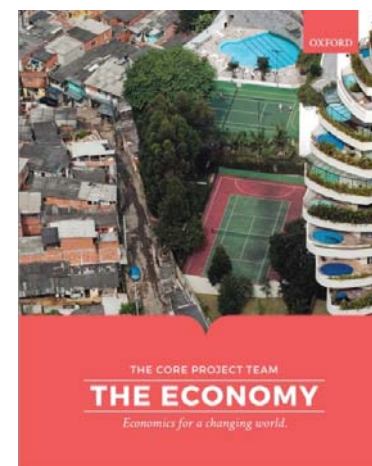




Free online, go to www.core-econ.org



Thinking economics differently: the CORE vision

Wendy Carlin, UCL and CORE

Chief Economists' Workshop
Bank of England
May 2017



Azim Premji
University,
Bangalore



Antonio Cabrales CORE-UCL



Yann Algan
CORE-Sciences Po, Paris

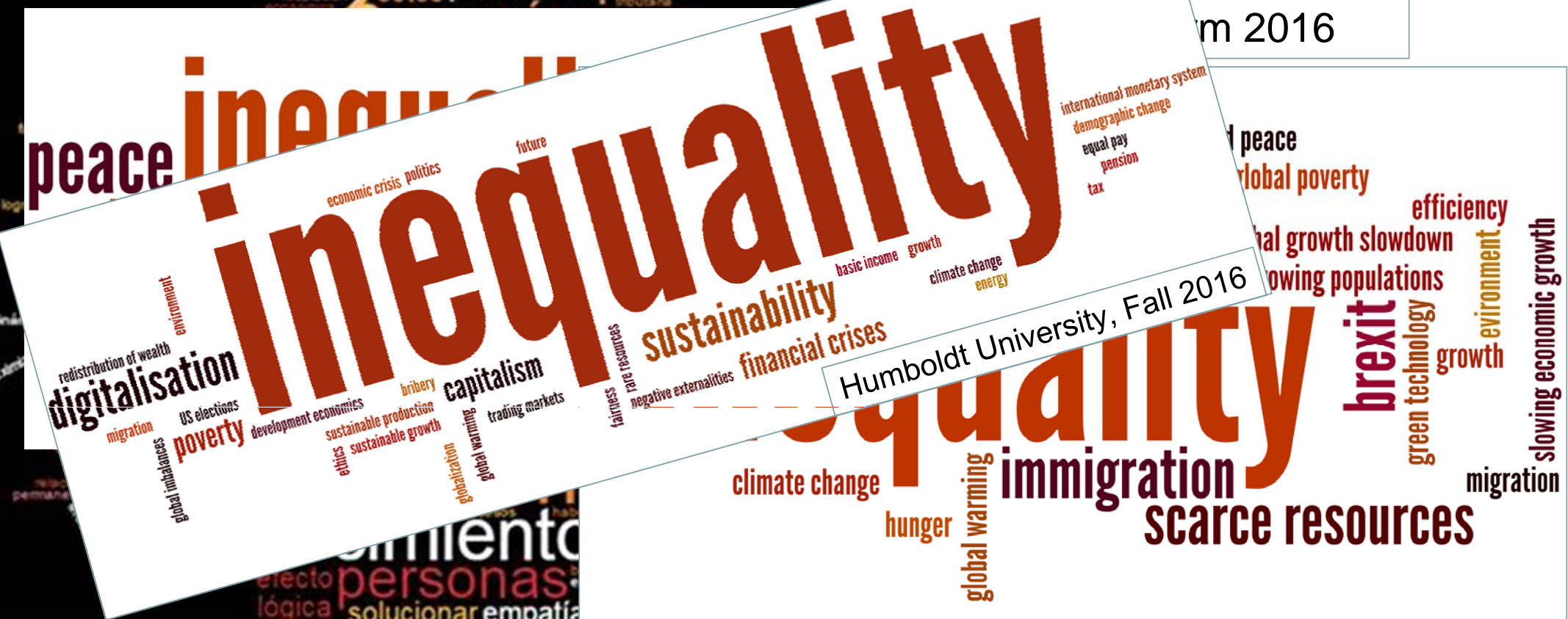
What is the most pressing issue that economists today should address?

Graduating students,

U. de los Andes, Bogota

ar students
m 2016

Humboldt University, Fall 2016



What is the most pressing issue that economists today should address?

New graduate recruits Bank of England, Tuesday 27th September 2016

Inequality



What key needs was CORE developed to meet?

**Natalie
Grisales**
Student at
Universidad de
los Andes



I hoped economics would give me a way to describe and predict human behavior through mathematical tools; ... after semesters of study, **I had ... many mathematical tools; but** all the **people** who I wanted to study **had disappeared from the scene**

Refik Erzan
Professor at
Boğaziçi
University



When **economics students** are asked about the economy, their **reasoning** is **no different from** the **wisdom** of **taxi drivers**, and sometimes a bit less well informed

Tim Harford
Economics
journalist
BBC, FT



What **we teach in economics** today determines what people think tomorrow, it's the analysis of tomorrow, it's the **policy advice of tomorrow**, it's the political discourse of tomorrow. We **can't just ignore this** and think it's just a little academic game. It matters.

What key needs was CORE developed to meet?

Students

Economics is hard, boring and unrelated to the questions we want to answer

Lecturers

Teaching a standard principles course is easy but student engagement is poor and the content does not reflect advances in economics and the way we do research

Employers/
Public policy

Economics graduates are technically competent but unable to relate their knowledge to other team members or apply it to problems

CORE: A global collaboration of researchers



Yann Algan
Sciences Po, Paris



Tim Besley
LSE



Samuel Bowles
Santa Fe Institute



Antonio Cabrales
UCL



Juan Camilo Cárdenas
Universidad de los Andes



Wendy Carlin
UCL



Diane Coyle
University of Manchester



Marion Dumas
Santa Fe Institute; LSE



Georg von Graevenitz
Queen Mary University of
London



Cameron Hepburn
University of Oxford



Daniel Hojman
Harvard University



David Hope
LSE



Arjun Jayadev
Azim Premji University



Suresh Naidu
Columbia University



Robin Naylor
University of Warwick

CORE: A global collaboration of researchers



Kevin O'Rourke
University of Oxford



Begüm Özkaynak
Boğaziçi University



Malcolm Pemberton
UCL



Paul Segal
King's College London



Nicholas Rau
UCL



Rajiv Sethi
Barnard College, Columbia University



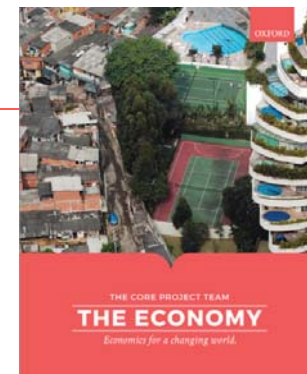
Margaret Stevens
University of Oxford



Alex Teytelboym
University of Oxford

- **Researchers and teachers from around the world** – from Colombia to Bangalore, from Sciences Po to Columbia University
- United by the **goal** of creating high quality open access resources to **bring to students** the **best of economics**
- Enabling them to engage in **evaluation and debates** on the pressing **public policy issues** of today

What are the main successes to date of the CORE project?



Produced free on-line ebook + rich teaching & learning materials

Engagement

- Total registered on website 38k+

- Total teachers given access 3k+ (verified as suitable to be granted access)

- >40 universities are participating in CORE pilots, from 12 different countries.

Replaced the principles course at:

UCL, Bristol, Toulouse School of Economics, Sciences Po, Humboldt University, Bangor Business School, Azim Premji University Bangalore, Birkbeck College, Kings College, University of Siena, and many more

The image features three overlapping word clouds. The top-left cloud contains terms such as "Graduating students," "U. de los Andes, Bogota," "sostenibilidad," "desarrollo," "disminuir," "eficiencia," "poder," and "bienestar." The top-right cloud includes "er students," "in 2016," and "peace." The bottom-center cloud is the largest and most prominent, featuring the words "inequality," "equality," "digitalisation," "sustainability," "financial crisis," "climate change," "immigration," "scarce resources," "growth," "efficiency," "innovation," "digitalisation," "personas," "Humboldt University, Fall 2016," "global warming," "hunger," "capitalism," "democracy," "peace," "total poverty," "total growth," "diverse," "new paradigms," "treaty," "growth," "development," "migration," and "shaping economic growth." The word "inequality" is particularly large and central in the bottom cloud.



How does CORE respond to these concerns?

By taking the themes and teaching **concepts new to intro to economics**

CORE's themes

Concepts

Wealth creation & growth	→	• Schumpeterian rents, disequilibrium
Inequality	→	• Rents, bargaining power, institutions
Environmental sustainability	→	• Social interactions / other-regarding preferences
Unemployment & fluctuations	→	• Incomplete contracts in labour & credit markets
Instability	→	• Prices as information & dynamics of price-setting

The specific crisis in macroeconomics teaching after 2008

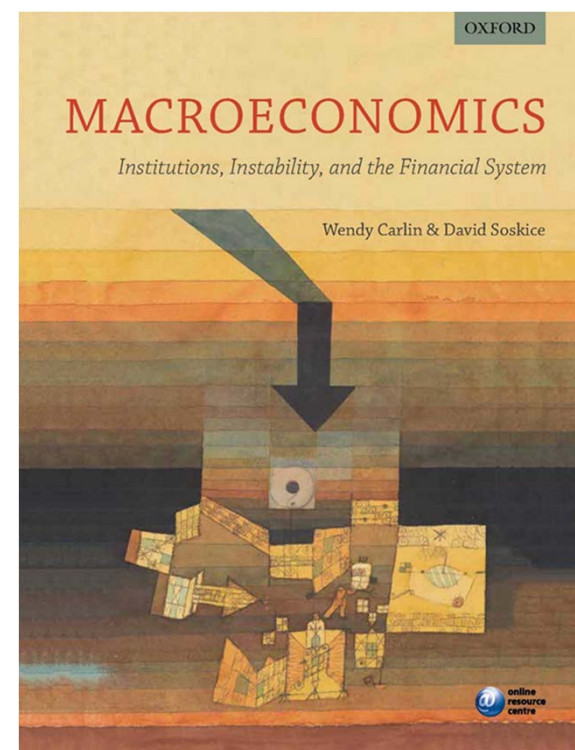
The textbooks of the time (including mine of 2006 – Carlin and Soskice, *Macroeconomics: Institutions, Imperfections and Policy* (OUP) – ignored:

- Housing
- Banks
- Inequality

They celebrated the

- The stability of the Great Moderation
- The role of inflation-targeting central banks

The business cycle was the centre of attention



How to bring the banking system, housing, bubbles, financial cycles and inequality into the teaching of macro?

