

EE312 Intermediate Macroeconomics

Section: 046401

- Instructor : Assist.Prof. Sicha Thubdimphun
- Venue : Room 202 ; 11 am - 1.30 pm. (2.30 hours)

We definitely need many extra classes. So, it's best to smooth out the hours.

- Contact : sicha@econ.tu.ac.th
- Office hours : Room 469, by appointment (via email)

- **Evaluations:**

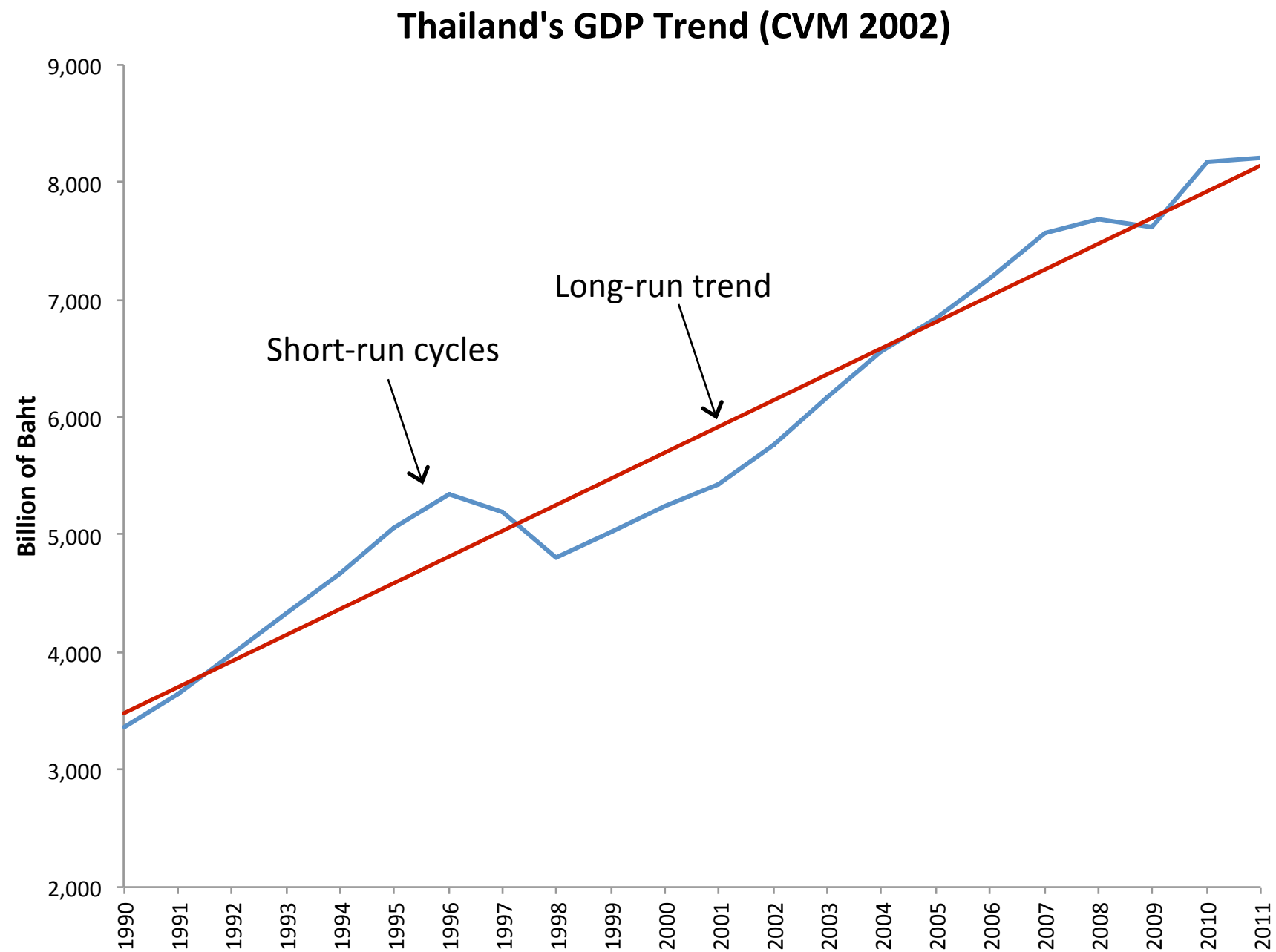
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|-----------------------------------|-----|-------------------------------|
| • Homework/
Quiz /Group | 20% | |
| • Midterm | 35% | (Oct 2nd, 2020; 11.30-14.00) |
| • Final Exam | 45% | (Dec 4th, 2020; 9.00 - 12.00) |

Lecture Presentation : Posted on the BE moodle

Note that : Lecture Presentation is designed to support learning process in classroom.
Outside the class, textbooks and other materials are more suitable.

- **Class starts at 11.05 am. Please be here on time.**
- **No cellphone, no social media, no FB live**
- **This course is VERY hard. Be prepared.**

- **EE212 Principle of Macroeconomics**
 - Potential output = long-run equilibrium output
 - In the short-run, equilibrium output can be different from “potential output” ; deflationary gap and inflationary gap.
- **In this subject, we will study more in greater details (mechanisms). We will focus on the two big issues:**
 1. Long-term growth
 2. Business Cycles Fluctuations



LONG-TERM GROWTH: UNDERSTANDING GROWTH PROCESS AND DIFFERENCE IN INCOME ACROSS COUNTRIES



Poverty in
India

Affluent society in
developed countries.

Group	Income range	Example
High income (79)	>\$12,235	North America, Western Europe, East Asia, oil-rich Middle East.
Upper middle income (55)	\$3,956 - \$12,235	South America, Eastern Europe, Russia, South-East Asia.
Lower middle income (52)	\$1,006 - \$3,955	South America, Central Asia, Africa.
Low income (31)	<\$1,006	Central and East Africa
World average	10,302	

