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一国收入的衡量

Measuring a Nation's Income



微观经济学

Microeconomics

微观经济学研究个别的家庭和企业如何做出决策，以及它们如何在市场上相互作用。

Microeconomics is the study of how individual households and firms make decisions and how they interact with one another in markets.



宏观经济学

Macroeconomics

- **宏观经济学**研究作为一个整体的经济 **Macroeconomics** is the study of the economy as a whole.
- 其目标在于解释同时影响许多家庭、企业和市场的经济变化。

Its goal is to explain the economic changes that affect many households, firms, and markets at once.

宏观经济学

Macroeconomics

- 宏观经济学考虑加总的经济变量（统计量）。

Macroeconomics counts on *aggregated* economic variables (statistics).

- 总产出（或收入） Total output (or income)
- 通货膨胀 Inflation
- 失业 Unemployment

宏观经济学

Macroeconomics

- 宏观经济学回答诸如以下的问题：

Macroeconomics answers questions like the following:

- 为什么某些国家平均收入高而另一些国家平均收入低？
Why is average income high in some countries and low in others?
- 为什么物价在某些时期上升迅速而在其他时期更为稳定？
Why do prices rise rapidly in some time periods while they are more stable in others?
- 为什么产出和就业在某些年份扩张而在其他年份收缩？
Why do production and employment expand in some years and contract in others?



经济的产出：国内生产总值

The Economy's Product: Gross Domestic Product

- 一个经济的**总产出**由国内生产总值这一统计量来加以衡量。

The **total product (output)** of an economy is measured by the statistic of *gross domestic product*.



国内生产总值 Gross Domestic Product

国内生产总值（GDP）是在既定时期、一国范围内生产的所有最终物品和服务的市场总价值。

Gross domestic product (GDP) is the total market value of all final goods and services produced within a country in a given period of time.



GDP 的衡量

The Measurement of GDP

- 产出是以**市场价格**来评价的。
Output is valued at
market prices.

GDP 的衡量

The Measurement of GDP

- 它仅记录**最终物品**而非**中间物品**的价值（价值仅被计算一次）。

It records only the value of **final goods**, not **intermediate goods** (the value is counted only once).

- 也可以用所有生产者的**增加值**之和来计算。

It can also be calculated by adding all the producers' *value added*.

- **增加值**是一个生产者产品的价值减去该生产者购买的中间产品的价值。

Value added is defined as the value of a producer's output minus the value of the intermediate goods that the producer buys.

GDP 的衡量

The Measurement of GDP

- 它既包括**有形的物品**（食品、服装和汽车），也包括**无形的服务**（理发、保洁和医生出诊）。

It includes both **tangible goods** (food, clothing, cars) and **intangible services** (haircuts, housecleaning, doctor visits).

- 特别的，GDP 还包括经济中的住房存量所提供的住房服务（无论是出租还是自住）。

In particular, GDP also includes the market value of the housing services, either rental or owner-occupied, provided by the economy's stock of housing.

GDP 的衡量

The Measurement of GDP

- 它包括**当期生产**的物品和服务，而非对过去生产物品的交易。

It includes goods and services **currently produced**, not transactions involving goods produced in the past.

- 它衡量了**一国地理范围内**的产出价值。

It measures the value of production **within the geographic confines of a country**.

GDP 的衡量

The Measurement of GDP

- 它衡量**在一个特定的时间区间内**，通常是一年或一个季度（3个月），所产出的价值。

It measures the value of production that takes place **within a specific interval of time**, usually a year or a quarter (three months).

- 流量 flow vs 存量 stock

哪些被计入 GDP

What Is Counted in GDP?

GDP 包括在经济中生产，并在市场上合法销售的各项（物品和服务）

GDP includes all items produced in the economy and sold legally in markets.

哪些不被计入 GDP

What Is Not Counted in GDP?

- **GDP 排除了大多数在家里生产和消费、因而从未进入市场的项目。**

GDP excludes most items that are produced and consumed at home and that never enter the marketplace.

- **它排除了违法生产和销售的项目，例如毒品。**

It excludes items produced and sold illicitly, such as illegal drugs.



经济的收入与支出

The Economy's Income and Expenditure

当判断一个经济表现良好还是欠佳，自然而然地要去观察经济当中每个人所获得的总收入。

When judging whether the economy is doing well or poorly, it is natural to look at the total income that everyone in the economy is earning.



经济的收入与支出

The Economy's Income and Expenditure

- **收入：** 经济中每个人获得的收入（工资、地租与利润），通常由企业支付。

Income: The total income (wages, rent, and profit) of everyone in the economy, usually paid by firms.

- **支出：** 家庭在经济所产出的物品与服务上的总花费。

Expenditure: The total expenditure by households on the economy's output of goods and services.

经济的收入与支出

The Economy's Income and Expenditure

除产出之外，**国内生产总值（GDP）**也是衡量经济的收入和支出的一种方法。

Except for the product, **Gross domestic product (GDP)** is also a measure of *both* the income *and* expenditures of an economy.

