# The Global Economy

*Introduction & Overview*

NYU STERN

## Roadmap

- Gapminder
- What's happening this week?
- What's happening in the US?
- What's happening in Europe?
- About the course



## Gapminder

- What do you see?

http://www.gapminder.org/world/

(growth, corruption, life expectancy, child mortality)



## About participation

- An important part of the class
  - And more fun for all of us
- Ways to participate
  - Make a comment
  - Ask a question
  - Share an experience
  - Email current events for next class



## About participation

- Guidelines
  - Be courteous of others
  - But feel free to disagree politely – esp with me
  - Facts are always good
  - Experts: keep it short
  - Non-expert: don't panic



## What's happening this week?

## What's happening this week?

- Regular feature
- Bring ideas, I'll bring mine
- Read The Economist
  - Order now if you haven't already
- Check Bloomberg and WSJ economic calendars

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## What's happening this week?

- Slow week?
- Probably Wednesday: Euro meeting re Greece
- Thursday: ECB & BOE policy announcements

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## What's happening in the US?

## Current conditions in the US

- How's the economy doing?
- Where is it headed?
- How can you tell?

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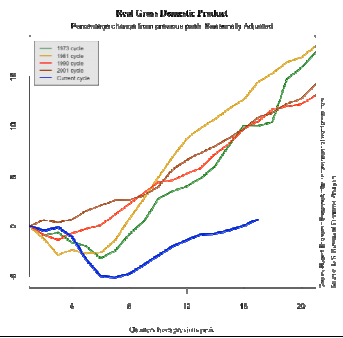
## Real GDP




Source: Cooley-Rupert Snapshot

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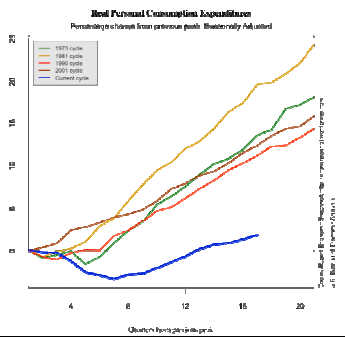
## Consumption

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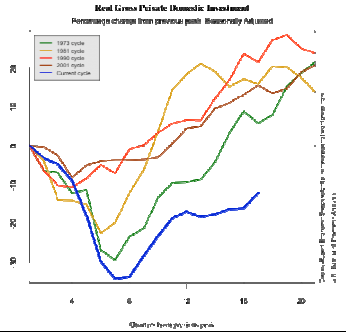
## Investment



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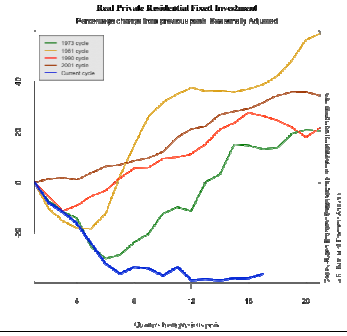
## Housing



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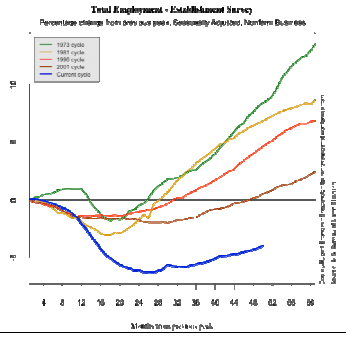
## Employment



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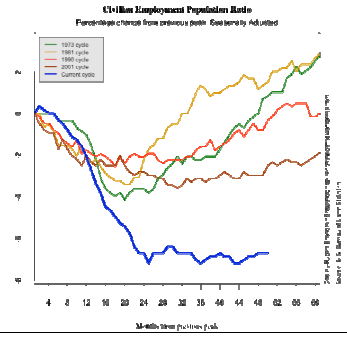
## Employment rate



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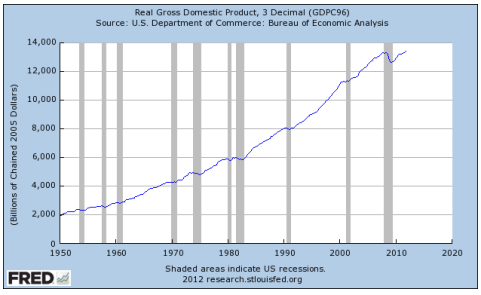
## Real GDP (output)

