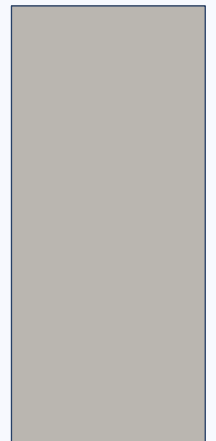


# MACROECONOMIC DEFINITIONS

CHAPTER 6



# CHAPTER OUTLINE

- Gross Domestic Product
- Inflation
- Unemployment
- Business Cycles

# MICROECONOMICS VS. MACROECONOMICS

- **Microeconomics:** that part of the discipline of economics that deals with individual markets and firms
- **Macroeconomics:** that part of the discipline of economics that deals with the economy as a whole
- So far in this class we have been working on micro, now it is time to think about macro

# GROSS DOMESTIC PRODUCT

- We want some way to measure how our economy is doing as a whole
- Suppose we are back in our little village where we just produce two things: deer and fish
- Further lets assume there is no good storage, so we eat what we catch every day
- It is relatively easy to measure productivity in two equivalent ways:
  - We can measure the total value of what we catch (Value of deer and fish in dollars)
  - We can measure the total value of what we eat
- These have to be exactly the same and will add up

We do essentially the same thing when we want to measure the economic well being of the U.S. or another country

- We can count up the total amount of stuff that we make
- We can count up the total amount of stuff we spend money on
- These should be the same
- Of course doing this in practice is very difficult

- **Gross Domestic Product:** the dollar value of all of the goods and services produced for final sale in the United States in a year
  - “Final Sale” avoids double counting of intermediate production
  - “Sale” implies exclusively market activities
  - “produced..in the United States” implies that Hondas produced in the US count but Fords produced in Mexico do not
  - “goods and services” means we include things we produce like cars, but also services like hair cuts

# ALTERNATIVE APPROACHES TO GDP CALCULATIONS

<b>Expenditures Approach</b>	<b>Amount</b>		<b>Income Approach</b>	<b>Amount</b>
<b>Personal Consumption</b>	<b>\$9,710.2</b>		<b>Employee Compensation</b>	<b>\$7,819.4</b>
<b>Gross Private Investment</b>	<b>\$2,130.4</b>		<b>All Profits</b>	<b>\$3,386.0</b>
<b>Government Consumption and Investment Expenditures</b>	<b>\$2,674.8</b>		<b>Net Property Income</b>	<b>\$109.4</b>
<b>Net Exports</b>	<b>-\$707.8</b>		<b>Indirect Business Taxes</b>	<b>\$1,105.5</b>
			<b>Depreciation</b>	<b>\$1,720.5</b>
			<b>Minus Income Earned Abroad</b>	<b>-\$102.4</b>
			<b>Statistical Discrepancy</b>	<b>\$81.4</b>
<b>Gross Domestic Product</b>	<b>\$13,807.6</b>		<b>Gross Domestic Product</b>	<b>\$13,807.6</b>

# INFLATION

- Note that GDP is measured in terms of the current value
- However, prices have changed a lot over time so we need to distinguish between changes that are actually productivity changes versus changes that are just price changes
- Lets think about how to worry about price changes



# MEASURING PRICES

- **Market Basket:** what average people buy and in what quantities they buy it
- **Base Year:** year in which the market basket is established and year to which all other prices are compared
- **Price of the Market Basket in the Base Year:** national average of the total cost of the market basket for the first month in the first year.

# PRICE INDEX

$$\text{CPI in 2008} = \frac{\text{Price of Market Basket in 2011}}{\text{Price of the market basket in the base year (1983)}} \times 100$$

# PRICE INDEX

- **Price Index:** a device that centers the price of the market basket around 100

$$\text{CPI in 2008} = \frac{\text{Price of Market Basket in 2011}}{\text{Price of the market basket in the base year (1983)}} \times 100$$

# PRICE INDEX

- **Price Index:** a device that centers the price of the market basket around 100
- **Consumer Price Index:** the price index based on what average consumers buy

$$\text{CPI in 2008} = \frac{\text{Price of Market Basket in 2011}}{\text{Price of the market basket in the base year (1983)}} \times 100$$

<b>Year</b>	<b>CPI-U</b>
1920	20.0
1930	16.7
1940	14.0
1950	24.1
1960	29.6
1970	38.8
1980	82.4
1990	130.7
2000	172.2
2010	218.1

Thus if we want to compare costs today with costs 50 years ago we have to be careful

In terms of what you can buy with it, earning \$100,000 today is like earning

$$\begin{aligned} 100,000 \times \frac{CPI_{1950}}{CPI_{2010}} &= 100,000 \times \frac{24.1}{218.1} \\ &= 11,050 \end{aligned}$$

in 1950

This is due to inflation since then

# MEASURING INFLATION

$$\begin{aligned} \text{2010 Inflation} &= \frac{\text{CPI, Jan 2011} - \text{CPI, Jan 2010}}{\text{CPI, Jan 2010}} \times 100\% \\ &= \frac{220.223 - 216.687}{216.687} \times 100\% \\ &= 1.6\% \end{aligned}$$