Part of the problem was the standard benchmark model of the economy

- Students introduced to the homo economicus, price-taking, market clearing, no quantity constraints world in their Micro class
- .. were told go to a quite different planet in the Macro class

Micro		Macro	
Economics	Old benchmark model		
People	Far-sighted, self-interested	$Y=C+I+G+X-M$	
Interactions	Price-taking markets	<ul style="list-style-type: none">• Sticky wages	
Information	Full and verifiable	<ul style="list-style-type: none">• Sticky prices	
Contracts	Complete		
Institutions	Markets	<ul style="list-style-type: none">• Hand-to-mouth credit-constrained households	
Economic rents	Are bad and are caused by government intervention 'rent-seeking'	<ul style="list-style-type: none">• Fluctuations that seem unrelated to the 'micro' course	
Stability	The economy is self-stabilizing		
Evaluation	Are there unexploited mutual gains?		

What's wrong with starting with the usual approach (the old benchmark model)?

<i>Economics</i>	Old benchmark model
<i>People</i>	Far-sighted, self-interested
<i>Interactions</i>	Price-taking markets
<i>Information</i>	Full and verifiable
<i>Contracts</i>	Complete
<i>Institutions</i>	Markets
<i>Economic rents</i>	Are bad and are caused by government intervention 'rent-seeking'
<i>Stability</i>	The economy is self-stabilizing
<i>Evaluation</i>	Are there unexploited mutual gains?

The old benchmark model neglects what we know from the social and natural sciences:

- Human behaviour – psychology, evolutionary biology
- Culture & social norms – sociology, anthropology
- Institutions and contracts – political science, law
- Power and the state – sociology, political science
- Multiple equilibria, what happens out of equilibrium? – phase transition in maths, physics & biology; history; geography
- Ethics – philosophy, political theory

A new paradigm embodies important developments in economics over the past 3 decades or more

Old benchmark model	Economics	New benchmark model (contemporary economics & CORE)
Far-sighted, self-interested	People	have motives in addition to self-interest and respond to social norms of fairness and punishment.
Price-taking markets	Interactions	
Complete	Information	
Complete	Contracts	
Markets	Institutions	
Are bad and are caused by government intervention 'rent-seeking'	Economic rents	
The economy is self-stabilizing	Stability	
Are there unexploited mutual gains?	Evaluation	

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Old benchmark model	Economics	New benchmark model (contemporary economics & CORE)
Far-sighted, self-interested	People	have motives in addition to self-interest and respond to social norms of fairness and punishment. include price-making markets and strategic interactions not only in markets.
Price-taking markets	Interactions	
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Price-taking markets	<i>Interactions</i>	include price-making markets and strategic interactions not only in markets.
Complete	<i>Information</i>	is incomplete and asymmetric
Complete	<i>Contracts</i>	are incomplete because they cannot be enforced for effort and diligence in labour and credit markets and to cover other external effects e.g. traffic congestion, knowledge.
Markets	<i>Institutions</i>	include informal rules (norms), coercion, firms, unions, banks, states as well as markets.
Are bad and are caused by government intervention ‘rent-seeking’	<i>Economic rents</i>	
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The economy is self-stabilizing	<i>Stability</i>	... and instability are characteristics of the economy.
Are there unexploited mutual gains?	<i>Evaluation</i>	

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The economy is self-stabilizing	<i>Stability</i>	... and instability are characteristics of the economy.
Are there unexploited mutual gains?	<i>Evaluation</i>	includes efficiency (unexploited mutual gains) and fairness.

Using this new paradigm, we can teach about the aggregate economy without ad hoc assumptions

Micro	
Economics	Old benchmark model
People	Far-sighted, self-interested
Interactions	Price-taking markets
Information	Full and verifiable
Contracts	Complete
Institutions	Markets
Economic rents	Are bad and are caused by government intervention 'rent-seeking'
Stability	The economy is self-stabilizing
Evaluation	Are there unexploited mutual gains?

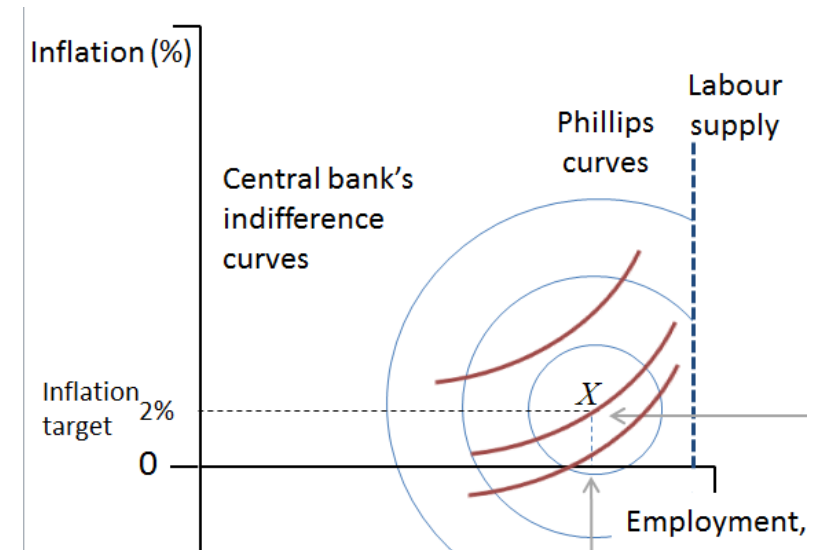
- Macro
- $Y=C+I+G+X-M$
- Sticky wages
 - Sticky prices
 - Hand-to-mouth credit-constrained households
 - Fluctuations that seem unrelated to the 'micro' course

Economics	New benchmark model (contemporary economics & CORE)
People	have motives in addition to self-interest and respond to social norms of fairness and punishment.
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Economic rents	are endemic in the private economy (e.g. the incentive to innovate, job rents) and may be good or bad.
Stability	... and instability are characteristics of the economy.
Evaluation	includes efficiency (unexploited mutual gains) and fairness.

CORE's method

- teach universal tools for doing economics, motivate with real problems
- specify the actors, their actions and their interactions
 - Households – workers, consumers, lenders, borrowers
 - Firms – owners, managers, employees
 - Banks, Central bank, Government
- Show how the rules of the game (= institutions) matter

The interest rate setting,
inflation-targeting central bank



4

**SOCIAL
INTERACTIONS**



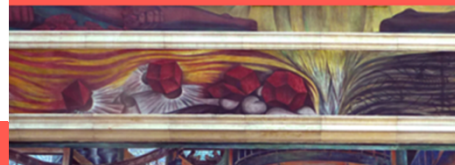
5

**PROPERTY AND
POWER: MUTUAL
GAINS AND CONFLICT**



6

**THE FIRM: OWNERS,
MANAGERS AND
EMPLOYEES**



11

**CREDIT, BANKS AND
MONEY**



Our focus on actors and problems leads us to stress

- Game theory – tools and rules
- Principal agent models
- Price-making and (economically productive) rent seeking
- Social preferences and norms
- Increasing returns, positive feedbacks
- Dynamics
- This leads to an novel sequencing of the material taught ... and

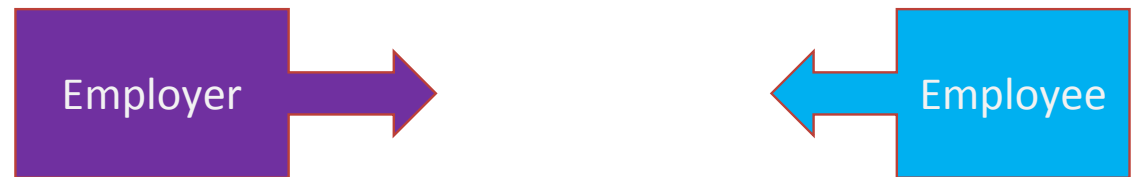
... provides key foundations for the aggregate economy by

- beginning with **heterogeneous agents** through a set of **principal-agent problems** and
- leading naturally to a model with **involuntary unemployment** and **fluctuations**, **endogenous money** and **bubbles**
- where **inequality** is in the model's DNA

Market failures: the actors, their actions and interactions

The **principal agent problem**

- Conflicts of interest
- Information is asymmetric because actions are hidden from principal / not verifiable in court
- Uncertainty because actions are in the future