LONG-TERM GROWTH: ISSUES

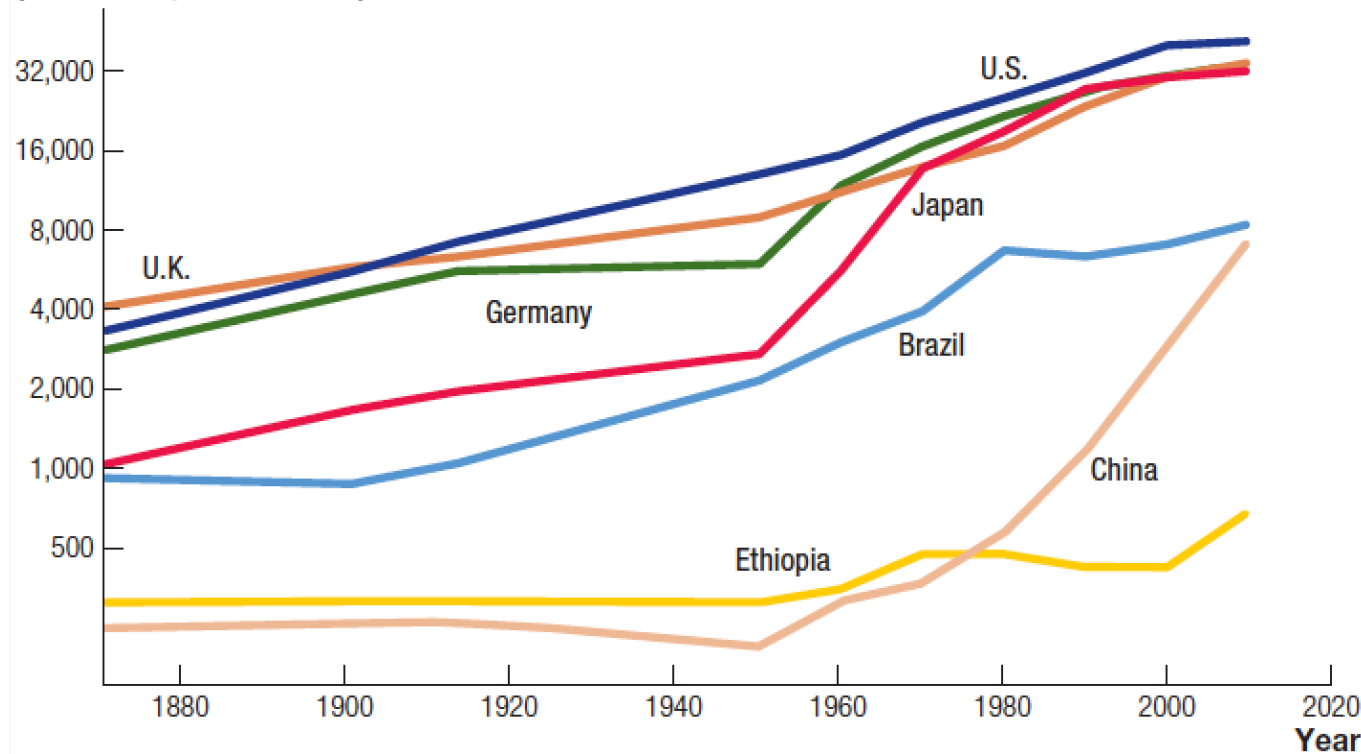
Income Difference



Growth Performance

Per Capita GDP in Seven Countries, 1870–2010

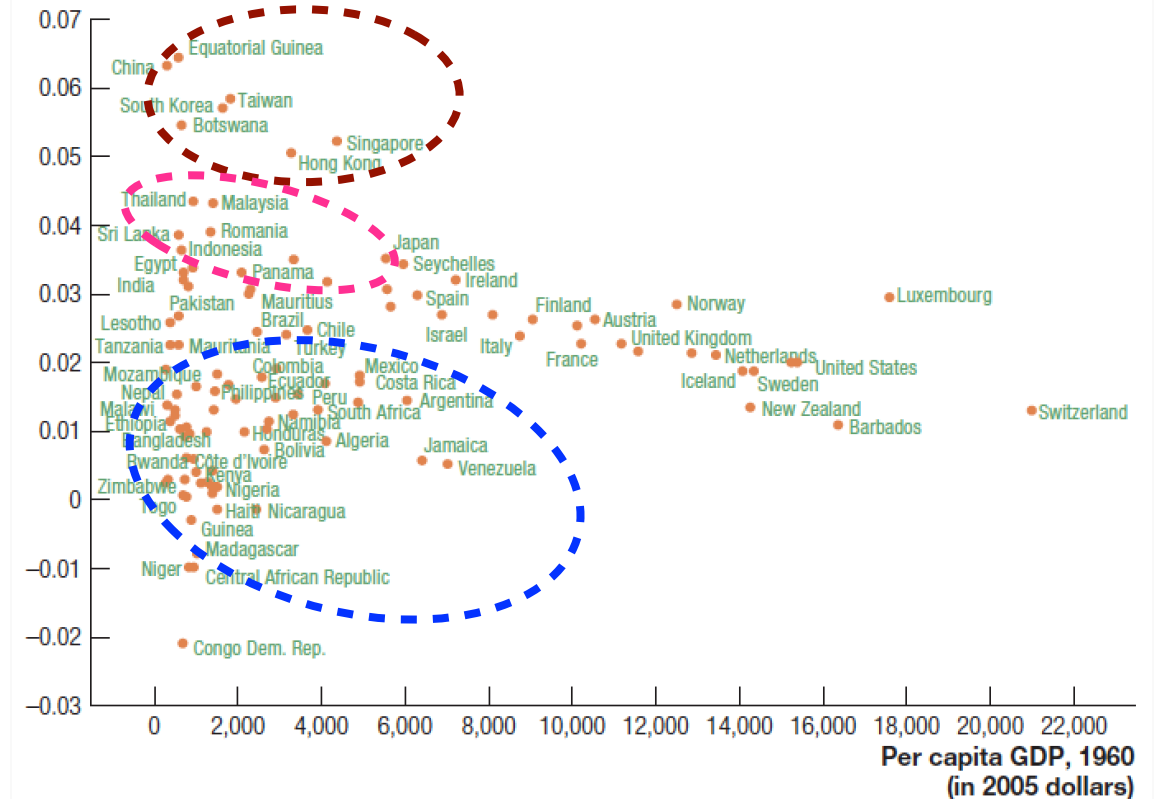
Per capita GDP
(ratio scale, 2005 dollars)



Source: Angus Maddison, "Statistics on World Population, GDP and Per Capita GDP, 1 AD–2006 AD," and Penn World Tables, Version 7.1.

Growth Rates around the World, 1960–2010

Per capita GDP growth
(1960–2010)



Source: Penn World Tables, Version 7.1.

- Huge variation in growth performance; income level can be due to growth performance. "Growth Process"
- Why can't a country grow fast? They can't catch up with others?

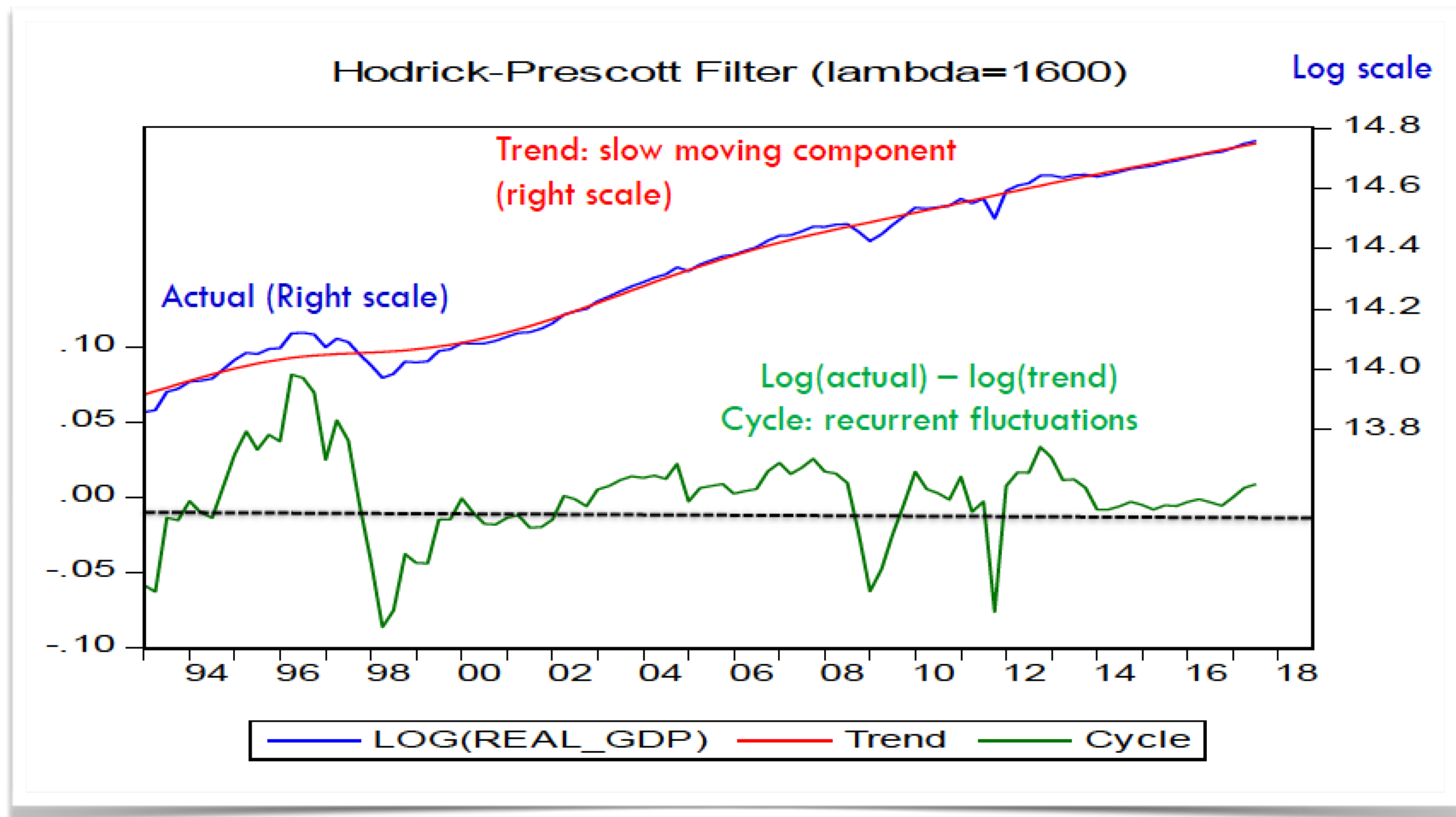
LONG-TERM GROWTH: ISSUES

Country	1986	1996	2006	2016	2018
Thailand	813	3,044	3,370	5,979	7,274
India	310	400	807	1,729	2,010
Singapore	6,800	26,234	33,769	56,724	64,582
China	282	709	2,099	8,079	9,771
Malaysia	1,729	4,799	6,209	9,818	11,373
Vietnam	423	324	784	2,192	2,567
Cambodia	N/A	319	540	1,279	1,510
Laos	468	378	591	2,309	2,542
USA	19,071	29,968	46,299	57,904	62,795

BUSINESS CYCLE FLUCTUATION

- Normally, we observe that country's real GDP grows over time, as the series have exhibited **upward trending** pattern.
- However, actual series are not growing at a steady fixed rate.
 - From time to time, we observe **a deviation of the actual series from its counterpart (long-term) trend**
 - This phenomena is typically referred to **“business cycle fluctuations”**

BUSINESS CYCLE FLUCTUATION



Growth Rate is around 4% historical average.