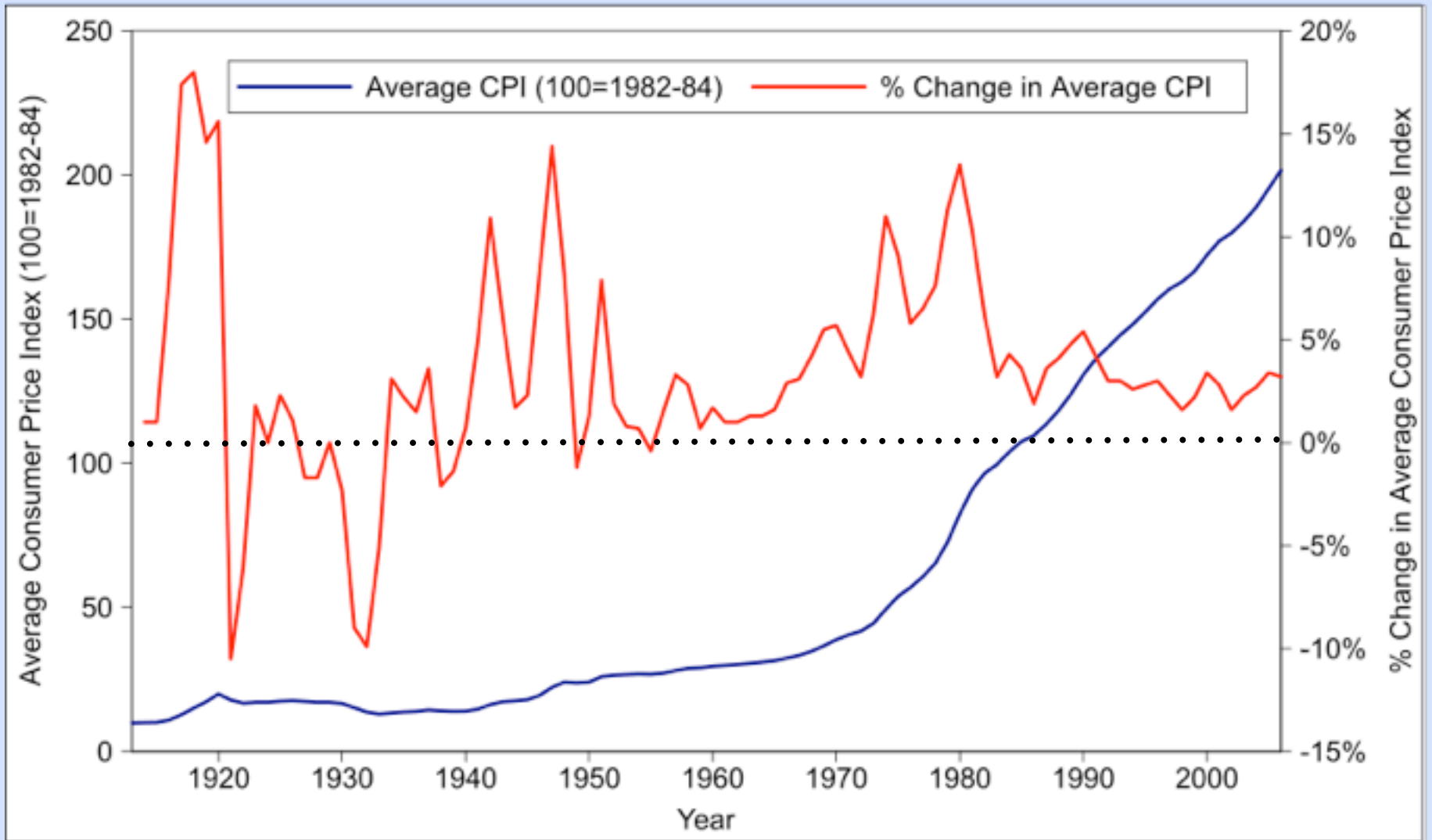
# MEASURING INFLATION

- **Inflation Rate:** the percentage increase in the consumer price index

$$\begin{aligned} \text{2010 Inflation} &= \frac{\text{CPI, Jan 2011} - \text{CPI, Jan 2010}}{\text{CPI, Jan 2010}} \times 100\% \\ &= \frac{220.223 - 216.687}{216.687} \times 100\% \\ &= 1.6\% \end{aligned}$$



# United States Consumer Price Index 1913-2006



# PROBLEMS MEASURING INFLATION

- New Goods
- Changes in the Market Basket occur every two years which is too infrequent for some goods (like consumer electronics).
- The treatment of improvements in the quality of goods is inadequate.
- People change the places they buy frequently.
- No accounting for substitutions

# BUREAU OF LABOR STATISTICS ADJUSTMENTS

- The BLS is dealing with
  - Consumer electronics issues by pricing an index of quality rather than a specific item.
  - The “infrequent updates problem” by moving to a two-year chain-based index, a price index that is based on an biannually adjusted market basket.
- The CPI still overstates the cost-of-living by 0.8%.
- There are many other price indices available (some are mentioned in the book)-some are better than others but nothing is perfect
- We still have to do something though

# COST OF LIVING ADJUSTMENTS

- **Cost of Living Adjustment or COLA:** a device that compensates people for the fact that inflation makes the spending power of their income less

# INFLATION'S WINNERS AND LOSERS

- **Losers**

- People on fixed incomes
- Lenders

- **Winners**

- Borrowers

- If inflation exceeds expectations then borrowers win and lenders lose
- If inflation is less expectations then borrowers lose and

# REAL GROSS DOMESTIC PRODUCT

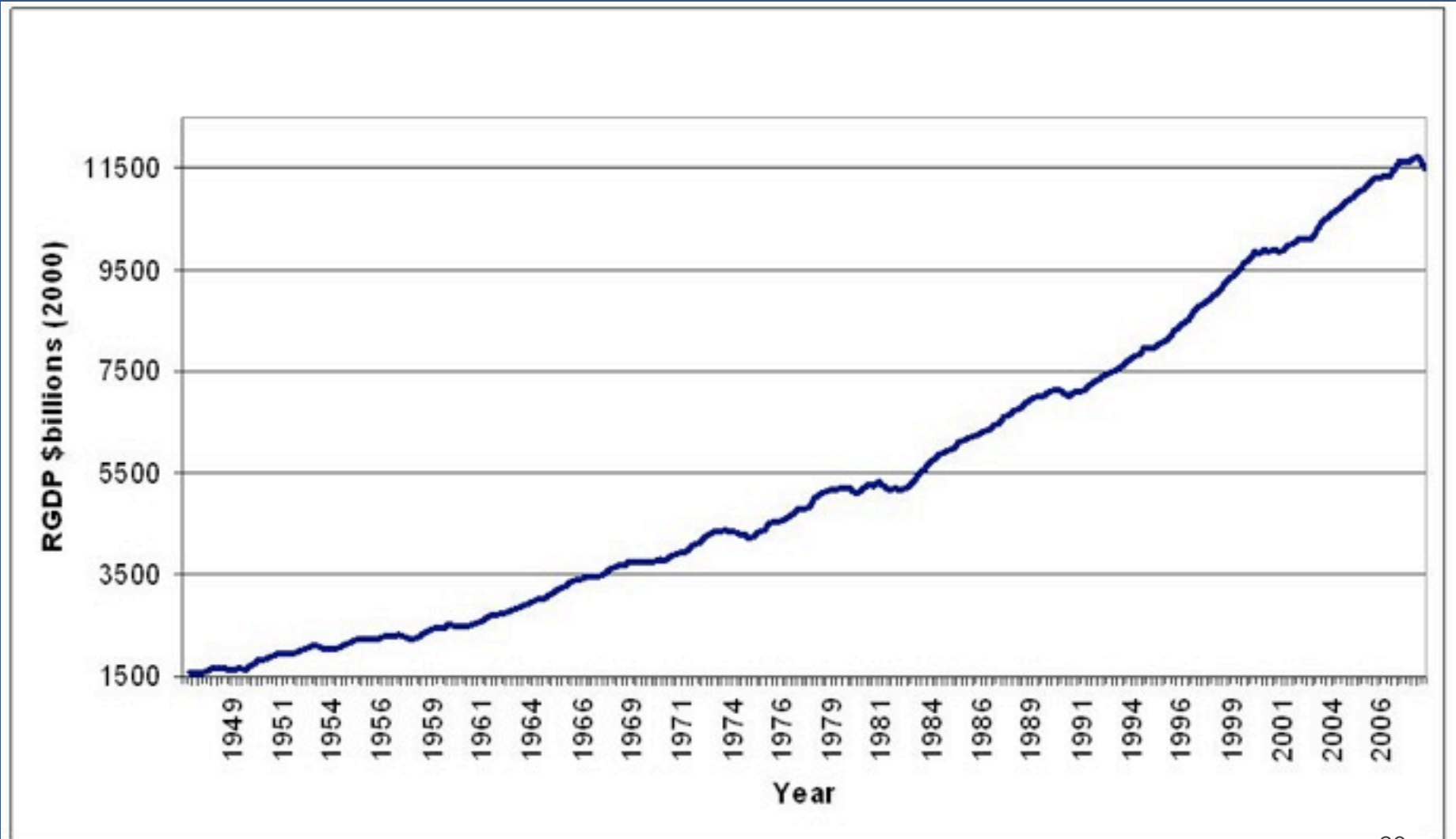
- **Real Gross Domestic Product:** an inflation adjusted measure of GDP
- **GDP Deflator:** the price index used to adjust GDP for inflation, including all goods rather than a market basket

$$\text{Real GDP} = \frac{GDP}{GDP \text{ Deflator}} \times 100$$

GDP basket tries to include everything in GDP

- some of which wouldn't be in the market basket
- some of market basket won't be in this