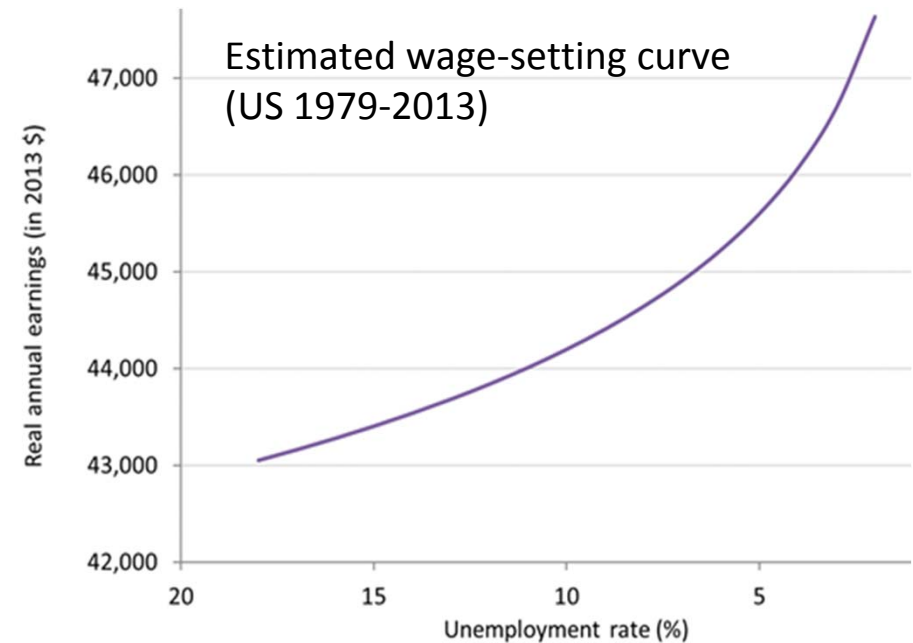
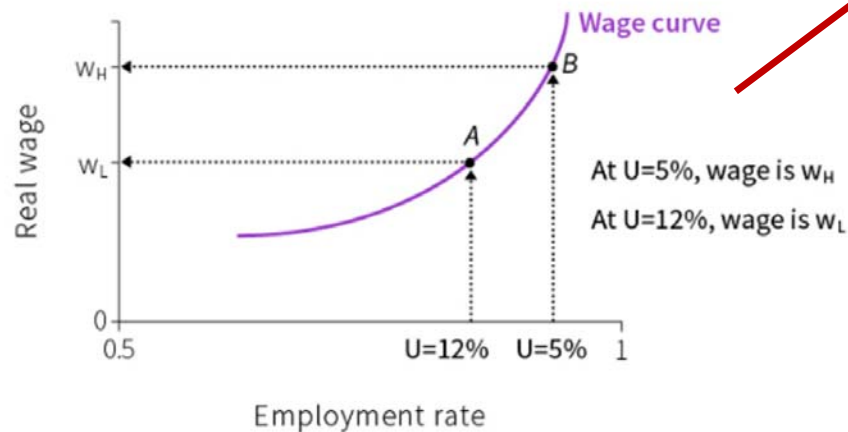
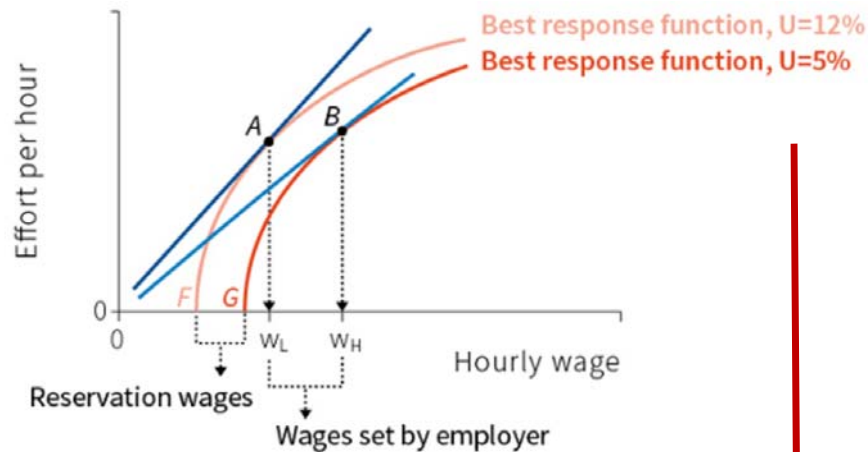
Conflict of interest over what ? Contract does not cover?

- Incomplete contracts
- market failures
- institutions and social norms matter



For example, incomplete labour contracts in the intro classroom

Firms set wages; an identical unemployed worker cannot get a job by offering to work for less (no way to ensure effort) → Involuntary unemployment

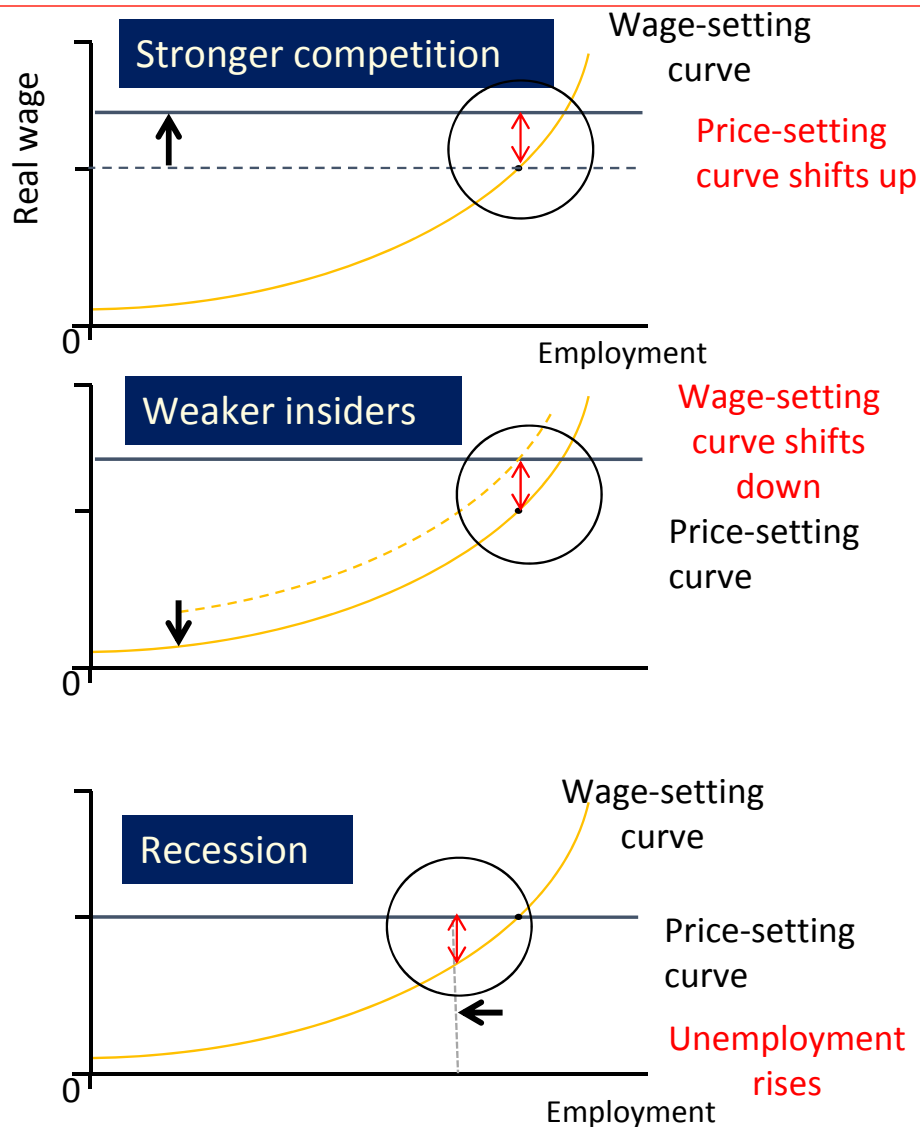


‘Micro’ – the firm sets the wage

‘Macro’ – the economy-wide wage-setting curve

Data – estimated wage-setting curve US

Seamlessly from the P-A problem to ‘what keeps inflation down?’



1. Owners’ power falls relative to consumers

Always ask: what has happened to the bargaining gap?

2. Employees’ power falls relative to owners

3. Employees’ power falls relative to owners in a recession

A second principal-agent problem in the same framework: credit market

	Actor	Conflict of interest over	Contract covers	Left out of contract (or unenforceable)	Market failure
Labour market (Unit 6)	Employer Employee	Wages, work (quality & amount)	Wages, time, conditions	Work (quality and amount), duration of employment	Effort under-provided; unemployment
Credit market (Unit 11)	Lender Borrower	Interest rate, conduct of project (effort, prudence)	Interest rate, repayment	Effort, prudence, repayment	Too much risk, credit constraints

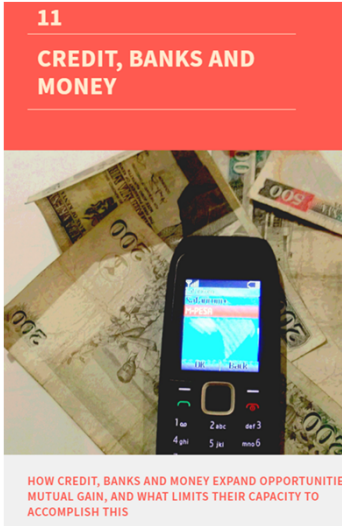


Figure 20. The credit market and the labour market compared.

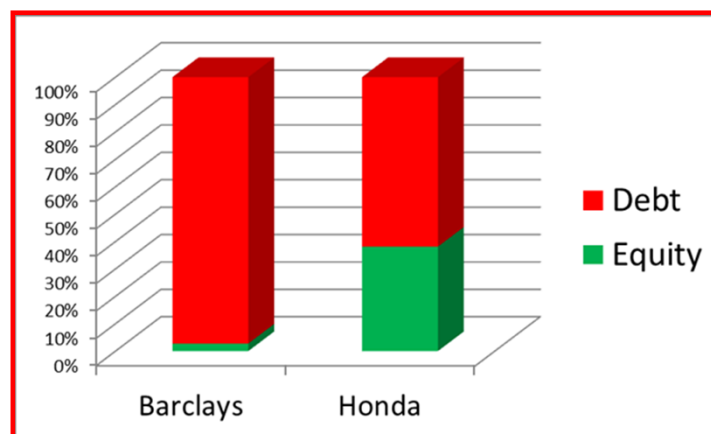
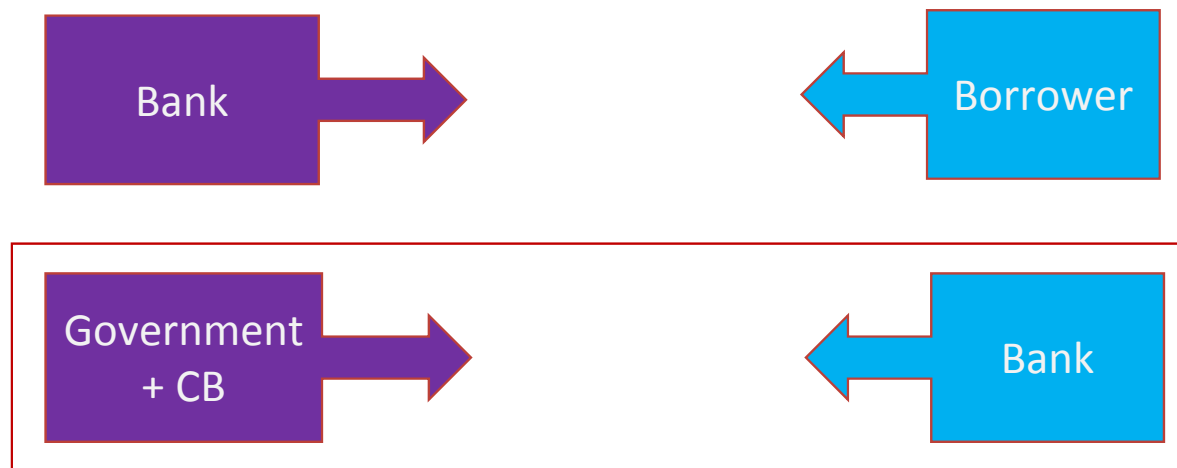


→ Heterogeneous agents, credit-constrained households, multiplier effects in the aggregate economy

And a third principal agent problem to analyze bank risk-taking

In both cases the agent has an incentive to take on too much risk
This is an external effect because the costs are borne by others (the principal)

→ Bank failures and regulation



Our focus on actors and problems leads us to give priority to

- Game theory – tools and rules
- Principal agent models
- Price-making and rents
- **Social preferences and norms**
- Increasing returns, positive feedbacks
- Dynamics

11
Credit, banks and money
(Dec15)

11

11.0: Introduction

How credit, banks and money expand opportunities for mutual gain, and what limits their capacity to accomplish this

11.1: Money and wealth

trustworthiness of their clients.

