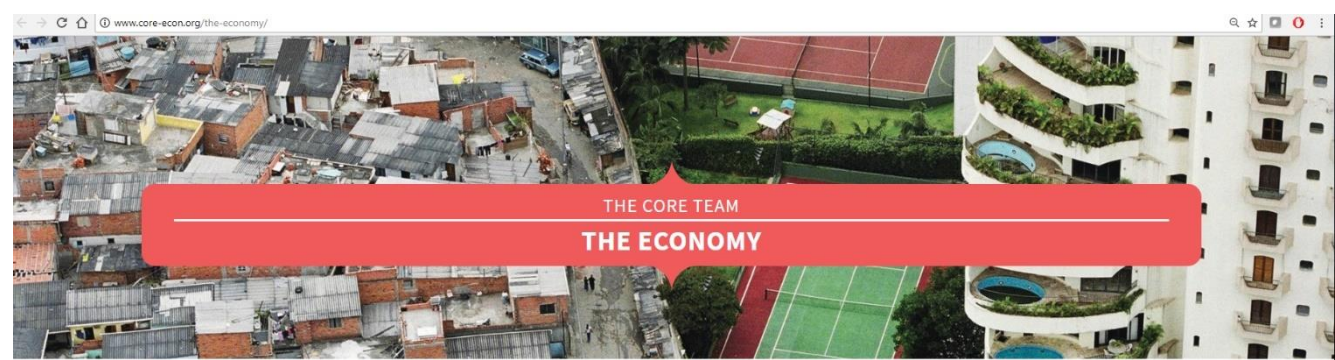


Free online,
go to www.core-econ.org



Belinda Archibong, CORE-USA
Barnard College, Columbia University

Welcome to the
CORE USA
Workshop
2017



Transforming the undergraduate curriculum in economics

Samuel Bowles, Santa Fe Institute and CORE
Wendy Carlin, UCL and CORE
University of Stellenbosch
August 2017



Azim Premii
University,
Bangalore



Antonio Cabrales CORE-UCL



Yann Algan
CORE-Sciences Po, Paris

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

U. de los Andes, Bogota...

ar students
m 2016

Humboldt University, Fall 2016

climate change
hunger
global warming
immigration
scarce resources
gr
migration

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

Inequality

Global Warming
Bubbles
Income Inequality
Sustainable Development
Climate Change
Economic Growth
Too Big To Fail
Crises
Low Interest Rates
Technology
Unemployment
Opportunities Everyone
Absolute

Secular Stagnation

LowGrowth

OldTheory

SocialWelfare **Old**
SlowEconomicGrowth
GrowthStability

Global Warming

Bubbles

ConsumerPreferences

Automation

IncreasingPopulation

Inflation

Technology Irregular Policies

Financial Stability

Promoting Opportunity

PredictingFuture

WageGrowth

Income Inequality

SustainableDevelopment

ClimateChange

EconomicGrowth

TooBigToFail

OpportunitiesEveryone

Technological Unemployment

Ineffective Central Bank Policy

Ineffective Central Bank Policy

Robots

Growth

PopulationGrowth

Financial Crises

LowInterestRates

InfluenceTechnology

CreditCycle

Methodology

ProductivityPuzzle

Stability

AbsolutePoverty

Diversity

GlobalInequality

WealthDisparity

ProductivityGrowth

Productivity

What 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 behaviour through mathematical tools; ... after semesters of study, **I had mathematical tools; but** all the **people** whose behaviour I wanted to study **had disappeared from the scene**

Refik Erzan
Professor at
Boğaziçi
University,
Istanbul



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
University of Chile



David Hope
King's College London



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 of the CORE project prior to launch of 1.0 version?

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

Engagement

Total registered on website 40k+ from 189 countries

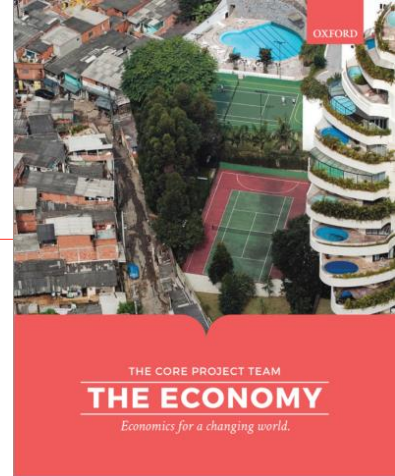
Verified teachers from 86 countries given access 3k+

>40 universities are participating in CORE pilots, from 15 different countries.

Replaced the standard principles course at:

UCL, Bristol, Toulouse School of Economics, Sciences Po, Humboldt University, Bangor Business School, Azim Premji University Bangalore, La Reunion, Birkbeck College, King's College London, University of Siena, and many more

Published new 1.0 free ebook & identical print book, Oxford University Press

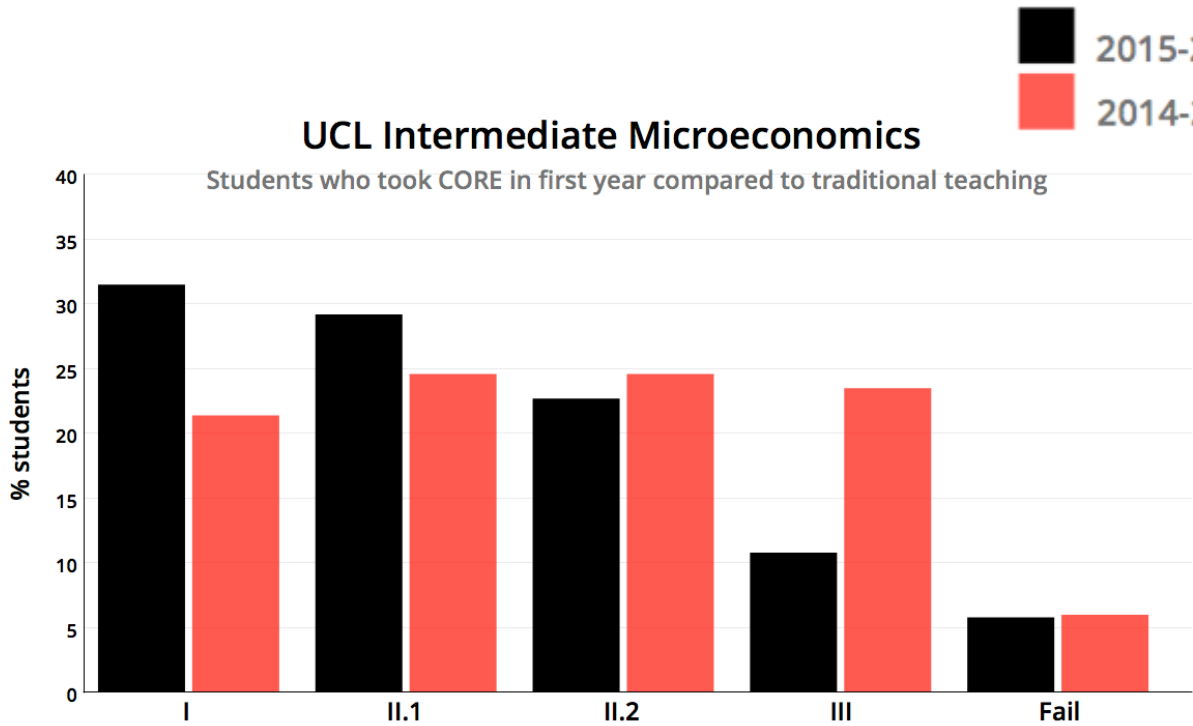


Does it work? UCL replaced its 'ECON101' by CORE for all BSc Econ students in 2014

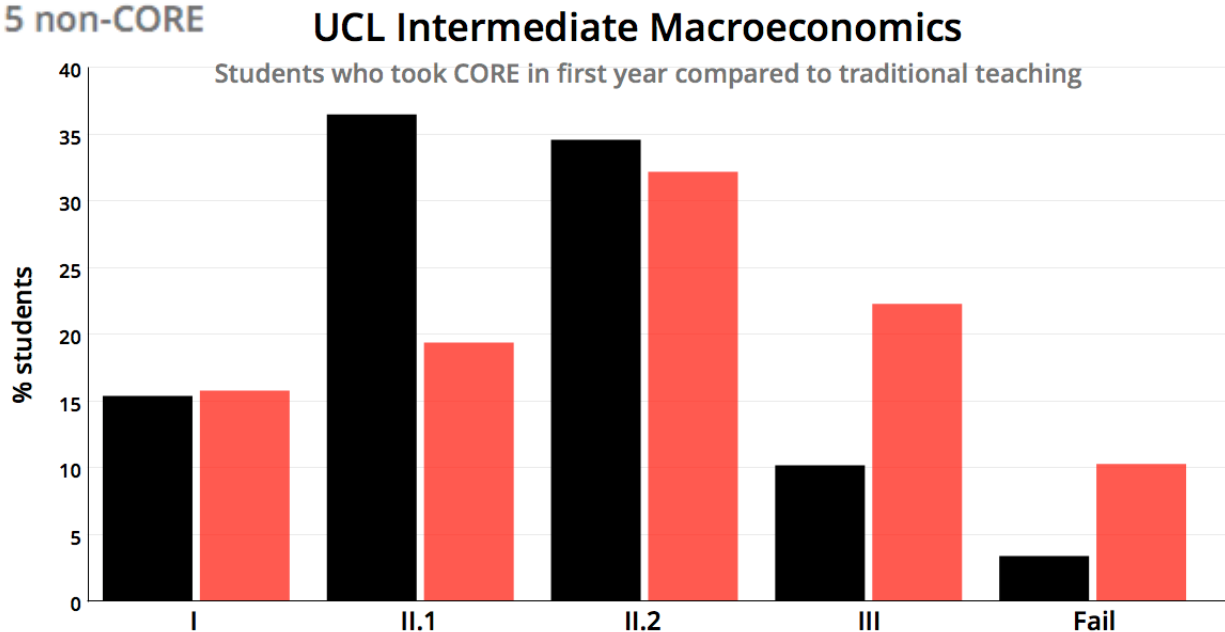
Examination results in 2016 of the first CORE cohort in their conventional **second year** intermediate micro and macro exams:

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

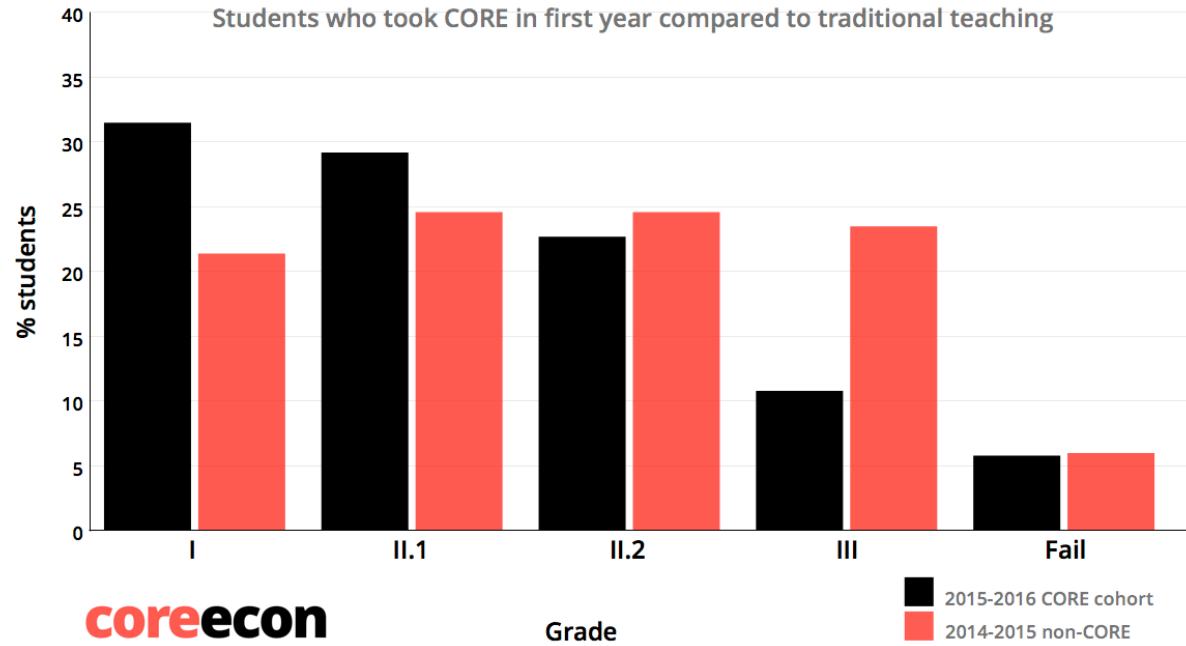


First class (distinction)Fail

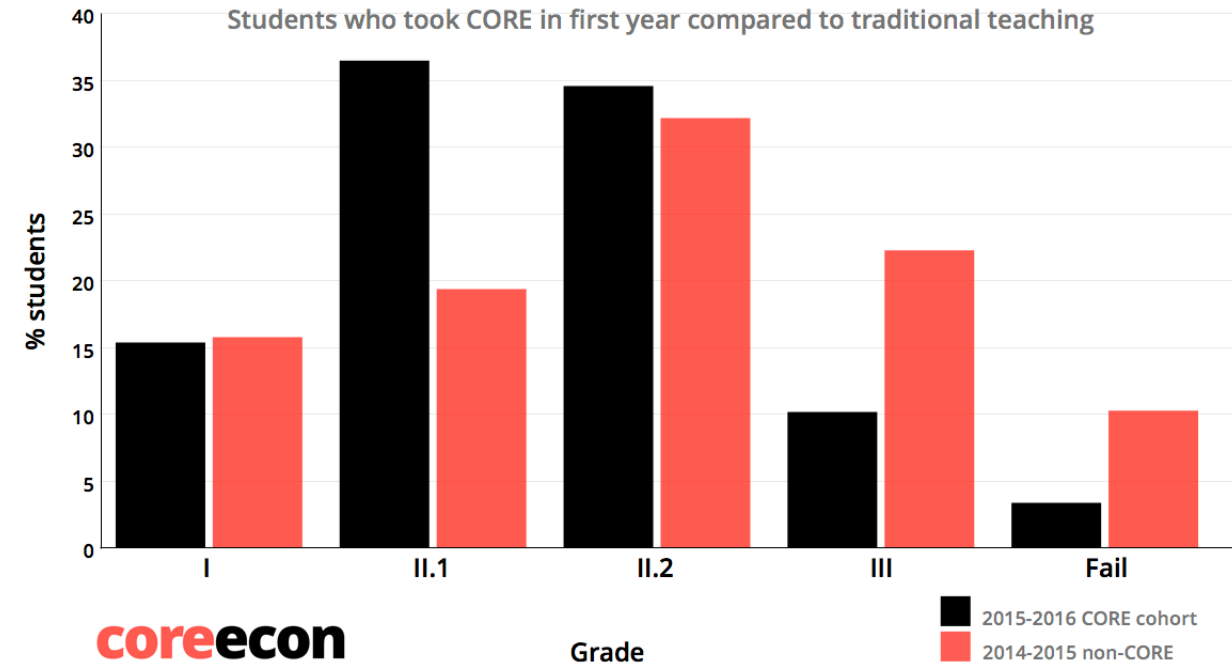


First class (distinction)Fail

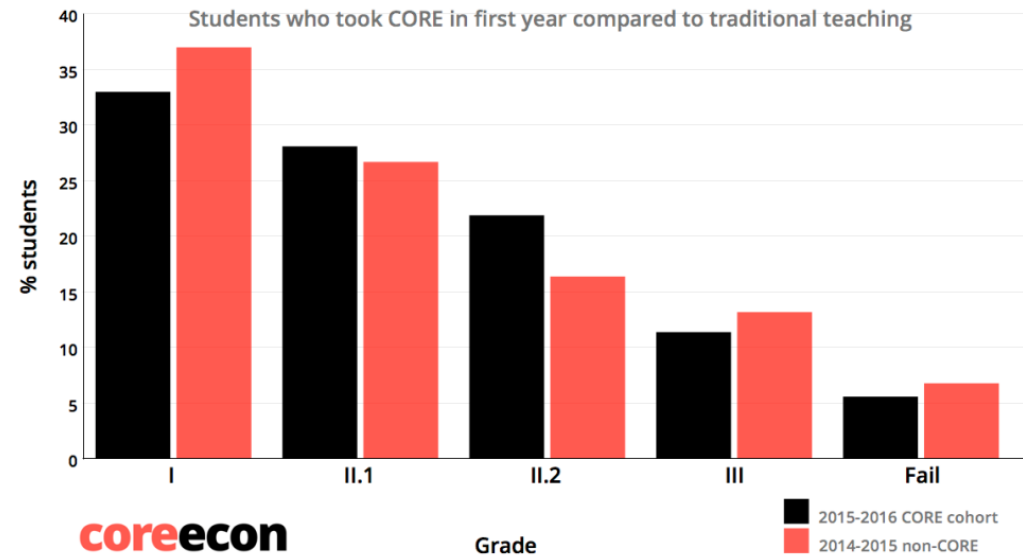
UCL Intermediate Microeconomics



UCL Intermediate Macroeconomics



UCL Intermediate Econometrics

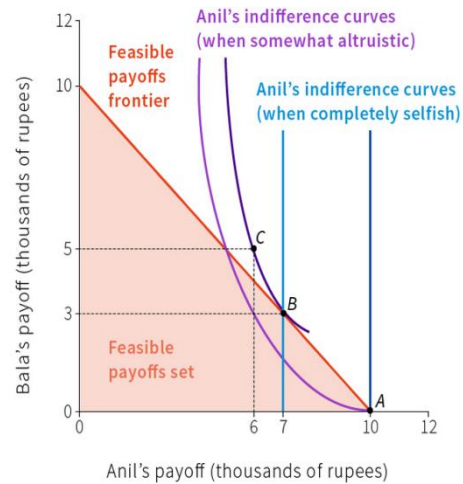


Just better
students that
year?

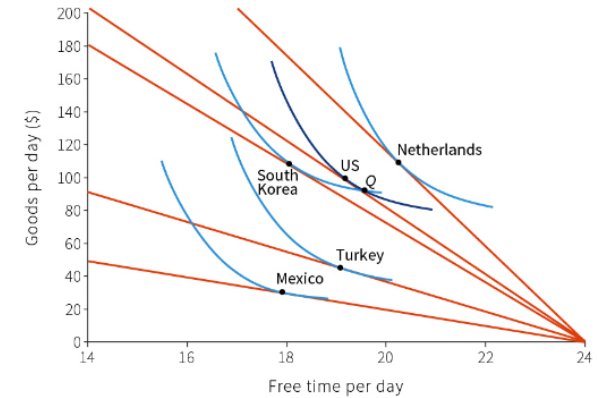
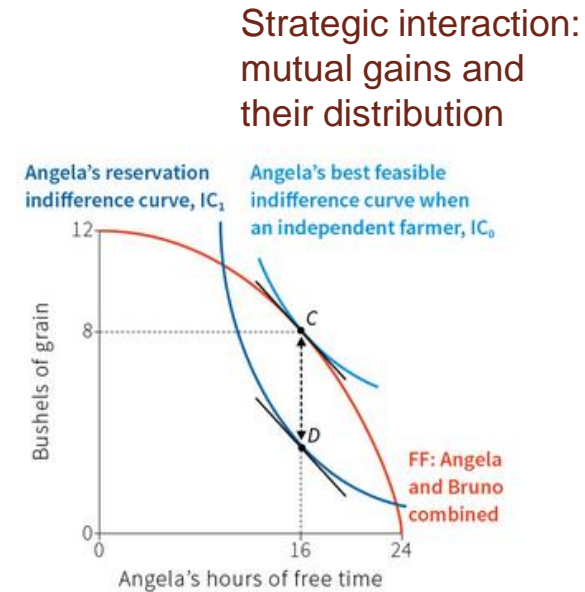
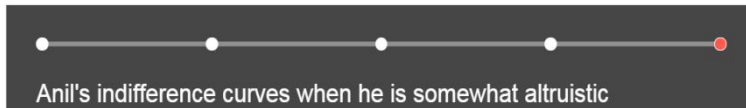
What could
explain this?

2015-2016 CORE cohort
2014-2015 non-CORE

Why does it work? Teaching the tools of economics – feasible sets and preferences – motivated by and applied to real problems in the world

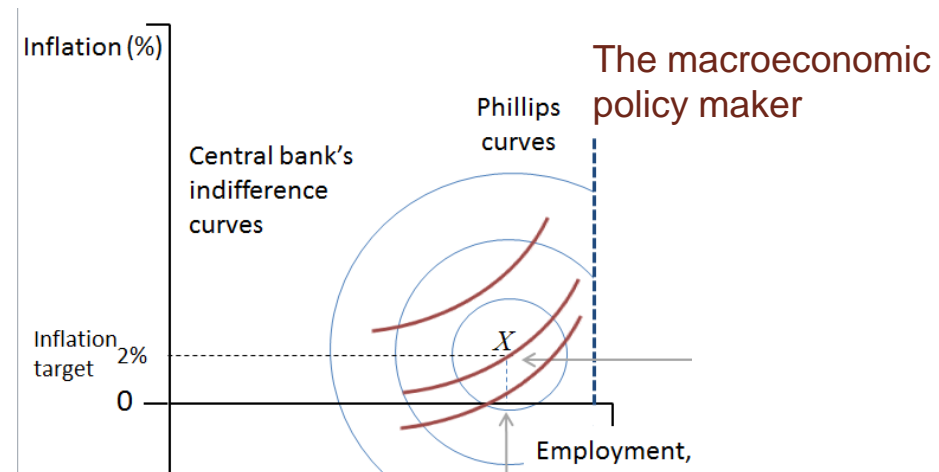
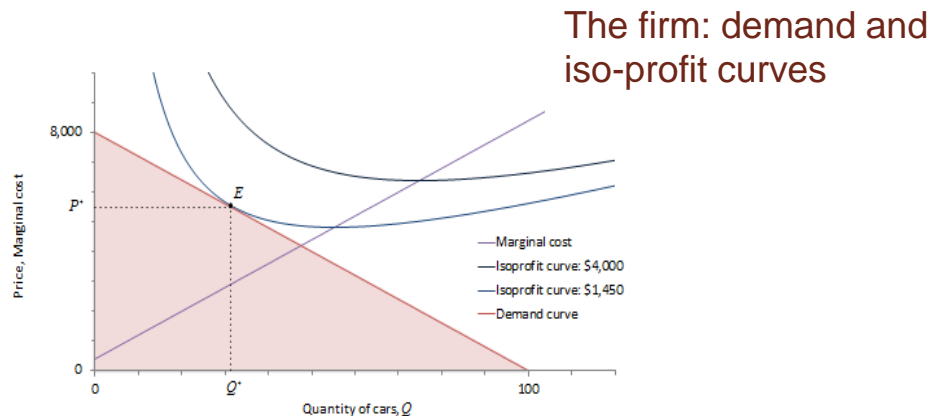


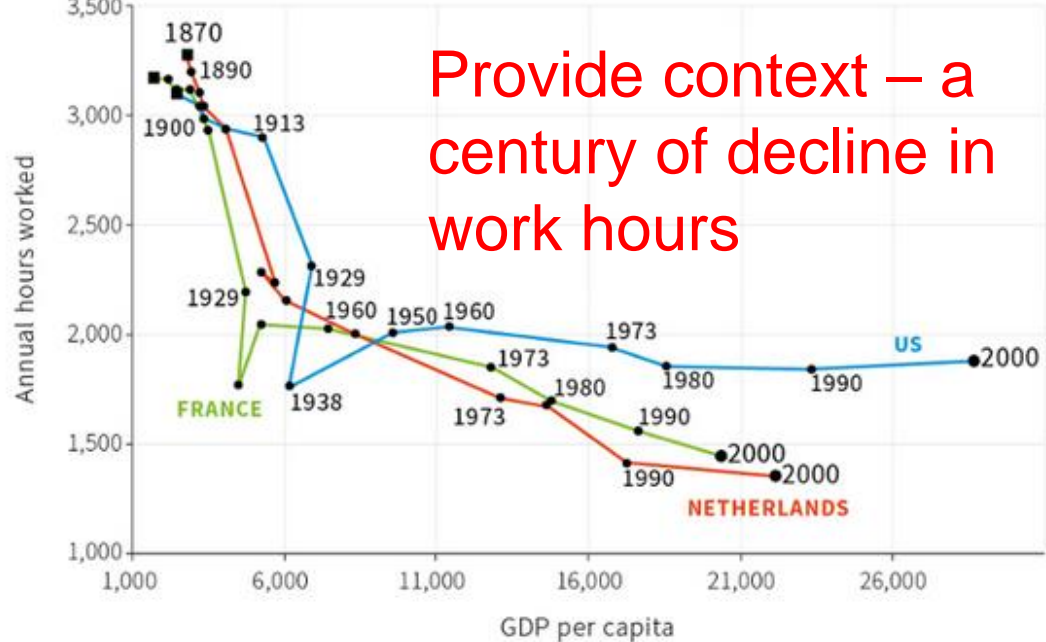
The individual:
selfish and altruist preferences



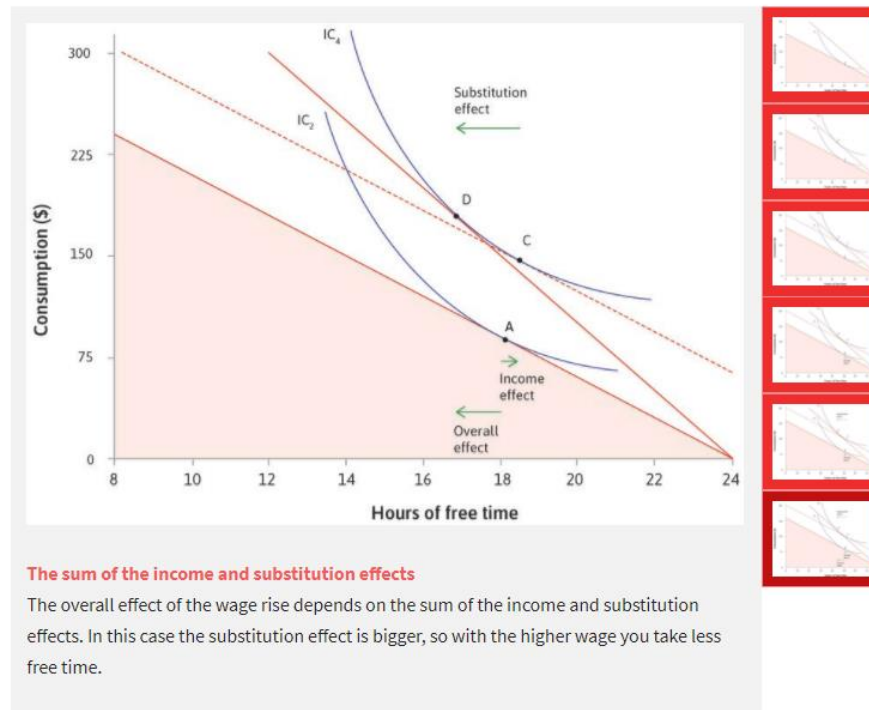
The US and South Korea

Point Q is at the intersection of the indifference curves for the US and South Korea. At this point Americans are willing to give up more units of daily goods for an hour of free time than South Koreans.