# POST WWII RGDP 2000 IN BILLIONS

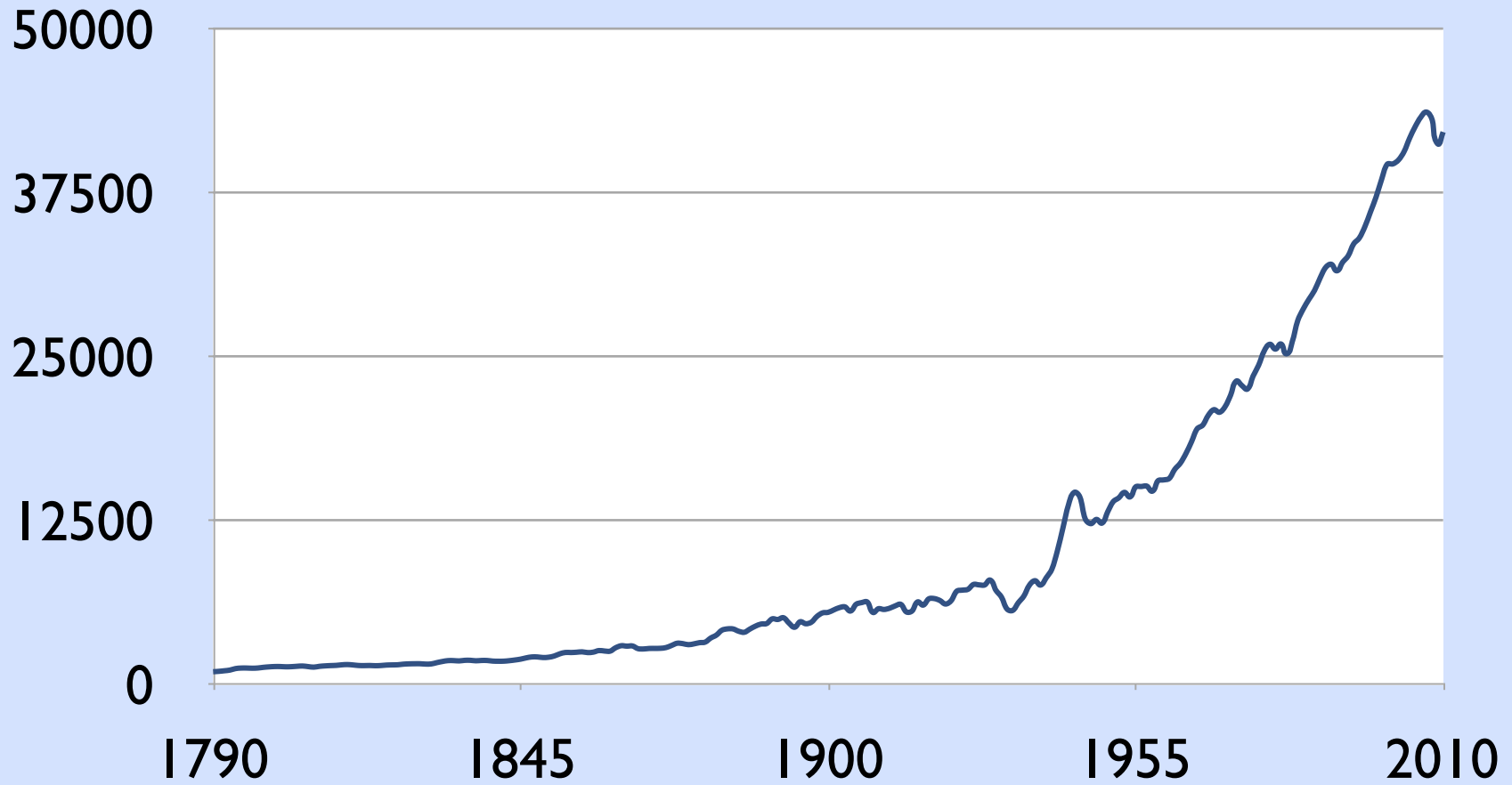


# PROBLEMS WITH RGDP

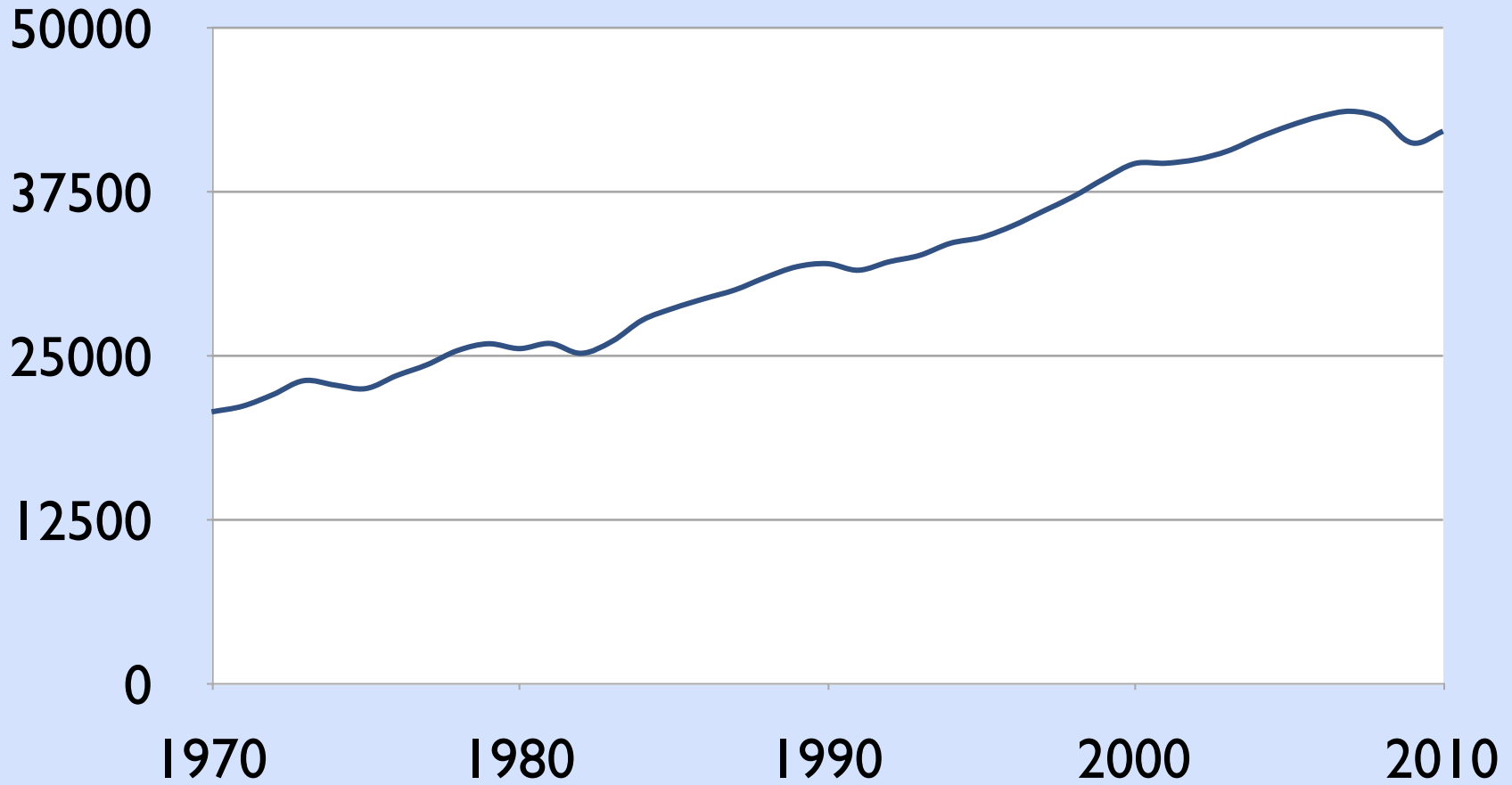
- Not Exactly Well Being
  - GDP ignores the value of leisure
  - GDP ignores the composition of output
  - GDP should be a per capita measure
  - GDP ignores environmental measures
- But Also Not Exactly Income
  - GDP only counts market sales so it ignores home production.
  - GDP ignores the “underground economy”