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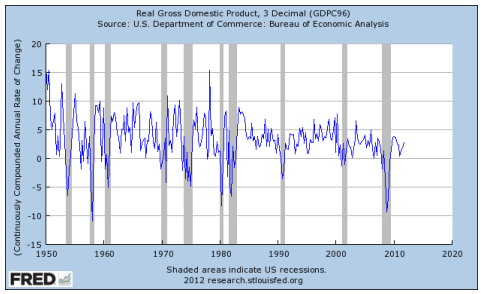
## Real GDP growth (annual rate)




Source: FRED

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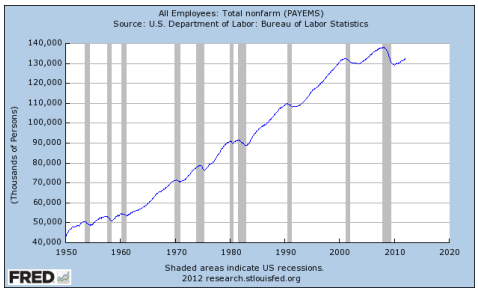
## Employment ("nonfarm payroll")

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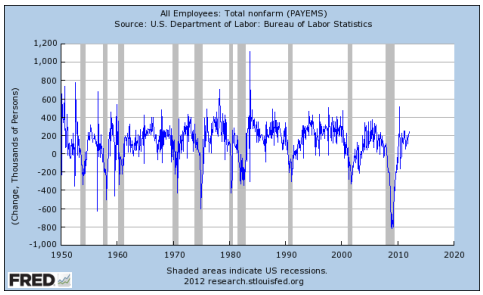
## Employment (monthly change)

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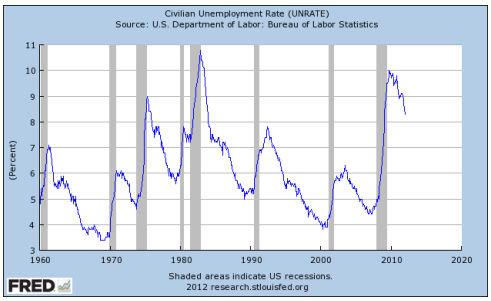
## Unemployment

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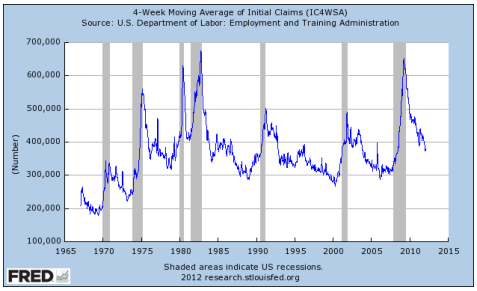
## New claims for UI

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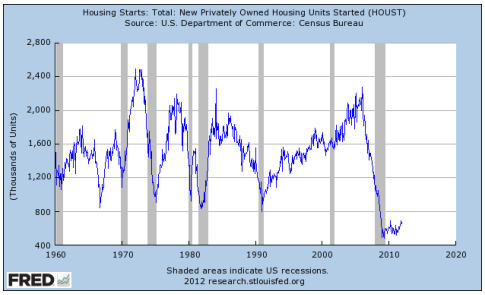
## Housing starts

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## What's happening in Europe?

## Europe

- What are the classic crisis triggers?
- Does Europe fit the pattern?

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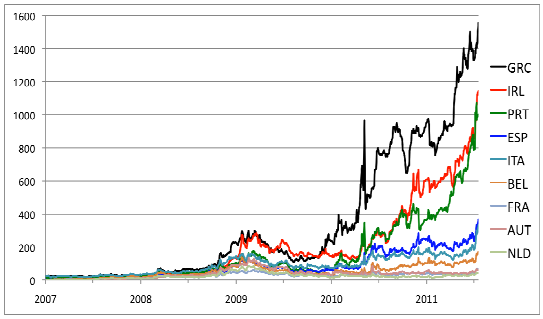
## Sovereign yield spreads (bps)