WRAP UP : QUESTIONS IN MACROECONOMICS

	Long-term Growth	Business cycles
Positive	- What causes the disparity in the level of income per capita across countries? - Why do some countries grow, on its average basis, faster than other countries?	- Why do countries experience recurrent fluctuations in level of GDP and growth of GDP? - What are the mechanisms behind the fluctuations? Pattern of fluctuations across different variables? - Why do the recessions occur?
Normative	- What can we do to improve our country? - How to catch up the level of income per capita that other wealthy countries have been experiencing.	- What do need to do to maintain our economy to remain stabilized around its long-term path? - Should or shouldn't we intervene the system by any government policies? If yes, how?

ORGANIZATING LECTURE TOPICS

- We will start from **business cycle fluctuations** first.
 - Concepts and Measurement of business cycles
 - Provide more concrete discussion on **closed-economy**
AD-AS model
 - Use the model to explain and understand the nature/
pattern in business cycle fluctuations
 - Focus on inflation dynamic
 - **Open-economy fluctuation : IS-LM-BP**
- For midterm exam, we cover everything under the so called
“ traditional business cycle framework”

ORGANIZATING LECTURE TOPICS

- After midterm exam, we revisit the **business cycle fluctuations** again, but under the approach so called “**micro-foundation approach**” or “**optimizing based AD-AS framework**”
 - Application of microeconomics of **General Equilibrium** concept to understand the macroeconomy
- Then, we wrap up our semester with the discussion about **Long-run growth theory**.

READING MATERIALS

- **Check your syllabus**
 - **No single textbook covers everything.**
 - **Refer to suggested reading for each topic.**
- **Textbook can be purchased at the bookstore.**
- **Check BE moodle.**

Topic 2. Introduction to Business Cycle



What is a Business Cycle?

Burns and Mitchell (Measuring Business Cycles, 1946) makes **five main points** about business cycles.

1. Business cycles are **fluctuations of aggregate economic activity** not a specific variable, about **its trend**
2. There are **expansions** and **contractions**; phase of cycle variations
3. The business cycle is **recurrent**, but **not periodic**
4. The business cycle is **persistent**
5. Economic variables show **comovement**- they have regular and predictable patterns of behaviour over the course of the business cycle

1. Business cycles are **fluctuations of aggregate economic activity** not a specific variable, about **its trend**

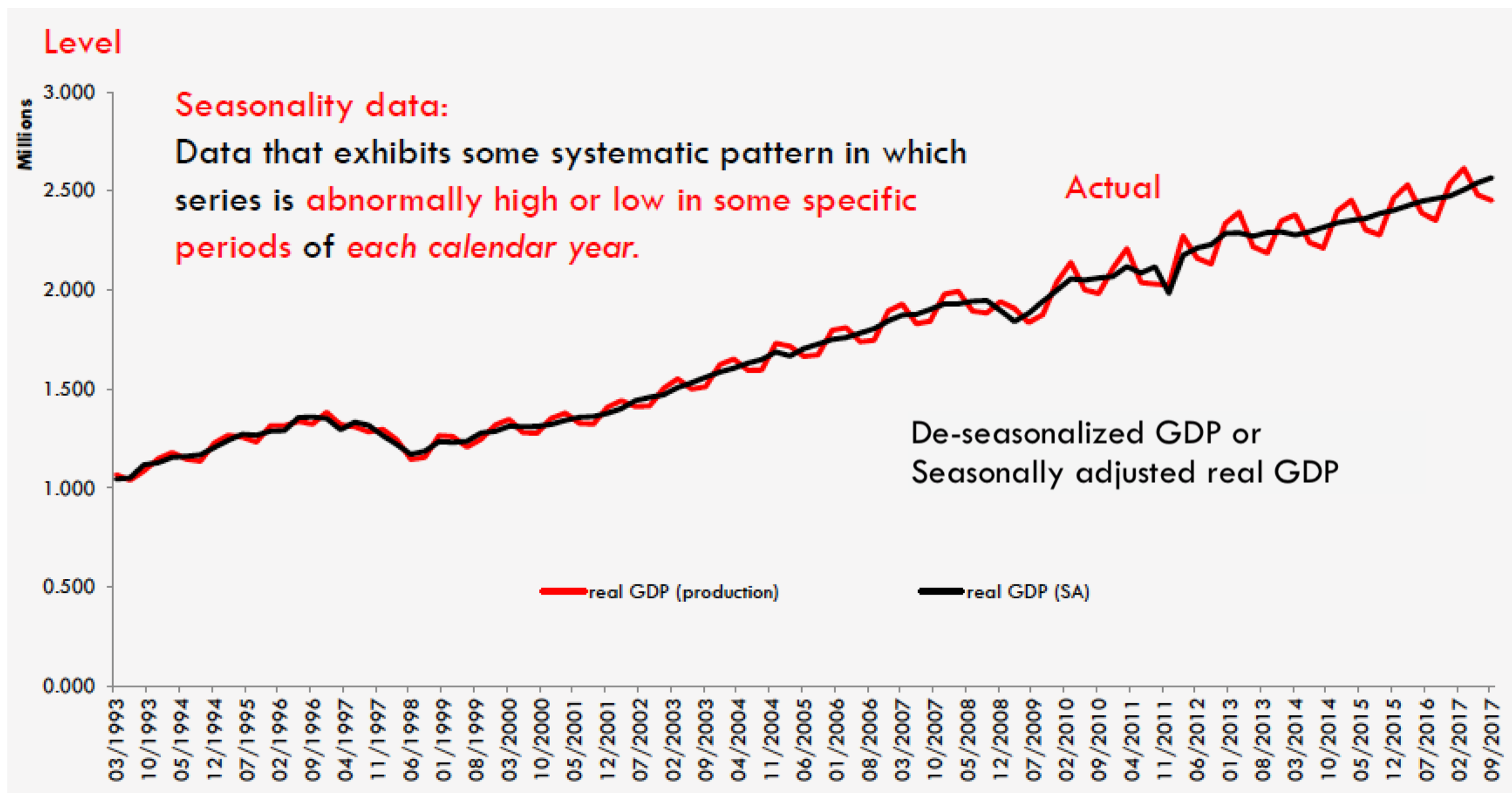
- Most aggregate variables are **time series**; data value can be observed at each point of time
- One common approach is to characterise the behaviour of the time series data is to think about the **decomposition**.

