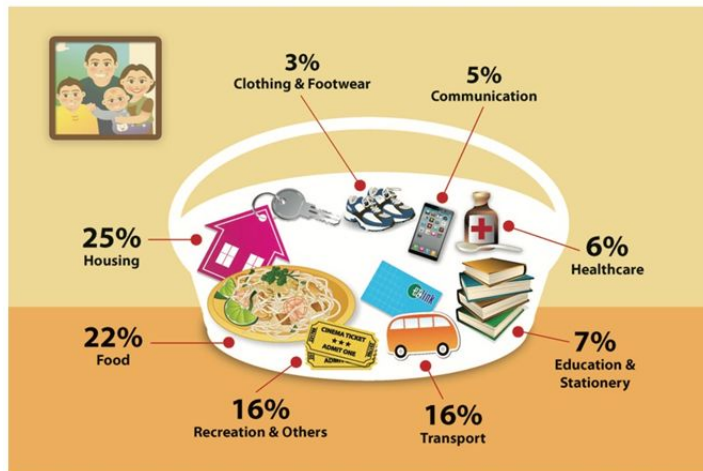
Groups in the CPI basket and their weights



Source: Reserve Bank of Australia ([link](#))

# A FIXED BASKET OF GOODS

## What's in the CPI Basket?



Graphics by [www.kudosgraphics.com](http://www.kudosgraphics.com)

Sources: <http://www.singstat.sg/educorner/cpi.html>

## LIMITATIONS OF CPI

1. It measures relative change, not absolute levels (cannot compare values across items)
2. It only covers Australia's 8 capital cities
3. It captures the average consumption pattern (no heterogeneity)
4. Quality changes are only estimated (how much of the  $\Delta P$  of your phone is due to a camera upgrade?) and services are difficult
5. Substitution Bias: household spending patterns change faster than CPI weights  $\Rightarrow$  ABS updates yearly (5 yrs before)
6. ABS slower than new products



## THE BOSKIN COMMISSION: RECOMMENDATIONS

- ▶ We look at a historical debate to see how *epistemological* issues have real life implications (based on Reiss 2008)
- ▶ USA 1996: the Advisory Commission to Study the Consumer Price Index (*Boskin Comm.* publishes its report (**link to executive summary**))
- ▶ Claim: the CPI has been overestimated by 0.8-1.6% yearly
- ▶ Implication: “automatic real increase in indexed benefits and a real tax cut”
- ▶ If corrected by 1.1%, federal debt will be reduced by \$691 billion in 10 years
- ▶ The limitations are the same presented in the previous slide

## THE BOSKIN COMMISSION: RECOMMENDATIONS

- i) The Bureau of Labor Statistics (BLS) should establish a cost of living index (COLI) as its objective in measuring consumer prices
- ii) The CPI and should move toward a COLI concept by adopting a “superlative” index formula to account for changing market baskets, abandoning the pretense of sustaining the fixed-weight Laspeyres formula.
- iii) There is more, but these two are at the core and are problematic

## COLI VS LASPEYRES

*A cost of living index is a comparison of the minimum expenditure required to achieve the same level of well-being (also known as welfare, utility, standard-of-living) across two different sets of prices. (executive Summary, in link)*

- ▶ Utility is introduced, making all things comparable
- ▶ Old TV \$500 & 1000 utils, new \$1500 & 1500 utils  $\Rightarrow$  prices change is +100% not +200%
- ▶ Punchline: Price changes trigger substitution effects, not captured by the Laspeyres' fixed weights  $\Rightarrow$  overestimation of true COLI
- ▶ Moving to a utility-based index ("superlative"), the *trailing Tornqvist*, is recommended index

# REISS' CRITIQUE TO THE BOSKIN COMMISSION REPORT

Different indexes have different aims

- ▶ A Laspeyres index tells how much a wage should vary to be able to purchase the same set of goods purchased in the past period
- ▶ A COLI tells how much a wage should vary to maintain the same level of utility w.r.t. the previous period
- ▶ What is the CPI's aim? If it is the indexation of social security payments, then a COLI *is* better
- ▶ However, *what* COLI? Examples:
  - ▶ the cost of meeting certain basic requirements (intersubj.)
  - ▶ the cost of purchasing goods which are included in an accepted standard level of consumption (intersubj.)
  - ▶ the cost of maintaining one's usual standard (subj., historical income?)

# REISS' CRITIQUE TO THE BOSKIN COMMISSION REPORT

- ▶ The conversation has changed
- ▶ What is the right index number → what is the right concept of COL
- ▶ Hence the object is values, not objective science
- ▶ Hence citizens should be involved, through the political democratic process
- ▶ What about the *incommensurability* of these two models?
- ▶ What about the new issues a superlative index introduces?

## REISS' CRITIQUE TO THE BOSKIN COMMISSION REPORT

- ▶ Together with the utility framework, travel a number of questionable assumptions:
  1. General Equilibrium Theory
  2. Stable and consistent consumer preferences, which take a specific functional form
  3. Changes in the consumer's allocation choice are only due to changes in her constraints, not taste

→ All this should be empirically tested rather than implicitly assumed
- ▶ Controversial is also the claim that quality improvements are underestimated, based on guesswork and some previous research only
- ▶ Lastly, the Commission was made of academics who had already published in favour of a superlative index

## THE AUSSIE WAY

- ▶ The AUS govt is a good example of a different approach to the same issues
- ▶ TheConversation article (link)
- ▶ Multiple indexes for multiple purposes: CPI *and* COLIs *and* others
- ▶ Australia Age pension is adjusted for changes in (Department of Human Services):
  - a. the Consumer Price Index (CPI)
  - b. Male Total Average Weekly Earnings (MTAWE)
  - c. the Pensioner and Beneficiary Living Cost Index (PBLCI)
- ▶ Unemployment benefits (*Newstart*) are adjusted for the CPI

# WHAT ARE MICROFOUNDATIONS?

- ▶ They are at the core of most modern macroeconomics
- ▶ The idea is to model the macroeconomy starting from the behaviour of microeconomic agents (consumers, firms, banks,...) and their interactions
- ▶ Two points to consider:
  1. Is microfounding macro models justified?
  2. If so, how should it be done?