Source: European Community, AMECO

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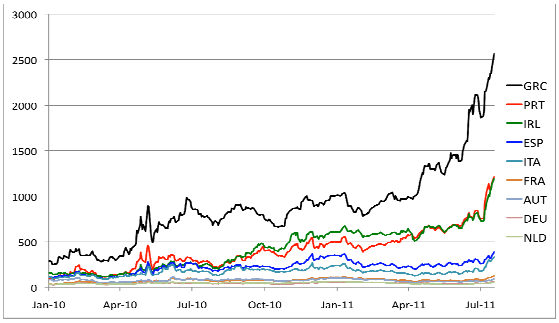
## Five-year CDS premia (bps)




Source: Bloomberg

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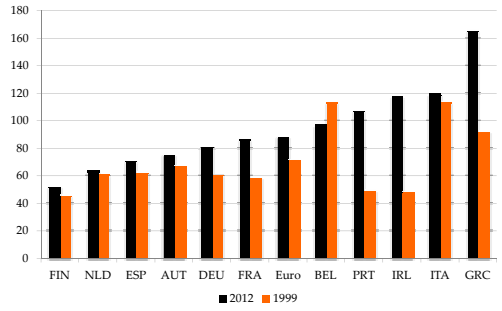
## Govt debt (% of GDP)

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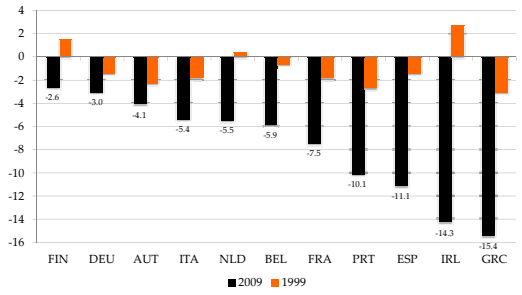
## Govt budget balance: total




Source: AMECO

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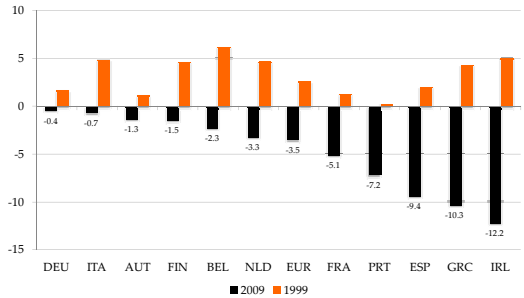
## Govt budget balance: primary




Source: AMECO

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## Europe

- What about the financial systems? Cause or effect?
- What about the exchange rate?
- More later in the term

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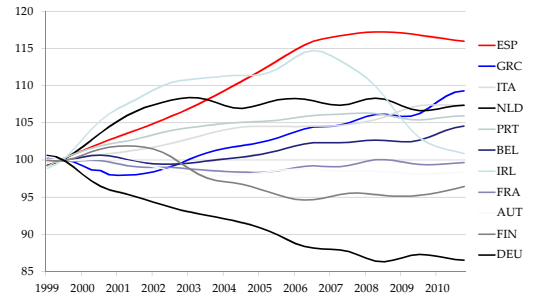
## Real exchange rates (index, 1999=100)

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## About the course

## About the course

- Long-term economic performance
  - Why are some countries richer than others?
  - Are low-wage countries attractive business opportunities?
- Business cycles
  - Why does economic growth fluctuate?
  - Is now a good time to buy stocks?
- Macroeconomic crises
  - Why do they happen?
  - Where are the opportunities?

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## About the website

- **Everything's on the website:**
  https://sites.google.com/site/nyusternglobal/
- Outline contains
  - Notes
  - Assignments
  - Links to slides and video
- Announcements, too
  - Sign up for email delivery (updates?)
  - Answers to questions about assignments – look there first
- **This is an experiment, suggestions welcome**
  - [Discussion facility?]