$$X = T + C + S$$

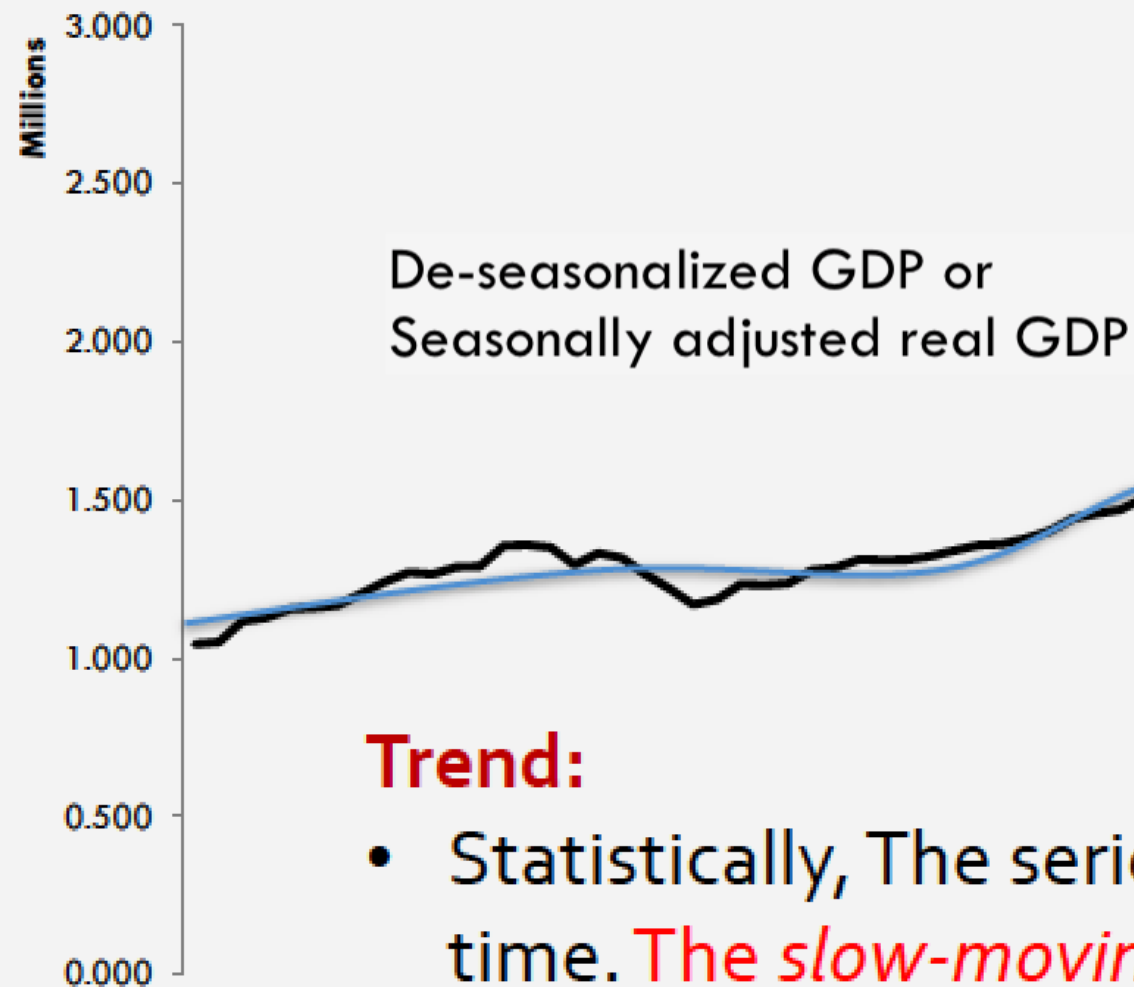
X = Actual; T = Trend; C = Cycle; S = Seasonal

- For example : GDP = Trend GDP + Cycle GDP + Seasonal Part

- For example : **Real GDP** = Trend GDP + Cycle GDP + Seasonal Part



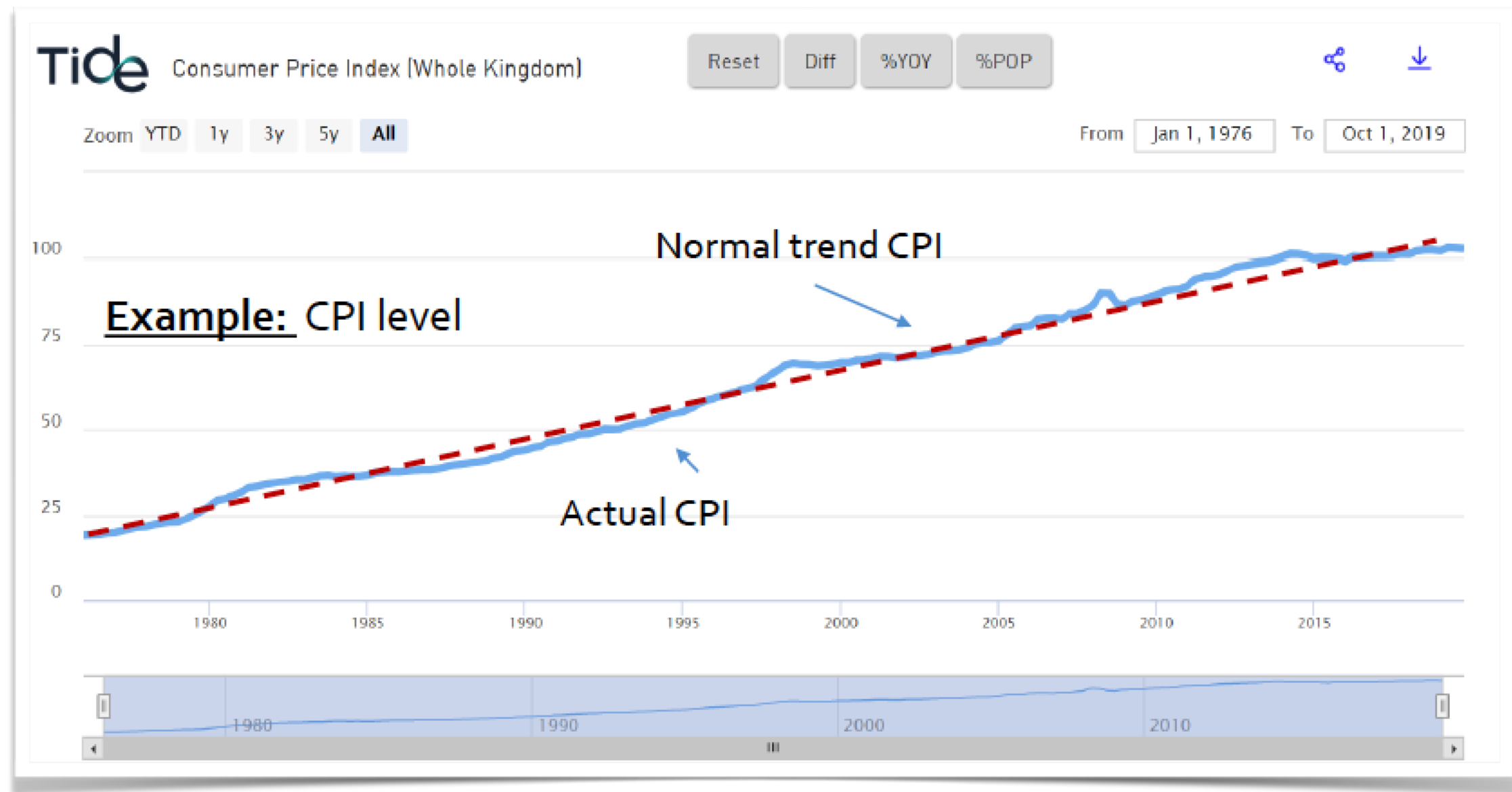
- Seasonally-adjusted real GDP has become smoother and grown over time, but fluctuates around its trend.