为什么？ **Why?**

循环流向图

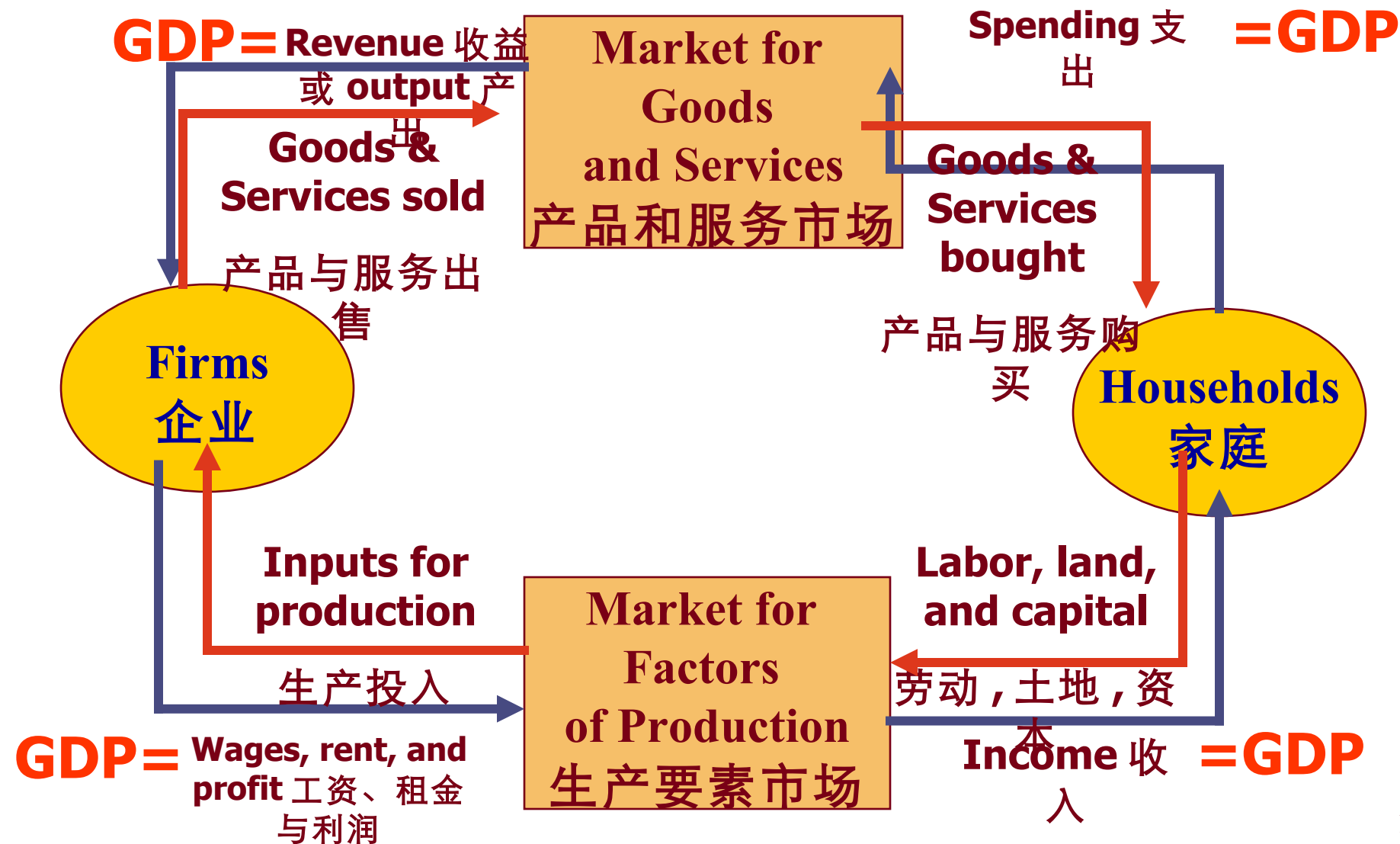
The Circular-Flow Diagram

收入和支出的相等，可以用**循环流向图**来说明。

The equality of income and expenditure can be illustrated with the **circular-flow diagram**.

循环流向图

The Circular-Flow Diagram



经济的收入与支出

The Economy's Income and Expenditure

- 对一个经济整体而言，收入必定等于支出（二者都等于产出）。因为：

For an economy as a whole, *income must equal expenditure* (and both equal to output) because:

- 每一次实现的交易都有一个买者和一个卖者。
Every realized transaction has a buyer and a seller.
- 某个买者每一美元的支出都是某个卖者一美元的收入（来自出售产出）。

Every dollar of spending by some buyer is a dollar of income for some seller



收入衡量的其他指标

Other Measures of Income

- 国民生产总值 Gross National Product (GNP)
- 国民生产净值 Net National Product (NNP)
- 国民收入 National Income
- 个人收入 Personal Income
- 个人可支配收入 Disposable Personal Income



国民生产总值

Gross National Product

- **国民生产总值（GNP）** 是由一国永久居民（称为国民）所获得的收入总和。

Gross national product (GNP) is the total income earned by a nation's permanent residents (called nationals).