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## About slides

- Catalyst for class
- Not intended to be read on their own (see notes instead)
- More than we need: don't panic if we skip some
- Usually available the day before class
- Subject to change without notice

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## About assignments

- Problem Set #0
  - Individual – everyone must do it
  - Due next week, start of class
  - Math and spreadsheet review
- Problem Sets #1 to #4
  - Do in groups of up to five people
  - Unlimited marriage and divorce
  - Due dates noted in red on website
- Practice Problems A to D
  - Not graded
  - Useful preparation for exams

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## About quantitative content

- Spreadsheets
  - Will be used extensively (they make your life easier)
  - Read "Math Review" to get up to speed
- Exponents and logarithms
  - Will be used extensively in first half
  - Read "Math Review" to get up to speed
- Calculus
  - Will be used a little
  - Not required for exams
  - Read "Math Review" to get up to speed

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## About the notes

- Theoretical background for class
- Executive summaries: more concise than a textbook
- Custom designed for this course ("bespoke")
- Read them – preferably before class
- No textbook! Save money!
  - If you'd like one, see Syllabus and Outline
  - Readings posted
  - Both good, fit with course 50 to 75%

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## About me

- Grew up in Pittsburgh
- PhD Yale, 1981
- Research interests
  - International capital flows
  - Fixed income and currency markets
  - Emerging economies
- Other interests
  - The Steelers
  - Basketball, biking, Buffy, beer

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## About the teaching fellows

- Saturday: Olenna Tysiak, ogt202@stern.nyu.edu
- Monday: Varun Bahl, vb680@stern.nyu.edu

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## About help

- With problem sets
  - Check Announcements: I'll post comments there
  - Email me: I'll respond directly AND update Announcements
- With anything else
  - Email me
  - Stop by any afternoon
  - See teaching fellow

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## About helping me

- Course works best if communication goes both ways
- If you have ideas, comments, whatever
  - Email me
  - Speak to the teaching fellow
  - Anything else that crosses your mind



## About grades

| Participation | Outliers & Tiebreakers |
|---|---|
| Problem Sets | 20% |
| Midterm Exam | 35% |
| Final Exam | 45% |



## About class videos

- Available roughly an hour after class
- Links on course website



## What have we learned?

As Haiku

Read notes before class
If you need help ask for it
Website is knowledge



**The Global Economy**

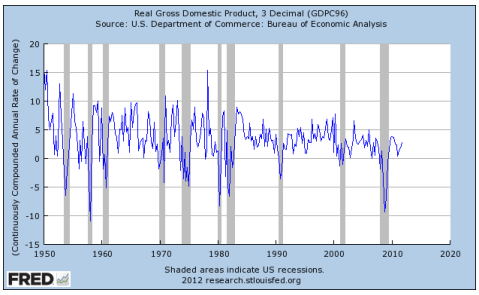
***Macroeconomic Data***

NYU STERN

## Objective

- Know what these headline numbers are
  - Real GDP: how much stuff did we produce? growth rate?
  - Inflation: how much did average prices change?
- Why do we need this?
  - Common vocabulary (like financial statements for businesses)
  - Small differences often important
- Do at high speed now, reinforce with constant use

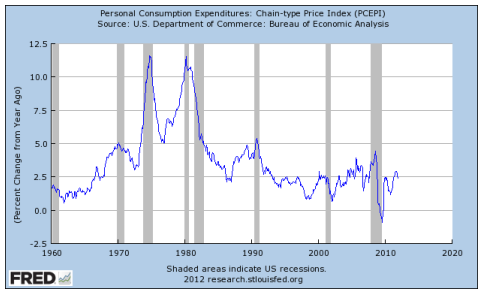
## US GDP growth




Source: FRED



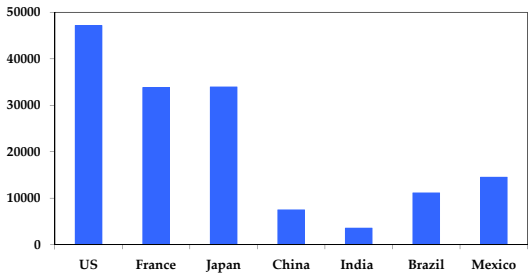
## US inflation




Source: FRED



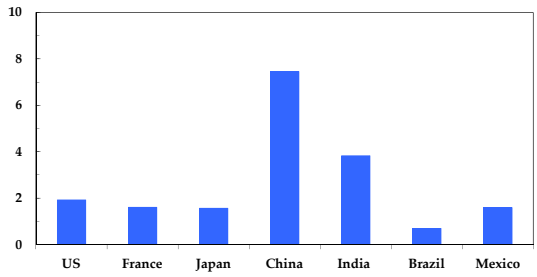
## GDP per capita (USD, PPP adj)