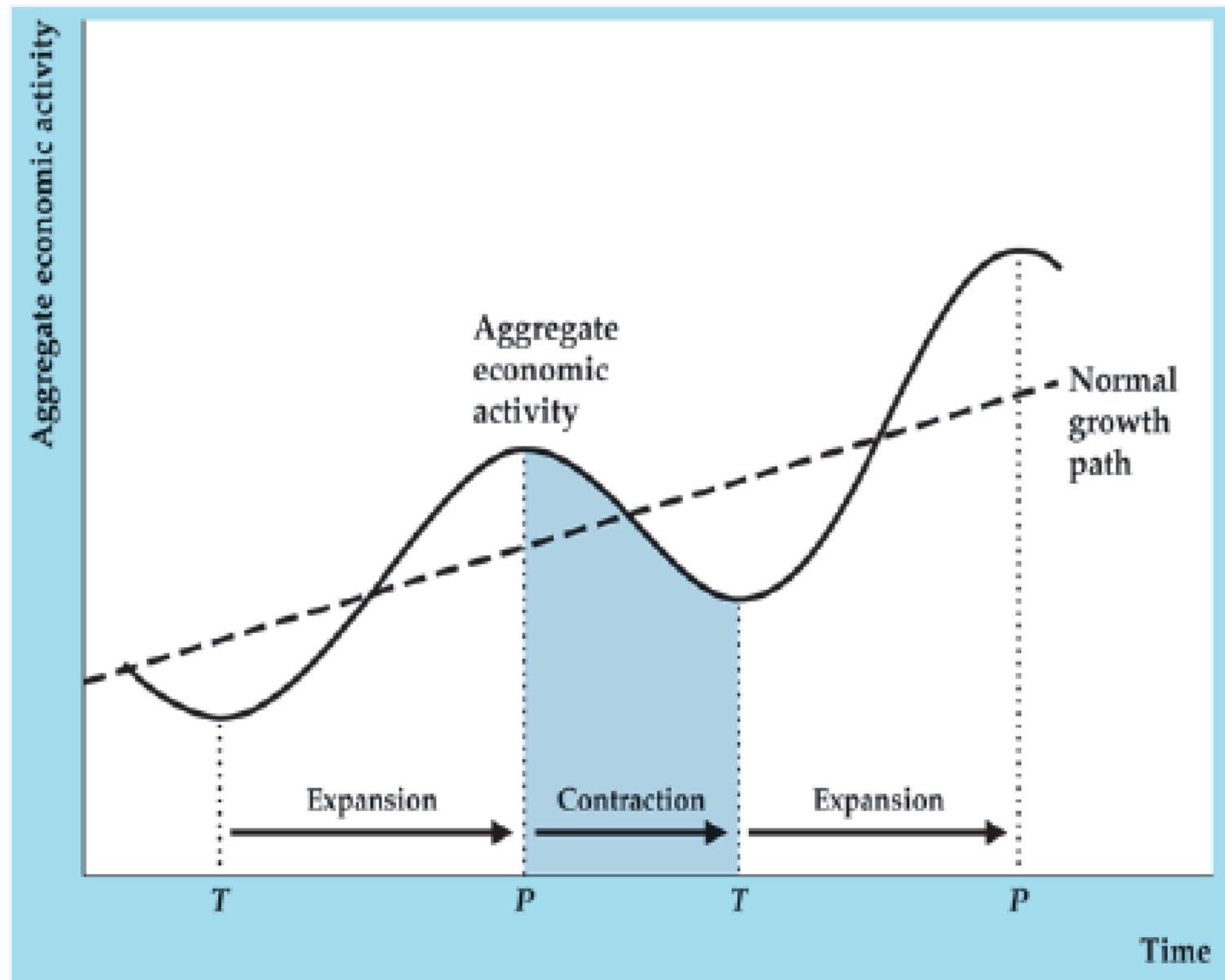
Trend:

- Statistically, The series has **slowly** moved and grown over time. *The slow-moving part of the series is called "trend"*
- Economically, this trend is usually linked to **long-term factors**, i.e. **potential growth of the economy**.

1. Business cycles are **fluctuations of aggregate economic activity** not a specific variable, about **its trend**



2. There are **expansions** and **contractions**; phase of cycle variations

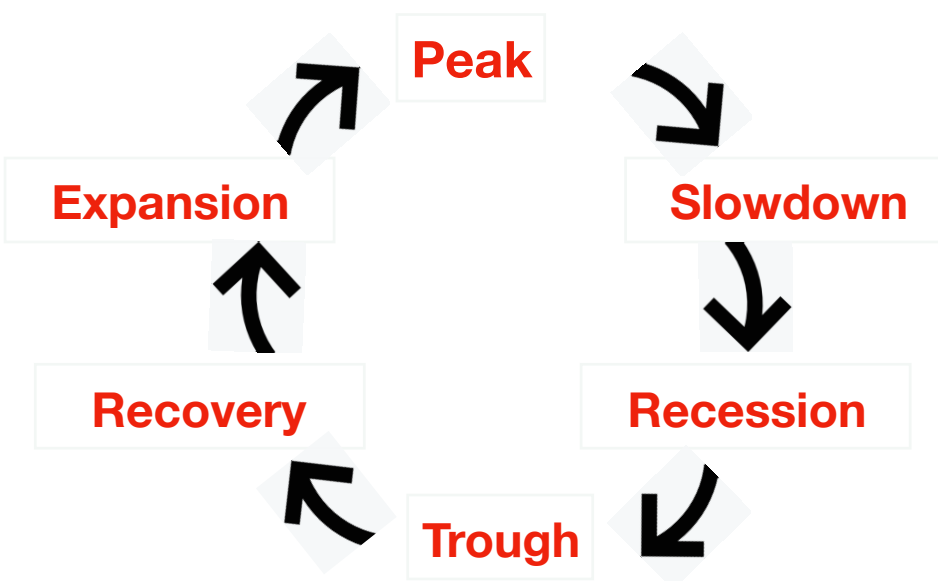


Phases of Business Cycle

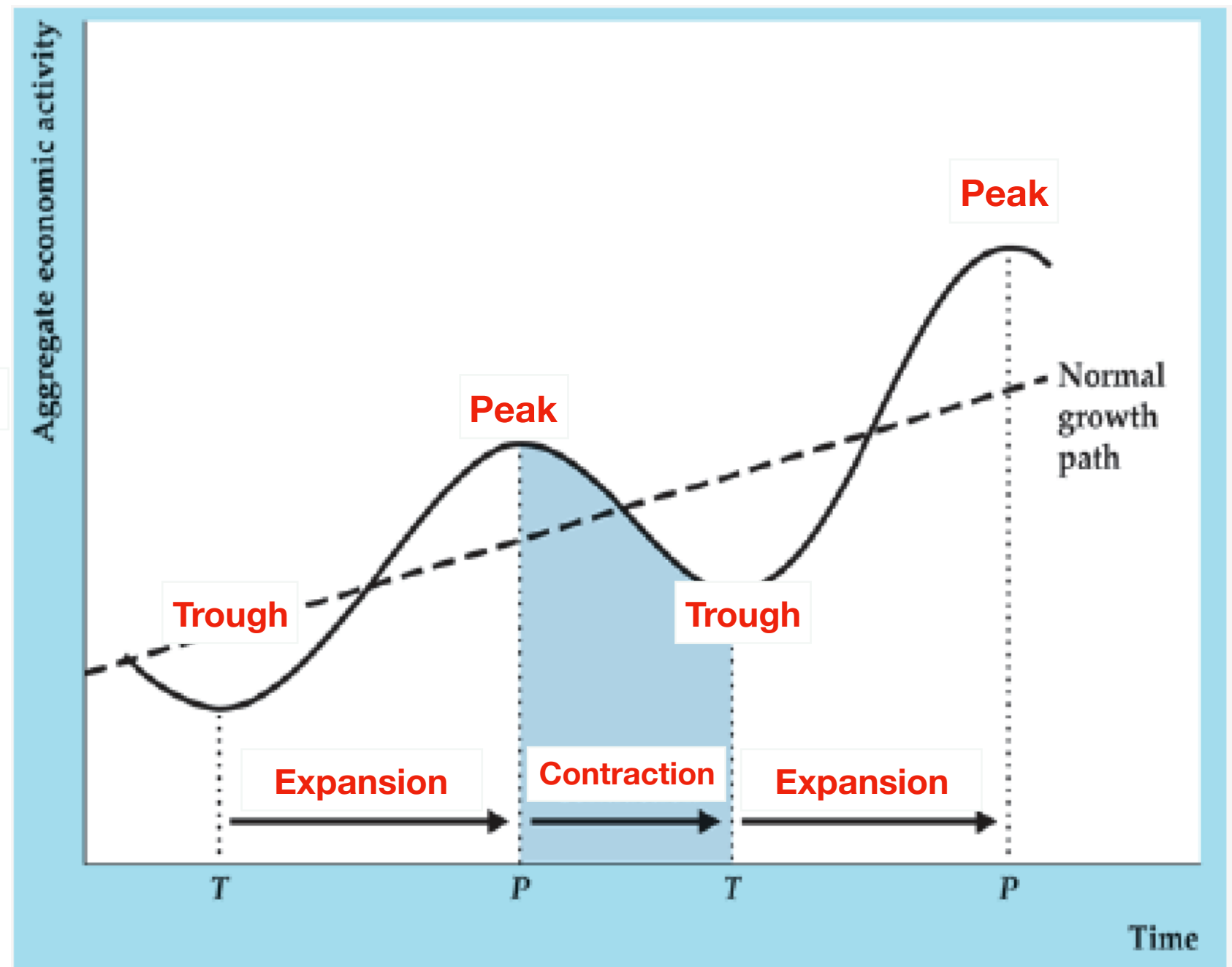
- After a trough, activity increases in an expansion or boom
- A particularly severe recession is called a **depression**
- The sequence from one peak to the next, or from one trough to the next is a **business cycle**
- Peaks and troughs are turning points
- **Expansion and Contraction**

3. The business cycle is recurrent, but not periodic

- **Recurrent** means the **pattern** of *contraction-trough-expansion-peak* occurs again and again.