- 它和 GDP 的区别在于，它包括了本国公民在国外获得的收入，排除了外国人在本国获得的收入。 It differs from GDP by including income that our citizens earn abroad and excluding income that foreigners earn here.



国民生产净值

Net National Product (NNP)

- **国民生产净值（NNP）** 是一国居民的总收入（GNP）减去折旧的损耗。
Net National Product (NNP) is the total income of the nation's residents (GNP) minus losses from depreciation.
- **折旧** 是经济中设备和建筑物存量的磨损。
Depreciation is the wear and tear on the economy's stock of equipment and structures.



国民收入

National Income

- **国民收入**是一国居民在物品和服务的生产中所挣得的收入总和。

National Income is the total income earned by a nation's residents in the production of goods and services.

- 它和 NNP 的区别在于，它排除了**间接的企业税**（例如销售税），包括了企业补贴。

It differs from NNP by excluding **indirect business taxes** (such as sales taxes) and including business subsidies.



个人收入

Personal Income

- 个人收入是家庭和非公司企业所得到的收入。 **Personal income** is the income that households and noncorporate businesses receive.
- 和国民收入不同，它排除了**未分配利润**，即公司赚得但没有支付给所有者的收入。
Unlike national income, it excludes **retained earnings**, which is income that corporations have earned but have not paid out to their owners.
- 此外，它包括了家庭来自政府的**利息收入**和**转移支付**。

In addition, it includes household's **interest income** and **transfers** from government



个人可支配收入

Disposable Personal Income

- **个人可支配收入**是家庭和非公司企业在履行对政府的义务之后余下的收入。

Disposable personal income is the income that household and noncorporate businesses have left after satisfying all their obligations to the government.

- 它等于个人收入减去个人税收和某些非税付款 It equals personal income minus personal taxes and certain nontax payments.



(作为支出的) GDP 的组成部分

The Components of GDP

(as the Economy's Expenditure)

- GDP 包含了用在国内生产的物品和服务上的各种形式的支出。

GDP includes various forms of spending on domestically produced goods and services.

- GDP (Y) 为下列各项之和
GDP (Y) is the sum of the following:
 - $\$0$ Consumption (C)
 - $\$0$ 投资 Investment (I)
 - $\$0$ 政府购买 Government Purchases (G)
 - $\$0$ 净出口 Net Exports (NX)

$$Y = C + I + G + NX$$



GDP 的组成部分

The Components of GDP

- **消费 Consumption (C):**
 - 家庭用于物品和服务的支出，不含对新建住房的购买。 The spending by households on goods and services, with the exception of purchases of new housing.
- **投资 Investment (I):**
 - 用于资本设备、存货和建筑物（包括新建住房）的支出。 The spending on capital equipment, inventories, and structures, including new housing.
 - 包括企业存货增加 including firms' inventory increase



GDP 的组成部分

The Components of GDP

- **政府购买 Government Purchases (G):**
 - 地方政府、州政府和联邦政府用于物品和服务的支出。 The spending on goods and services by local, state, and federal governments.
 - 丕包括转移支付，因为它们不是为了交换当期生产的物品和服务而进行的。 Does *not* include transfer payments because they are not made in exchange for currently produced goods or services.
- **净出口 Net Exports (NX):**
 - 出口减去进口 Exports minus imports.