Money and trust are more closely related than you might think.

On 4 May 1970, a notice appeared in the *Irish Independent* newspaper in the Republic of Ireland, titled "Closure of Banks". It read:

"As a result of industrial action by the Irish Bank Officials' Association... it is with regret that these banks must announce the closure of all their offices in the Republic of Ireland... from 1 May, until further notice."



← [Testing the test: How reliable are risk model backtesting results?](#) [Falling off a cliff: what happened to UK corporate debt? A transatlantic comparison.](#) →

20 JANUARY 2016 · 7:30 AM

The cheque republic: money in a modern economy with no banks.

Search

Bank Underground is a blog for Bank of England staff to share views that challenge – or support – prevailing policy orthodoxies. The views expressed here are those of the authors, and are not necessarily those of the [Bank of England](#) or its policy committees.

All the banks in Ireland were shut for 6 months ... what happened?

Pubs and shops helped organize barter transactions to keep economic activity going	True False	
Households created money	True False	
The Irish economy suffered a recession	True False	
Trust in publicans declined when the cheques they endorsed were no longer honoured	True False	

All the banks in Ireland were shut for 6 months ... what happened?

Pubs and shops helped organize barter transactions to keep economic activity going	FALSE	They did not.
Households created money	TRUE	They wrote IOUs on cheques that were accepted as money by the pub and shop owners.
The Irish economy suffered a recession	FALSE	Data
Trust in publicans declined when the cheques they endorsed were no longer honoured	FALSE	Trust remained in publicans.

How is money created in the economy in normal times?
See Unit 11 to find out ... go to www.core-econ.org

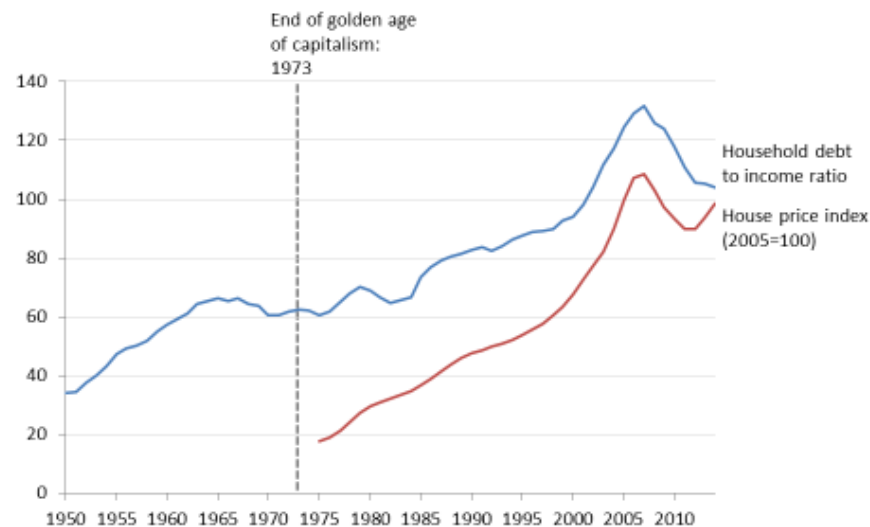
Did Ireland fall off a financial cliff? To everyone's surprise, far from collapse, the Irish economy continued to grow much as before. A two-word answer has been given to explain how this was possible: Irish pubs. Andrew Graham, an economist, visited Ireland during the bank strike and was fascinated by what he saw:

"Because everyone in the village used the pub, and the pub owner knew them, they agreed to accept deferred payments in the form of cheques that would not be cleared by a bank in the near future. Soon they swapped one person's deferred payment with another thus becoming the financial intermediary. But there were some bad calls and some pubs took a hit as a result. My second experience is that I made a payment with a cheque drawn on an English bank (£1 equalled 1 Irish punt at the time) and, out of curiosity, on my return to England, I rang the bank (in those days you could speak to someone you knew in a bank) and they told me my cheque had duly been paid in but that on the back were several signatures. In other words, it had been passed on from one person to another exactly as if it were money".

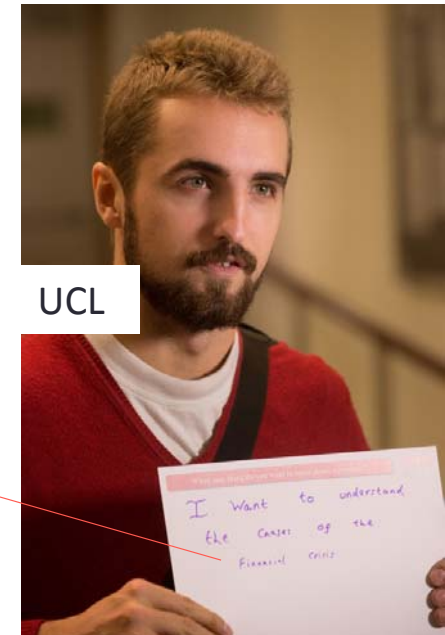
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- Game theory – tools and rules
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- Social preferences and norms
- Increasing returns, positive feedbacks
- Dynamics

Figure 17.19. The household debt-to-income ratio and house prices in the United States (1950-2014)



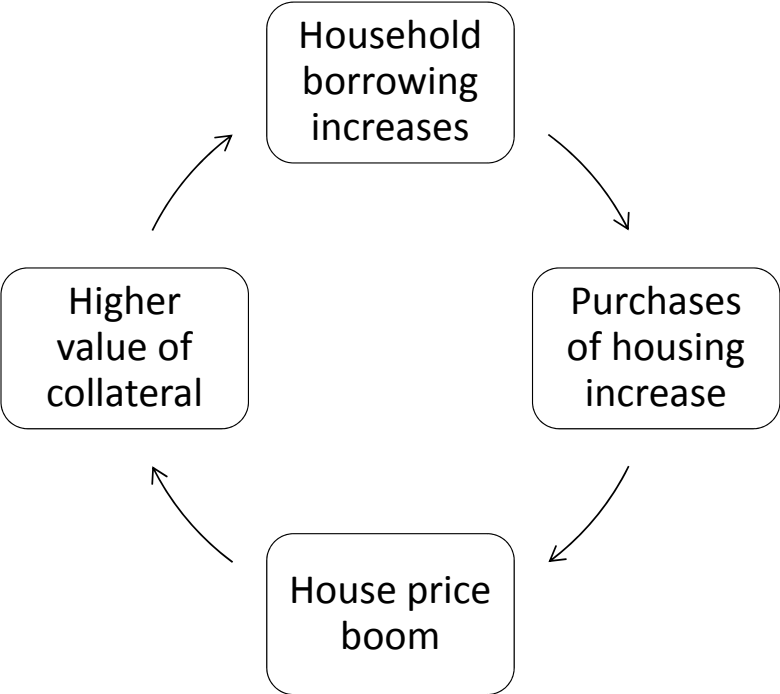
*UCL Day 1:
I want to
understand
the causes of
the financial
crisis*