- **Not being periodic** means that it **doesn't** occur at regular, predictable intervals



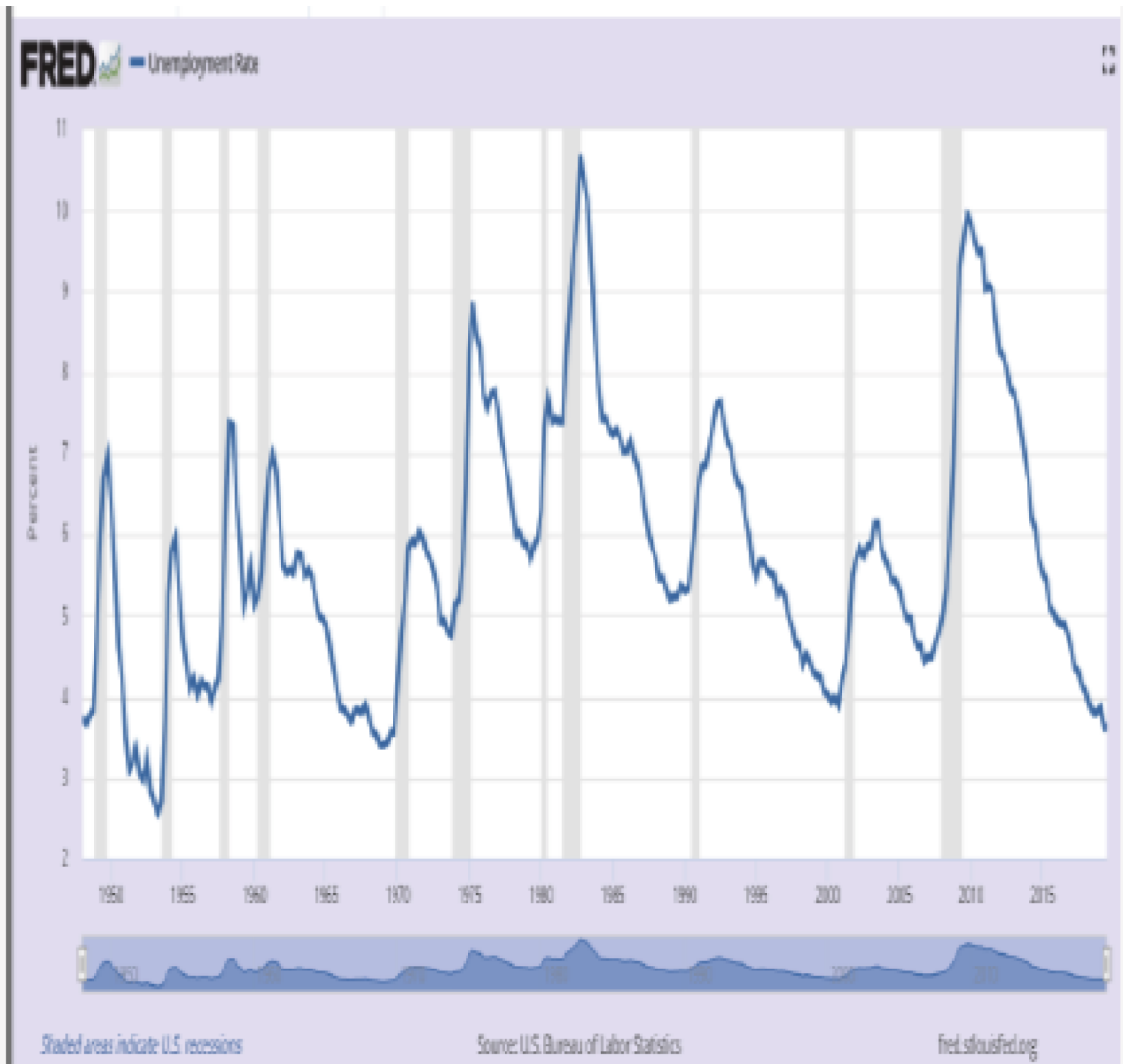
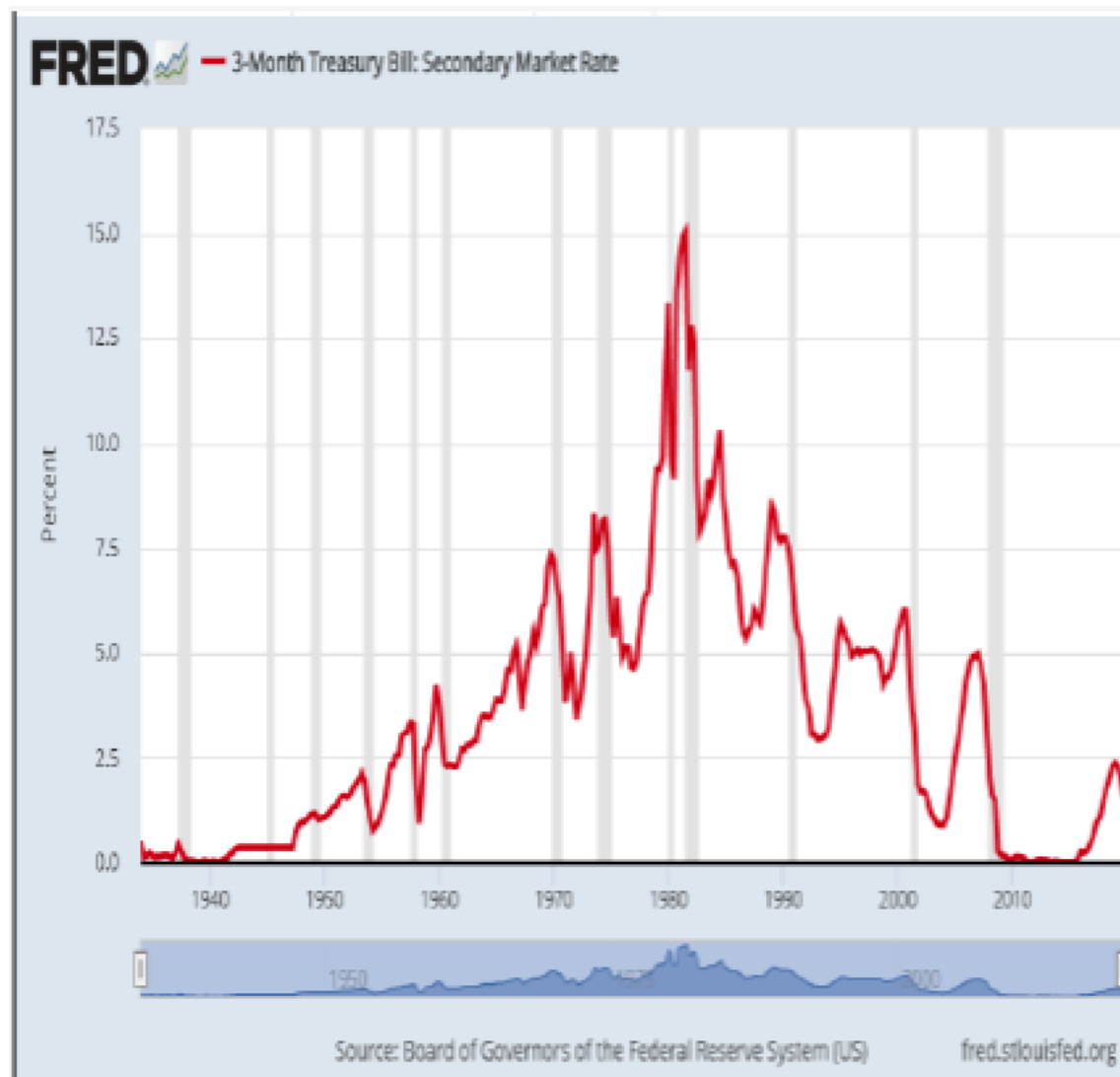
4. The business cycle is persistent