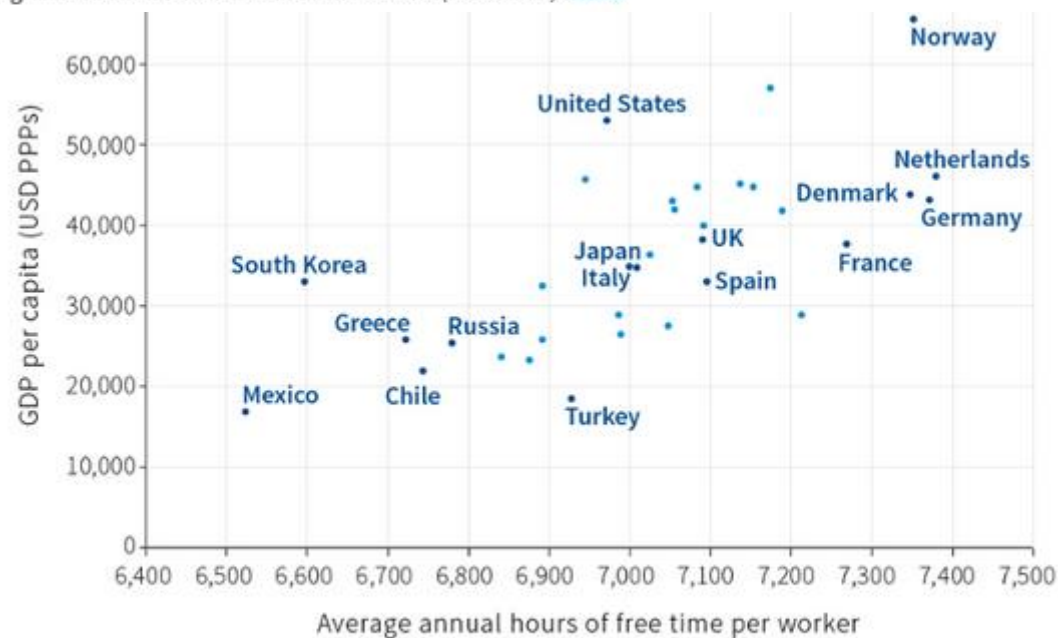


Provide context – a century of decline in work hours

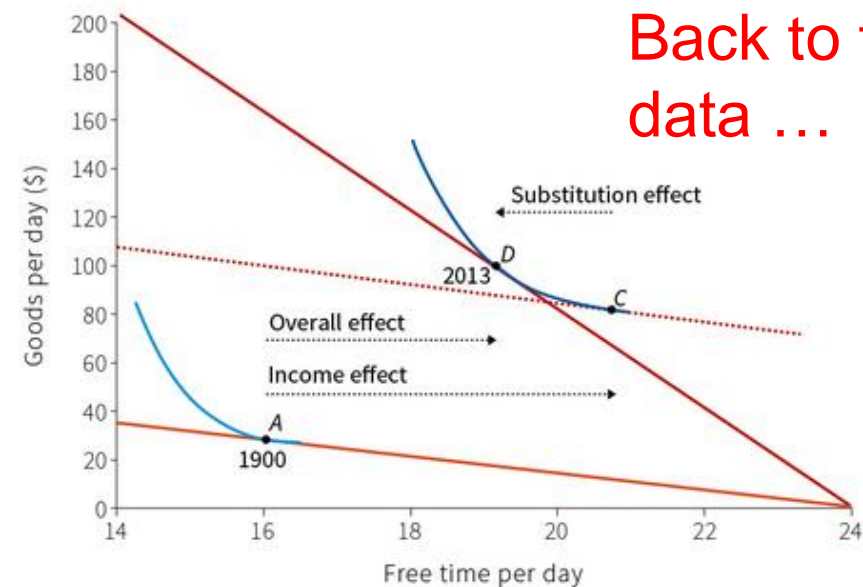


The theory

Figure 3.1 Annual hours of work and income (1870-2000). Source



Motivate income and substitution effects



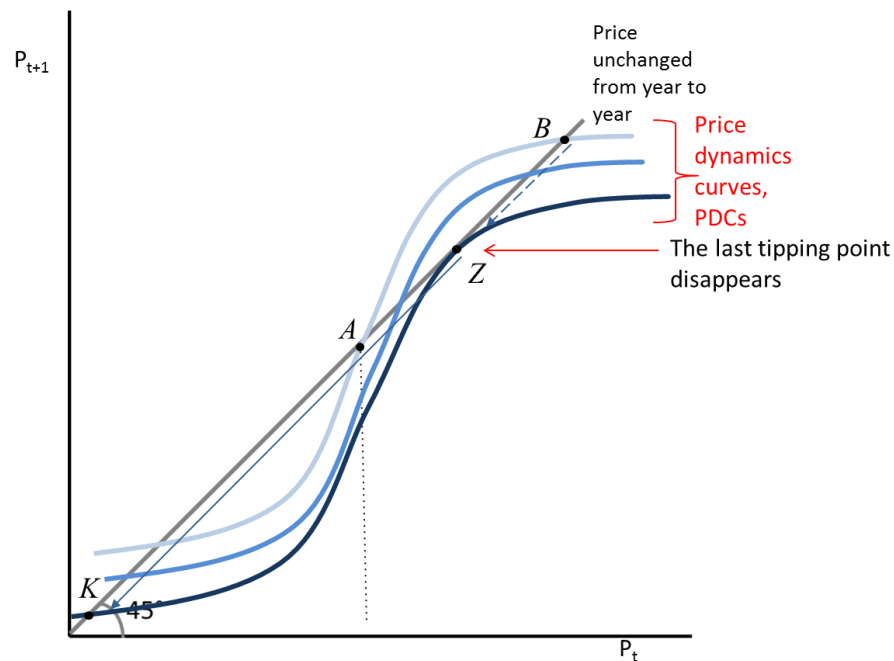
Back to the data ...

Figure 3.2 Annual hours of free time per worker and income (2013). Source

Teaching the tools of economics – dynamics & instability – applied to real problems

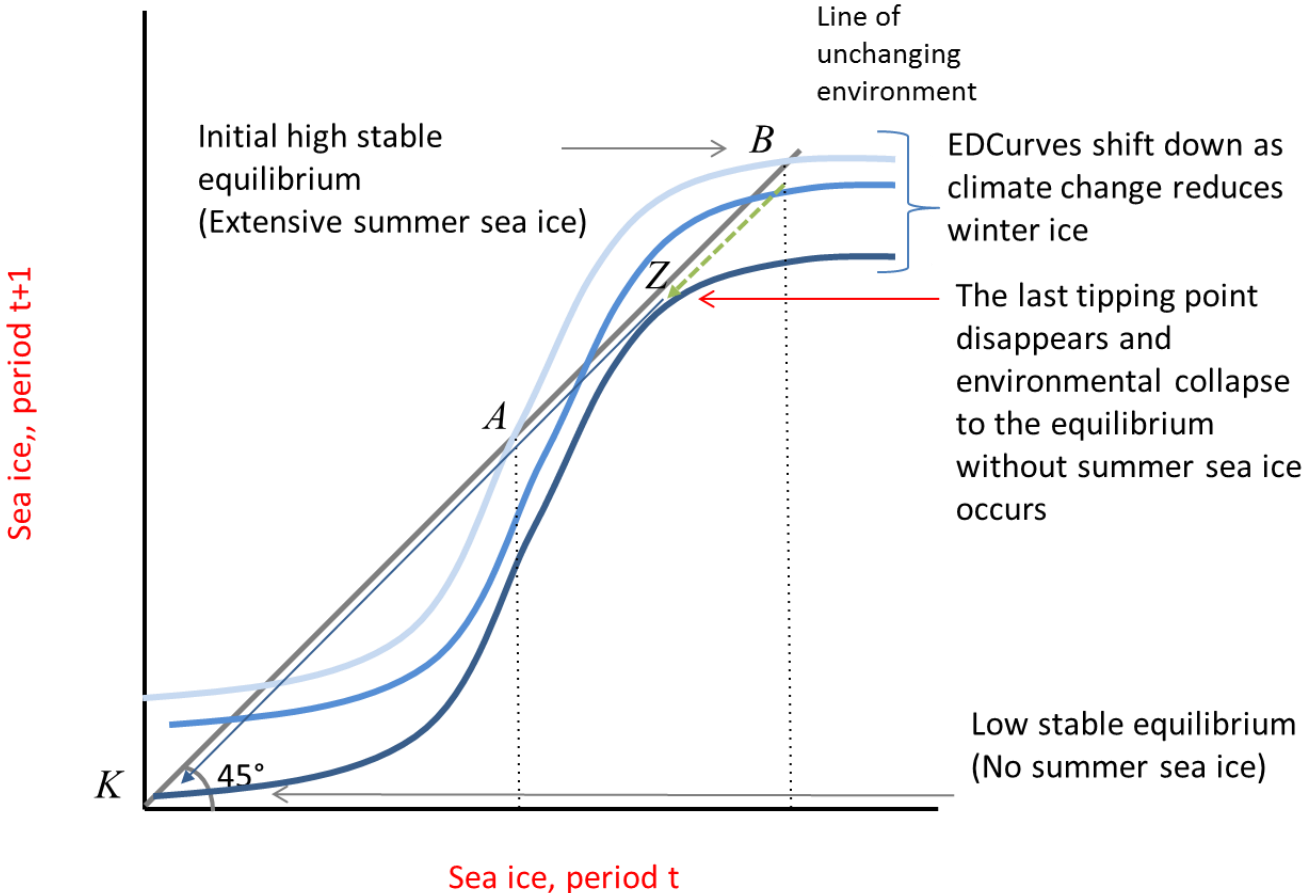
A bubble in the housing market

Figure 17.24. A tipping point in the housing market.



An environmental tipping point

Figure 20.24. Climate change and irreversible loss of summer Arctic sea ice.



Teaching the tools of economics – motivated & disciplined by facts

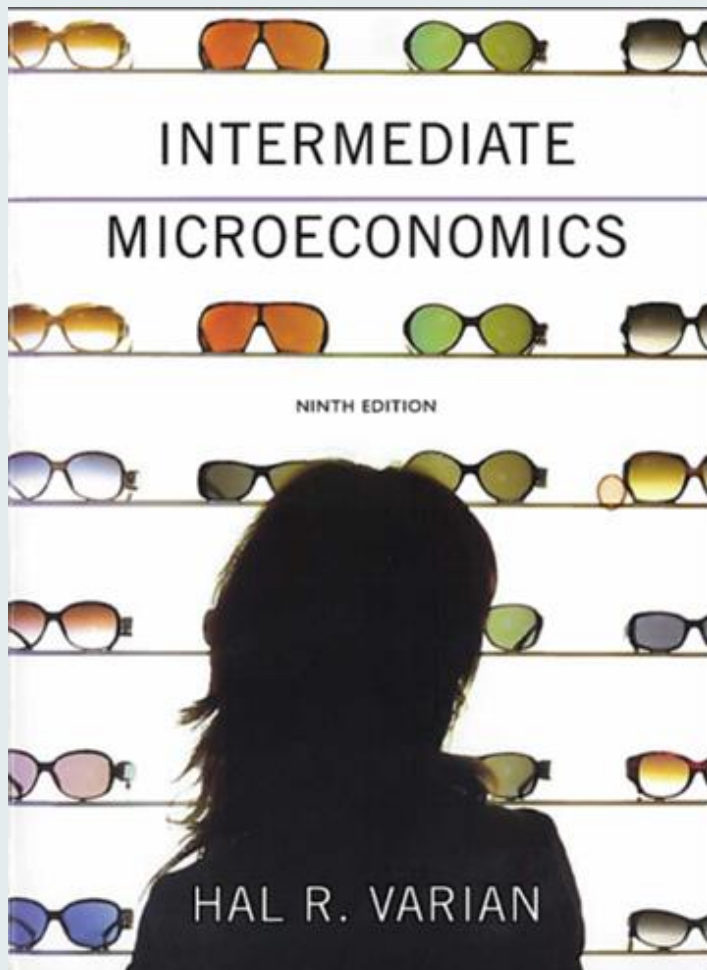
In this video, Nobel laureate James Heckman and Thomas Piketty explain how collecting data has been fundamental to their work on inequality and the policies to reduce it.



- New problems sometimes instigate new paradigms in economics (Kuhn: a paradigm is what good undergraduates learn)
 - e.g. the Great Depression and the “Keynesian revolution”
- And these new paradigms are eventually codified in a new textbook.
 - e.g. the “Keynesian revolution” and Samuelson 1948
- Earlier paradigm setting texts: Marshall 1890, Mill 1848
- The basic content and method of the top intro economics textbooks has changed little in the half century since Samuelson.

Samuelsonian benchmark model	<i>Economics</i>
Far-sighted, self-interested	<i>People</i>
Price-taking markets	<i>Interactions</i>
Complete	<i>Information</i>
Complete	<i>Contracts</i>
Markets	<i>Institutions</i>
Largely ignored	<i>History</i>
Preferences and budget constraints differ among buyers and sellers	<i>Differences among people</i>
In monopoly, governmental powers	<i>Power</i>
‘Rent-seeking’ creates inefficiencies	<i>Economic rents</i>
The economy is self-stabilizing	<i>Stability</i>
Are there unexploited mutual gains?	<i>Evaluation</i>

Economics as shopping?



1 The Market

Constructing a Model 1 Optimization and Equilibrium 3 The Demand Curve 3 The Supply Curve 5 Market Equilibrium 7 Comparative Statics 9 Other Ways to Allocate Apartments 11 *The Discriminating Monopolist* • *The Ordinary Monopolist* • *Rent Control* • Which Way Is Best? 14 Pareto Efficiency 15 Comparing Ways to Allocate Apartments 16 Equilibrium in the Long Run 17 Summary 18 Review Questions 19

2 Budget Constraint

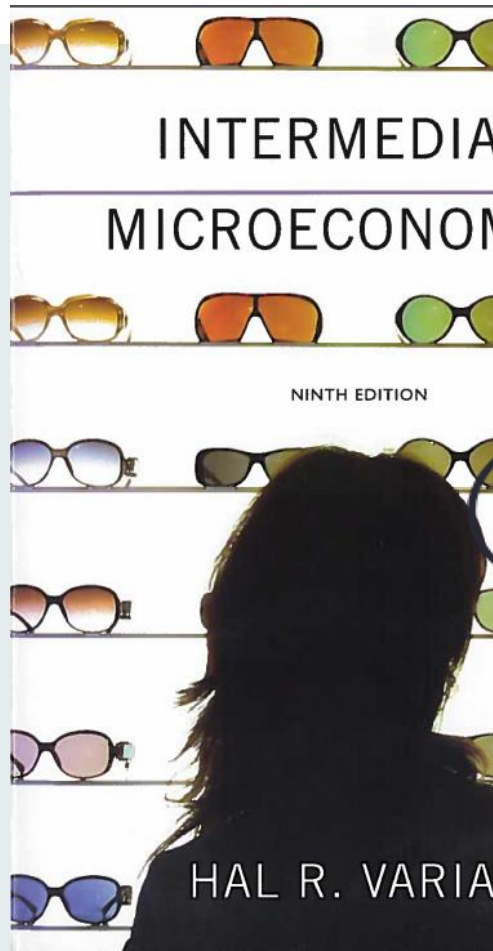
The Budget Constraint 20 Two Goods Are Often Enough 21 Properties of the Budget Set 22 How the Budget Line Changes 24 The Numeraire 26 Taxes, Subsidies, and Rationing 26 *Example: The Food Stamp Program* Budget Line Changes 31 Summary 31 Review Questions 32

3 Preferences

Consumer Preferences 34 Assumptions about Preferences 35 Indifference Curves 36 Examples of Preferences 37 *Perfect Substitutes* • *Perfect Complements* • *Bads* • *Neutrals* • *Satiation* • *Discrete Goods* • Well-Behaved Preferences 44 The Marginal Rate of Substitution 48 Other Interpretations of the MRS 50 Behavior of the MRS 51 Summary 52 Review Questions 52

New problems and advances in theory go to the back of the book

fixed from one period to the next, but as it turns out, both firms keep changing their output. Only in equilibrium is one firm's expectation about the other firm's output choice actually satisfied. For this reason, we will generally ignore the question of how the equilibrium is reached and focus only on the issue of how the firms behave in the equilibrium.



