Chapter 1: The Science of Macroeconomics

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What is Macro?

Macroeconomics is the study of economy as a whole.

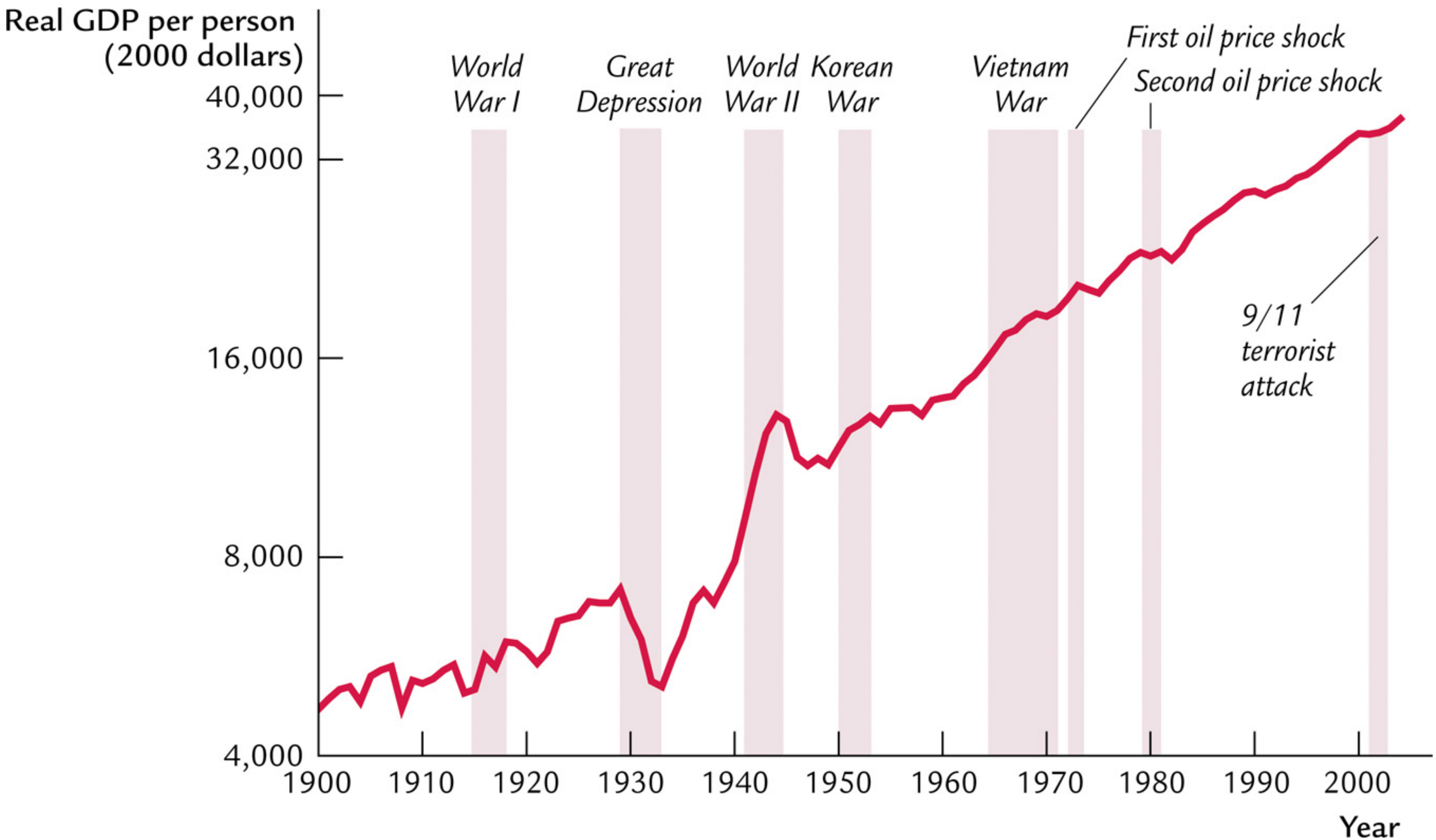
It focuses on the determinants and dynamics of aggregate variables over time: *unemployment*, aggregate level of *prices*, and *real economic activity*