- **Persistent** : Decline are followed by further declines; growth is followed by more growth
- Because of persistence, forecasting turning point is quire important

Trough	Expansion (months from trough to peak)	Peak	Contraction (months from peak to next trough)
Dec-1914	44 (WWI)	Aug-1918	7
Mar-1919	10	Jan-1920	18
Jul-1921	22	May-1923	14
Jul-1924	27	Oct-1926	13
Nov-1927	21	Aug-1929	43 (Depression)
Mar-1933	50	May-1937	13 (Depression)
Jun-1938	80 (WWII)	Feb-1945	8
Oct-1945	37	Nov-1948	11
Oct-1949	45 (Korean War)	Jul-1953	10
May-1954	39	Aug-1957	8
Apr-1958	24	Apr-1960	10
Feb.1961	106 (Vietnam War)	Dec-1969	11
Nov-1970	36	Nov-1973	16
Mar-1975	58	Jan-1980	6
Jul-1980	12	Jul-1981	16
Nov-1982	92	Jul-1990	8
Mar-1991	120	Mar-2001	8
Nov-2001	73	Dec-2007	18

Source: NBER

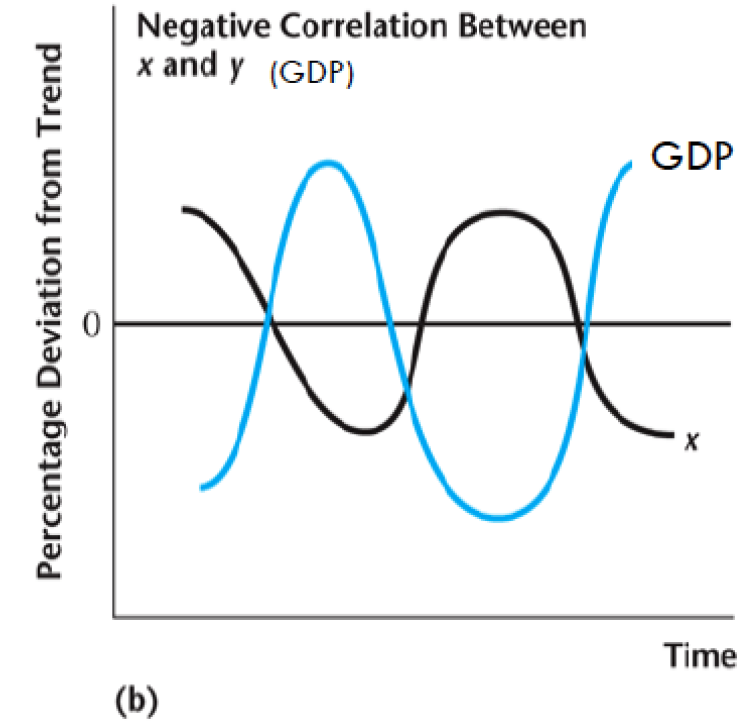
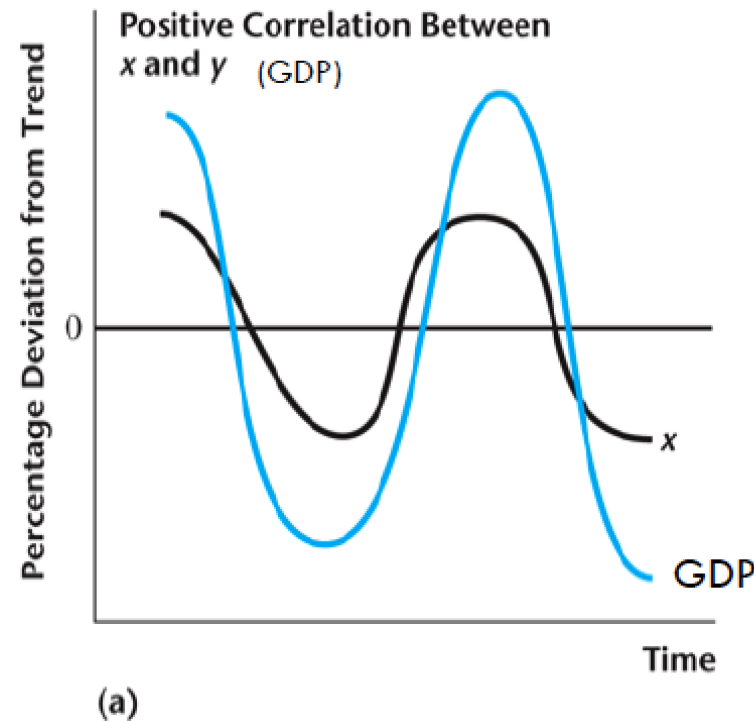
5. Economic variables show **comovement**- they have regular and predictable patterns of behaviour over the course of the business cycle



Cyclical Behaviour

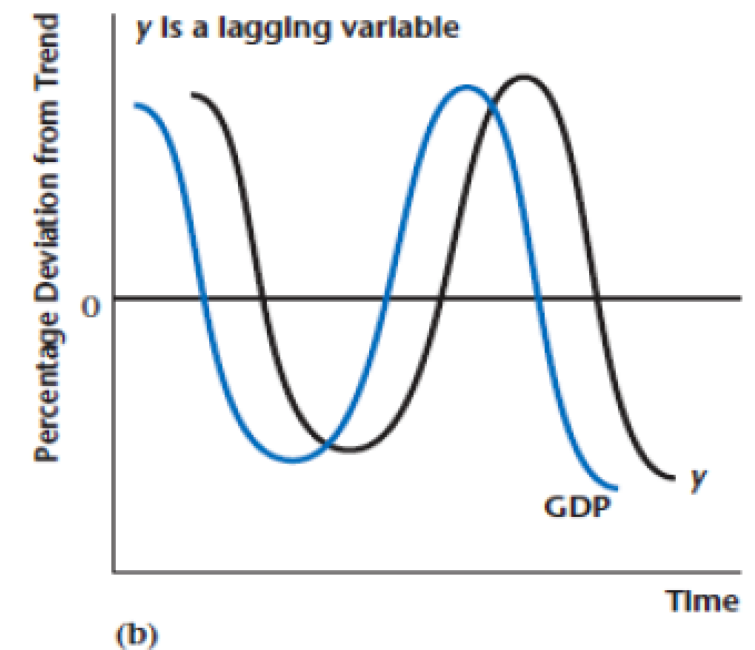
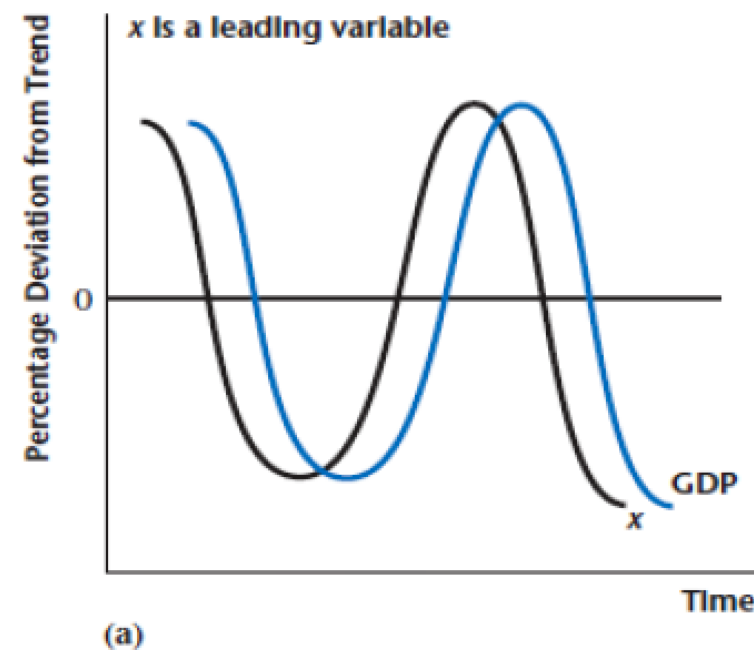
Direction : co-movement

- A **pro-cyclical variable** if $\text{corr}(\text{GDP}, x) > 0$.
- A **counter-cyclical variable** if $\text{corr}(\text{GDP}, x) < 0$
- **Acyclical variable** if $\text{corr}(\text{GDP}, x) = 0$



Timing = timing of variable's movements relative to real GDP:

- Leading (in advance)
- Lagging (after)
- Coincident (at the same time)



“Business cycle volatility is measured by the **standard deviation** of the cyclical component obtained by the filtering methods. Periods with *volatile business cycles are those where the absolute value of the cyclical component is greater than its standard deviation*. From another hand, *periods characterized by an economic downturn are identified as periods where the level of real GDP falls below trend identified using the Hodrick-Prescott filter* driven, safely arrived.