Source: World Bank, World Development Indicators



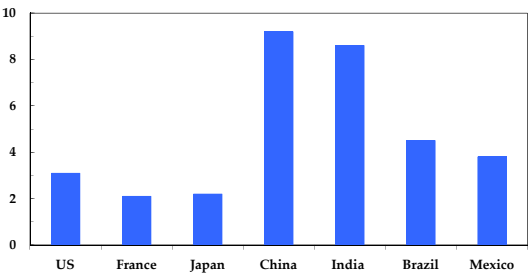
## Growth in GDP per capita (20-year avg)




Source: Penn World Tables.



## Growth in GDP per capita (2012 forecast)




Source: OECD.



## Roadmap

- GDP: Gross Domestic Product
- Expenditures and financial flows ("identities")
- Prices and quantities
- Second thoughts

# GDP

## GDP

- GDP: = Gross Domestic Product
- Total value of production in a geographic area
  - Sum value-added across all production units
  - By convention we include depreciation ("gross")
- Three approaches to the same answer
  - Value-added
  - Income
  - Final sales (the end of the value chain)



## GDP: example 1

- Example
  - Farmer produces wheat, sells it for 100
  - Miller buys wheat, produces flour, sells it for 175
  - Baker buys flour, makes bread, sells it for 300
- What is value-added for each producer?
- What is GDP?
- What is total income for the economy?
- What is final sales?



## GDP example 1

| Producer | Value Added = Income | Final Sales |
|---|---|---|
| Farmer | | |
| Miller | | |
| Baker | | |
| **GDP (total)** | | |



## GDP example 2

**Barley Farmer**

Sales = $10

Rent = $3

Income = $7

Value Added = ??

**Brewer**

Sales = $110

Rent = $30

Wages = $70

Barley = $10

Value Added = ??

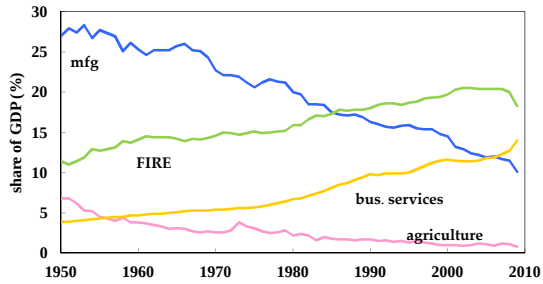
Value added farming + value added brewing = ??

Landlord's income + wages + profits = ??

Final sales farming + final sales brewing = ??

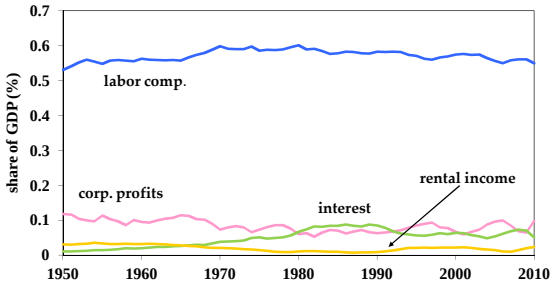


## GDP as value added by industry




Source: BEA

## GDP as income by type

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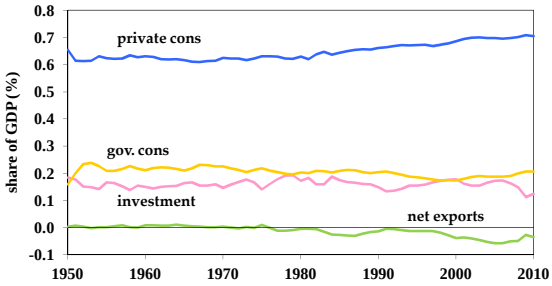
## GDP as final sales by expenditure

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## Expenditures & financial flows