26 Factor Markets

Monopoly in the Output Market 485 Monopsony 488 Example: *The Minimum Wage* Upstream and Downstream Monopolies 492 Summary 494 Review Questions 495 Appendix 495

27 Oligopoly

Choosing a Strategy 498 Example: *Pricing Matching* Quantity Leadership 499 *The Follower's Problem* • *The Leader's Problem* • Price Leadership 504 Comparing Price Leadership and Quantity Leadership 507 Simultaneous Quantity Setting 507 An Example of Cournot Equilibrium 509 Adjustment to Equilibrium 510 Many Firms in Cournot Equilibrium 511 Simultaneous Price Setting 512 Collusion 513 Punishment Strategies 515 Example: *Price Matching and Competition* Example: *Voluntary Export Restraints* Comparison of the Solutions 519 Summary 519 Review Questions 520

28 Game Theory

The Payoff Matrix of a Game 522 Nash Equilibrium 524 Mixed Strategies 525 Example: *Rock Paper Scissors* The Prisoner's Dilemma 527 Repeated Games 529 Enforcing a Cartel 530 Example: *Tit for Tat in Airline Pricing* Sequential Games 532 A Game of Entry Deterrence 534 Summary 536 Review Questions 537

29 Game Applications

Best Response Curves 538 Mixed Strategies 540 Games of Coordination 542 *Battle of the Sexes* • *Prisoner's Dilemma* • *Assurance Games* • *Chicken* • *How to Coordinate* • Games of Competition 546 Games of Coexistence 551 Games of Commitment 553 *The Frog and the Scorpion* • *The Kindly Kidnapper* • *When Strength Is Weakness* • *Savings and Social Security* • *Hold Up* • Bargaining 561 *The Ultimatum Game* • Summary 564 Review Questions 565

CONTENTS XV

XVI CONTENTS

30 Behavioral Economics

Framing Effects in Consumer Choice 567 *The Disease Dilemma* • *Anchoring Effects* • *Bracketing* • *Too Much Choice* • *Constructed Preferences* • *Uncertainty* 571 *Law of Small Numbers* • *Asset Integration and Loss Aversion* • Time 574 *Discounting* • *Self-control* • Example: *Overconfidence* Strategic Interaction and Social Norms 576 *Ultimatum Game* • *Fairness* • Assessment of Behavioral Economics 578 Summary 579 Review Questions 581

31 Exchange

The Edgeworth Box 583 Trade 585 Pareto Efficient Allocations 586 Market Trade 588 The Algebra of Equilibrium 590 Walras' Law 592 Relative Prices 593 Example: *An Algebraic Example of Equilibrium* The Existence of Equilibrium 595 Equilibrium and Efficiency 596 The Algebra of Efficiency 597 Example: *Monopoly in the Edgeworth Box* Efficiency and Equilibrium 600 Implications of the First Welfare Theorem 602 Implications of the Second Welfare Theorem 604 Summary 606 Review Questions 607 Appendix 607

32 Production

The Robinson Crusoe Economy 609 Crusoe, Inc. 611 The Firm 612 Robinson's Problem 613 Putting Them Together 613 Different Technologies 615 Production and the First Welfare Theorem 617 Production and the Second Welfare Theorem 618 Production Possibilities 618 Comparative Advantage 620 Pareto Efficiency 622 Castaways, Inc. 624 Robinson and Friday as Consumers 626 Decentralized Resource Allocation 627 Summary 628 Review Questions 628 Appendix 629

33 Welfare

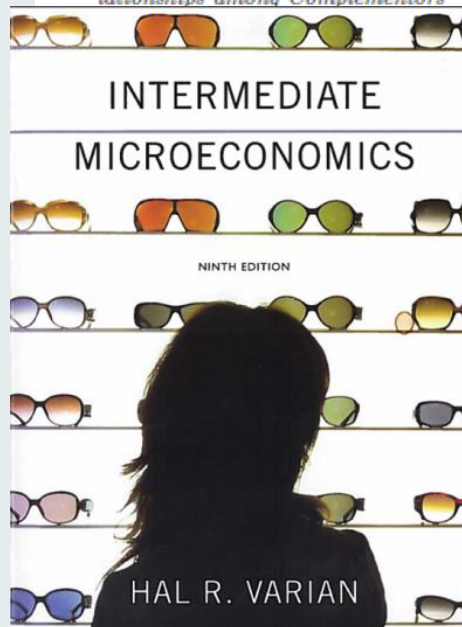
Aggregation of Preferences **632** Social Welfare Functions **634** Welfare Maximization **636** Individualistic Social Welfare Functions **638** Fair Allocations **639** Envy and Equity **640** Summary **642** Review Questions **642** Appendix **643**

34 Externalities

Smokers and Nonsmokers **645** Quasilinear Preferences and the Coase Theorem **648** Production Externalities **650** *Example: Pollution Vouchers* Interpretation of the Conditions **655** Market Signals **658** *Example: Bees and Almonds* The Tragedy of the Commons **659** *Example: Overfishing* *Example: New England Lobsters* Automobile Pollution **663** Summary **665** Review Questions **665**

35 Information Technology

Systems Competition **668** The Problem of Complements **668** *Relationships among Complementors* • *Example: Apple's iPod and iTunes* • *Example: AdWords and AdSense* Lock-in with Switching Costs • *Example: Number Portability on Cell Phones* Network Externalities **678** Market Network Externalities in Computer Software **684** *Example: The Yellow Pages* Two-sided Markets **686** A Model of Network Externalities **687** *Example: Video Rental* • *Example: Online Two-sided Markets* **693**



36 Public Goods

When to Provide a Public Good? **695** Private Provision of the Public Good **699** Free Riding **699** Different Levels of the Public Good **701** Quasilinear Preferences and Public Goods **703** *Example: Pollution Revisited* The Free Rider Problem **705** Comparison to Private Goods **707** Voting **708** *Example: Agenda Manipulation* The Vickrey-Clarke-Groves Mechanism **711** *Groves Mechanism* • *The VCG Mechanism* • Examples of VCG **713** *Vickrey Auction* • *Clarke-Groves Mechanism* • Problems with the VCG **714** Summary **715** Review Questions **716** Appendix **716**

37 Asymmetric Information

The Market for Lemons **719** Quality Choice **720** *Choosing the Quality* • Adverse Selection **722** Moral Hazard **724** Moral Hazard and Adverse Selection **725** Signaling **726** *Example: The Sheepskin Effect* Incentives **730** *Example: Voting Rights in the Corporation* *Example: Chinese Economic Reforms* Asymmetric Information **735** *Example: Monitoring Costs* *Example: The Grameen Bank* Summary **738** Review Questions **739**

Mathematical Appendix

Functions **A1** Graphs **A2** Properties of Functions **A2** Inverse Functions **A3** Equations and Identities **A3** Linear Functions **A4** Changes and Rates of Change **A4** Slopes and Intercepts **A5** Absolute Values and Logarithms **A6** Derivatives **A6** Second Derivatives **A7** The Product Rule and the Chain Rule **A8** Partial Derivatives **A8** Optimization **A9** Constrained Optimization **A10**

Answers **A11**

Index **A31**

Brief Table of Contents for Mankiw's Principles of Economics

Part One: Introduction

1. Ten Principles of Economics
 2. Thinking Like an Economist
- Appendix: Graphing A Brief Review
3. Interdependence and the Gains from Trade

Part Two: Supply and Demand I: How Markets Work

4. The Market Forces of Supply and Demand
5. Elasticity and Its Application
6. Supply, Demand, and Government Policies

Part Three: Supply and Demand II: Markets and Welfare

7. Consumers, Producers and the Efficiency of Markets

Fourth Edition ©2015

Economics

Paul Krugman (*City University of New York*) , Robin Wells

PART 1 What Is Economics?

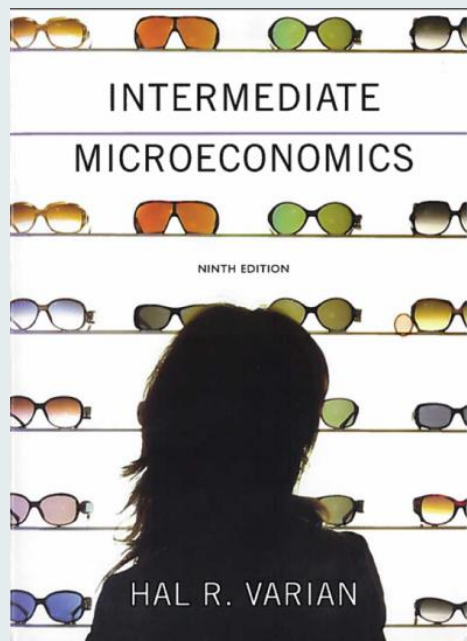
Intro The Ordinary Business of Life

- 1 First Principles
 - 2 Economic Models: Trade-offs and Trade 25
- Appendix Graphs in Economics*

PART 2 Supply and Demand

- 3 Supply and Demand
- 4 Consumer and Producer Surplus
- 5 Price Controls and Quotas: Meddling with Markets
- 6 Elasticity

PART 3 Individuals & Markets



Suppose that the intro course began a little differently...



UNIT ONE

THE CAPITALIST REVOLUTION



HOW CAPITALISM REVOLUTIONIZED THE WAY WE LIVE, AND HOW ECONOMICS ATTEMPTS TO UNDERSTAND THIS AND OTHER ECONOMIC SYSTEMS

- Since the 1700s, increases in average living standards became a permanent feature of economic life in many countries.
- This was associated with the emergence of a new economic system

LEGEND: CORE THEMES

- 17: History, instability and growth
- 18: Global economy
- 19: Inequality
- 20: Environment
- 21: Innovation
- 22: Politics and policy

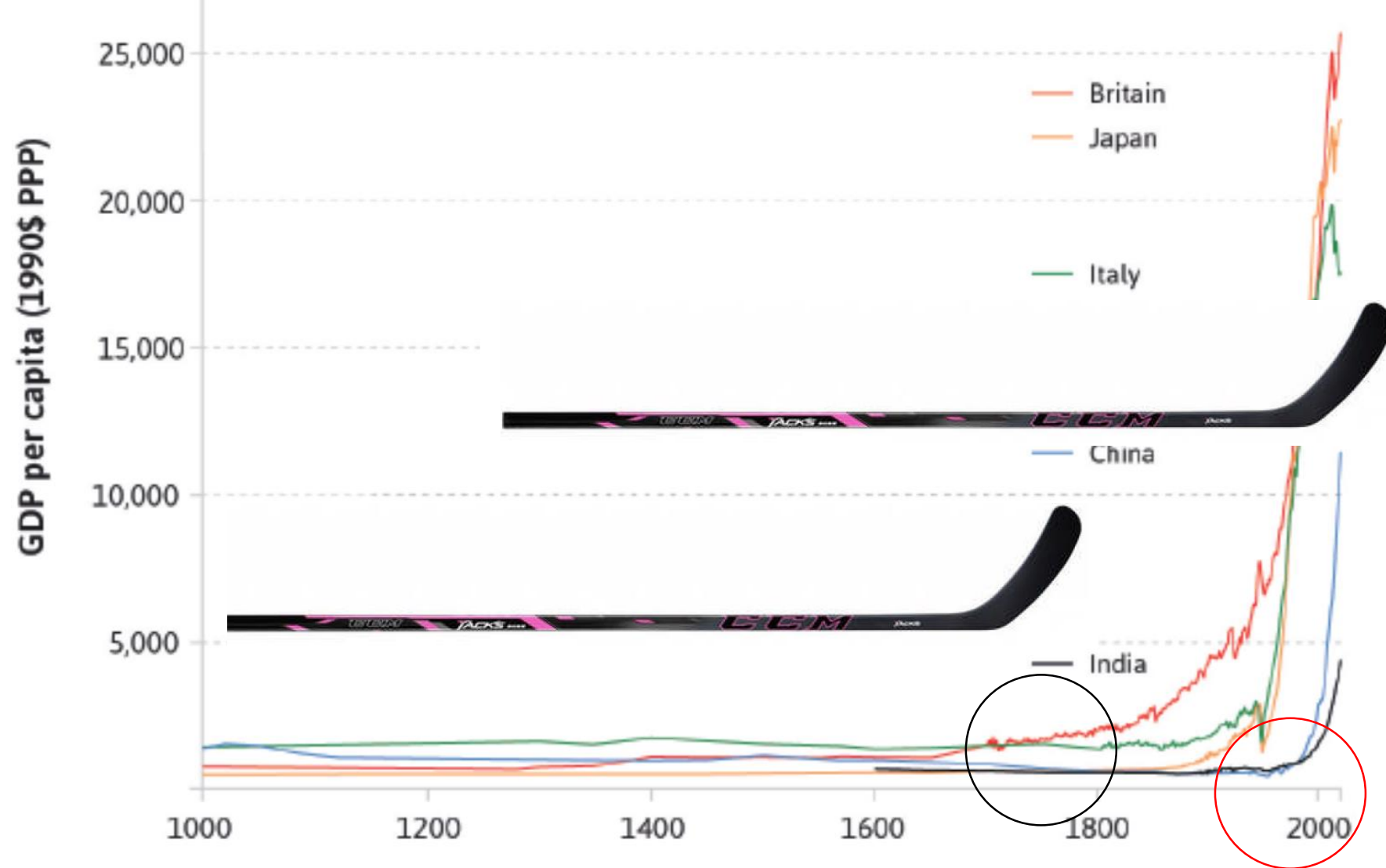
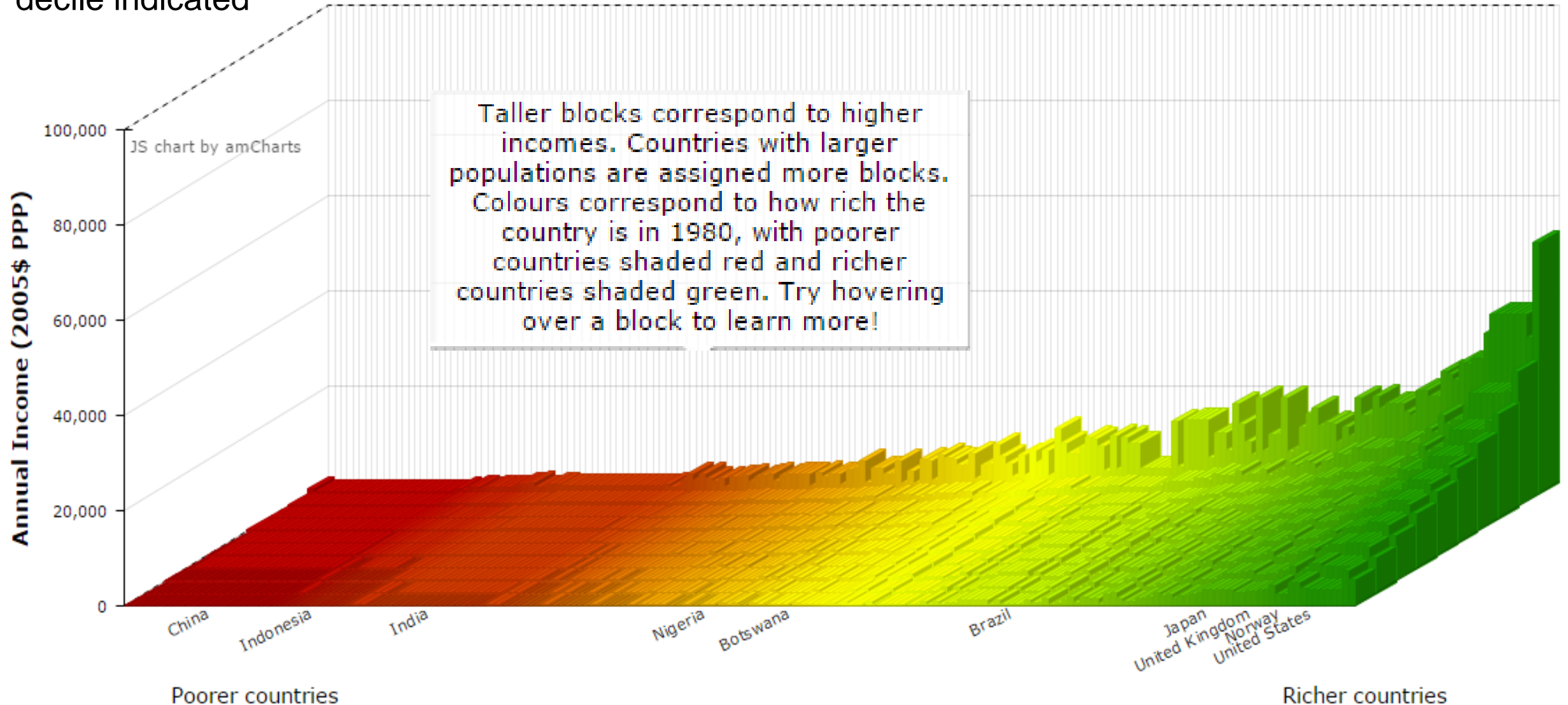


Figure 1.1 History's hockey stick: Gross domestic product per capita in five countries (1000-2015).