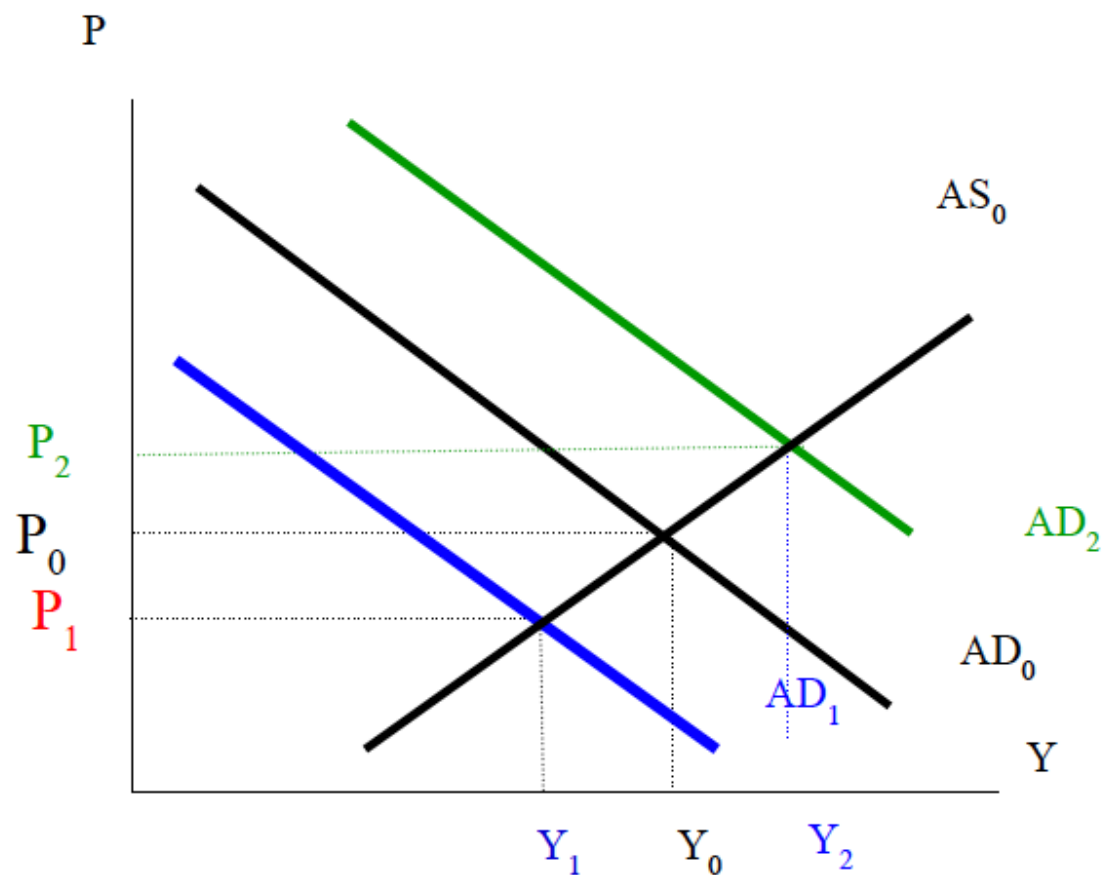
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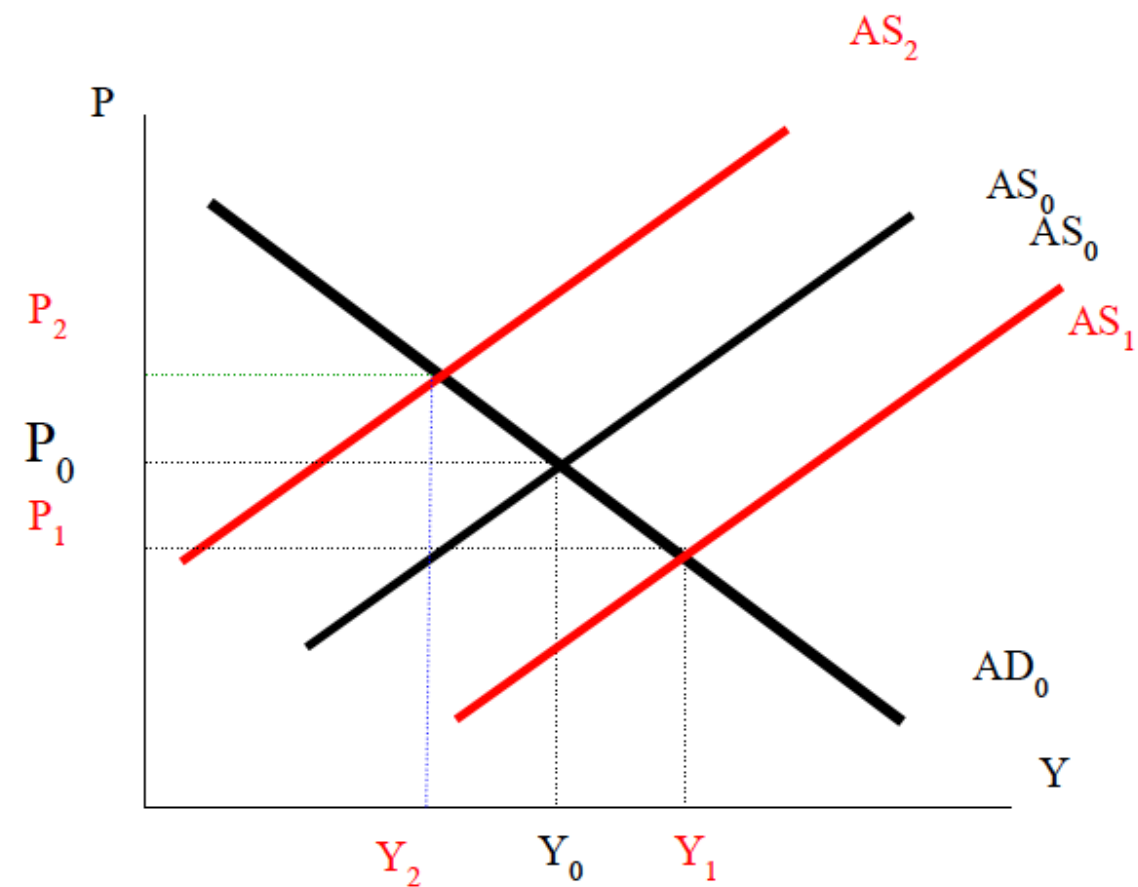
Add's EC312 class/ perhaps, there is something interesting for students. Iter ([Hodrick & Prescott, 1997](#)).”

Business Cycle Analysis

Demand shocks



Supply shocks



Positive correlation: output and inflation

Negative correlation: output and inflation

Business Cycle Analysis

Short-run analysis

- Comparative static : before and after
- Shock-propagating mechanism or channel of transmission of shocks

Medium-run analysis

- Provide some explanation about dynamic adjustments
- The underlying mechanism in which economy reverts to the potential situation
- What causes it so long for self-adjustment process to kick in

Discuss in the details in

Topic 3. The Core AD-AS Framework

Topic to review :

1. IS-LM AD-AS model
2. Production function