## U.S. Per Capita GDP 1790-2010



## U.S. Per Capita GDP 1970-2010



Country	Real GDP per capita	Rank (out of 226)
Qatar	179,000	1
Norway	54,600	7
United States	47,200	11
Canada	39,400	22
Germany	35,700	33
United Kingdom	34,800	37
Lithuania	16,000	68
China	7,600	124
India	3,500	161
Kenya	1,600	197
Burundi	300	226

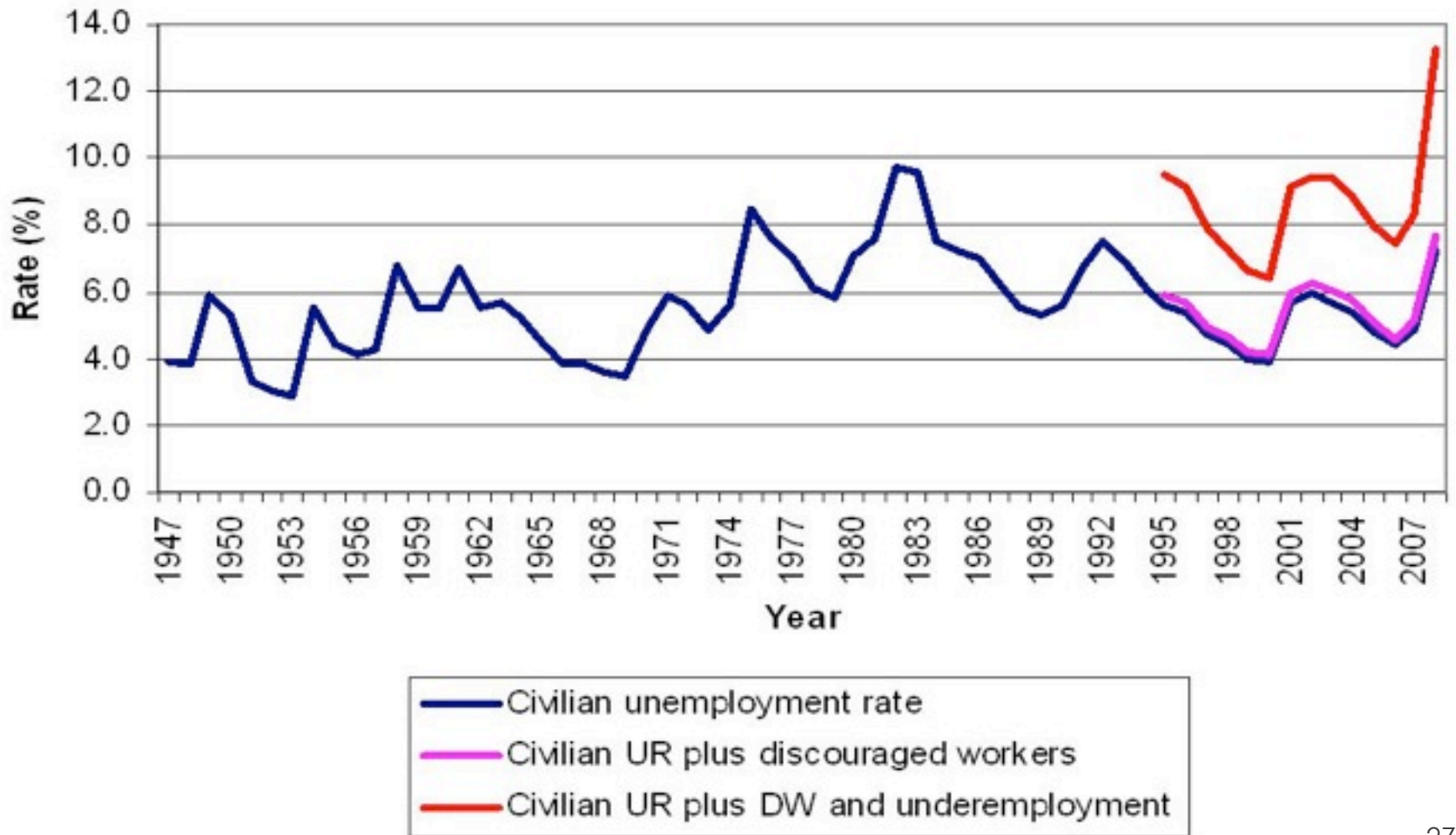
# MEASURING UNEMPLOYMENT

- **Work Force:** all those non-military personnel who are over 16 and are employed or are unemployed and actively seeking employment
- **Unemployment Rate:** the percentage of people in the work force who do not have jobs and are actively seeking them

# PROBLEMS MEASURING UNEMPLOYMENT

- **Underemployed** : the state of working significantly below skill level or working fewer hours than desired
- **Discouraged worker effect**: when bad news induces people to stop looking for work causing the unemployment rate to fall
- **Encouraged worker effect**: when good news induces people to start looking for work causing the unemployment rate to rise (until they succeed in finding work)