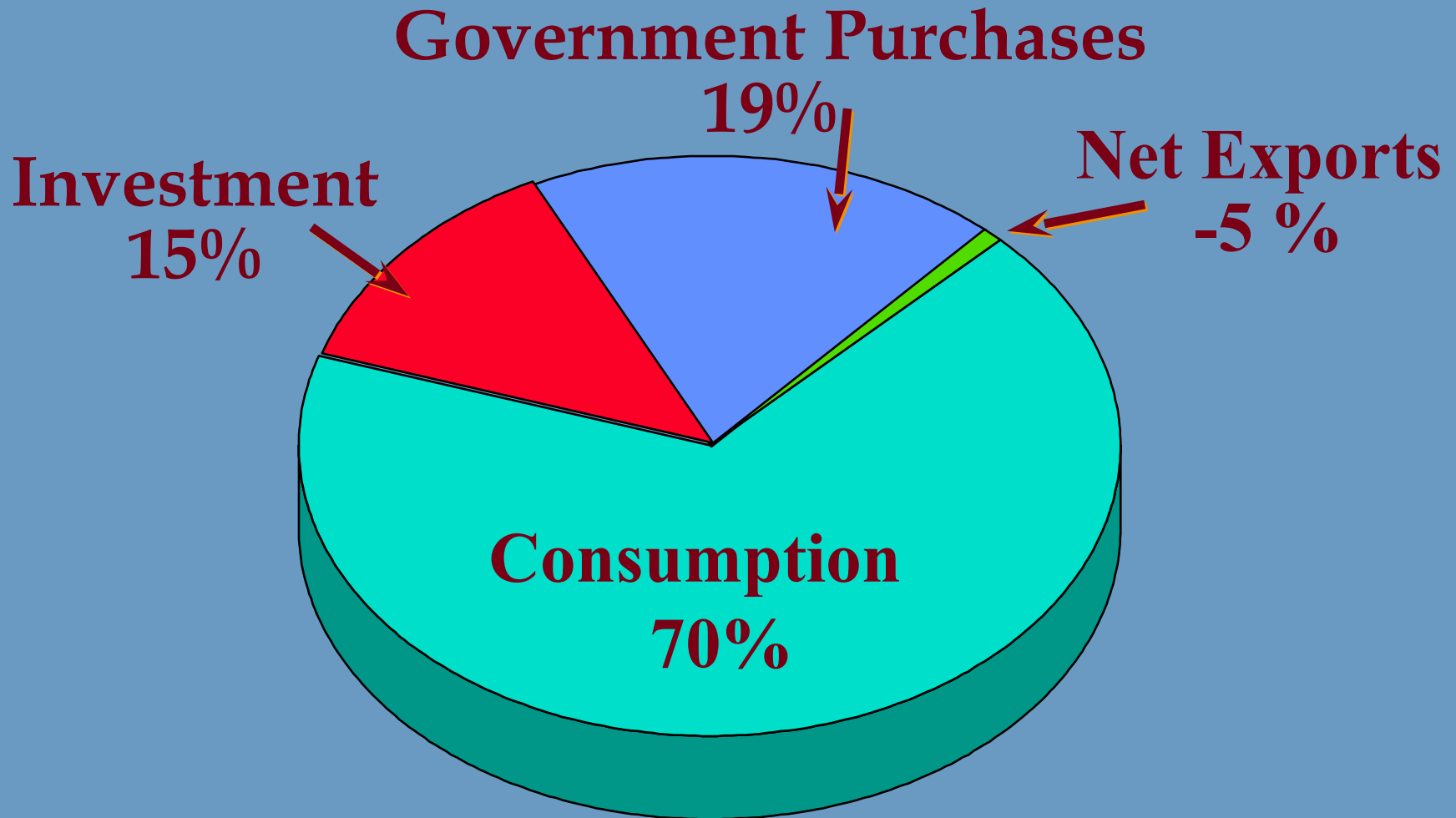
美国 GDP 及其组成部分 (2007)

GDP and Its Components

	<i>billions</i>	<i>% of GDP</i>	<i>per capita</i>
Y	\$13,841	100.0	\$45,825
C	9,734	70.3	32,228
I	2,125	15.4	7,037
G	2,690	19.4	8,905
NX	−708	−5.1	−2,344

美国 GDP 及其组成部分

GDP and Its Components (2007)



中国 GDP 及其组成部分 (2007)

GDP and Its Components

	总量 (亿元)	人均量 (元)	占总量百分比 (%)
国内生产总值	263094	19912	100
最终消费支出	128794	9748	49
资本形成总额	110919	8395	42
货物和服务净出口	23381	1770	9

资料来源：中国统计年鉴 2009。

指标解释

最终消费：指常住单位在一定时期内对于货物和服务的全部最终消费支出，也就是常住单位为满足物质、文化和精神生活的需要，从本国经济领土和国外购买的货物和服务的支出；不包括非常住单位在本国经济领土内的消费支出。最终消费分为**居民消费**和**政府消费**。

资本形成总额：指常住单位在一定时期内获得的减去处置的固定资产加存货的变动，包括**固定资本形成总额**和**存货增加**。

货物和服务净出口：指货物和服务出口减货物和服务进口的差额。出口包括常住单位向非常住单位出售或无偿转让的各种货物和服务的价值；进口包括常住单位从非常住单位购买或无偿得到的各种货物和服务的价值。由于服务活动的提供与使用同时发生，因此服务的进出口业务并不发生出入境现象，一般把常住单位从国外得到的服务作为进口，非常住单位从本国得到的服务作为出口。货物的出口和进口都按离岸价格计算。



实际与名义 GDP

Real versus Nominal GDP

- **名义 GDP** 按现期价格来评价物品和服务的产出 **Nominal GDP** values the production of goods and services at current prices.
- **实际 GDP** 按不变价格来评价物品和服务的产出 **Real GDP** values the production of goods and services at constant prices.

一个准确的经济观察要求将名义 **GDP** 调整为实际 **GDP** 。

An accurate view of the economy requires adjusting nominal to real GDP.

实际与名义 GDP

Real versus Nominal GDP

- **实际 GDP 回答了一个假设的问题：如果我们以过去某一年的价格来评价物品与服务，今年生产的物品与服务的价值是多少？**

Real GDP answers a hypothetical question: What would be the value of the goods and services produced this year if we valued these goods and services at the prices that prevailed in some specific year in the past?

