Macroeconomic Theory: Introduction
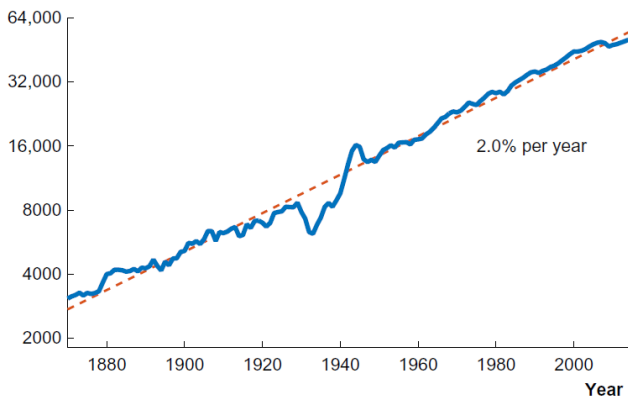
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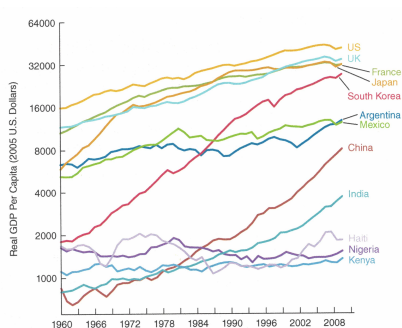# Motivation

- Why is there economic growth? 國家發展的一個好指標
- US GDP per capita: ① 增加：經濟成長
  ② 波動：景氣循環

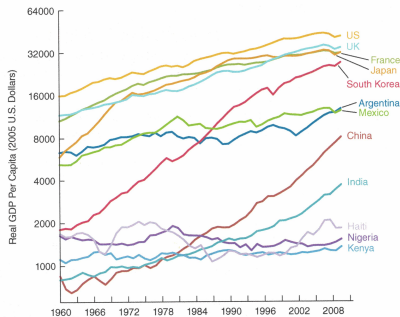**Log scale, chained 2009 dollars**

2.0% per year

Motivation

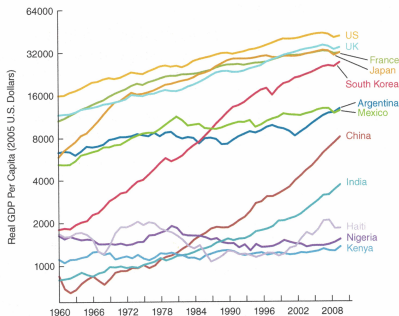▶ Why some countries have high growth rates than others?

Motivation

- The riches counteries (US, UK, France) has a steady average economic growth   高发展 → 稳定

- Asian counteries (Japan, Korea, China) have experienced "convergence" with very rapid growth   亚 → 很快收敛到高发展

Motivation

▶ Latin American (Mexico, Argentina) have not experienced convergence 拉丁 → 没收敛

▶ Two Africa counteries experienced "growth disaster"

非 → 没成长
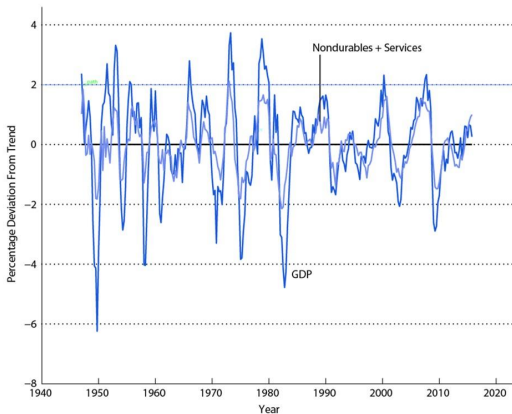

▶ <u>Solow model</u> well explained the above phenomenon

↳ simple but useful!

Motivation

无法解释景气循环

- However, Solow model fails to explain the characteristics of business cycles
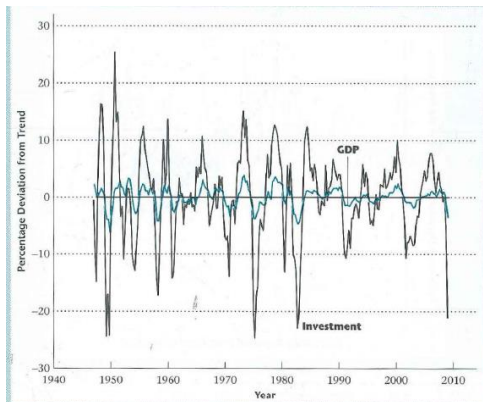- Consumption is smoother than GDP

Motivation

$C + I + G = \boxed{GDP}$

波动 波动
更小 更大 $\Rightarrow$ why?

- Investment is more volatile than GDP

- We need models with microfundations to provide an explanation → 而不只是随便假设参数
- **Microfoundations**: microeconomic behaviors of individual agents (households, firms...etc)

Goals and Outlines

- Embedding the students the ability to understand fundamental macroeconomic models (especially the growth model) and to analyze macroeconomic phenomenon
- Solow model: lack of an microfoundation → ∵ 只能解釋大趨勢
- Models with microfoundations 無法解釋小變動
    - Two-period model
    - Infinite horizon model

Goals and Outlines

shock 如何影響 長 短期

▶ Focus on the **dynamics** of macroeconomic variables: output, consumption, investment...etc.

    ▶ Sequential problem: Linearizing the dynamics system around the steady state

    ▶ Recursive problem: Dynamic programming and value function iterations

▶ Market economy: competitive equilibrium

▶ Asset pricing

▶ Endogenous Growth

      cf. Solow is exogenous

Requirements

- Assignments (40%): 6 problem sets including 3 numerical exercises
- Midterm exam (60%)
- Assignments are extensions and complementary of lectures
- Two people in a group
- You can discuss with other groups but turn in your own version
- Midterm: November 15th

Contact Information

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Reference

- Mathematics for Economists/ Simon and Blume
- Convex Optimization/ Boyd and Vandenberghe
- Recursive Methods in Economic Dynamics/ Lucas and Stokey
- Recursive Macroeconomic Theory/ Sargent