## Microfoundations according to Scooby Doo & friends



# IS MICROFOUNDING MACRO MODELS JUSTIFIED?

- ▶ Mainstream economics: yes it is, although the consensus is weakening
- ▶ Hoover (1995 and more recently 2001): it isn't
- ▶ Blanchard (2017) and Wren-Lewis (2018): it shouldn't be the only preoccupation of macro

## MICROFOUNDATIONS: KEVIN HOOVER

- ▶ Macroeconomic entities (e.g. GDP) are real and cannot be *reduced* to microeconomic ones
- ▶ For each macroeconomic state there are many possible micro configurations → 1-to-many mapping
- ▶ Aggregation imposes critical limitations to the microfoundations → technical constraints
- ▶ Current approach to aggregation assumes the problem away

## MICROFOUNDATIONS: KEVIN HOOVER

- ▶ The representative agent is a metaphor at best and cannot be the basis of any macro model
- ▶ Analogy with gases:
  1. you can't understand the dynamics of gases as if there was one big molecule governed by real tiny molecules gas laws
  2. ideal gas laws (18th century) fit well only within a range of temperatures and pressures
  3. outside of it, you need kinetic theory of gases (19th/20th century) → adds more realistic assumptions
- ▶ You cannot talk about gases without their level-specific concepts, using molecule concepts

# MICROFOUNDATIONS: BLANCHARD AND WREN-LEWIS

- ▶ We need a range of macro models (Blanchard)
  1. Foundational
  2. DSGE
  3. Policy
  4. Toy
  5. Forecasting
  
- ▶ Microfounding a model takes time (Wren-Lewis)
  - ⇒ mixed models
  - 1. are fast to make when model needs adjustments
  - 2. fit data better
  - 3. provide research agendas

## THOUGHTS ON THE MACRO ENTERPRISE

- ▶ If the microfoundations project is to continue, we need to model micro agents realistically → look at empirical research and new theory
- ▶ The idea of deriving the macro from the micro is very ambitious, especially considering the not mature state of the theory
- ▶ However, it might be crucial to go beyond black-box (autoregressive) empirical models and to uncover the mechanism behind macro dynamics
- ▶ Without a mature theory on the fundamental mechanisms, there cannot be sound forecasting → missing in Friedman
- ▶ Check out the New Institute of Economic Thinking website ([link](#))
- ▶ If you enjoyed these lectures, I encourage you complement your study of econ courses with courses in Philosophy of Science (ARTS3373, ARTS2360) and Hard-Sciences-level maths (e.g. MATH1131, MATH1231, MATH2501) and stats (e.g. MATH2859) and to read about economic history

# THOUGHTS ON THE MACRO ENTERPRISE

One last take-away message:

Macro models are nothing but formalised ideas about how the economy works

⇒ engage with those ideas, do not just accept them as true

## BIBLIOGRAPHY

**Blanchard, O. (2017)** <https://piie.com/blogs/realtime-economic-issues-watch/need-least-five-classes-macro-models> **Blanchard, O., Sheen, J. (2013)** *Macroeconomics*, Pearson Australia, p. 2

**Box, G. E. P. (1979)** *Robustness in the strategy of scientific model building*, in Launer, R. L.; Wilkinson, G. N., *Robustness in Statistics*, Academic Press, pp. 201–236.

**Frigg, R. and Stephen Hartmann in Sarkar, Sahotra and Jessica Pfeifer (2006)** *The Philosophy of Science 2-Volume Set An Encyclopedia*, New York: Routledge.

**Hoover, Kevin D. (1995)** *Is Macroeconomics for Real?*, *The Monist*, 78(3):235–257.

– **(2001)** Does Macroeconomics Need Microfoundations? In: K. D. Hoover, ed., *The Methodology of Empirical Macroeconomics*, 1st ed. Cambridge: Cambridge University Press, pp. 57–89.



## BIBLIOGRAPHY

**Hume, David (1739)**, *Treatise of Human Nature*, Wikisource, pp. 469-470.

**Laymon, Ronald (1991)** *Thought Experiments by Stevin, Mach and Gouy: Thought Experiments as Ideal Limits and Semantic Domains*, in Horowitz and Massey, 167–191.

**Leijonhufvud, Axel (1973)** *Life Among the Econ*, *Economic Inquiry* 11(3):327-337.

**Mill, J.S. (1836)** *On the Definition of Political Economy and the Method of Investigation Proper to It*. Reprinted in *Essays on Some Unsettled Questions of Political Economy* (1844), 3d ed., London: Longmans Green & Co., 1877, pp. 120–64

**Reiss, Julian (2008)** *Error in Economics. Towards a more evidence-based methodology*, New York: Routledge.

## BIBLIOGRAPHY

**Robbins, Lionel (1932)** *An Essay on the Nature and Significance of Economic Science*, London: Macmillan.

**Rogerson, R. (2016)** *American Economic Journal: Macroeconomics*, American Economic Review: Papers & Proceedings 2016, 106(5): 731-735

**Weber, Max (1949)** *The Methodology of the Social Sciences*. Translated and Edited by Edward A. Shils and Henry A. Finch. Copyright 1949 by The Free Press.

**Wren-Lewis, S. (2018)** <https://mainlymacro.blogspot.com/2018/01/why-microfoundations-hegemony-holds.html>