Positive feedbacks and resulting dynamics

Housing-centred financial cycle

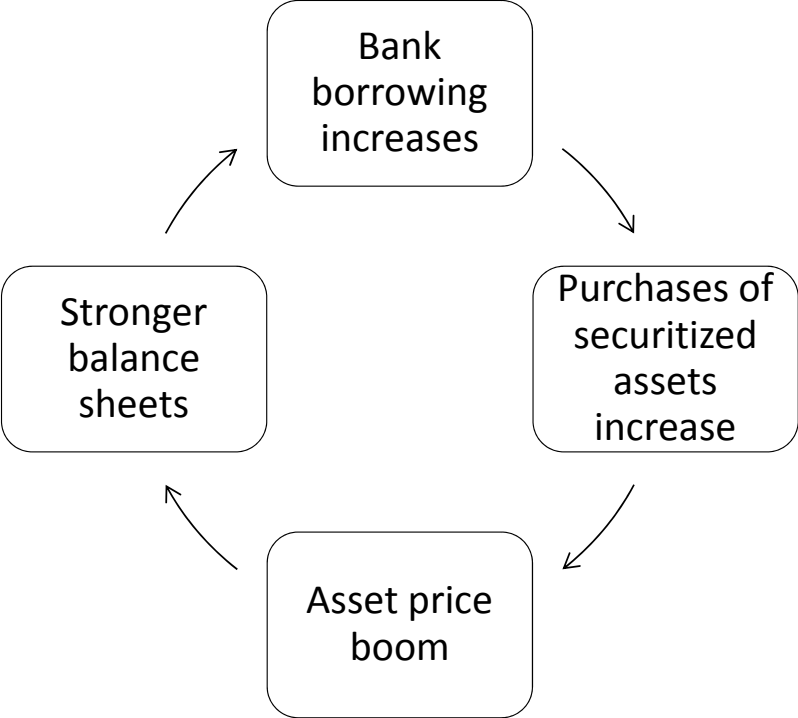
→ build-up of household debt



On the way up

Bank-centred financial cycle

→ build-up of financial sector debt

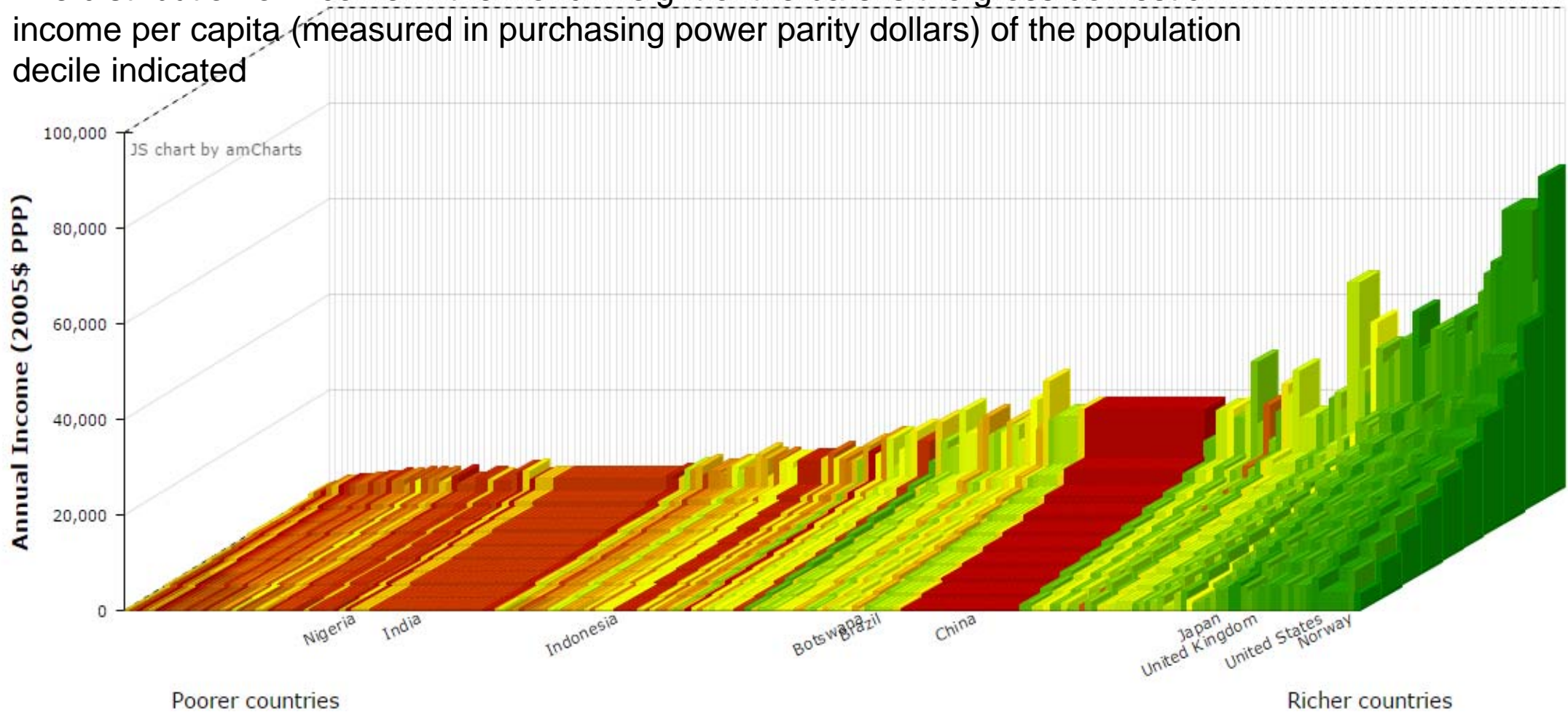


On the way up:
leverage is high and rising

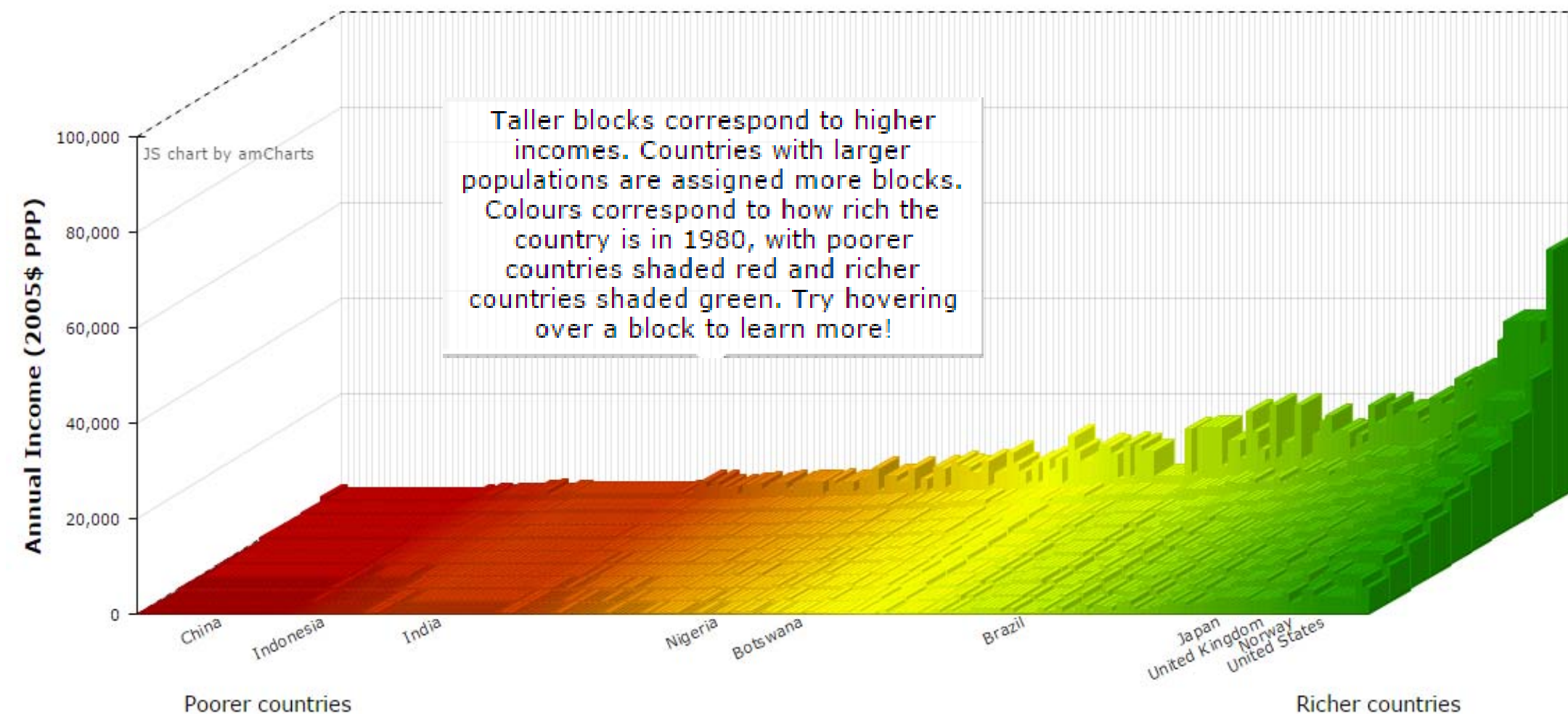
How to bring inequality into the teaching of macro?

2014

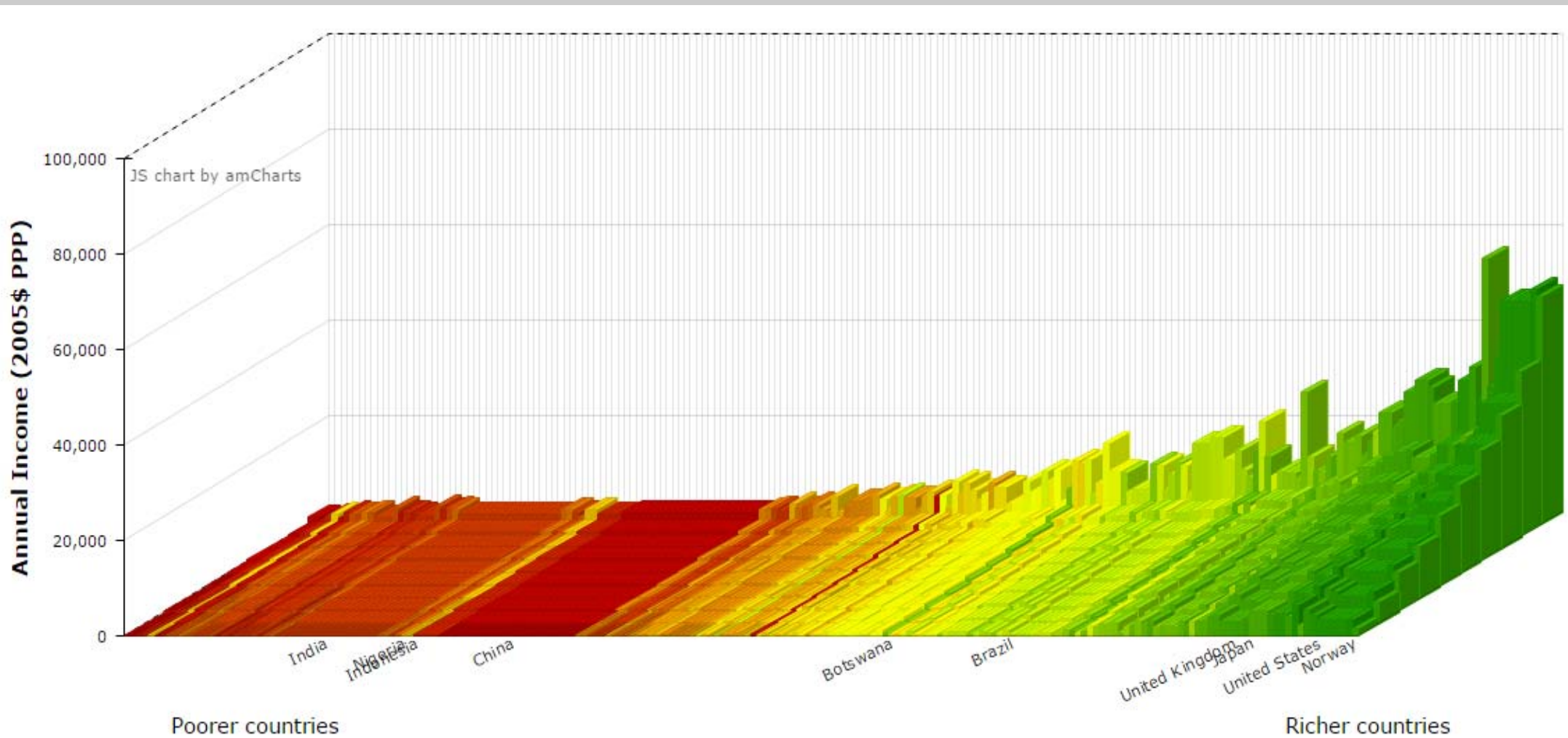
The distribution of income in the world. Height of the bars is the gross domestic income per capita (measured in purchasing power parity dollars) of the population decile indicated