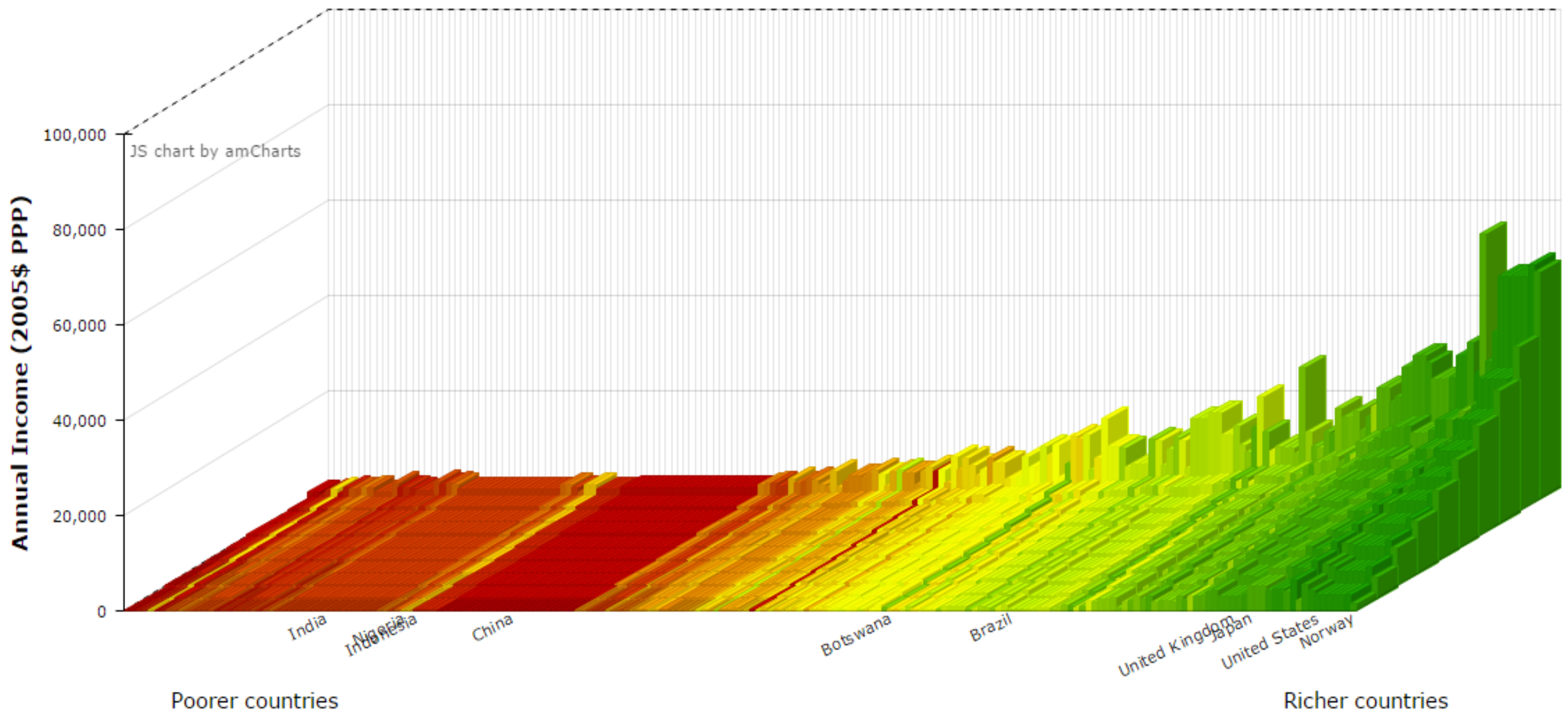
One of the first figures the student sees in CORE (and can [manipulate](#))

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

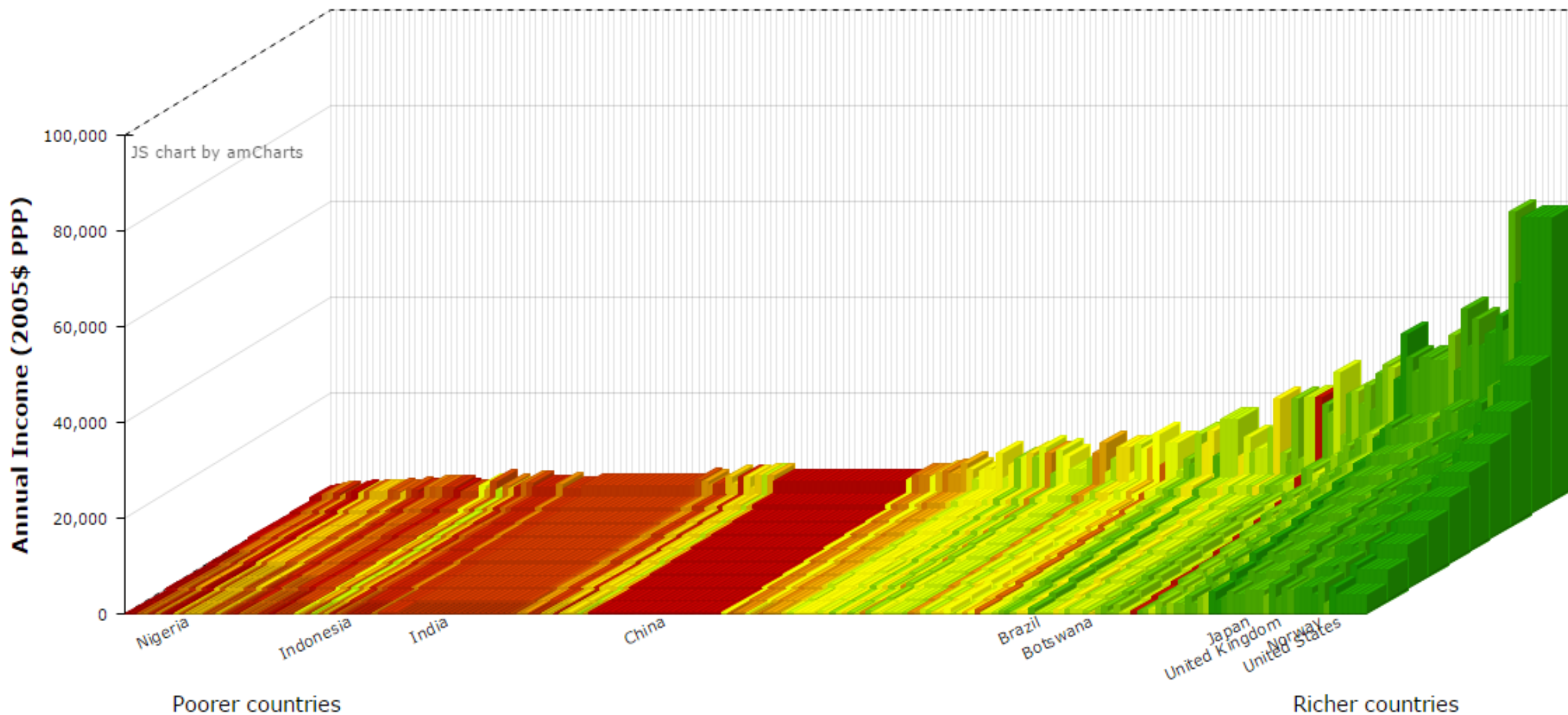
1980



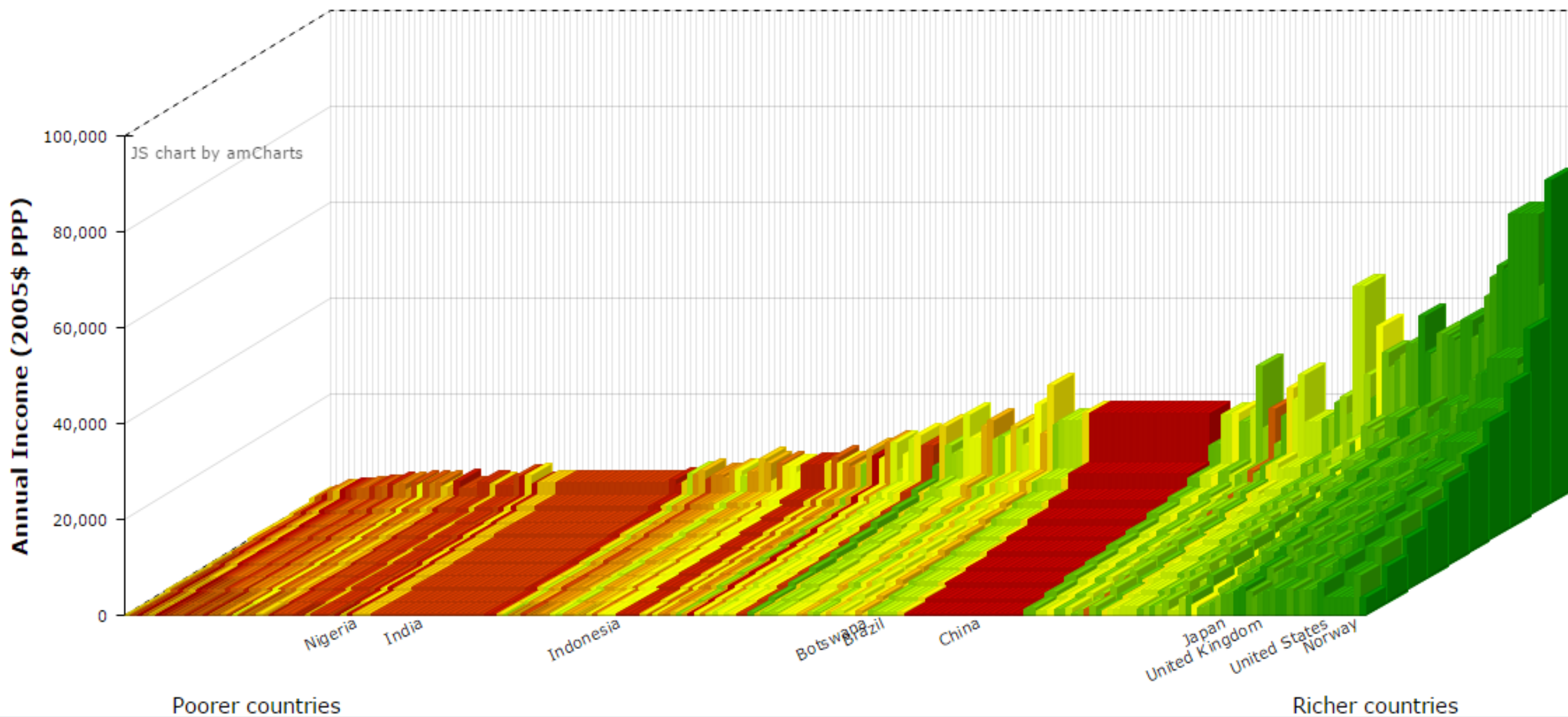
1990



2000

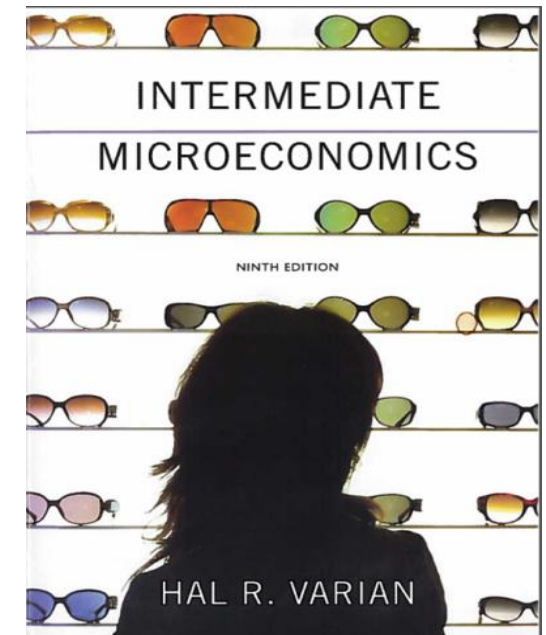
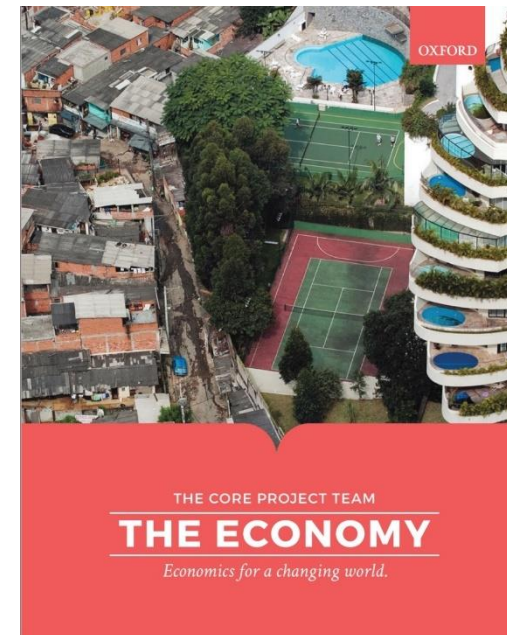
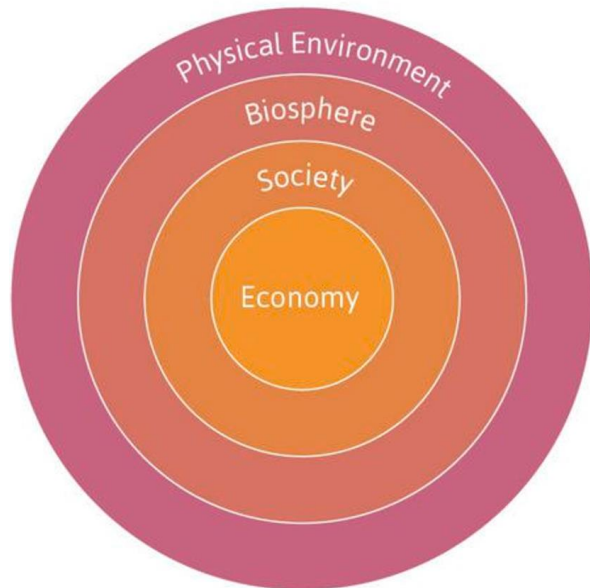


2014



In the standard texts, why are the new problems and topics at the end of the book?

- Not because they are more **difficult**
- Not because the **prior theory** is required to study them
- They are at the end because putting them at the front would alter the students' conception of **what economics is about** (i.e. not shopping, not just constrained optimization)
- ... and it would force **a change in some basic concepts** to accommodate the new subject material



If the new problems and questions are at the front of the book there will have to be some changes in the **rest** of the book...examples.

Problems

- Wealth creation & growth
- Environmental problems
- Inequality
- Unemployment & fluctuations
- Instability

*Key concepts **new to Intro***

- Schumpeterian rents, disequilibrium
- Social interactions / other-regarding preferences
- Rents, bargaining power, institutions
- Incomplete contracts in labour & credit markets
- Prices as information & dynamics of price-setting

If the new problems and questions are at the front of the book there will have to be some changes in the **rest** of the book...examples.

