Macroeconomics
Economy and Policy

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Motivation

- Daily news headlines:
  - ECB boss Mario Draghi said "We'll do anything to save Eurozone"
  - Germany reduced growth estimates and falling back into *recession*
  - Central Banks throughout the world perform quantitative easing setting *interest rates* close to zero
  - Europe faces *deflation*
  - Economic *growth* in China considerably slower from 14% to 8.5%

- Macroeconomic issues often part of policy debates

- Macroeconomic situation influence politics considerably (eg labeling politicians successful or not)

- Macro-economists try to explain *quite complicated* system of all firms, people and events (*the* economy)

- Predictions are usually not much more successful than month weather predictions - there are simply too many factors

Outline

GDP Definition

- Gross Domestic Product
- Sum of all final products and services made in economy during a period (year) - expressed in money
- Flow variable (sum per period)
- Two way of the count:
    - Income
    - Expenditure
- In the whole economy *Income = Expenditure* because each \$ you spend is income for someone else
- Computed by national statistical offices four times a year

GDP Content

- What is included in GDP?
  - Only the value of finished goods (byproducts don't count)
  - Only firstly sold and used goods (re-trade not included)
  - Inventories
- What is not included in GDP
  - Home works - family life (important: This could be a lot in countries with undeveloped services!)
  - Illegal activities

Real x Nominal GDP

- GDP measured in money terms
- **Nominal GDP** = quantity of all production $\times$ current price of every product $\Rightarrow$ change of either P or Q changes the product
- **Real GDP** = quantity of all production $\times$ constant set of prices $\Rightarrow$ real GDP changes only with changes of Q, not P
- **GDP Deflator** = $\frac{Nominal\ GDP}{Real\ GDP} \approx$ price level change

GDP Decomposition

- National income accounts identity:
  - $Y = C + I + G + NX$
- **Y** - The product
- **C** - Consumption, goods and services bought by households
- **I** - Investment, goods bought for future use
- **G** - Government purchases
- **NX** - Net export or surplus with foreign countries ($NX = IM - EX$)

GDP's Imprtance

- Good proxy variable to assess economic performance of a country
- Per capita x Total $\Leftrightarrow$ Economic Power x Economic Level

#	Country	GDP (mil $)	GDP p/c ($)
1	USA	16,768,050	53,001 (#9)
2	China	9,469,124	6,959 (#82)
3	Japan	4,898,530	38,468 (#24)
4	Germany	3,635,959	44,999 (#18)
5	France	2,807,306	44,099 (#20)

- The more the better? Evident correlation between GDP and eg HDI (life expectancy, literacy etc.)

Inflation

- Overall **increase** of price level
- Terms:
    - Inflation - increase
    - Deflation - decrease
    - Disinflation - inflation slowdown

Measuring Inflation

- GDP Deflator
- **Consumer Price Index** (CPI)
    - Arbitrary chosen prices important in standard consumers basket
    - Including: Food, Transportation, Schools, Culture, Gasoline, Electricity. . .
- CPI aggregates price changes of selected goods in time
- CPI and Deflator similar but different
    - CPI watch fixed basket of goods with fixed weights
    - CPI updated only once a decade because of consistency $\Rightarrow$ is it still actual?
    - Deflator does not include imported prices

Definition

- Adult population:
    - Labor force:
        - Employed
        - Unemployed
    - Others
- **Unemployment**: $u = \frac{Unemployed}{Labor\ force}$
- Labor force participation rate: $\frac{Labor\ force}{Adult\ population}$
- *Frictional* x *structural* x *cyclic* unemployment

Outline

Motivation

- If GDP really correlates with well-being then its *growth* its quite important
- Economy's ability to grow is one of its main atributes
  - Sustain relative wealth of rich countries
  - Improve relative and absolute wealth of poor ones
- Convergence theory: The poorer you are, the quicker you grow (does it hold?)

Motivation

- See separate file.

Determinants

- GDP growth is primarily affected by *productivity*
- Since GDP is sum of all production, producing more with the same population brings higher product (GDP)
- Productivity: *product per one worker-hour*
- It is not so simple. . .

Productivity

- Any change in productivity is conditioned by:
  - Physical capital - tools, machinery etc.
  - Human capital - knowledge, skills, experiences etc.
  - Natural resources - climate for agriculture, oil. . .
  - Technological knowledge - inventions, computers, management. . .
- Production function of an economy is thus expressed:
  - $Y = A.F(L, K, H, N)$

Pro-growth Public Policy

- What policies are considered to be good for growth?

1. Encouraging saving and investment
2. Foreign investment
3. Education
4. Property rights and political stability
5. Free trade
6. Control of population growth (poorer countries)
7. Research and Development

Catch-up

- Diminishing returns theory: The larger the capital stock of a country, the smaller impact of investments on growth
- Example:

	1960-1991	
Country	Invesment (% of GDP)	Growth
South Korea	23 %	7 %
USA	21 %	2 %

- This imply a chance for poor countries ⇒ *theory of convergence*
- Doesn't always work however

Outline

Money

- An asset used to buy goods, does not equal to wealth
- Three basic functions:
    - Medium of exange (making trade easier, avoiding barter)
    - Unit of account
    - Store of value
- Money is the most liquid asset

Money

- *Commodity x fiat* money
- Today's money consists of:
    - M1 - cash, deposits on demand
    - M2 - M1 + long-term deposits, assets in mutual funds etc.
- M1:M2 $\approx$ 1:4

Bank Sector

- Two-tier banking system
- Central Bank (ECB system, Czech National Bank, Federal Reserve System. . .)
    - Usually government-independent
    - Regulates circulating money
    - Its objective is either particular level of inflation or unemployment or both
    - Tools: interest rates, open-market operations, reserves requirements
- Commercial Banks (all others: Sberbank, Sparkasse, Société Générale. . .)
    - Lend money and accept deposits

Money Multiplier

- How money are created? Assume 10% reserves requirement

- 1st Bank

	Assets		Liabilities	
Reserves	$ 10.00	Deposits	$ 100.00
Loans	90.00		

- 2nd Bank

	Assets		Liabilities	
Reserves	$ 9.00	Deposits	$ 90.00
Loans	81.00		

- 3rd Bank. . .

Money Multiplier

- Original deposit \$ 100.00 induces additional \$ 90.00, 81.00, 72.90. . .
  = \$ 1,000.00

  - *original deposit* $+ \sum (1 - \textit{reserves}) \times (\textit{additional deposit})$
  - $100 + 0.9 \times 100 + 0.9 \times 90 + 0.9 \times 81 \ldots = 1000 = 10 \times 100$
  - Multiplier in this example is $10 = \frac{1}{\textit{reserve requirement}}$

- CB does not control money directly, but through commercial banks via money multiplier

- CB especially does not control

  - household's behavior, how much HH deposit
  - bankers willingness to lend

Quantitative Money Theory

- $M \times V = P \times Y$
- M - money, V - velocity of money, P - price level, Y - real product
- or in marginal values: $m.v = \pi.g$
- m - money growth, v - velocity change, π - inflation, g - (economic) growth
- Explains inflation and deflation eg:
  - Long lasting slight deflation between 1870-1914
  - Hyperinflations (eg Germany 1923, Zimbabwe)
  - Recent fear of deflation in the West