# ANNUAL UNEMPLOYMENT RATES



# TYPES OF UNEMPLOYMENT

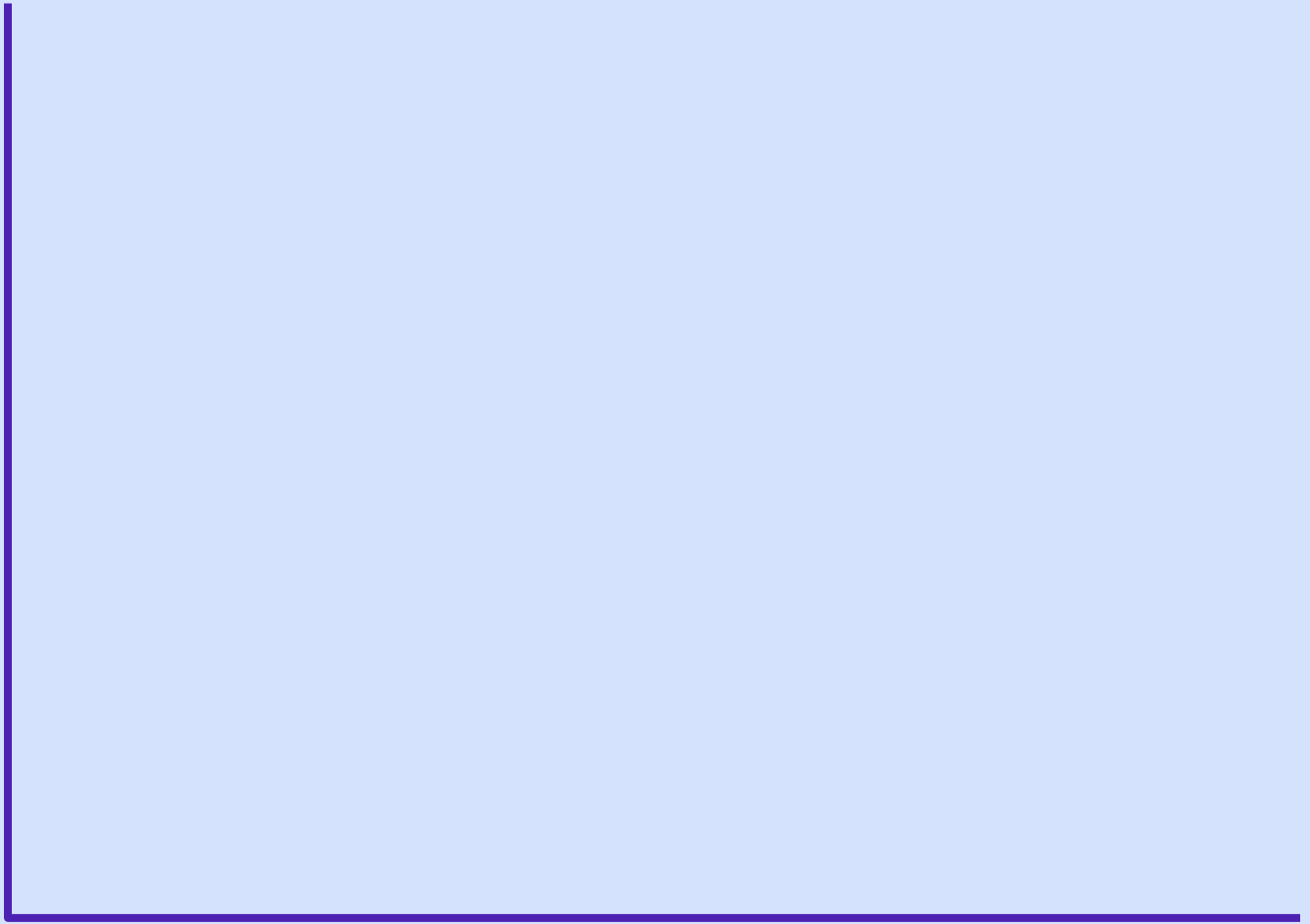
- **Cyclically Unemployed:** people lose their jobs because of a temporary downturn in the economy
- **Seasonally Unemployed:** (a subset of the cyclically unemployed) people who lose their jobs predictably every year at the same time
- **Structurally Unemployed :** people who lose their jobs because of a change in the economy that makes their particular skill obsolete
- **Frictionally Unemployed:** people who are unemployed for a short time in the transition to an equal or better job

# THE BUSINESS CYCLE

- **Business Cycle:** regular pattern of ups and downs in the economy
- **Trough:** the lowest point in the business cycle
- **Recovery:** the part of the growth period of the business cycle from the trough to the previous peak
- **Expansion:** the part of the growth period of the business cycle from the previous peak to the new peak
- **Peak:** the highest point in the business cycle
- **Recession:** the declining period of at least two consecutive quarters in the business cycle