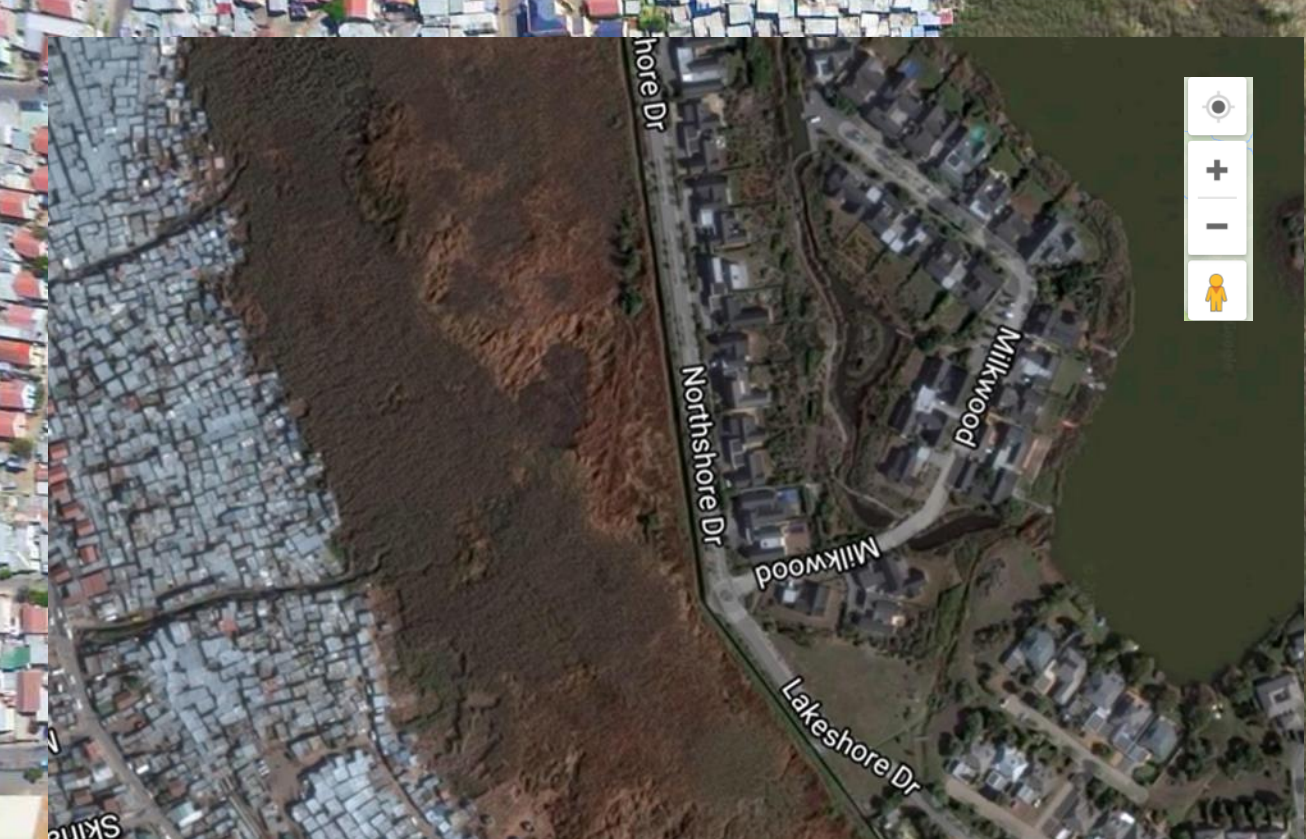
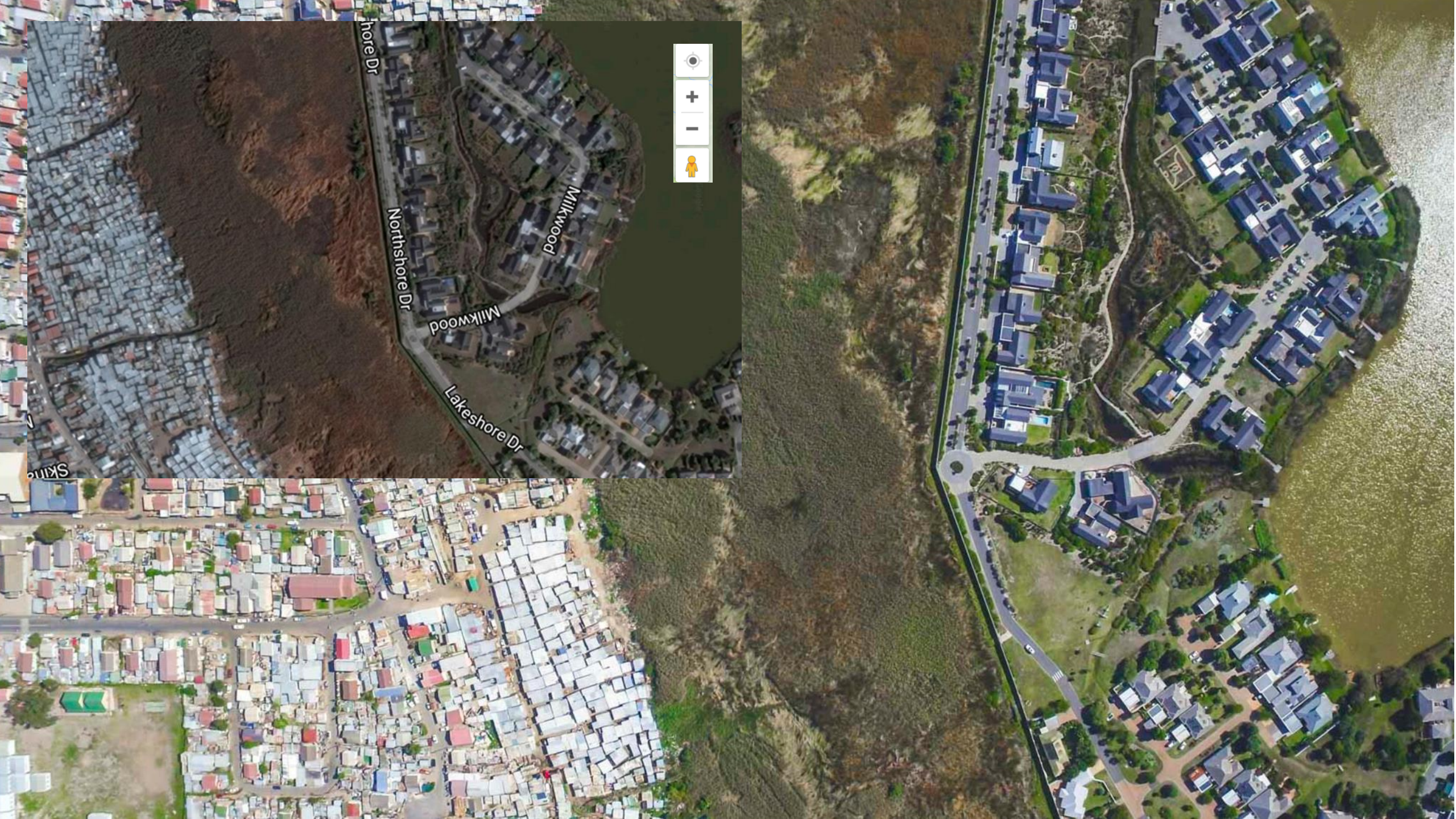
Problems

- Wealth creation & growth
- Environmental problems
- **Inequality**
- Unemployment & fluctuations
- Instability

*Key concepts **new to Intro***

- Schumpeterian rents, disequilibrium
- Social interactions / other-regarding preferences
- **Rents, bargaining power, institutions**
- Incomplete contracts in labour & credit markets
- Prices as information & dynamics of price-setting





Economic institutions are the rules of the game – who does what and who gets what on a pirate ship

HOW INSTITUTIONS INFLUENCE THE BALANCE OF POWER IN INTERACTIONS AMONG ECONOMIC ACTORS, AND HOW THIS AFFECTS THE FAIRNESS AND EFFICIENCY OF THE ALLOCATIONS THAT RESULT

- Technology, biology, economic institutions and people's preferences all matter as determinants of economic outcomes
- Interactions between economic actors can result in mutual gains, and also in conflicts over how the gains are distributed
- *Power* is the ability to do and get the things we want in opposition to others

THE ROVER'S ARTICLES

ARTICLE I

Every Man has a Vote in the Affairs of the Moment; has equal title to fresh Provisions...

ARTICLE III

No person to Game at Cards or Dice for Money.

ARTICLE IV

The Lights and Candles to be put out at eight a-Clock at Night; If any of the Crew after that Hour still remained enclined for drinking, they are to do so on the open Deck...

ARTICLE X

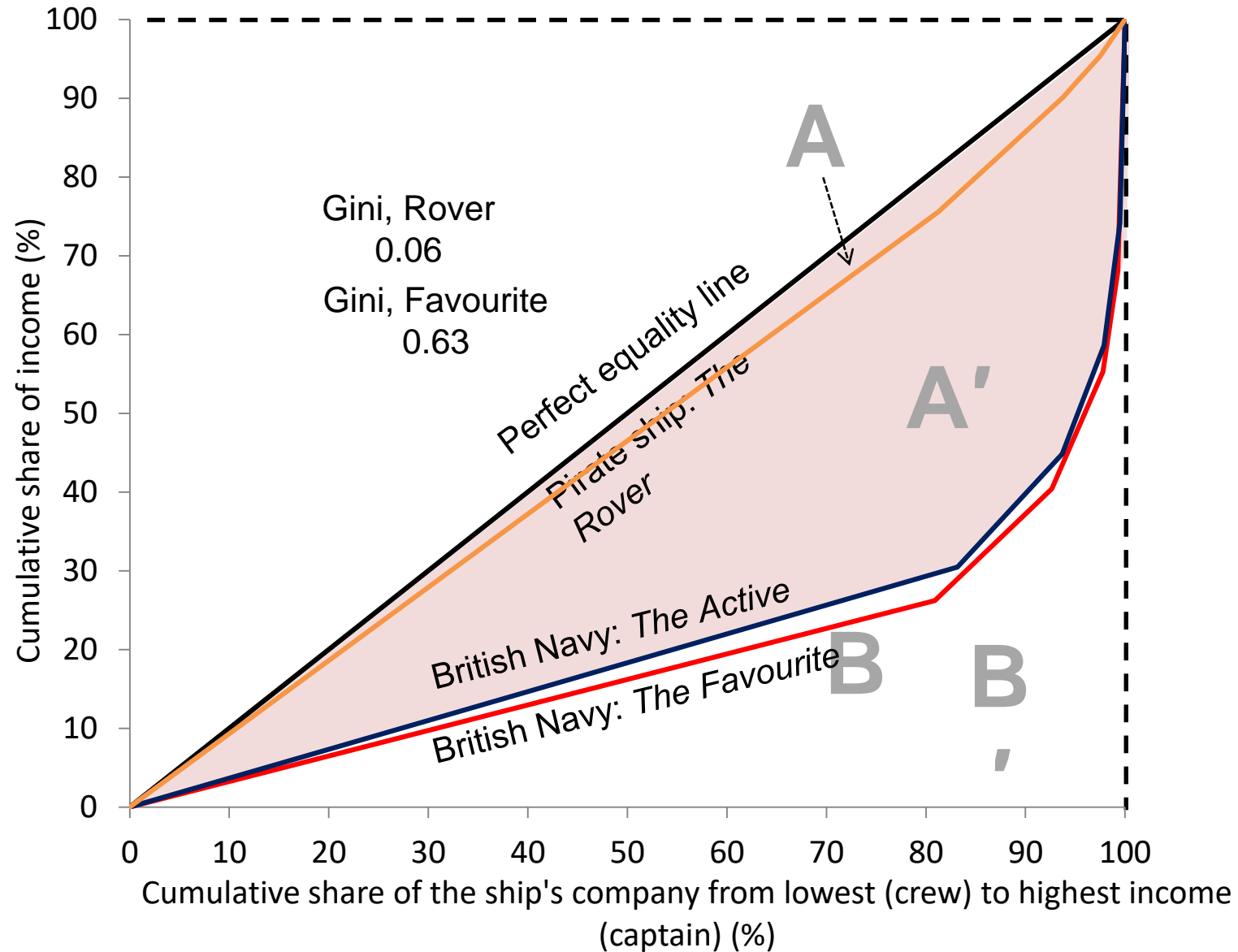
The Captain and Quarter Master to receive two Shares of a Prize (the booty from a captured ship); the Master, Boatswain, and Gunner one Share and a half, and other Officers one and a Quarter (everyone else to receive one share, called his Dividend.)

ARTICLE XI

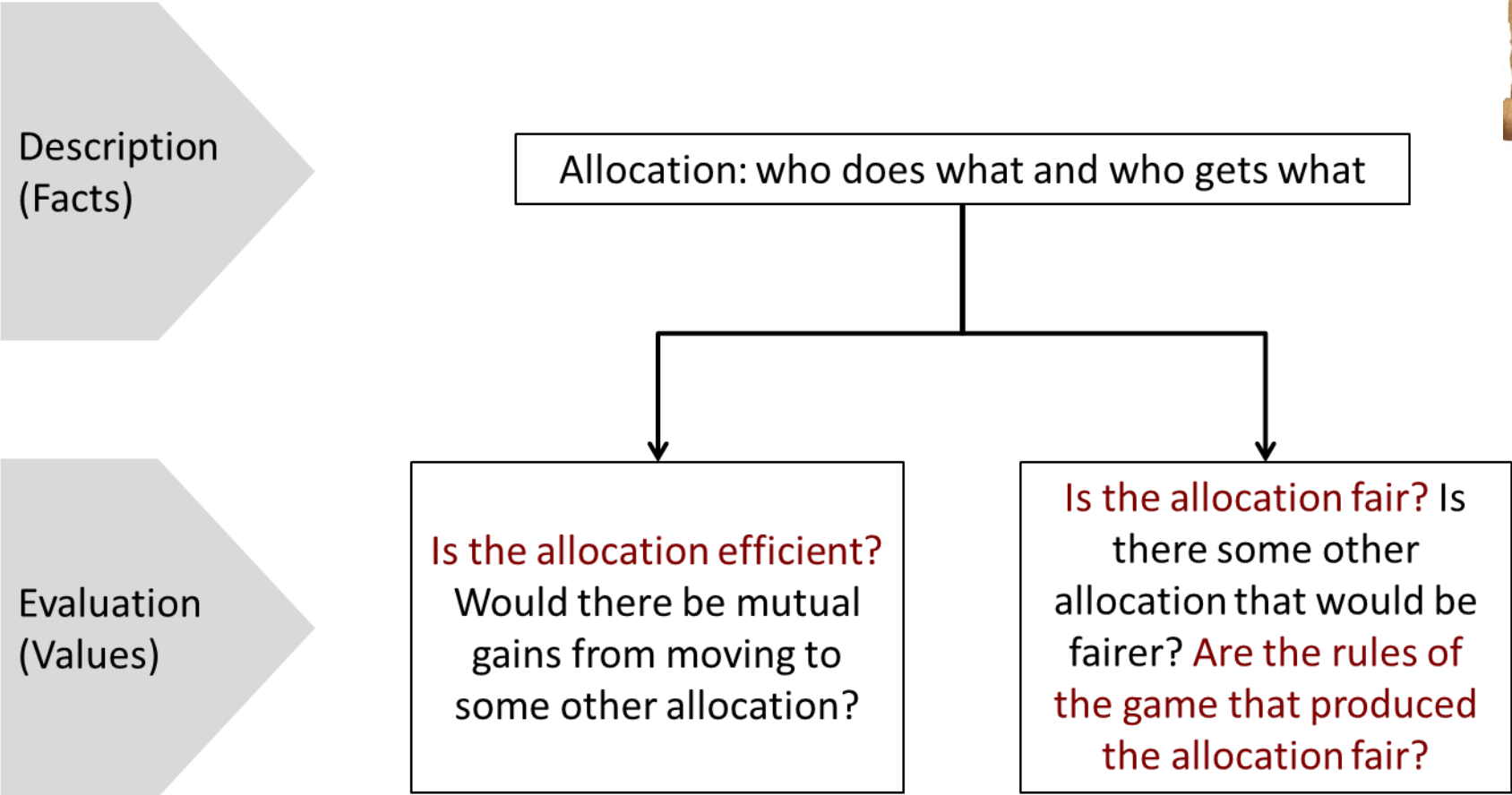
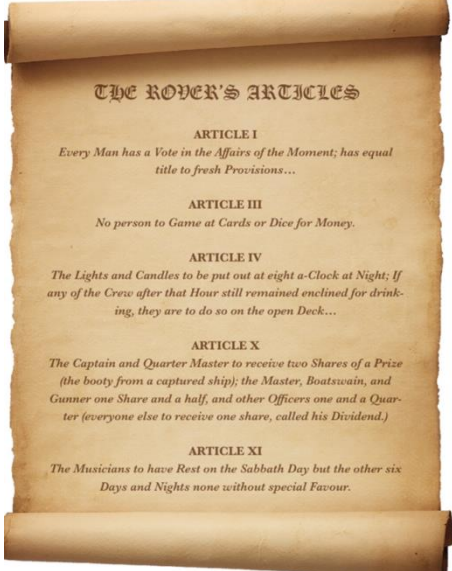
The Musicians to have Rest on the Sabbath Day but the other six Days and Nights none without special Favour.