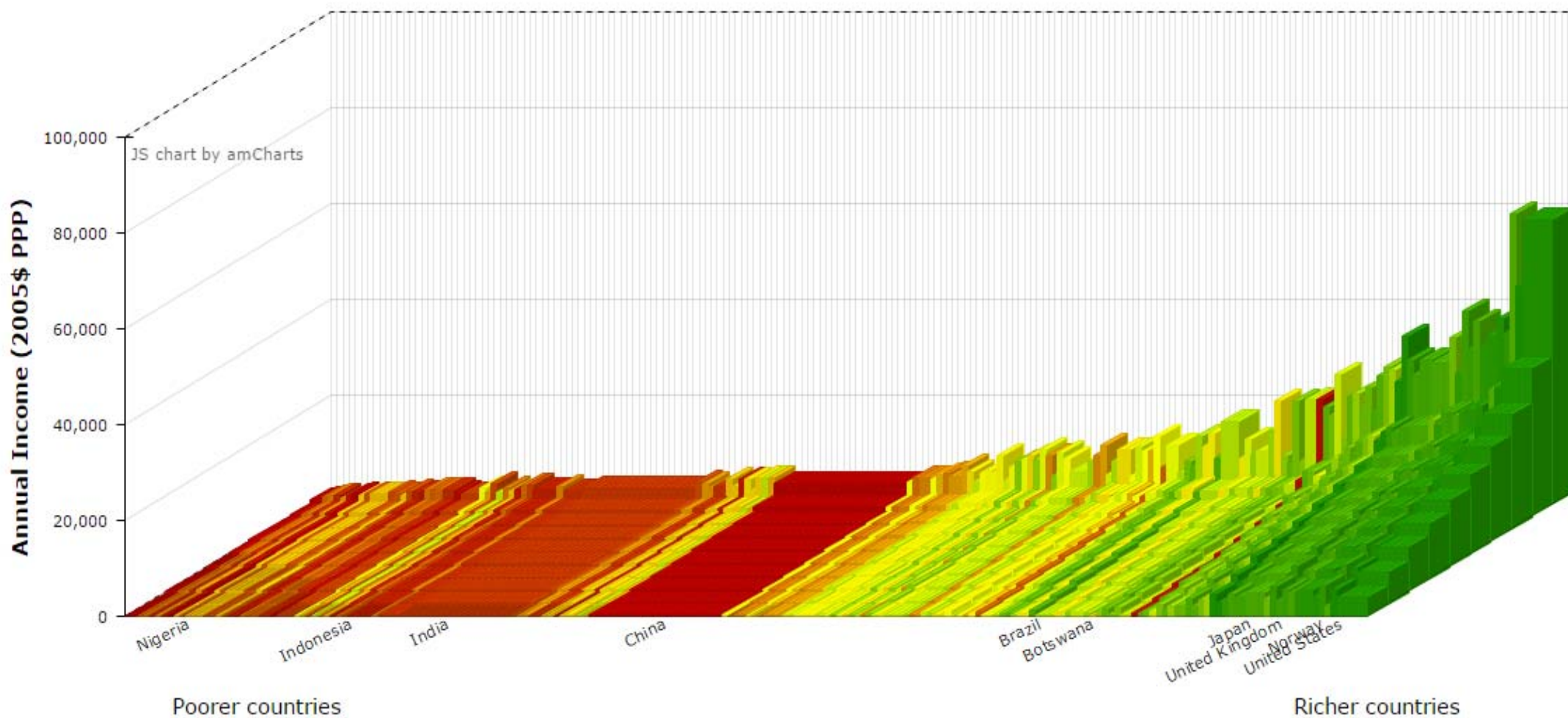
1980



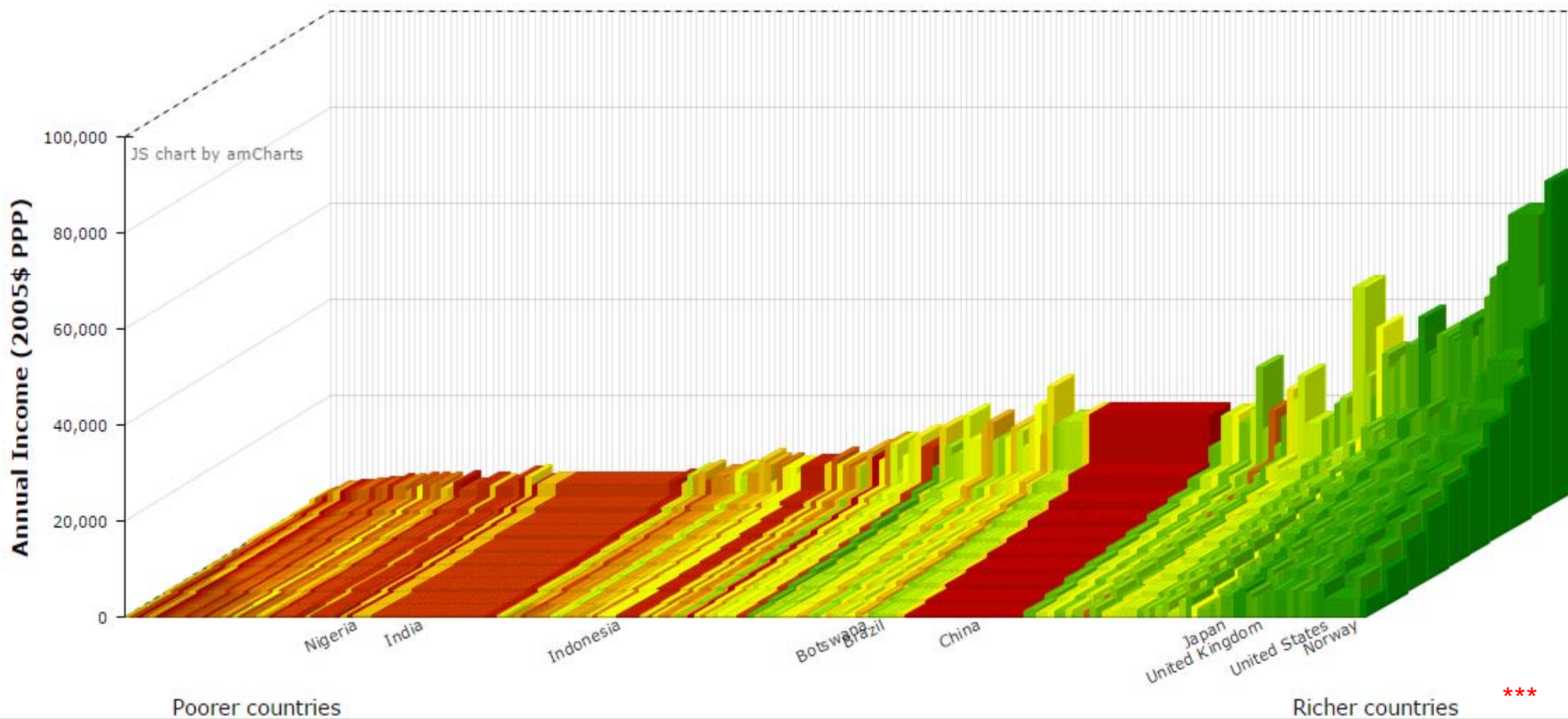
1990



2000

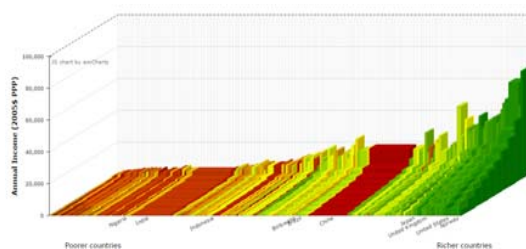


2014



The new 'macro needs micro' paradigm is integral to the study of inequality

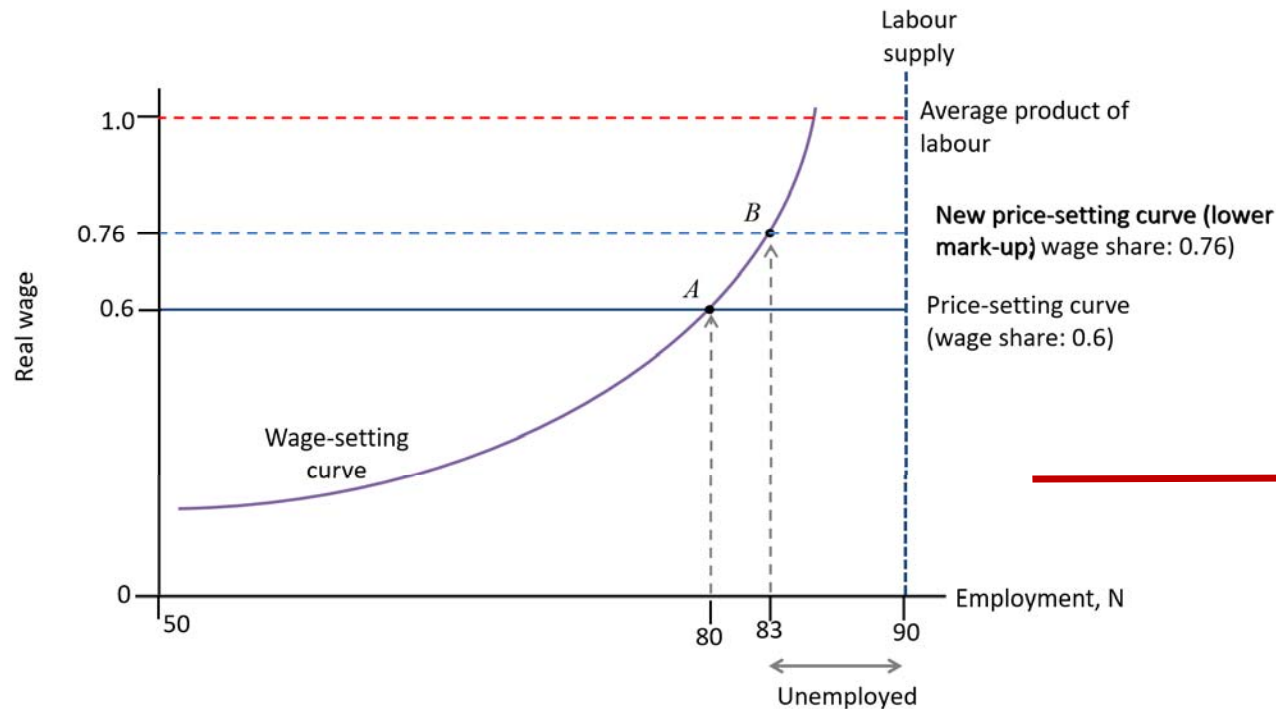
- Exchanges and other economic interactions are (in a liberal society) voluntary;
- ... hence any interaction that we study occurs because there are mutual benefits above and beyond the individuals' next best alternatives
- ... because contracts are not complete (and for other reasons) competition does not eliminate these economic rents;
- ... the division of these rents among the parties to the exchange is not determined simply by “competition” or “the market”
- ...it depends also on economic and political institutions and on social norms
- ..in ways that a mastery of fundamental economic concepts can illuminate.