Variables of Focus

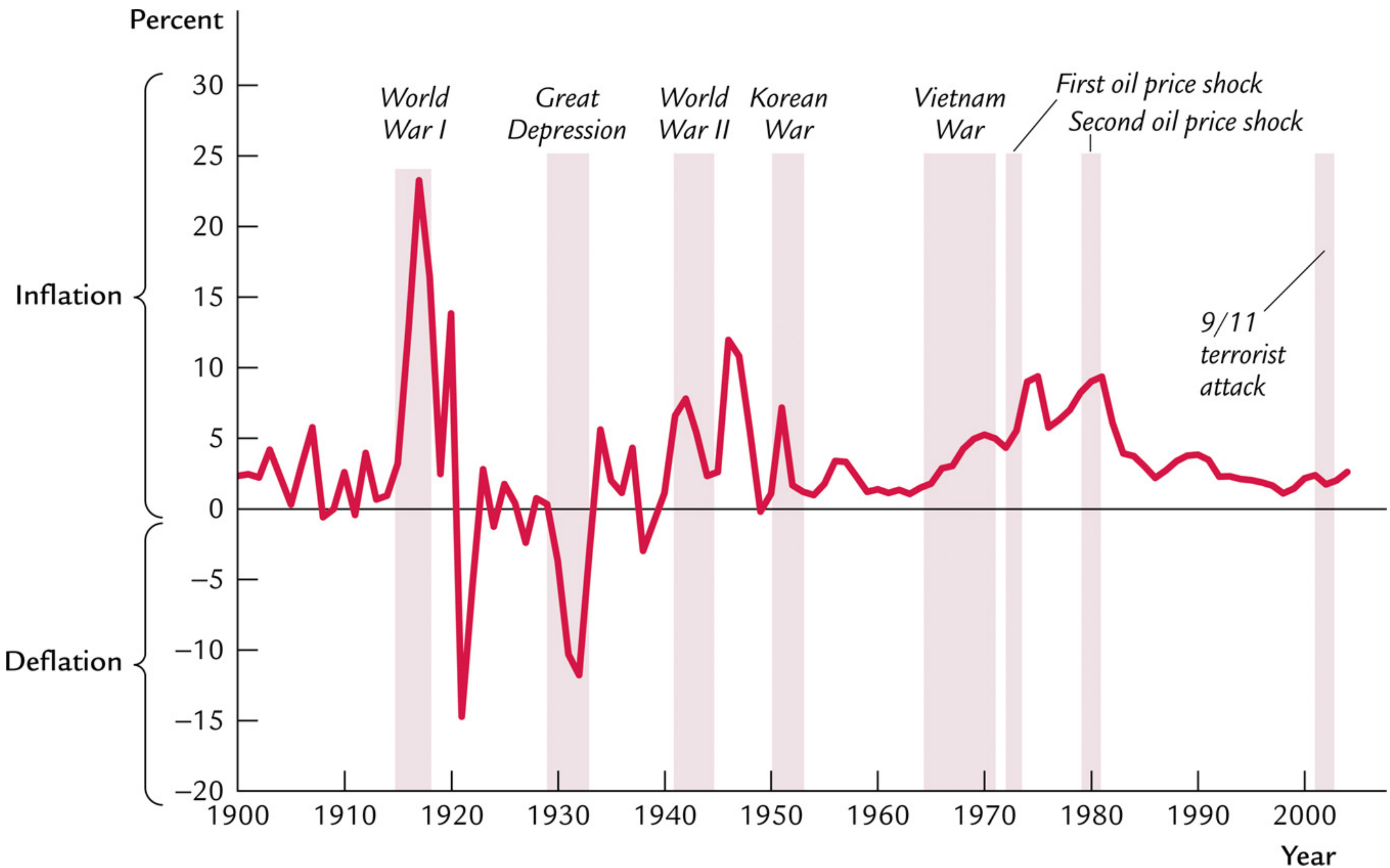
To evaluate the economy's performance, economists focus on the following aggregate variables:

- Real Gross Domestic Product (GDP)—the value of all final goods and services produced within an economy in a pre-specified period of time (usually measured quarterly and annually) expressed in fixed prices. It also measures the total economy's income, and expenditures of foreign and domestic households on domestic goods and services.
- Inflation rate—measures how quickly prices change in the economy
- Unemployment rate—measures the fraction of unemployed in the total labor force

★ Aggregate variables tend to co-move over time.



Real GDP per person
(2000 dollars)
40,000
32,000
16,000
8,000
4,000
World War I
Great Depression
World War II
Korean War
Vietnam War
First oil price shock
Second oil price shock
9/11 terrorist attack
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
Year



Percent
Inflation
Deflation
30
25
20
15
10
5
0
−5
−10
−15
−20
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
Year
World War I
Great Depression
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First oil price shock
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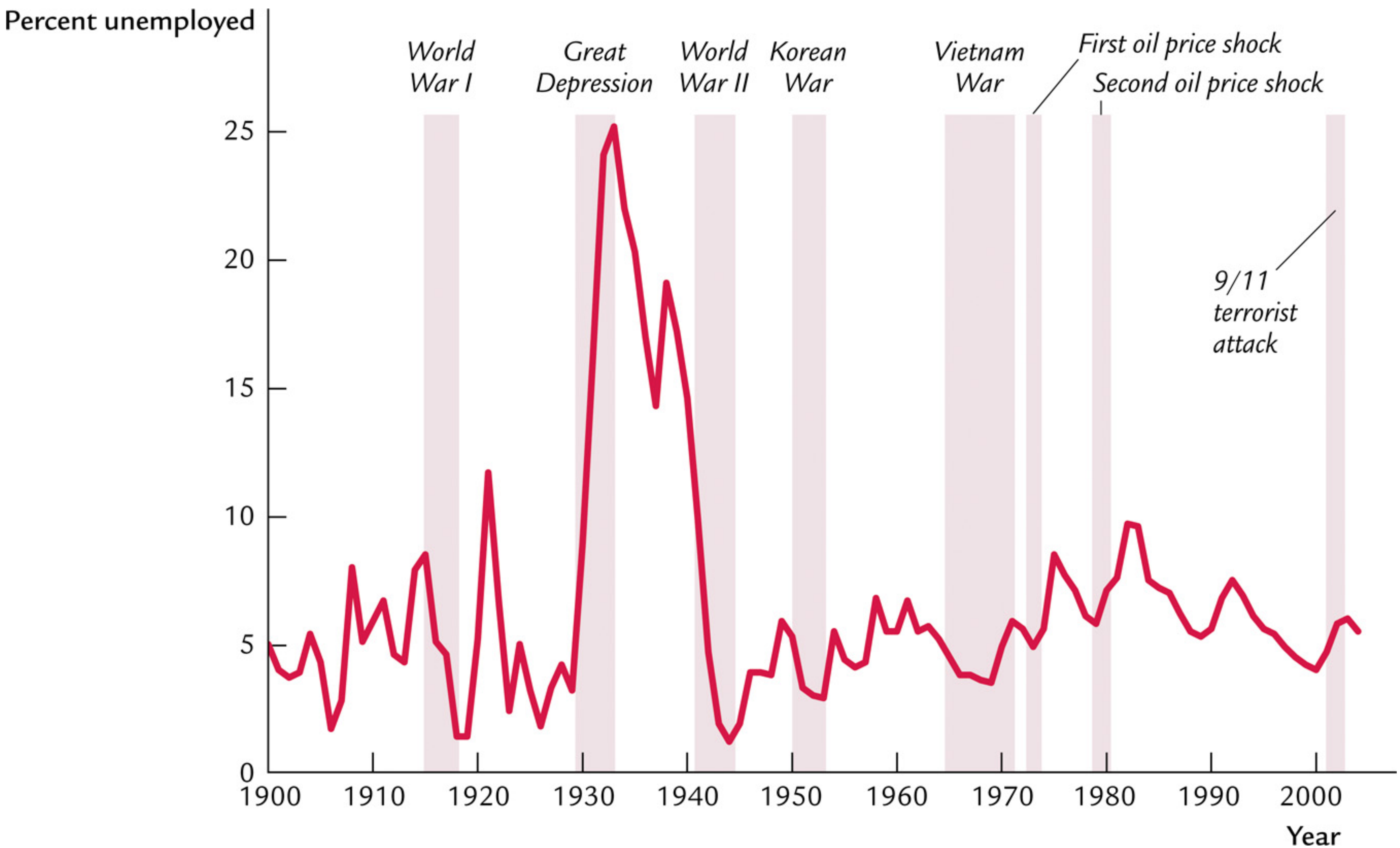