- **通过用固定在过去水平上的价格来评价现期生产，实际 GDP 说明了经济的整体物品与服务的生产如何随时间变动。**

By Evaluating current production using prices that are fixed at past levels, real GDP shows how the economy's overall production of goods and services changes over time.



GDP 平减指数

GDP Deflator

GDP 平减指数计算如下：

The GDP deflator is calculated as follows:

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

$$\text{GDP 平减指数} = \frac{\text{名义 GDP}}{\text{实际 GDP}} \times 100$$

GDP 平减指数

GDP Deflator

- **GDP 平减指数**衡量相对于基年物价水平的当期物价水平。

The **GDP deflator** measures the current level of prices relative to the level of prices in the base year.

- 它告诉我们名义 GDP 上升中，归于物价上升而非产出数量上升的部分。

It tells us the rise in nominal GDP that is attributable to a rise in prices rather than a rise in the quantities produced.

实际和名义 GDP：数字例子

Real and Nominal GDP: A Numerical Example

年份	热狗价格	热狗数量	汉堡价格	汉堡数量
Year	Price of Hot dogs	Quantity of Hot dogs	Price of Hamburgers	Quantity of Hamburgers
2001	\$1	100	\$2	50
2002	\$2	150	\$3	100
2003	\$3	200	\$4	150

实际和名义 GDP：数字例子

Real and Nominal GDP: A Numerical Example

Calculating Nominal GDP: 计算名义 GDP