Inequality in the aggregate economy – using Lorenz curves

The effect of an increase in the degree of competition

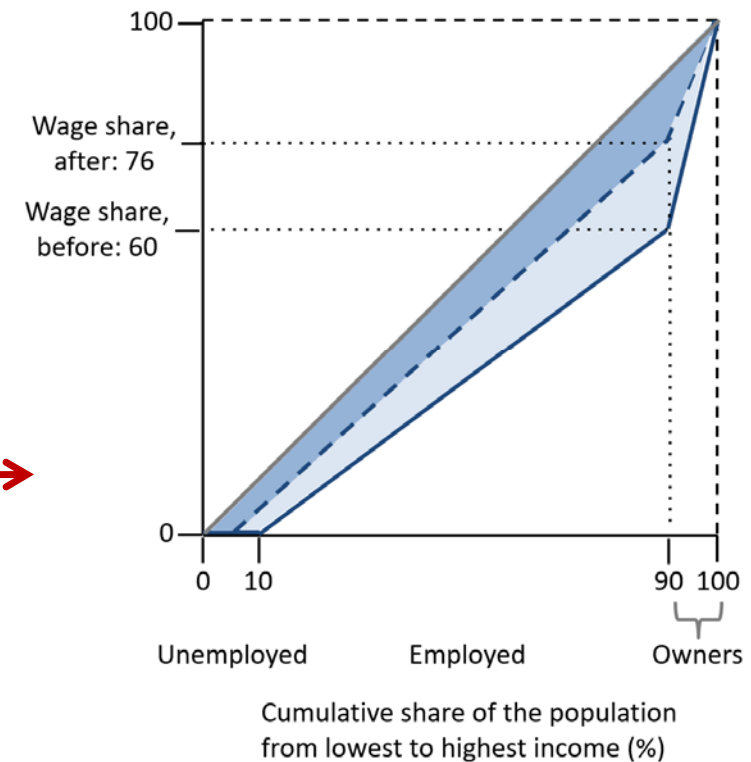
Lower unemployment and higher real wage in equilibrium



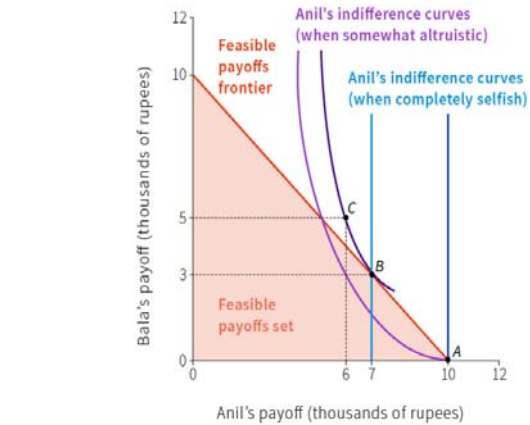
Cumulative share of income (%)

A lower Gini coefficient

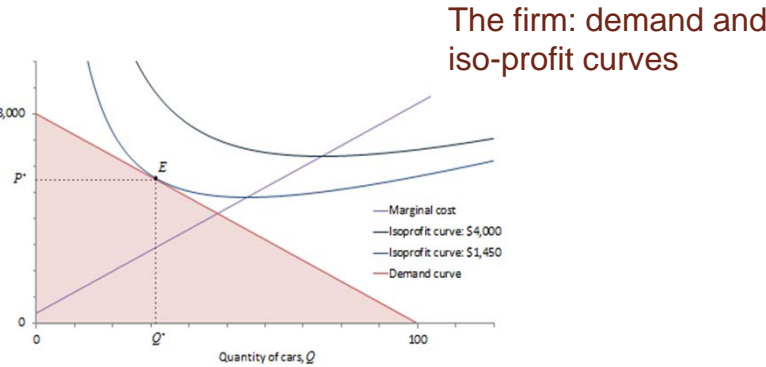
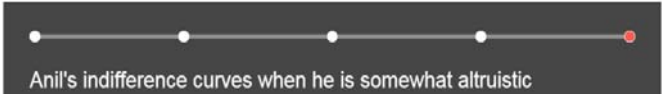
Gini coefficient: 0.36 before;
Gini coefficient 0.19 after



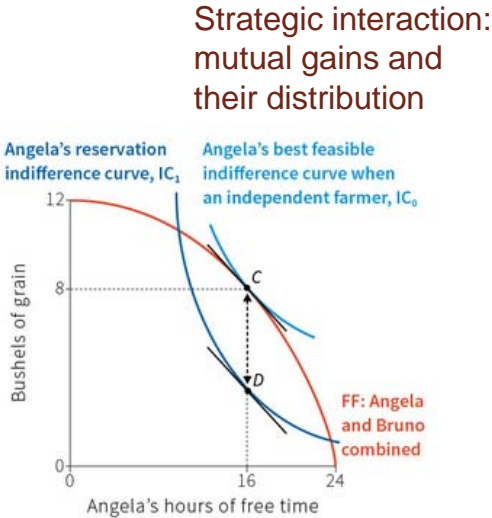
Teaching the tools of economics – feasible sets and preferences



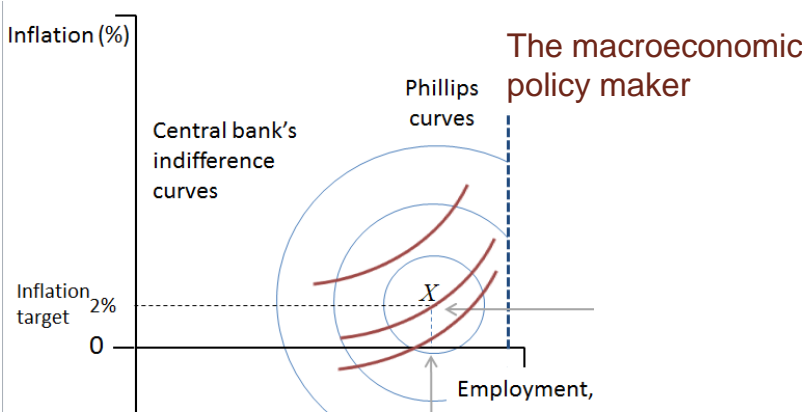
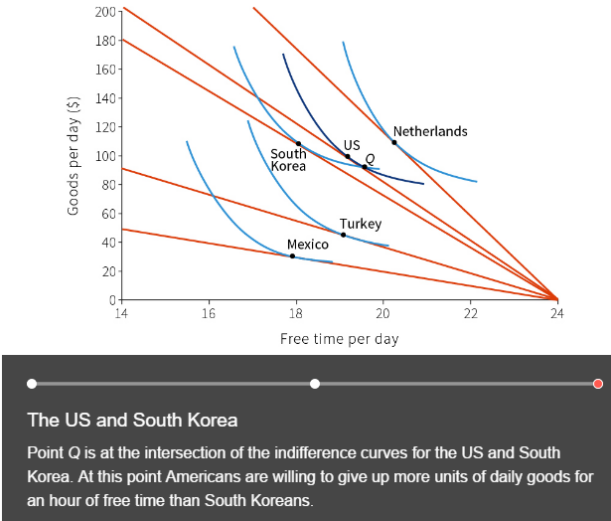
The individual: selfish and altruist preferences

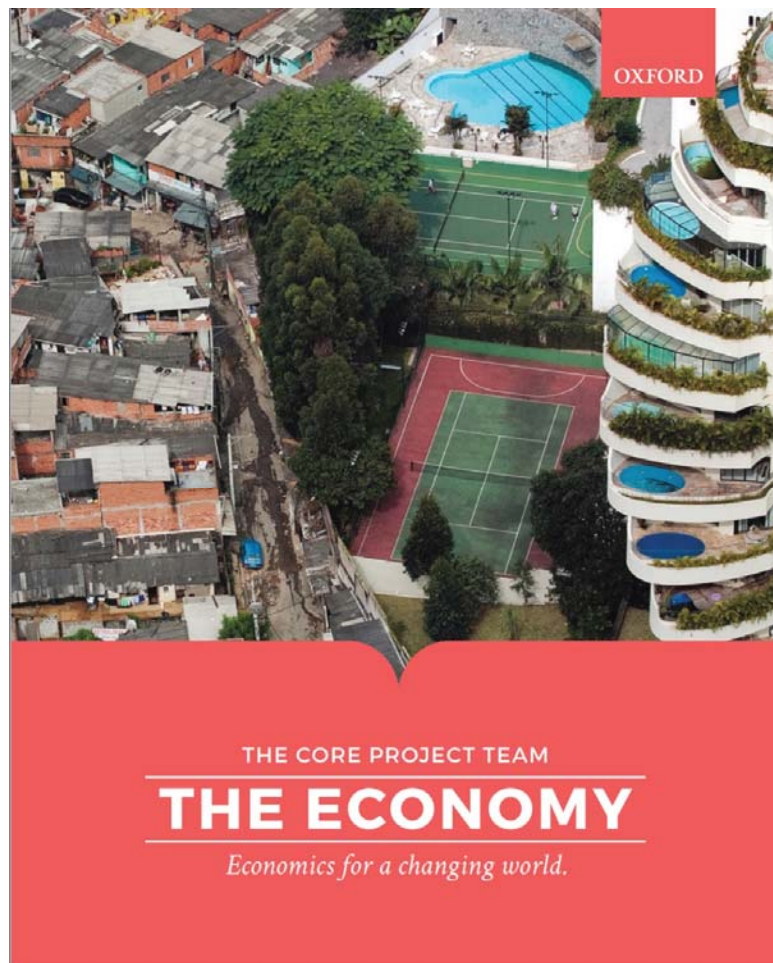


The firm: demand and iso-profit curves



Strategic interaction: mutual gains and their distribution





CORE's *The Economy*

1.0 edition free online in July
+ OUP print edition

To equip students to address today's pressing problems by mastering the conceptual and quantitative tools of contemporary economics