## Expenditure flows

- Allocate GDP among purchasers of final goods:

$$Y = C + I + G + NX$$

  - Y = GDP
  - C = sales to households ("consumption")
  - I = sales of capital goods to firms ("investment")
  - G = purchases of goods and services by government
  - NX = net exports (net sales to other countries)

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## Saving flows 1

- Allocate flows of assets

$$Y - C - G = I + NX$$

$$S = I + NX$$

  - S = gross domestic saving (purchases of assets)
  - NX = net purchases of foreign assets

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## Saving flows 2

- Separate household and government

$$(Y - C - T) + (T - G) = I + NX$$

$$S_p + S_g = I + NX$$

  - T = taxes net of transfers paid by households to govt
- Warning: many measures of saving, all different

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## Saving flows 3

- Do Americans save too little?

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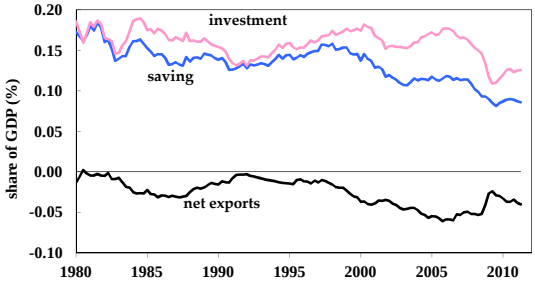
## US saving and investment

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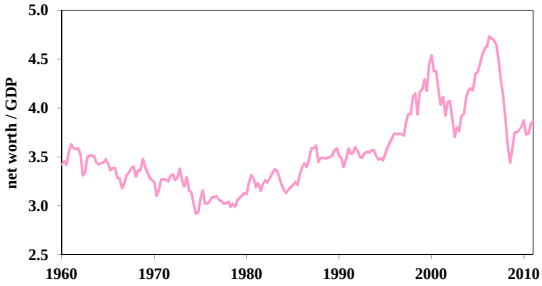
## Household net worth




Source: Flow of Funds Accounts

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## Prices & quantities

## Prices and quantities

- GDP measures output at market prices
- What if prices change?
  - If GDP rises, how much is higher quantity, how much higher prices?
- Problem: no clear answer, we do muddle through

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## Prices and quantities

- Our problem: find Q and P such that

$$Y = PQ = p_1q_1 + p_2q_2 + \text{etc}$$

  - Y = GDP in dollars ("nominal GDP")
  - p,q = price and quantity of a product
  - P,Q = "average" price ("price level") or quantity ("real GDP")
- How do we compute P and Q?

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## Prices and quantities

- Method 1 ("fixed price method")
  - Find average quantity Q using "base-year" prices
  - Find "average" price from P = Y/Q ("deflator")
- Method 2 ("fixed quantity method")
  - Find average price P using "base-year" quantities
  - Find "average" quantity from Q = Y/P
- Problems
  - Both make sense, but answers are different
  - Choice of base year matters too

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## Example

| | Fish | | Chips | |
|---|---|---|---|---|
| **Date** | **Price** | **Quantity** | **Price** | **Quantity** |
| 2004 | 0.50 | 10 | 0.25 | 10 |
| 2005 | 0.75 | 12 | 0.50 | 8 |

What is the inflation rate?

What is real output growth?

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## Fixed price method (GDP deflator)

| | Fish | | Chips | |
|---|---|---|---|---|
| **Date** | **Price** | **Quantity** | **Price** | **Quantity** |
| 2004 | 0.50 | 10 | 0.25 | 10 |
| 2005 | 0.75 | 12 | 0.50 | 8 |

| **Date** | **Nominal GDP** | **Real GDP** | **Price Deflator** |
|---|---|---|---|
| 2004 | | | |
| 2005 | | | |
| Growth rate | | | |

Base year: 2004

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## Fixed price method (GDP deflator)

| | Fish | | Chips | |
|---|---|---|---|---|
| **Date** | **Price** | **Quantity** | **Price** | **Quantity** |
| 2004 | 0.50 | 10 | 0.25 | 10 |
| 2005 | 0.75 | 12 | 0.50 | 8 |

| **Date** | **Nominal GDP** | **Real GDP** | **Price Deflator** |
|---|---|---|---|
| 2004 | 7.50 | 7.50 | 1.000 |
| 2005 | 13.00 | 8.00 | 1.625 |
| Growth rate | 73.3% | 6.7% | 62.5% |