2001	$(\$1 \text{ per hot dog} \times 100 \text{ hot dogs}) + (\$2 \text{ per hamburger} \times 50 \text{ hamburgers}) = \textbf{\$200}$
2002	$(\$2 \text{ per hot dog} \times 150 \text{ hot dogs}) + (\$3 \text{ per hamburger} \times 100 \text{ hamburgers}) = \textbf{\$600}$
2003	$(\$3 \text{ per hot dog} \times 200 \text{ hot dogs}) + (\$4 \text{ per hamburger} \times 150 \text{ hamburgers}) = \textbf{\$1200}$

实际和名义 GDP：数字例子

Real and Nominal GDP: A Numerical Example

Calculating Real GDP (base year 2001): 计算实际 GDP（基年为 2001 年）

2001	$(\$1 \text{ per hot dog} \times 100 \text{ hot dogs}) + (\$2 \text{ per hamburger} \times 50 \text{ hamburgers}) = \text{\textbf{\$200}}$
2002	$(\$1 \text{ per hot dog} \times 150 \text{ hot dogs}) + (\$2 \text{ per hamburger} \times 100 \text{ hamburgers}) = \text{\textbf{\$350}}$
2003	$(\$1 \text{ per hot dog} \times 200 \text{ hot dogs}) + (\$2 \text{ per hamburger} \times 150 \text{ hamburgers}) = \text{\textbf{\$500}}$

实际和名义 GDP：数字例子

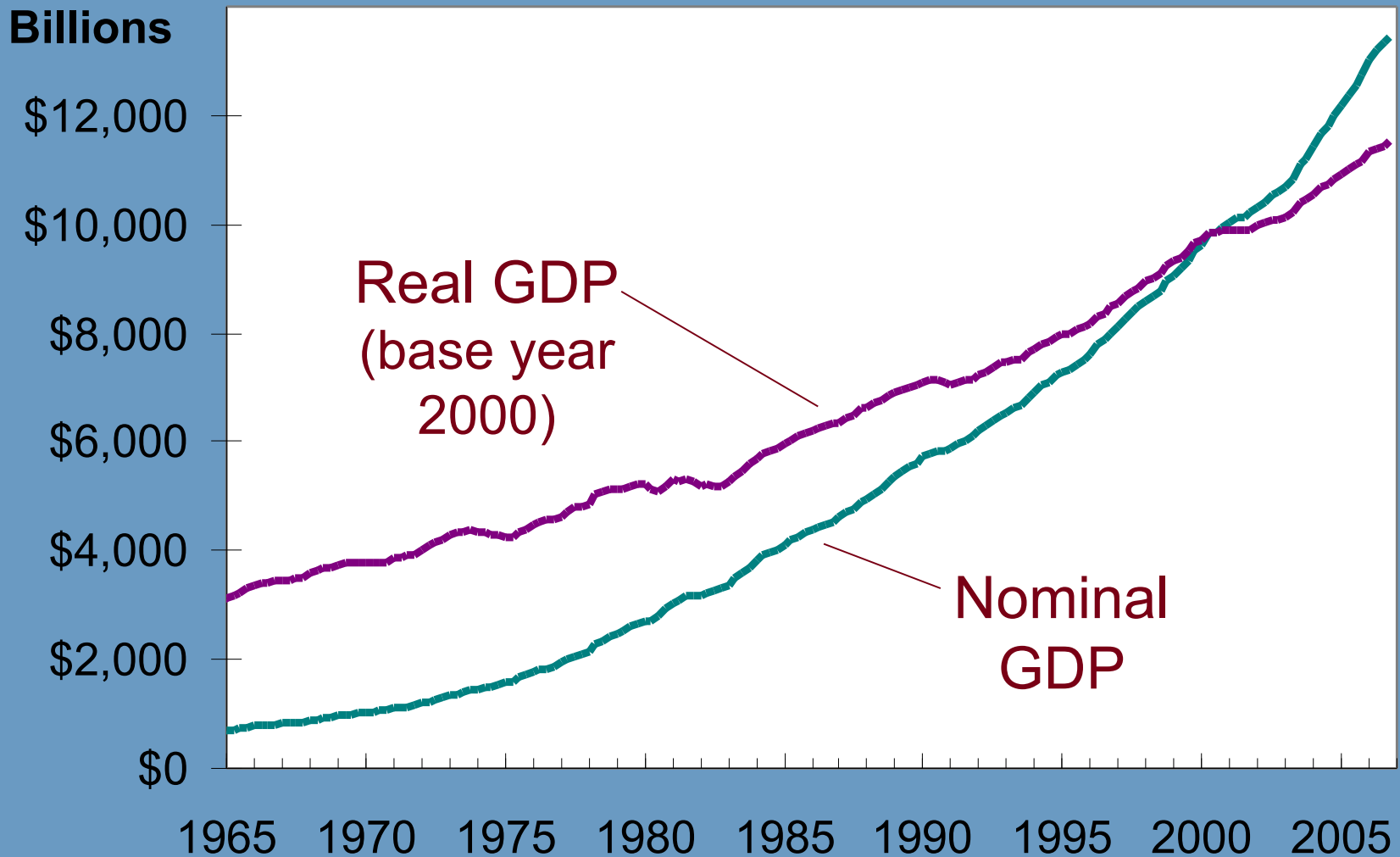
Real and Nominal GDP: A Numerical Example