Constitutions and contracts

Inequality in the division of the spoils: pirates and the Royal Navy



Every economic transaction involves both mutual gains & conflicts of interest



A Rawlsian question (used throughout)

DISCUSS 1.9: WHERE AND WHEN WOULD YOU CHOOSE TO HAVE BEEN BORN?

Suppose you can choose to be born in any time period in any of the countries in [Figure 1.1a](#), [1.10](#) or [1.12](#), but you know that you would be among the poorest 10% in the population.

1. In which country would you choose to be born?
2. Suppose, instead, you know you would be among the poorest 10% in the population, but you can move to the top 10% of the population if you work hard. In which country would you now choose to be born?
3. Finally, suppose that you can only decide on the country and time period of your birth. You cannot be sure if you would be born in the city or the countryside, would be male or female, rich or poor. In which time and country would you choose to be born?
4. For the scenario in (3), in which time and country you would least want to be born?

Use what you have learned from this unit to explain your choices.

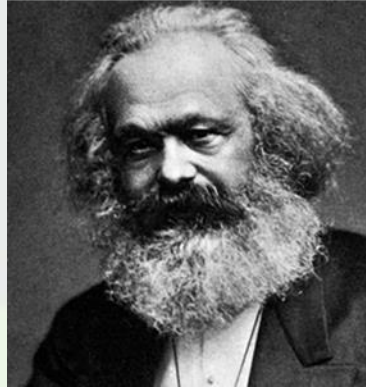
The politics of the firm

WHEN ECONOMISTS AGREE

RONALD COASE AND KARL MARX ON THE FIRM AND ITS EMPLOYEES

George Bernard Shaw (1856-1950), a writer, joked that "If all economists were laid end to end, they would not reach a conclusion."

This is funny, but not entirely true.



Even more striking is that two economists from different centuries and political orientations came up with similar ways of understanding the firm and its employees.

Recall that Coase had also defined the firm by its political structure: "If a workman moves from department Y to department X, he does not go because of a change in prices but because he is ordered to do so." He sought to understand why firms exist at all, calling them "islands of conscious power in this ocean of unconscious cooperation."

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 ...
for example, teach firms before markets

... 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 modelling framework's DNA

The Capitalist Revolution (Unit 1)
Technological Change and
Economic Growth (Unit 2)
Scarcity Work and Choice (Unit
3)
Social Interactions (Unit 4)
Property and Power: Mutual Gains
and Conflict (Unit 5)
The Firm: Owners, Managers &
Employees (Unit 6)
The Firm and its Customers (Unit 7)
Supply and Demand: Price-taking
and Competitive Markets (Unit 8)

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



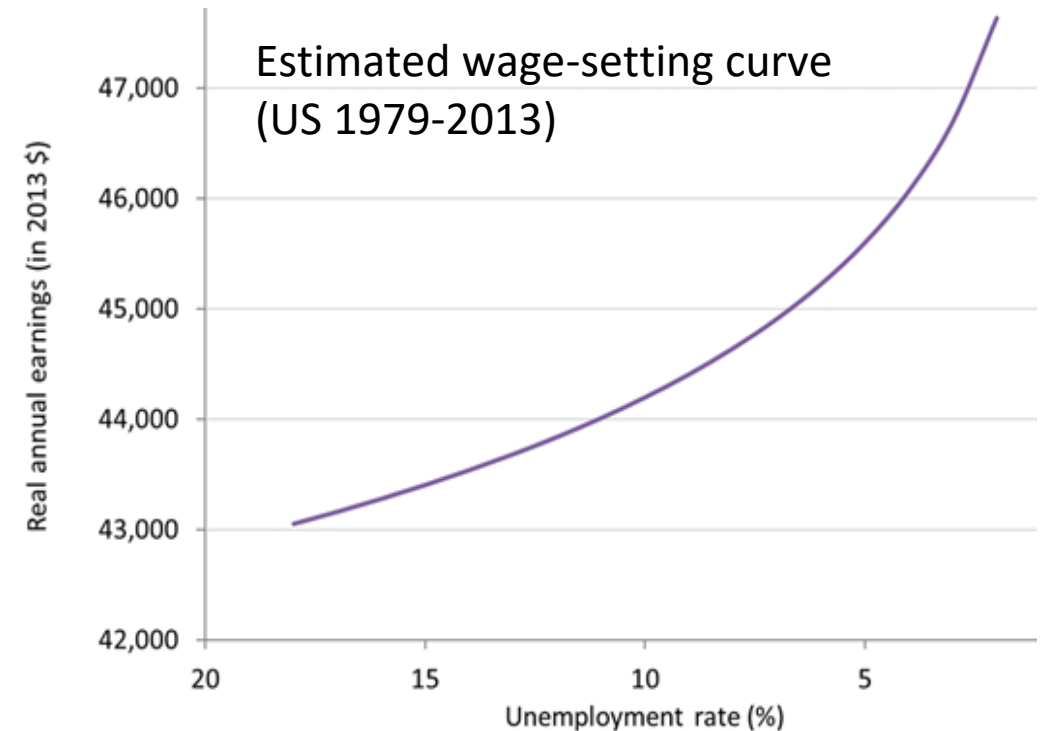
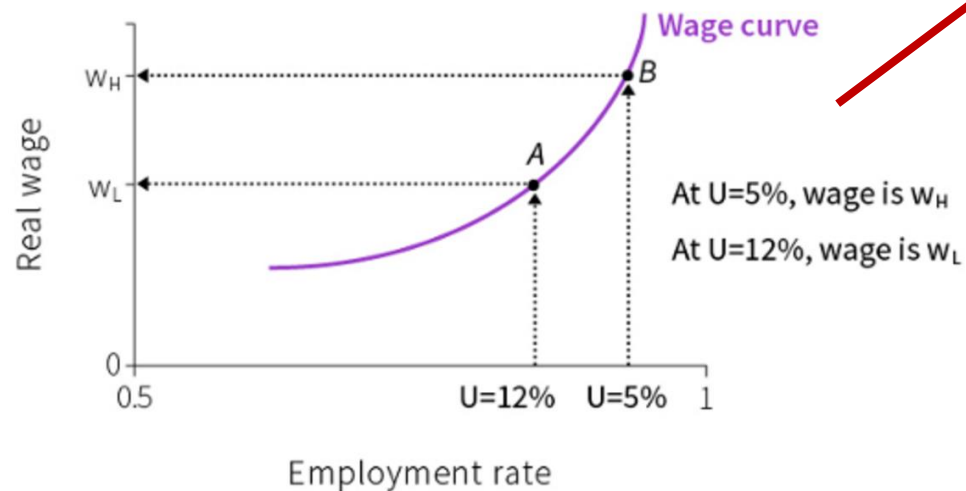
Conflict of interest over what ? Contract does not cover?

- 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

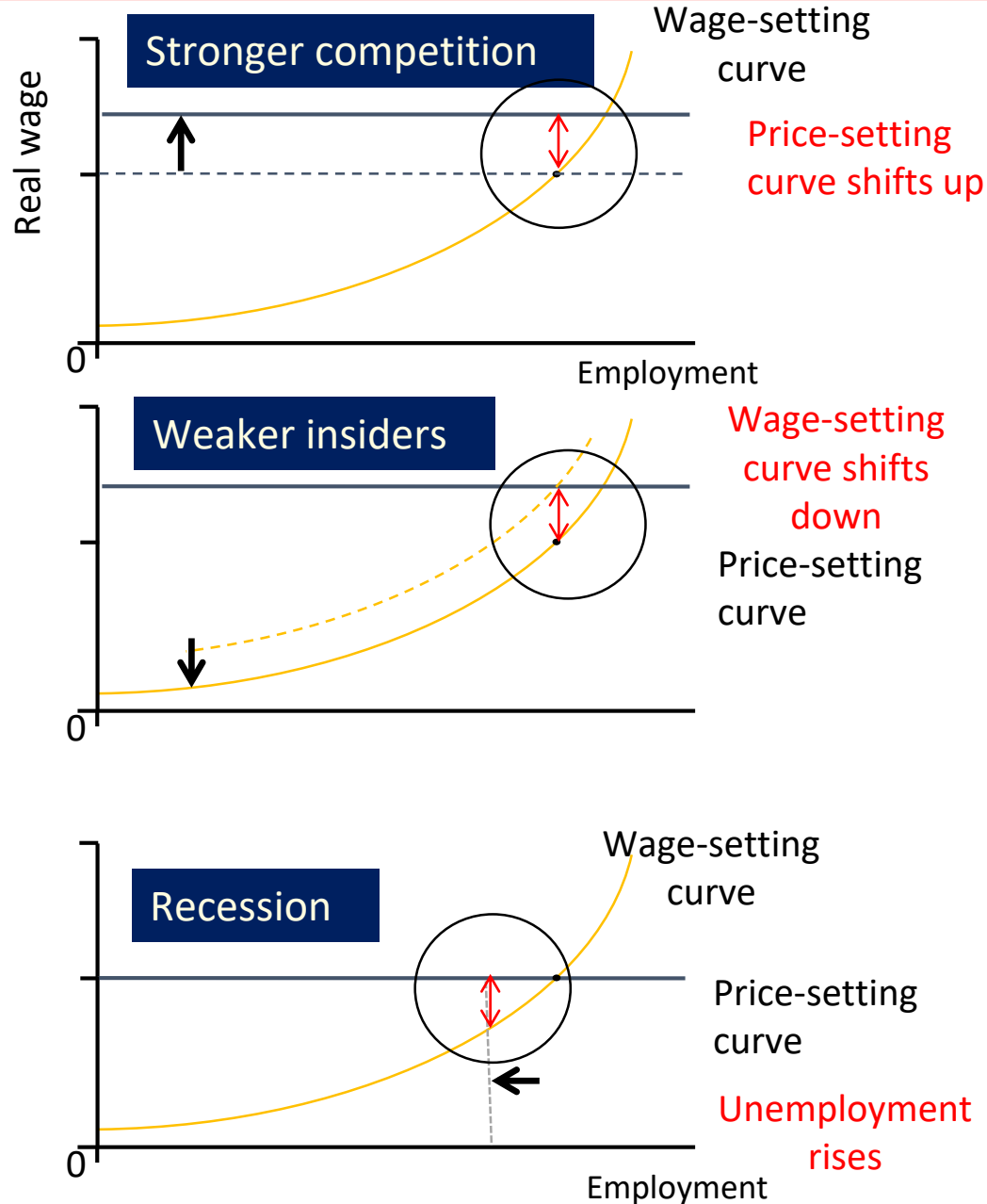


‘Micro’ – the firm sets the wage

‘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?

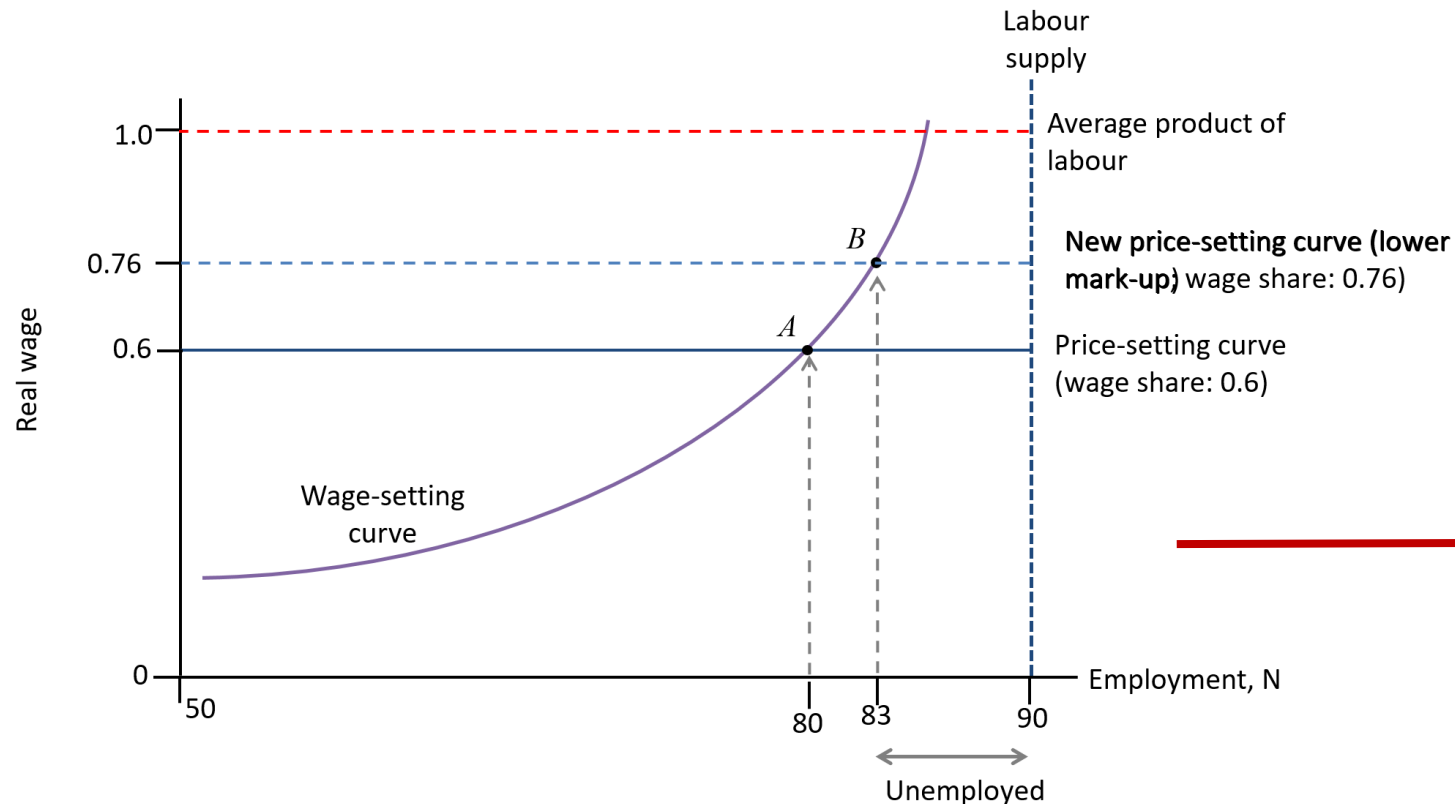
2. Employees' power falls relative to owners