Base year: 2004

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## Fixed price method (GDP deflator)

| | Fish | | Chips | |
|---|---|---|---|---|
| **Date** | **Price** | **Quantity** | **Price** | **Quantity** |
| 2004 | 0.50 | 10 | 0.25 | 10 |
| 2005 | 0.75 | 12 | 0.50 | 8 |

| **Date** | **Nominal GDP** | **Real GDP** | **Price Deflator** |
|---|---|---|---|
| 2004 | | | |
| 2005 | | | |
| Growth rate | | | |

Base year: 2005

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## Fixed price method (GDP deflator)

| | Fish | | Chips | |
|---|---|---|---|---|
| **Date** | **Price** | **Quantity** | **Price** | **Quantity** |
| 2004 | 0.50 | 10 | 0.25 | 10 |
| 2005 | 0.75 | 12 | 0.50 | 8 |

| **Date** | **Nominal GDP** | **Real GDP** | **Price Deflator** |
|---|---|---|---|
| 2004 | 7.50 | 12.50 | 0.600 |
| 2005 | 13.00 | 13.00 | 1.000 |
| Growth rate | 73.3% | 4.0% | 66.7% |

Base year: 2005

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## Fixed quantity method (CPI)

| | Fish | | Chips | |
|---|---|---|---|---|
| Date | Price | Quantity | Price | Quantity |
| 2004 | 0.50 | 10 | 0.25 | 10 |
| 2005 | 0.75 | 12 | 0.50 | 8 |

| Date | Price Index (2004 Basket) | Price Index (2005 Basket) |
|---|---|---|
| 2004 | | |
| 2005 | | |
| Growth rate | | |

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## Fixed quantity method (CPI)

| | Fish | | Chips | |
|---|---|---|---|---|
| Date | Price | Quantity | Price | Quantity |
| 2004 | 0.50 | 10 | 0.25 | 10 |
| 2005 | 0.75 | 12 | 0.50 | 8 |

| Date | Price Index (2004 Basket) | Price Index (2005 Basket) |
|---|---|---|
| 2004 | 7.50/7.50*100=100.0 | 8.00/8.00*100=100.0 |
| 2005 | 12.50/7.50*100=166.7 | 13.00/8.00*100=162.5 |
| Growth rate | 66.7% | 62.5% |

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## Prices in Argentina

- Former president instituted "new methodology"
  - Only certain products are in the official price index
  - Prices of those products subject to "persuasion"
  - Inflation lower with new method
- What happened next
  - Official products cheap, but not available (why?)
  - Unofficial estimates of inflation more than double official rate
  - Economists arrested for producing private inflation estimates
  - [Google: "inflation Argentina"]

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## Second thoughts

## Details, details

- Home production not counted in GDP
- Black market transactions not counted either
- Government services are valued at cost
- Some "income" not in GDP
  - Capital gains (houses, equity)
  - Interest on government debt
  - Net return from owning foreign assets
- Need to adjust prices for new and different products

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## Do we care about GDP?

- Bill Gates
  - "You can't eat GDP."
- Bill Easterly
  - "Mr Gates apparently missed the economics lecture that listed the components of GDP, such as food."
  - WSJ, March 2007

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## Do we care about GDP?

Per capita GDP: $47k
Avg weekly hours: 35


Per capita GDP: $34k
Avg weekly hours: 29



## Do we care about GDP?

- The obvious
  - GDP reflects income and standard of living
- The less obvious
  - Correlated with many other things we care about: life expectancy, child mortality, poverty
  - Recall Gapminder
- It's one number, not the answer to all questions



## What have we learned?

- GDP measures output and income
  - Per capita GDP wildly different across countries
  - Composition always changing (where did those factory jobs go?)
  - Labor gets about 2/3, "capital" 1/3
- Real GDP measures the quantity of output
- Inflation measures the change in average prices
- Macroeconomic data are like sausages



## Something for the ride home

- Is aid good for developing countries?
- Why or why not?