Calculating the GDP Deflator: 计算 GDP 平减指数

2001	$(\$200/\$200) \times 100 = \mathbf{100}$
2002	$(\$600/\$350) \times 100 = \mathbf{171}$
2003	$(\$1200/\$500) \times 100 = \mathbf{240}$

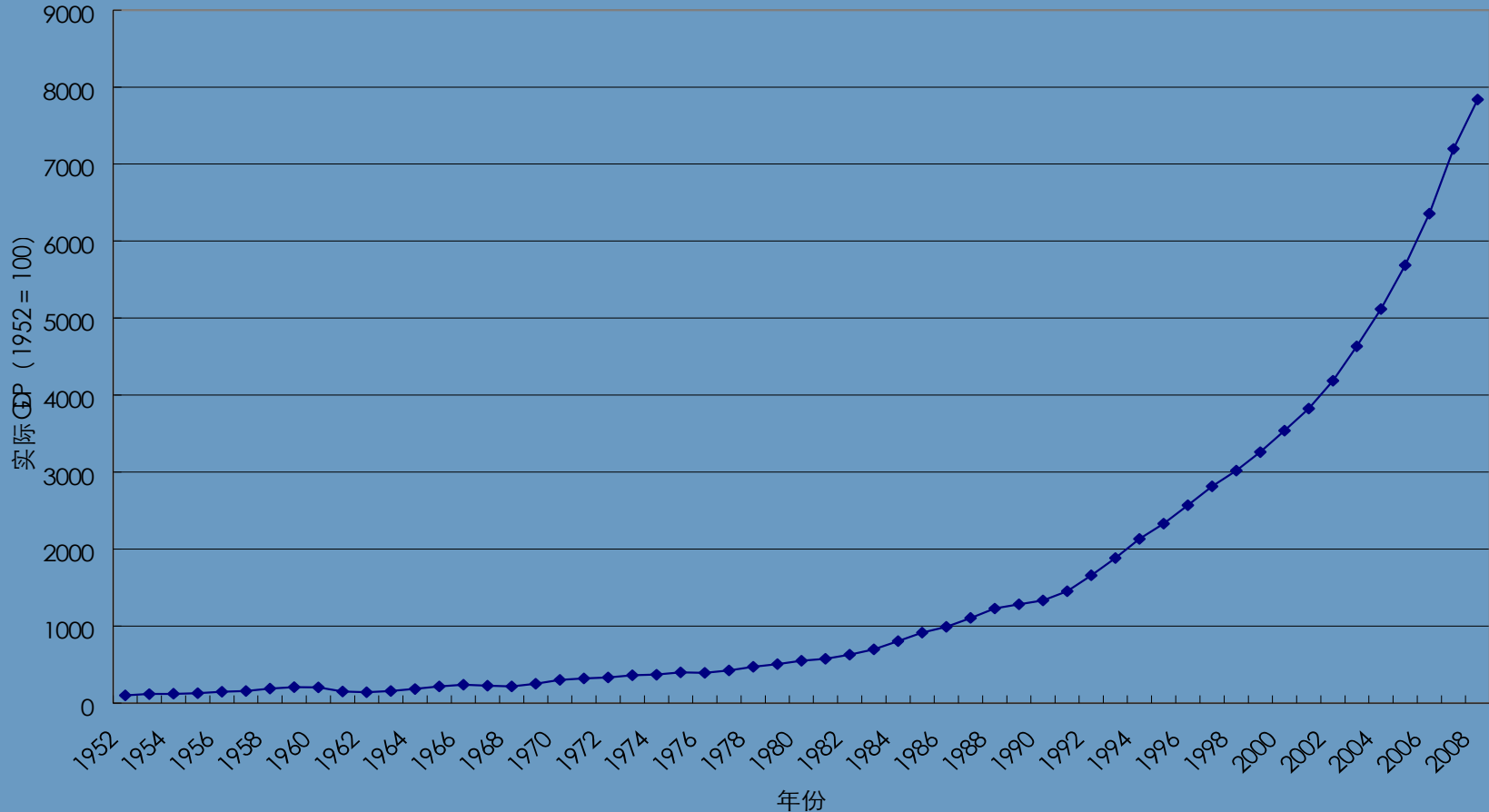
美国的实际 GDP

Real GDP in the United States



中国的实际 GDP（指数）

Real GDP (indexed) in China



数据来源：《中国统计年鉴》，《中国国内生产总值核算历史资料》。

中国的 GDP 数据夸大其增长了吗？

Debates on China's GDP Figures

- **背景：中国的高经济增长数据**
 - GDP 年均增长 9%，人均 GDP 年均增长 8%
- **质疑的依据**
 - 统计关系异常：地方之和大于全国
 - 经济变量的经验关系异常：发电量对 GDP 的弹性
- **可能的原因**
 - “技术性”问题
 - 全面调查 vs. 抽样调查
 - 实际（不变价）GDP 计算中的价格问题
 - 服务业核算薄弱
 - “真实性”问题
 - 某些统计数据容易受到地方官员的干扰



GDP 和经济福利

GDP and Economic Well-Being

- **GDP 是社会经济福利最好的单一衡量指标**
GDP
is the best single measure of the economic well-being of a society.
- **人均 GDP 告诉我们经济当中每人平均的收入和支出。**
GDP per person tells us the income and expenditure of the average person in the economy.
- **更高的人均 GDP 表明更高的生活水平。**
Higher GDP per person indicates a higher standard of living.



GDP 和经济福利

GDP and Economic Well-Being

- 然而， GDP 不是幸福或生活质量的完美衡量指标。
GDP is not a perfect measure of the happiness or quality of life, however.
- 某些影响福利的东西未能包括在 GDP 之中：
Some things that contribute to well-being are not included in GDP.
 - 闲暇的价值 The value of leisure.
 - 清洁环境的价值 The value of a clean environment.
 - 发生在市场之外的几乎所有经济活动的价值，例如父母花在孩子上的时间的价值和志愿者工作的价值。
The value of almost all activity that takes place outside of markets, such as the value of the time