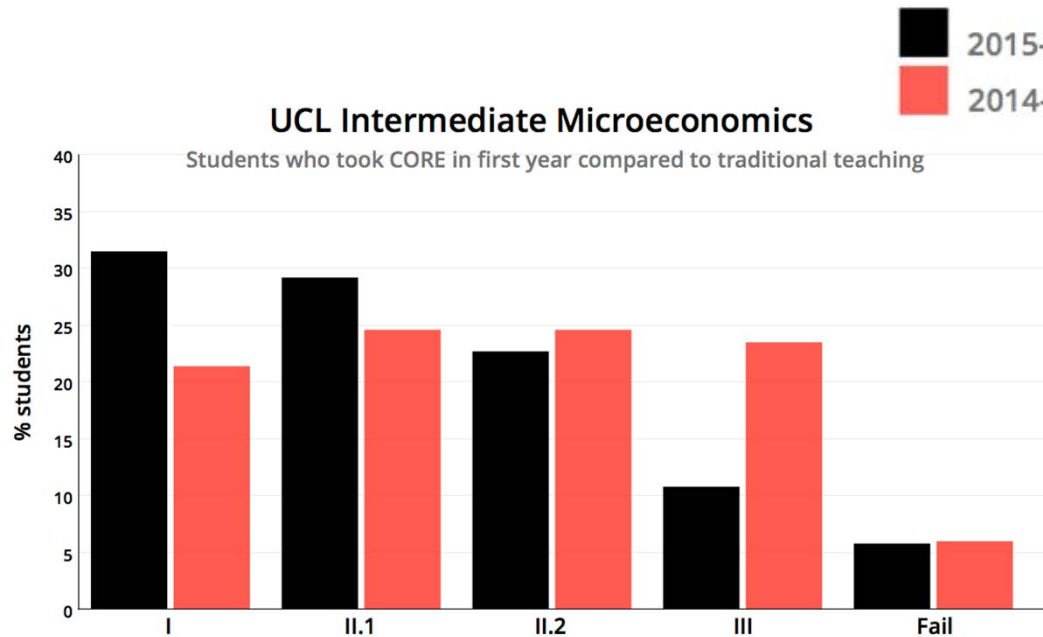
Wendy Carlin
Bank of England May 2017

UCL replaced its 'ECON101' by CORE for all BSc Econ students in 2014

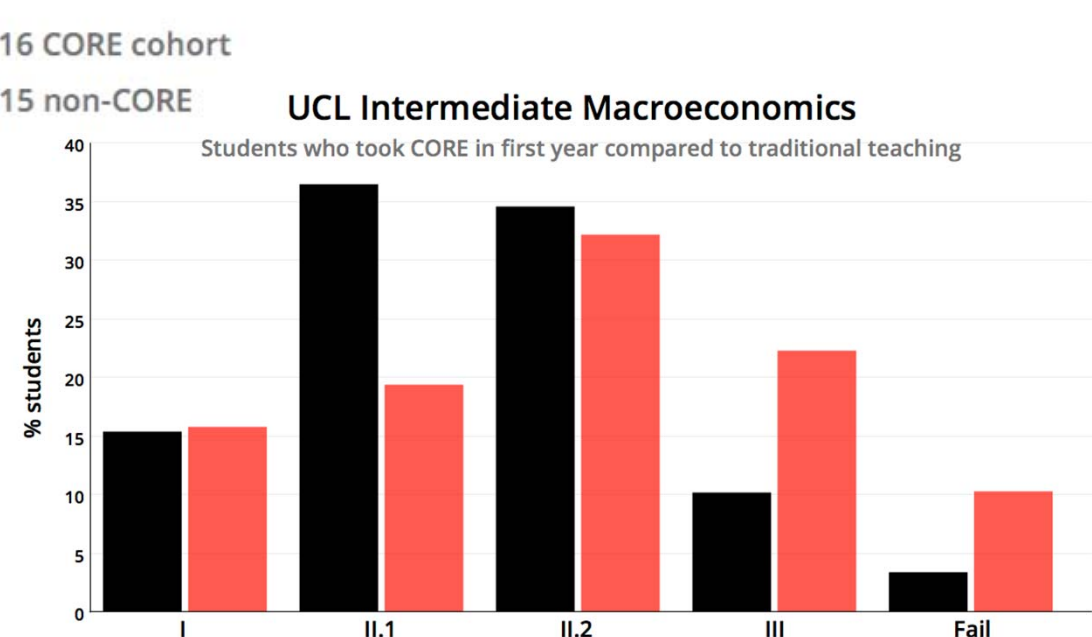
Examination results in 2016 of the first CORE cohort in their conventional **second year** intermediate micro and macro exams:

Comparison of first CORE cohort (n=269) with last non-CORE cohort (n=288)

Students who had studied CORE (the black bars) performed better in intermediate micro & macro



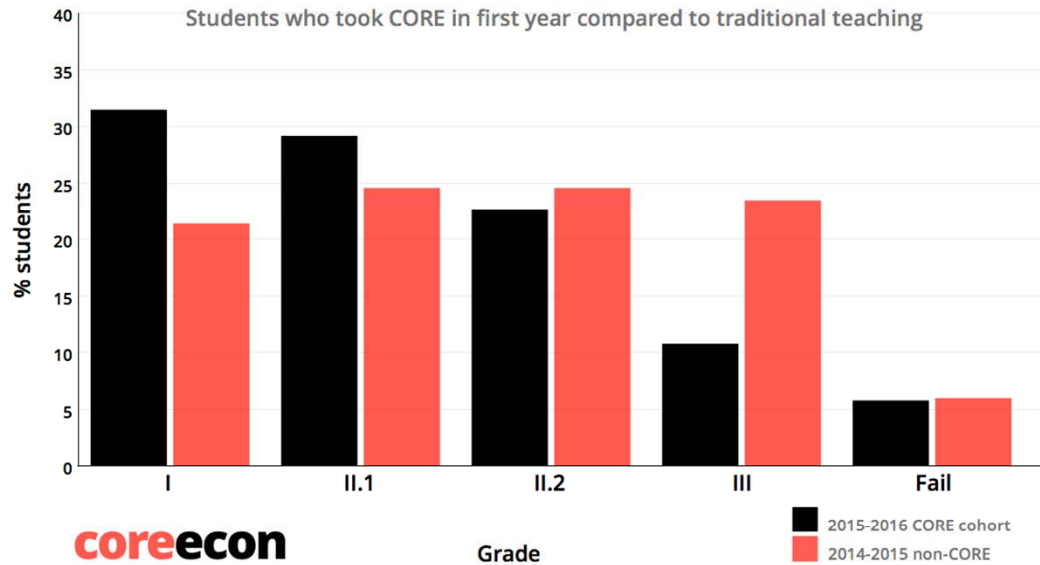
First class (distinction)Fail



First class (distinction)Fail

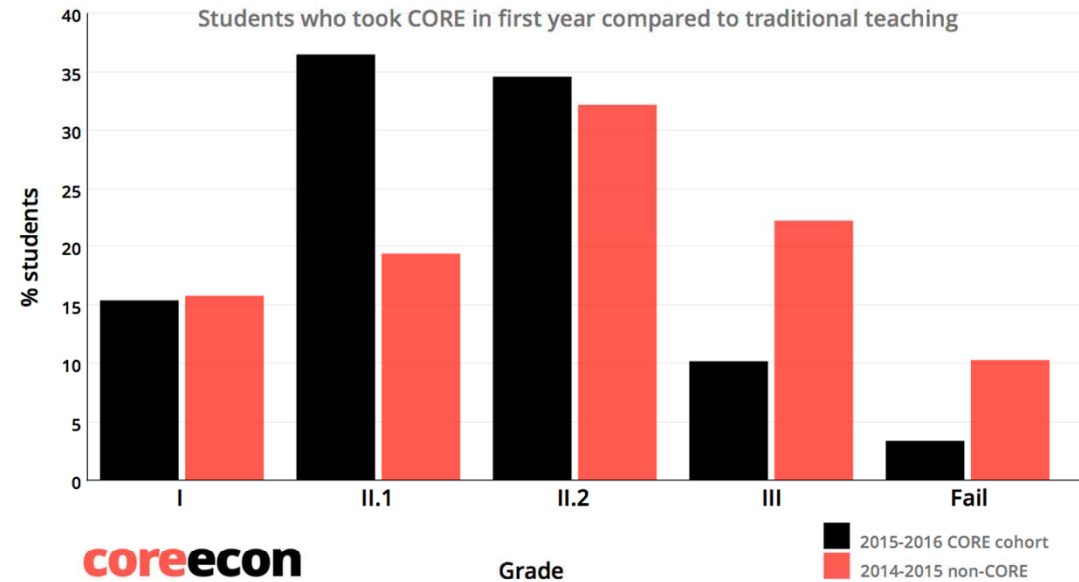
UCL Intermediate Microeconomics

Students who took CORE in first year compared to traditional teaching



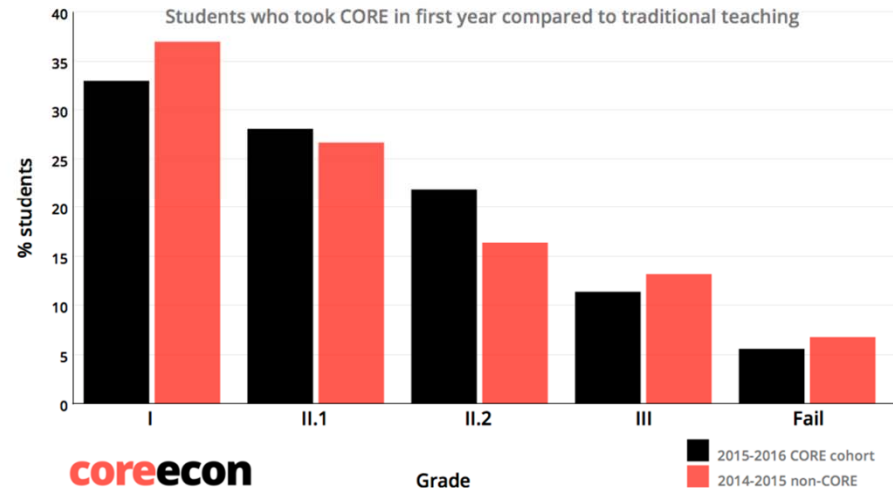
UCL Intermediate Macroeconomics

Students who took CORE in first year compared to traditional teaching



UCL Intermediate Econometrics

Students who took CORE in first year compared to traditional teaching



Just better
students that
year?

What explains
CORE's success in
this?

2015-2016 CORE cohort
2014-2015 non-CORE

coreecon