Percent unemployed
World War I
Great Depression
World War II
Korean War
Vietnam War
First oil price shock
Second oil price shock
9/11 terrorist attack
25
20
15
10
5
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
Year

Sample Questions

A list of sample questions in macro:

- What should the central monetary authority (e.g., Bank of Canada) choose for its stabilization targets: nominal GDP, inflation, real GDP, level of prices?
- Why are some countries poor and how can they achieve the standards of living of rich countries?
- What are the welfare costs of economic fluctuations—the periods of the economy's expansion and downturns?
- How can we explain wealth, consumption and income inequality in the economy?
- etc.

Models

- We organize our thinking about macro phenomena using *models*.

- Models are just abstract presentations of reality.

Endo/exogenous Variables

- Every model has exogenous and endogenous variables.
- Endogenous variables are the ones the model intends to explain, i.e. those determined within the model.
- Exogenous variables are fixed, predetermined (perhaps endogenous within another model).
- Model is described by a set of equations.

A Model of Schooling

- E.g., a model of schooling choice at age 18: the choice of whether to attend college.
- $S = 1$ if you decide to attend college; $S = 0$ if you are satisfied with the high school degree.
- Let your genetically endowed ability be A; interest rate, r.
- Let the present discounted value of earnings if S=1 be $Y_1(r)$, and $Y_0(r)$ if S=0.
- The costs of attending college (psychic and direct) are $C(A)$ and depend on abilities—a function of abilities.
- You will choose $S = 1$ if $E[Y_1(r) - Y_0(r) - C(A)] > 0$, where E stands for expected value, or $[Y_1(r) - Y_0(r) - C(A)] > 0$ if we assume perfect foresight.
- Endogenous variable is: S
- Exogenous variables are: A, and r. Under the perfect foresight, $Y_0(r)$ and $Y_1(r)$ are fully known before decision on S is made.

Model Assumptions

- Model assumptions are instrumental: we make assumptions to predict the outcomes we model and match them to empirical phenomena.

- We amend our models if they do not fit data well.

Assumptions about Prices in Macro

- In intermediate micro, we usually think that markets clear instantaneously, i.e. that market prices adjust so as to equate quantity supplied and quantity demanded. It means that prices are fully flexible: nominal wages adjust to clear labor markets, and prices adjust to clear goods markets.

- In macro, we think that the assumption of price flexibility is good in the *longer run*—when economy has time to adjust

- In the *short run*, prices are sticky, i.e. it takes time until prices adjust to bring market into the equilibrium given exogenous changes in the market.

Course Structure

- ★ In the first part of the course we will study economy in the long run [LR]: economic growth, inflation and unemployment.
  - Assume that prices are fully flexible

- ★ In the second part of the course we will study the economy in the short run [SR]: year-to-year fluctuations in output, and working hours.
  - Assume that prices are sticky (e.g., because nominal wages are negotiated in contracts for an extended period of time).