GDP、预期寿命和识字率

GDP, Life Expectancy, and Literacy

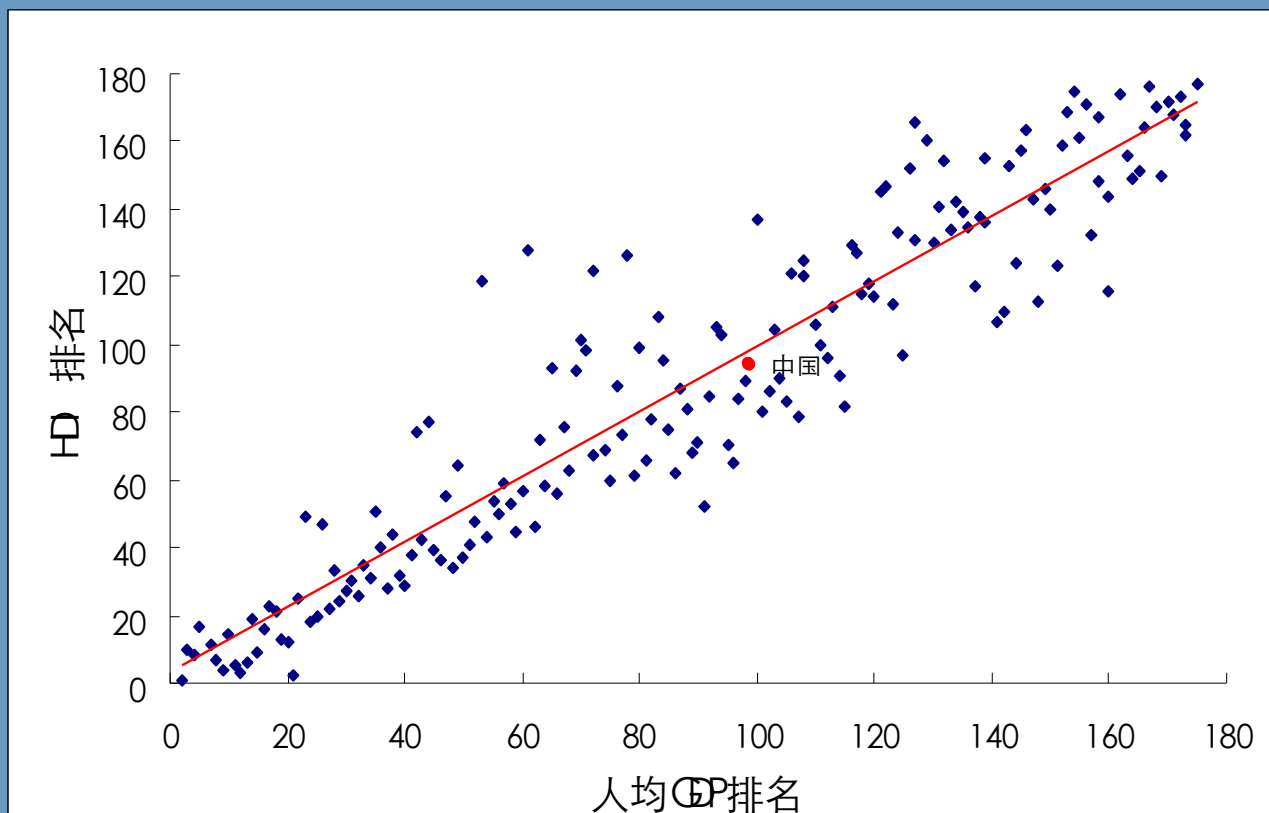
Country	Real GDP per Person (2005)	Life Expectancy	Adult Literacy (% of population)	Internet Usage (% of population)
United States	\$41,890	78 years	99%	63%
Japan	31,267	82	99	67
Germany	29,461	79	99	45
Russia	10,845	65	99	15
Mexico	10,751	76	92	18
Brazil	8,402	72	89	19
China	6,757	72	91	9
Indonesia	3,843	70	90	7
India	3,452	64	61	3
Pakistan	2,370	65	50	7
Bangladesh	2,053	63	47	0.3
Nigeria	1,128	47	69	4

GDP 与经济福利

GDP and Economic Well-Being

- 其他指标
 - 联合国开发计划署 (UNDP) 的人类发展指标 (Human Development Index, HDI)
 - 包括：人均寿命、教育水平、人均 GDP
- 人均 GDP 与其他福利指标高度相关
 - 中国的排名 (2004 年)
 - GDP: 第 99 名 (US\$4580, PPP)
 - HDI: 第 94 名

GDP 与 HDI(2004) 的相关性





结 论

Conclusions

- 研究经济变化的经济学家和经济政策的制定者需要具体的数据来做出判断。

The economists who study changes in the economy and the policymakers who formulate economic policies need concrete data on which to base their judgments.

- 将经济行为用诸如 GDP 这样的统计量加以量化，就成为了建立科学的宏观经济学的第一步。

Quantifying the behavior of the economy with statistics such as GDP is, therefore, the first step to developing a science of macroeconomics.



总结 Summary

- 因为每一笔交易都有一个买者和一个卖者，经济中的支出总和必然等于经济中的收入总和。 Because every transaction has a buyer and a seller, the total expenditure in the economy must equal the total income in the economy.
- 国内生产总值（GDP）衡量一个经济用于新生产的物品和服务上的支出，和得自生产这些物品和服务的收入总和。

Gross Domestic Product (GDP)
measures an economy's total expenditure on newly produced goods and services and the total income earned from the production of these goods and services.



总结 Summary

- **GDP 是在既定时期、一国范围内所生产的所有最终物品和服务的市场价值。**

GDP is the market value of all final goods and services produced within a country in a given period of time.

- **GDP（支出）分为四个组成部分：消费、投资、政府购买和净出口。**

GDP is divided among four components of expenditure: consumption, investment, government purchases, and net exports.



总结 Summary

- **名义 GDP 用现期价格来评价经济的产出。实际 GDP 用不变的基年价格来评价经济中物品和服务的产出。**

Nominal GDP uses current prices to value the economy's production. Real GDP uses constant base-year prices to value the economy's production of goods and services.

- **GDP 平减指数——由名义和实际 GDP 的比率求得——衡量经济中的物价水平。**

The GDP deflator--calculated from the ratio of nominal to real GDP--measures the level of prices in the economy.



总结 Summary

- **GDP 是经济福利的一个不错的衡量指标，因为人们偏爱高收入而非低收入。**
GDP is a good measure of economic well-being because people prefer higher to lower incomes.
- **它不是衡量福利的完美指标，因为某些东西，例如闲暇时间、清洁的环境不能用 GDP 来衡量。**
It is not a perfect measure of well-being because some things, such as leisure time and a clean environment, aren't measured by GDP.