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

Inequality in the aggregate economy – using Lorenz curves

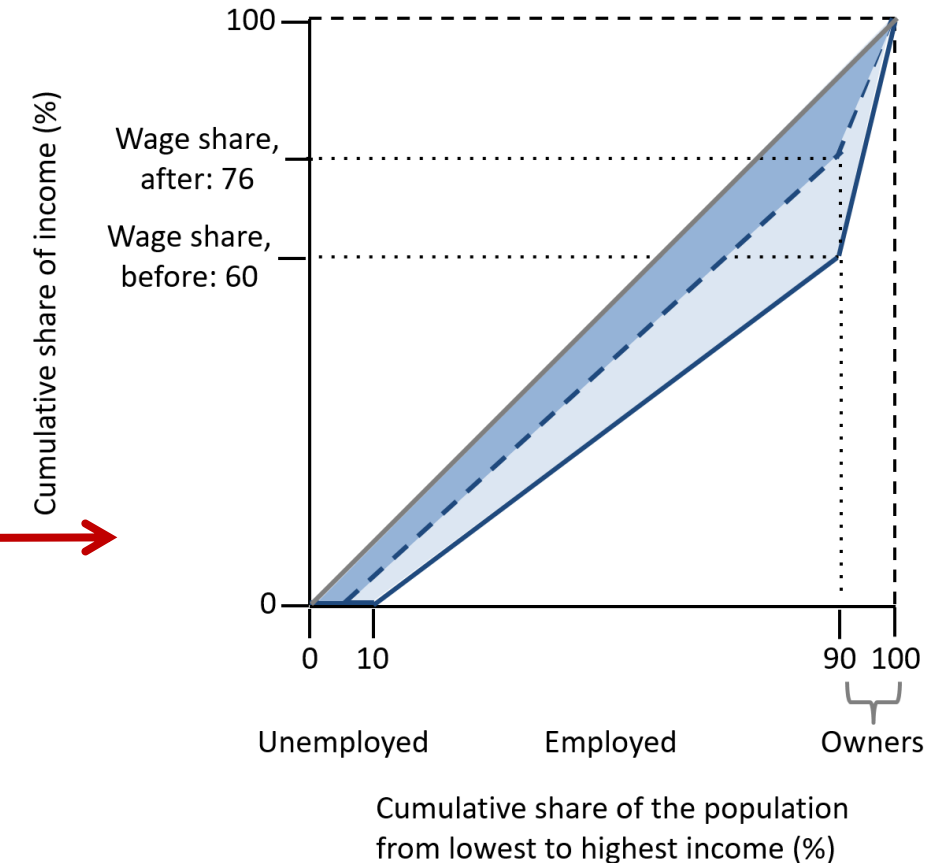
The effect of an increase in the degree of competition

Lower unemployment and higher real wage in equilibrium



A lower Gini coefficient

Gini coefficient: 0.36 before;
Gini coefficient 0.19 after



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.*

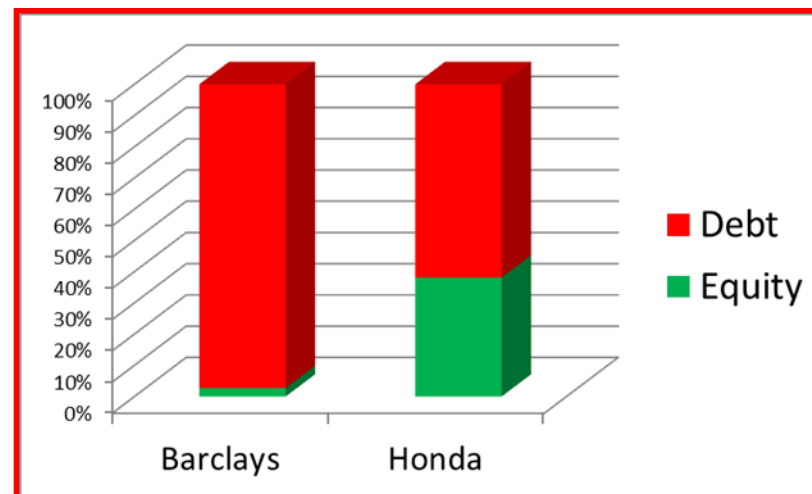


→ Heterogeneous agents, credit-constrained households, multiplier effects in the aggregate economy

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



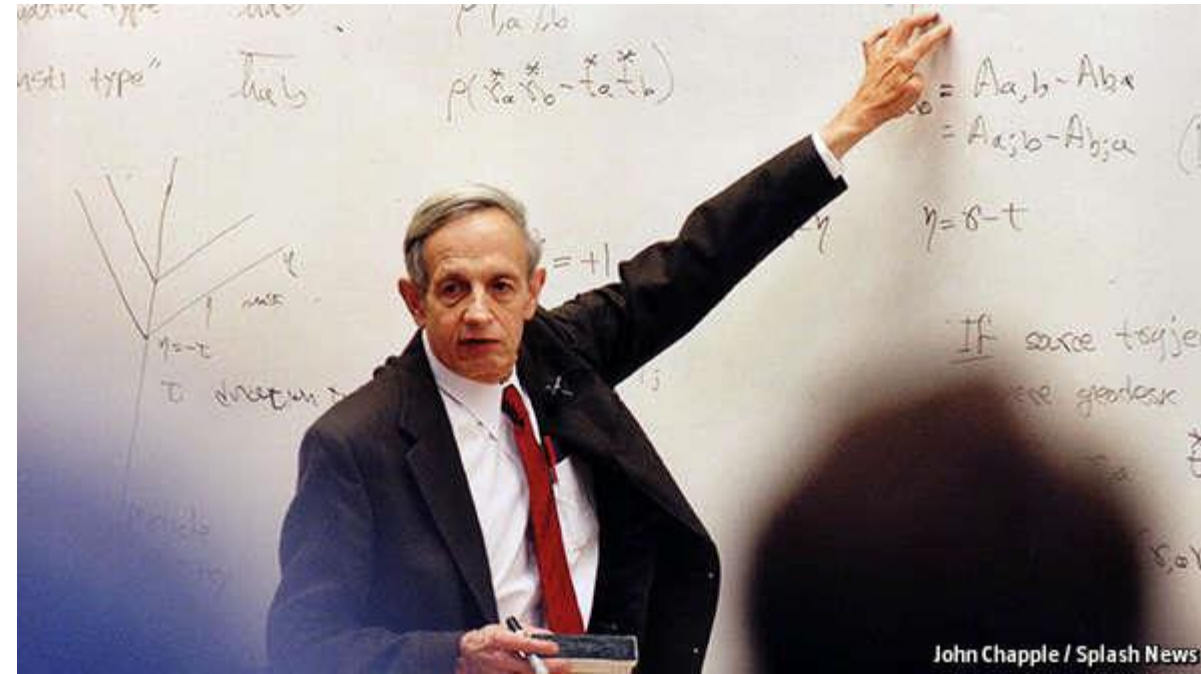
Problems, paradigms and texts



Aggregate demand



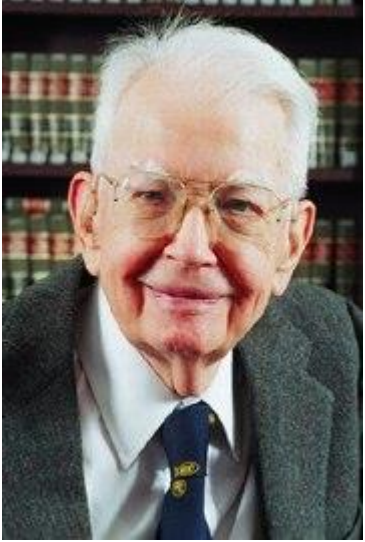
F. A. Hayek (1889-1992) Nobel laureate, Cato Institute Honorary Distinguished Senior Fellow



Strategic interaction

Information is scarce and local

Problems, paradigms and texts: not invited



Social interactions

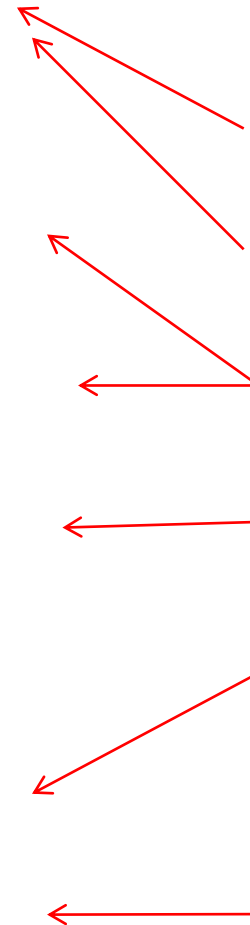


Innovation

Samuelsonian benchmark model	<i>Economics</i>	Contemporary economics & CORE
Far-sighted, self-interested	<i>People</i>	Also cognitively limited; have motives in addition to self-interest, respond to social norms of fairness and punishment.
Price-taking markets	<i>Interactions</i>	include price-making markets and strategic interactions including in setting wages, interest rates, prices.
Complete	<i>Information</i>	is incomplete and asymmetric
Complete	<i>Contracts</i>	are incomplete for effort and diligence in labour and credit markets and for other external effects
Markets	<i>Institutions</i>	include informal rules (norms), firms, unions, banks, governments
Largely ignored	<i>History</i>	provides data about alternative rules of the game and the process of change
Preferences and budget constraints differ among buyers and sellers	<i>Differences among people</i>	people also differ in the positions in the economy that they occupy as employers and employees; lenders and borrowers
In monopoly, governmental powers	<i>Power</i>	principals' power over agents e.g. in labour, credit markets
'Rent-seeking' creates inefficiencies	<i>Economic rents</i>	are also endemic in a well-functioning private economy providing incentives to innovate, work hard
The economy is self-stabilizing	<i>Stability</i>	... and instability are characteristics of the economy.
Are there unexploited mutual gains?	<i>Evaluation</i>	also includes fairness.

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

Far-sighted, self-interested	<i>People</i>
Price-taking markets	<i>Interactions</i>
Complete	<i>Information</i>
Complete	<i>Contracts</i>
Markets	<i>Institutions</i>
Largely ignored	<i>History</i>
Preferences and budget constraints differ among buyers and sellers	<i>Differences among people</i>
In monopoly, governmental powers	<i>Power</i>
'Rent-seeking' creates inefficiencies	<i>Economic rents</i>
The economy is self-stabilizing	<i>Stability</i>
Are there unexploited mutual gains?	<i>Evaluation</i>



The Samuelsonian benchmark model allows economics to neglect 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



BREAKING NEWS
in 6 hours
More than half of South Africans living in poverty - Stats SA

EYEWITNESS NEWS

LATEST

LOCAL

SPORT

LIFESTYLE

POLITICS

OPINION

MORE THAN HALF OF SOUTH AFRICANS LIVING IN POVERTY - STATS SA

Stats SA's poverty trends report shows that one in two South Africans live under the poverty line.

CORE's *The Economy*

1.0 edition

www.core.org.za

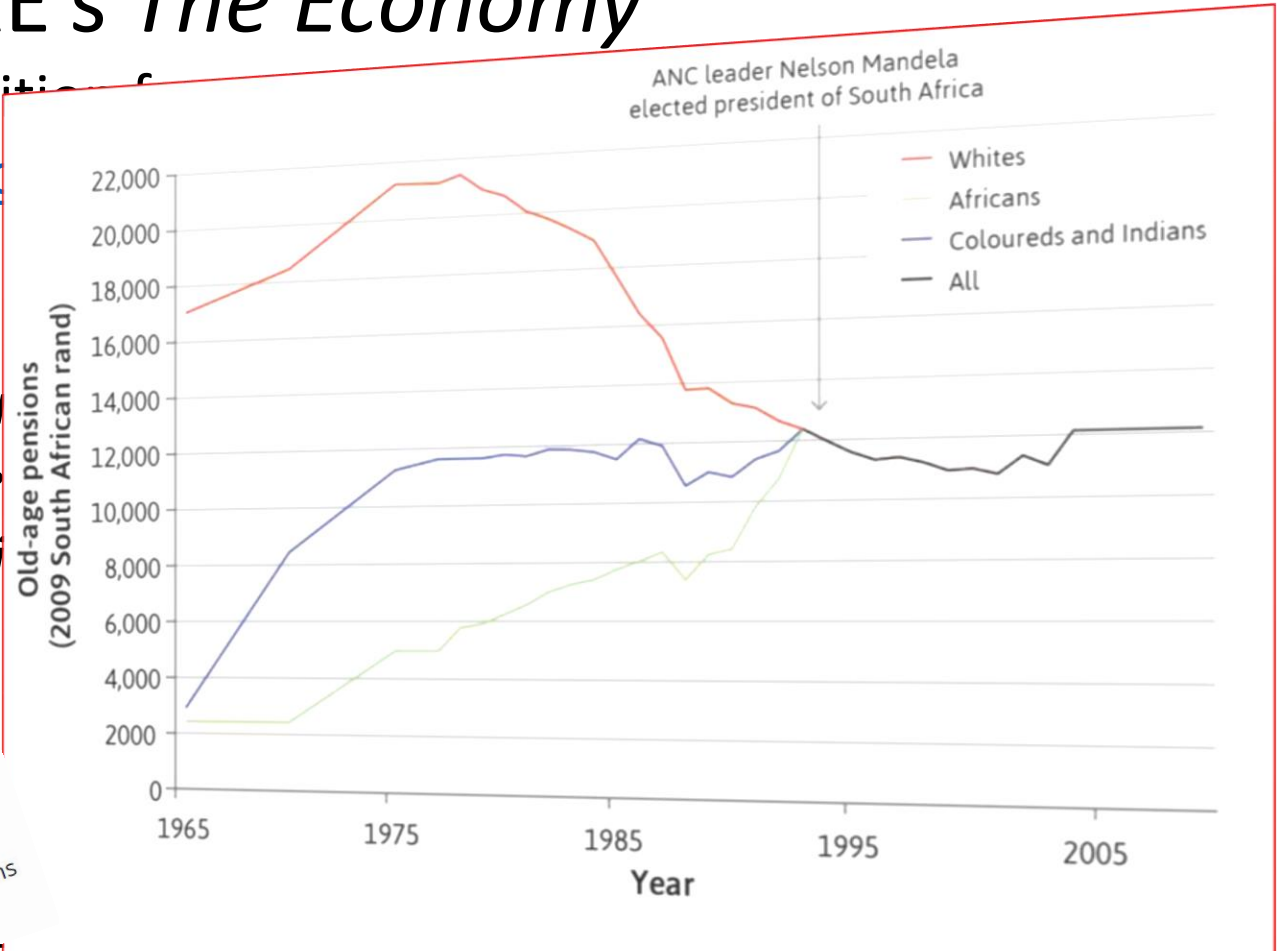


Figure 22.1 Apartheid and its demise: The value of South Africa's old age pension.

Murray Leibbrandt, Ingrid Woolard, Arden Finn, and Jonathan Argent. 2010. 'Trends in South African Income Distribution and Poverty since the Fall of Apartheid', OECD Social, Employment and Migration Working Papers, No. 101, OECD Publishing, Paris. Note: The names of the population groups are the official South African census terms. 'Coloured' is the South African term meaning people of mixed European, Asian and African origin.