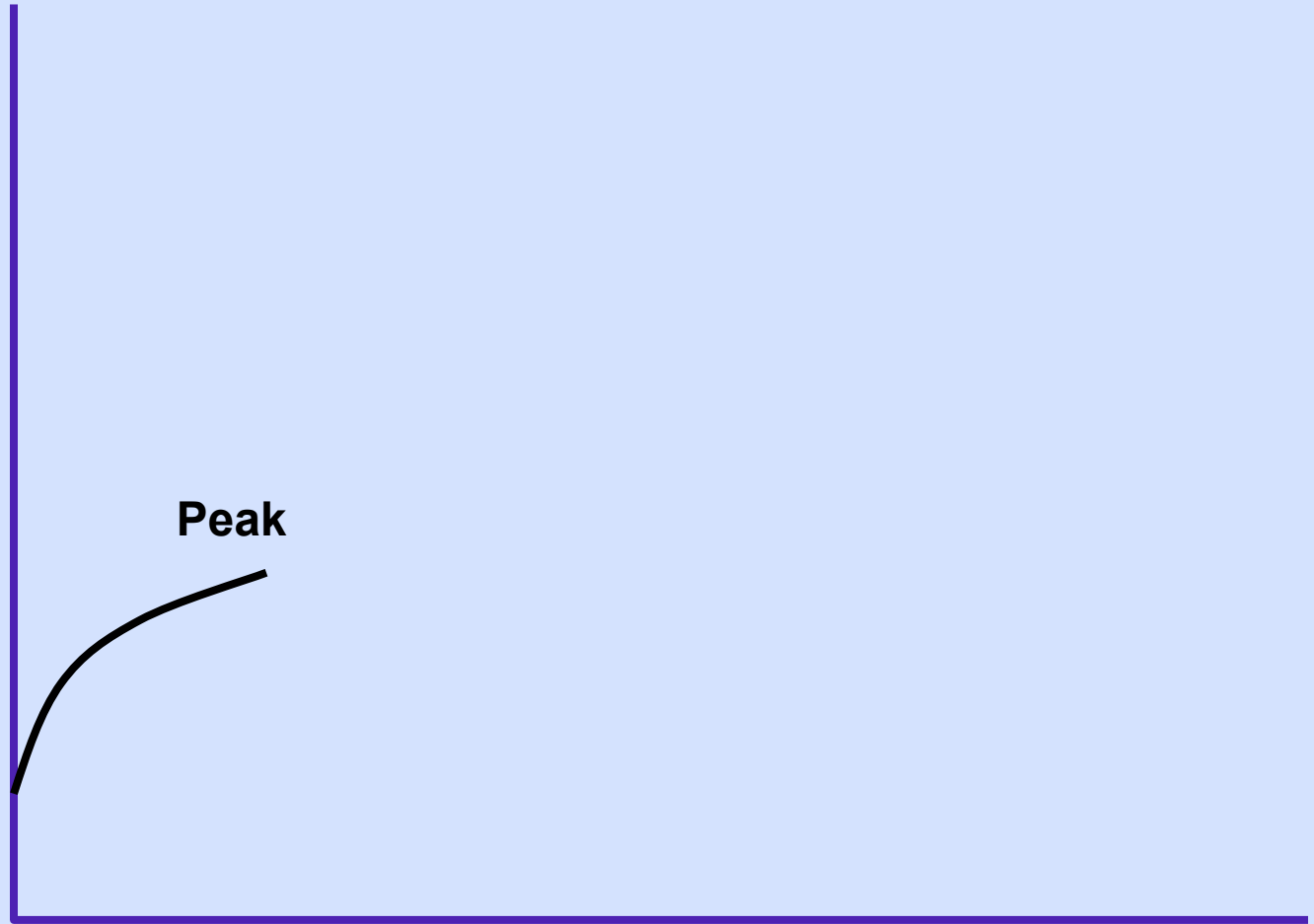


RGDP



Time

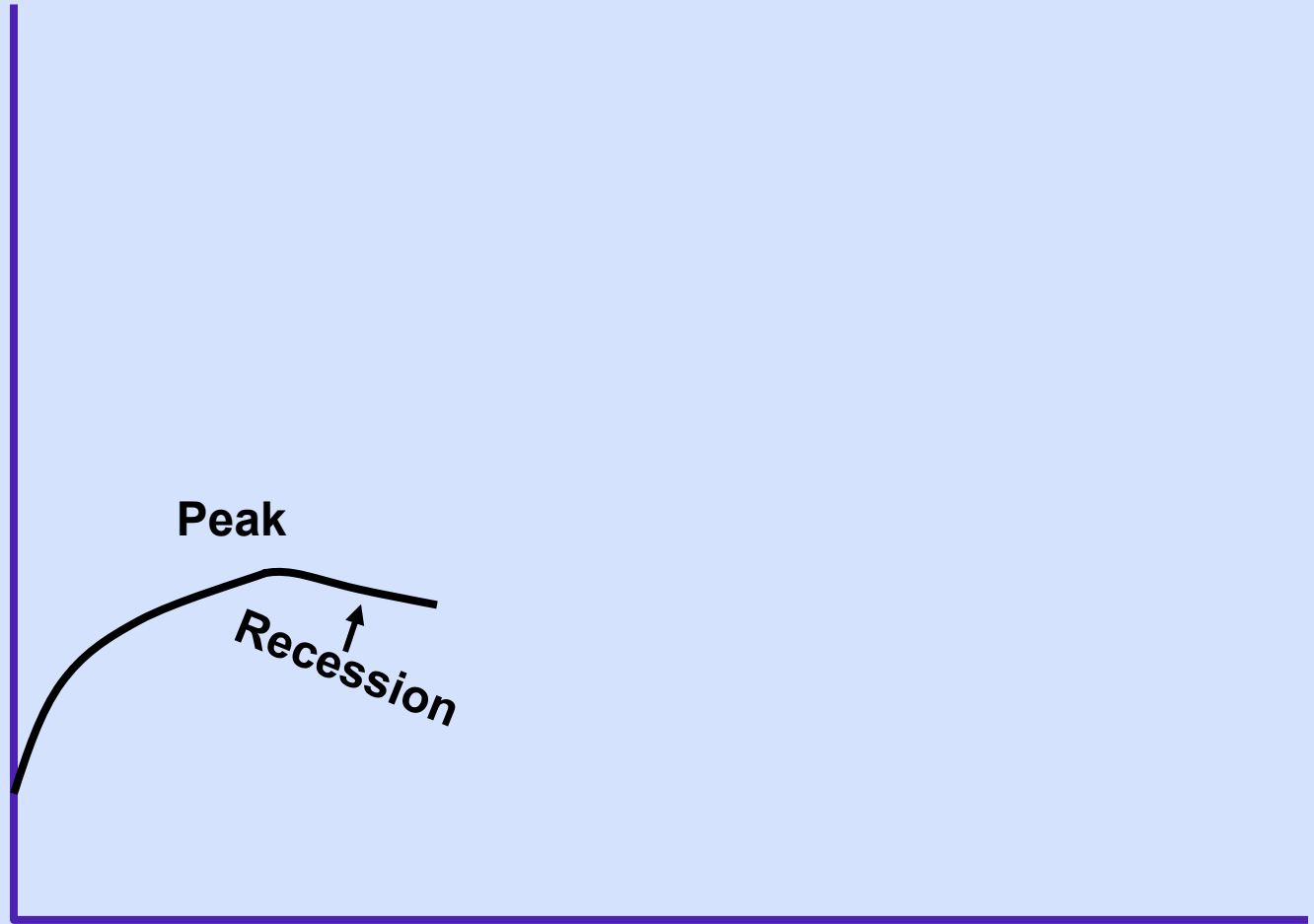
RGDP



Peak

Time

RGDP

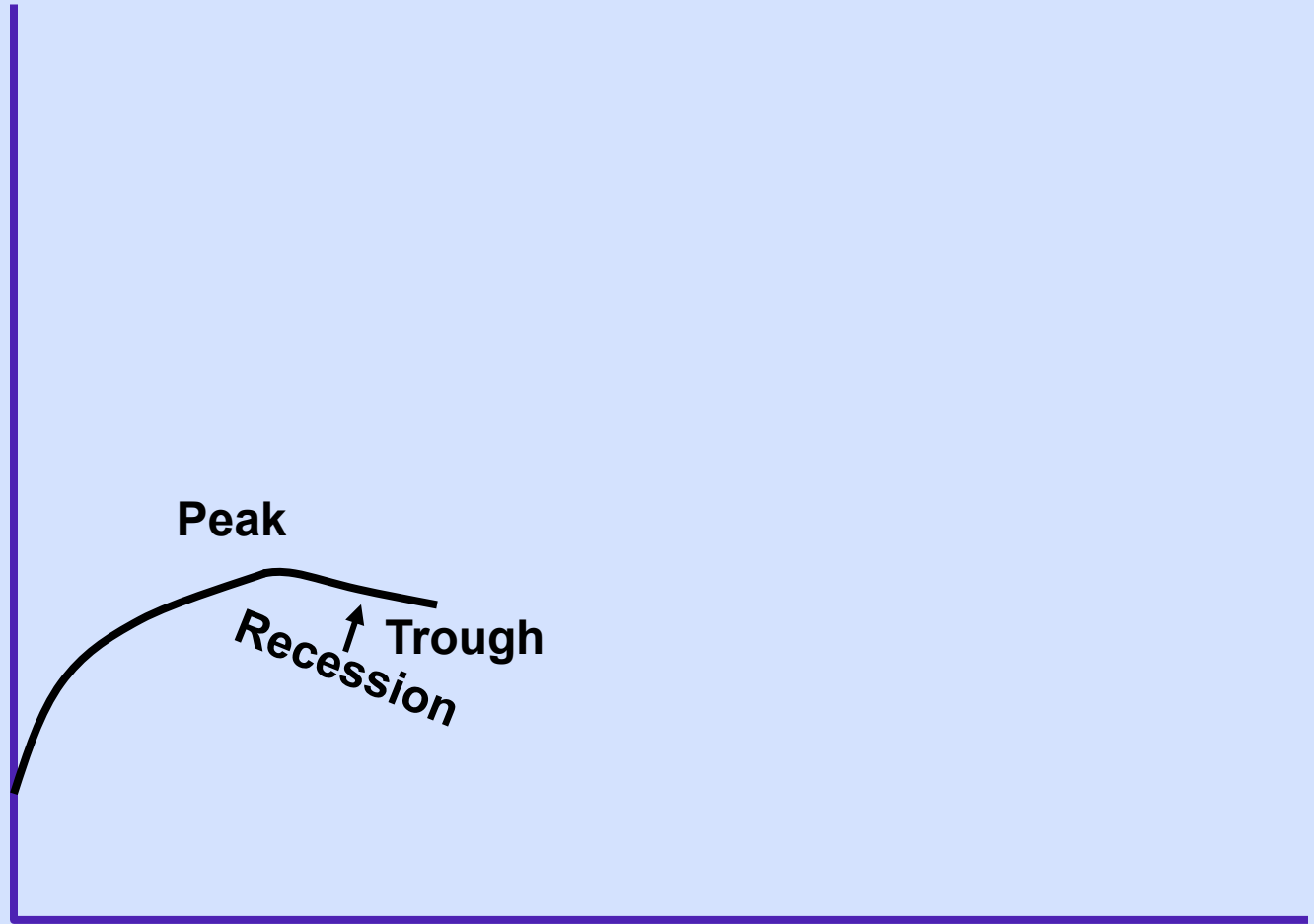


Peak

Recession ↑

Time

RGDP

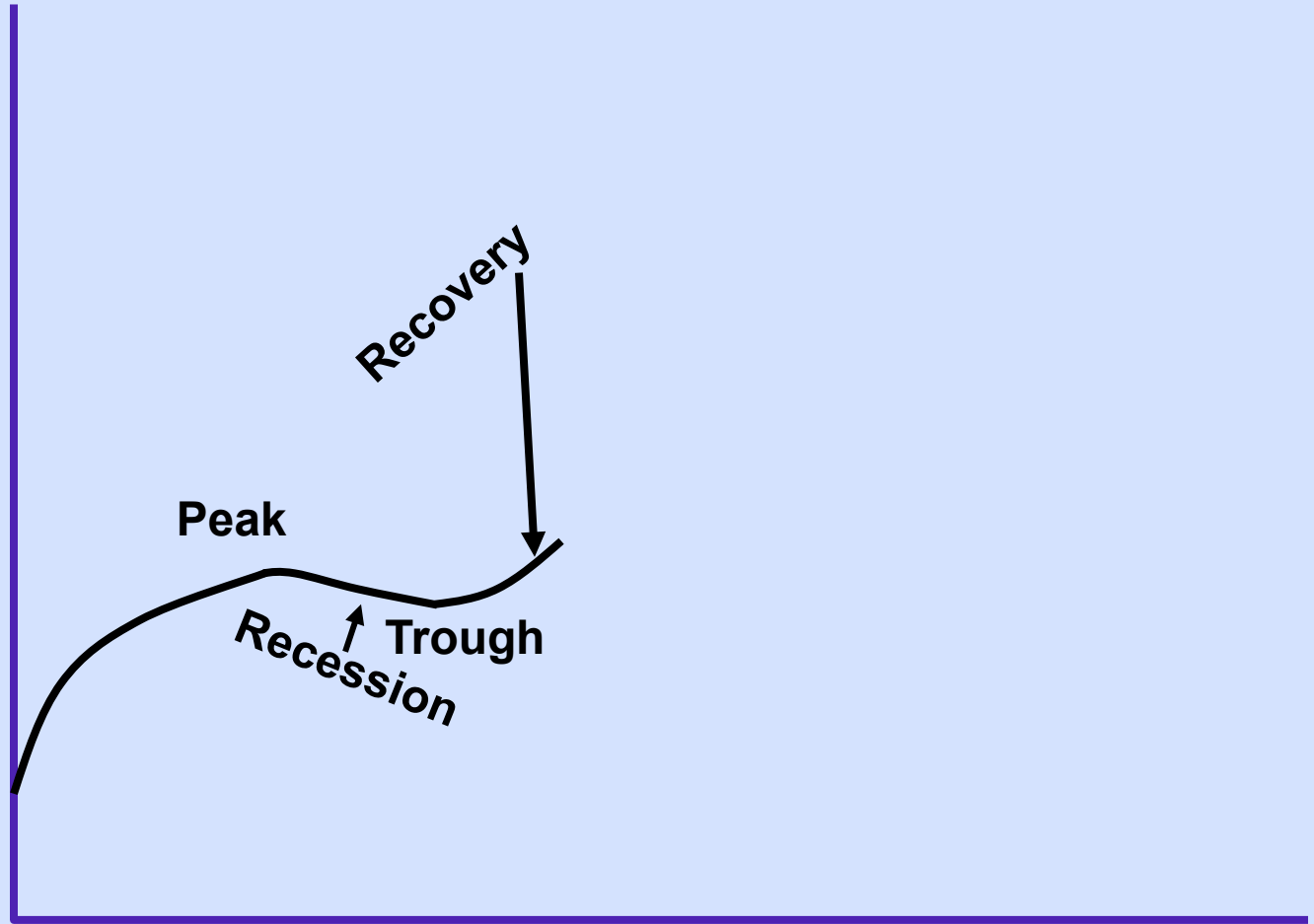


Peak

Recession ↑ Trough

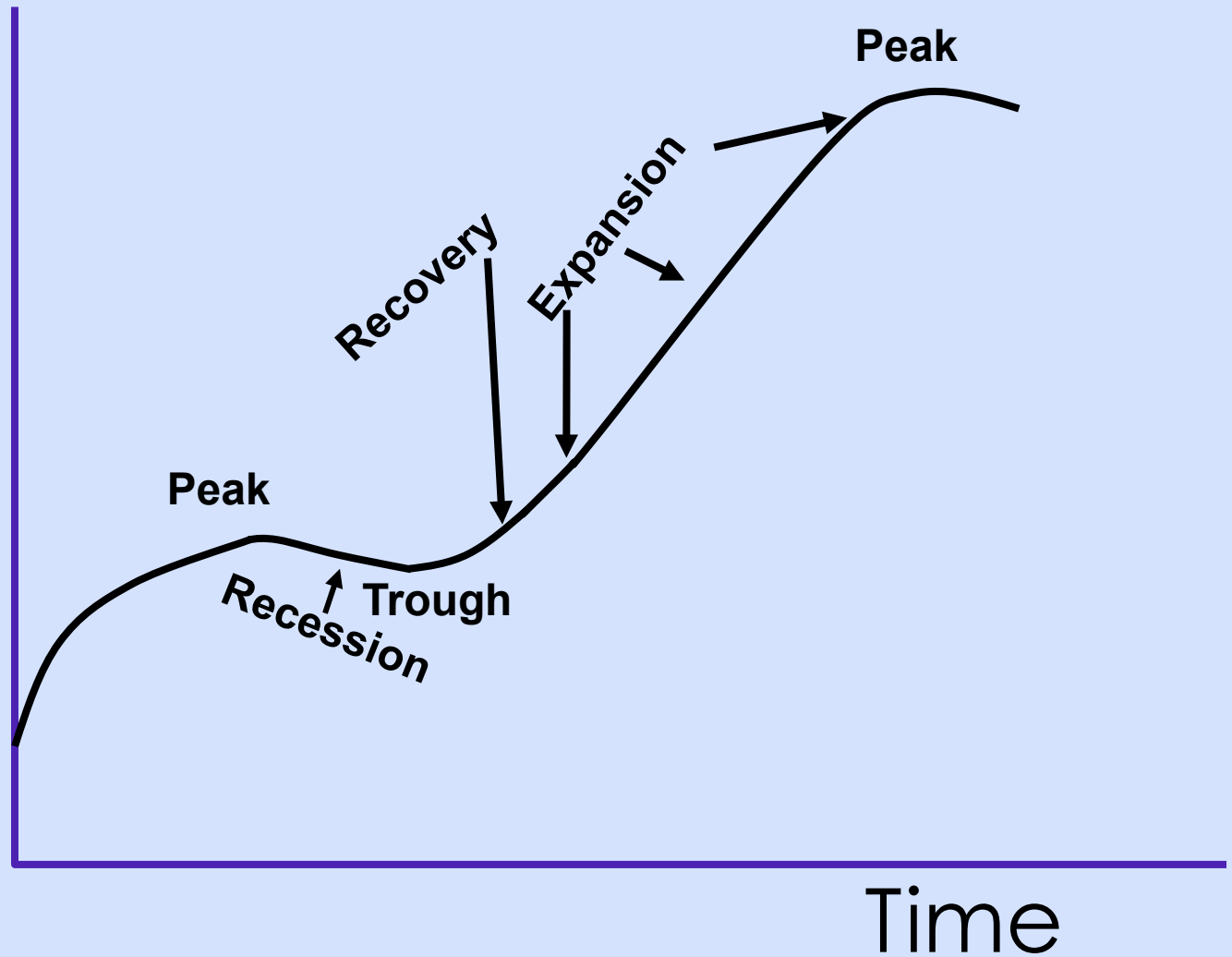
Time

RGDP

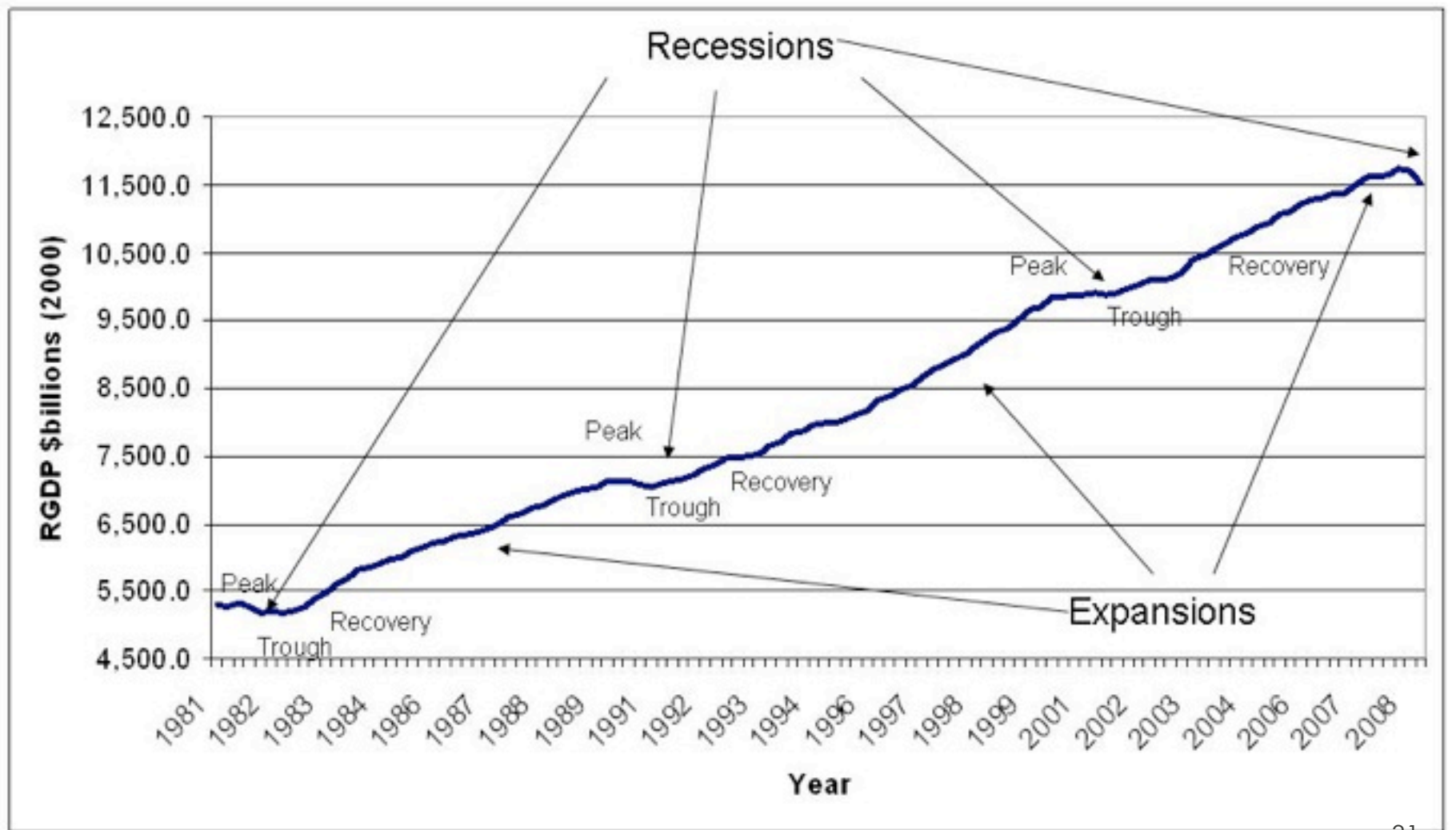


Time

RGDP



# THE BUSINESS CYCLE 1981 TO 2009



# IF INFLATION IS BAD HOW CAN DEFLATION BE WORSE?

With **deflation**

- People delay buying big ticket items when they are certain it will be cheaper if they are patient.
- If they delay buying
  - then demand for those goods will fall.
  - firms will cut costs by cutting wages and benefits, or by laying people off.
  - when profits decline, the value of stocks decline. With less wealth, stockholders spend less on consumer goods.
  - housing prices may decline. Purchases that are made using home equity decline.



# DEPRESSION

- **Depression:** There is no generally accepted standard but most are characterized by a severe recession that results in a financial panic and bank closures, unemployment rates exceeding 20%, prolonged retrenchment in RGDP on the magnitude of ten percent or more, and significant deflation.