

Intermediate Microeconomics

Lecture 1: Introduction

Instructor: Ziyang Chen

• Econ Department, Business School, Nanjing University

2025 Spring

About Me

Dr. Chen Ziyang 陈子扬 （南京大学商学院 特任副研究员）

Email: zychenfr@nju.edu.cn

Background: Economics (Nanjing, Melbourne, Paris, Lyon, Hong Kong)

Office hour: by appointment (Office: Anzhong Building 2224, Gulou)

Research: Urban Economics (Better city, better life)

Website: <https://nubs.nju.edu.cn/czy/list.htm>

About the Course

Class time: Mondays 14:00-17:00 p.m., all weeks but weeks 12 & 16 (public holidays)

Classroom: Xian II-116

Credit: 3

Teaching assistant: Ms. Zhang Xingru (2224623518@qq.com)

Online TA session: by appointment, Fridays 12:00-14:00 p.m. (Tencent Meeting ID: 733-7471-8081)

Main Textbook:

Varian, H. R. (2014). Intermediate microeconomics with calculus: A modern approach.

微观经济学：现代观点（哈尔 R. 范里安 著，费方域 朱保华等 译）

About the Course



群聊: Intermediate
Microeconomics 2025



该二维码7天内(2月22日前)有效, 重新进入将更新

WeChat Group
(Course Announcement)



Tencent Meeting
733-7471-8081
(TA Session)

About the Course: Assessment

Attendance: 10%

First three absences will be waived; you will lose 10% for the fourth absence

Two assignments: 30%

Week 4: An in-class quiz (15%)

Week 12: A take-home assignment (15%)

Exams: 60%

Week 8: Midterm (30%)

Week 17-18: Final (30%)

About the Course: Overview

Course description:

Use rigorous quantitative tools to re-examine the concepts and laws that you have learnt in “Microeconomics.”

Course goals:

Learn **economics models** that are used to understand

- (1) how individuals (firms) make decisions,
- (2) how market works and fails,
- (3) the role of government in improving social welfare etc.

What Economics Can Help Us Understand?

What causes long term economic growth?

What causes long term economic growth?



Source: NASA

Link: <https://earthobservatory.nasa.gov/images/153325/the-korean-peninsula-at-night>

What Economics Can Help Us Understand?

What causes long term economic growth?

e.g., Acemoglu, Johnson, and Robinson: Why Nations Fail? Institution matters!

What is a good economic policy, and what is not?

How to design better mechanisms that increases social welfare?

Theoretical Models

Economists use models to describe economic activities.

While most economic models are abstractions from reality, they provide aid in understanding economic behavior

Verification of economic models:

1. Direct approach: establish the validity of the model assumptions
2. Indirect approach: shows that the model correctly predicts real-world events

Theoretical Models: Features

Ceteris Paribus assumption

“Other things the same”: Economic models attempt to explain simple relationships

- (1) focus on the effects of only a few forces at a time
- (2) other variables are assumed to be unchanged during the period of study

Optimization assumption

Begin with the assumption that economic actors are rationally pursuing some goal

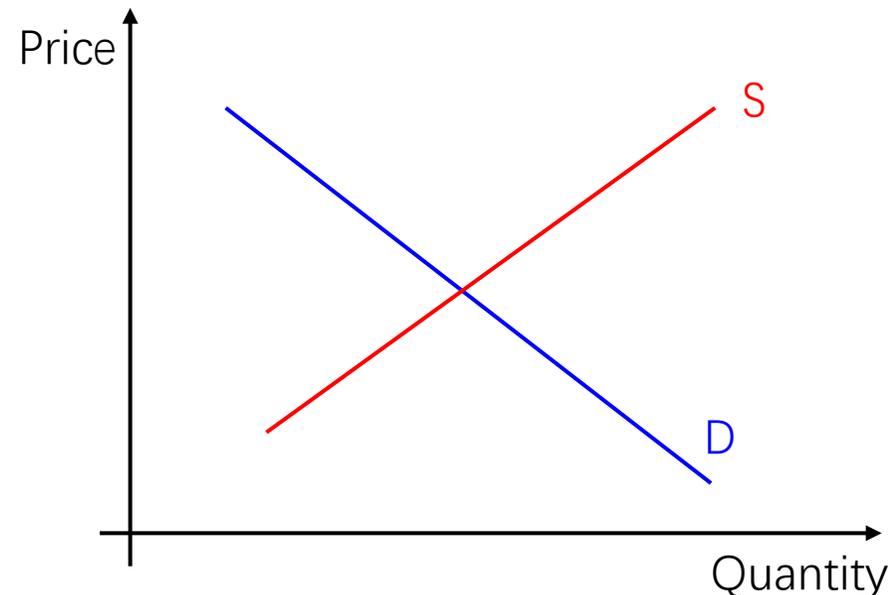
- (1) consumers seek to maximize their utility
- (2) firms seek to maximize profits (or minimize costs)
- (3) government regulators seek to maximize public welfare

Distinction between positive and normative analysis

The Most Important Model in Economics

Supply and Demand:

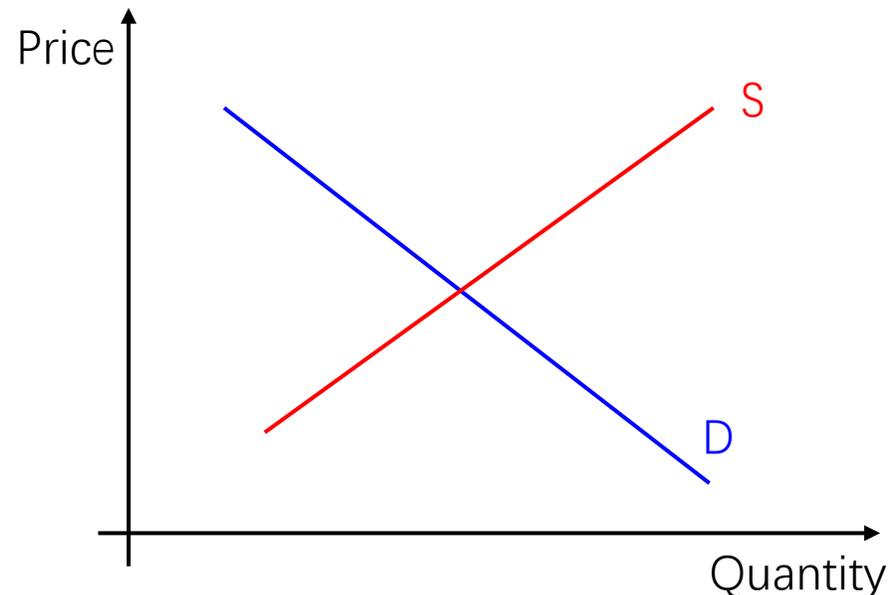
Explain how buyers and sellers get together in markets to determine the price and quantity of a good sold.



The Most Important Model in Economics

Supply and Demand:

Explain how buyers and sellers get together in markets to determine the price and quantity of a good sold.



A more general model:

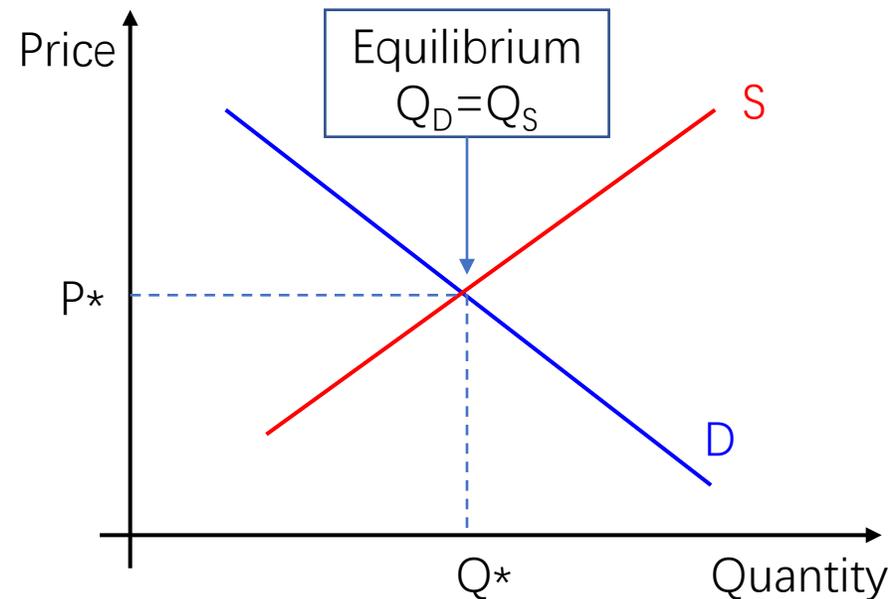
$$Q_D = a - bP$$

$$Q_S = c + dP$$

The Most Important Model in Economics

Supply and Demand:

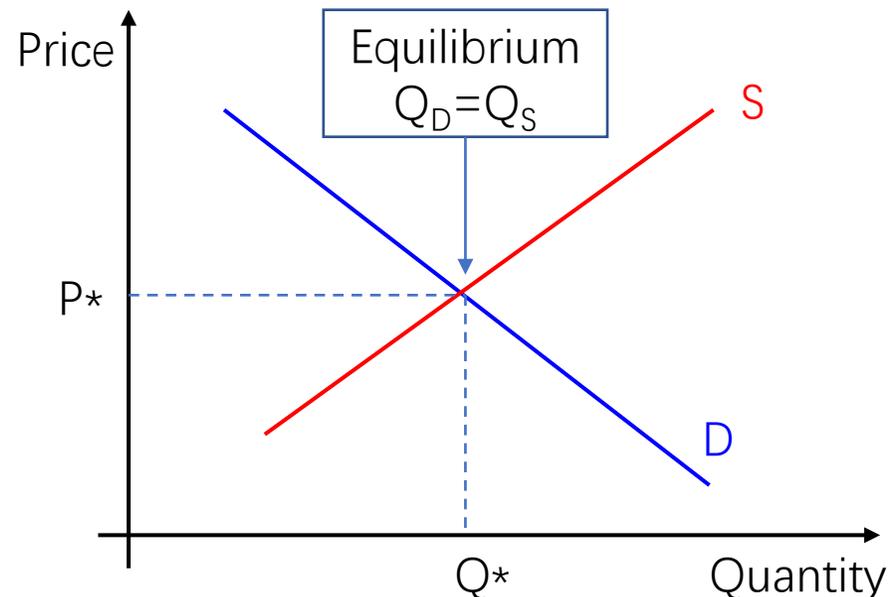
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The Most Important Model in Economics

Supply and Demand:

Explain how buyers and sellers get together in markets to determine the price and quantity of a good sold.



A more general model:

$$Q_D = a - bP$$

$$Q_S = c + dP$$

Equilibrium $\Rightarrow q_D = q_S$

$$a - bP = c + dP$$

$$P^* = (a - c) / (d + b)$$

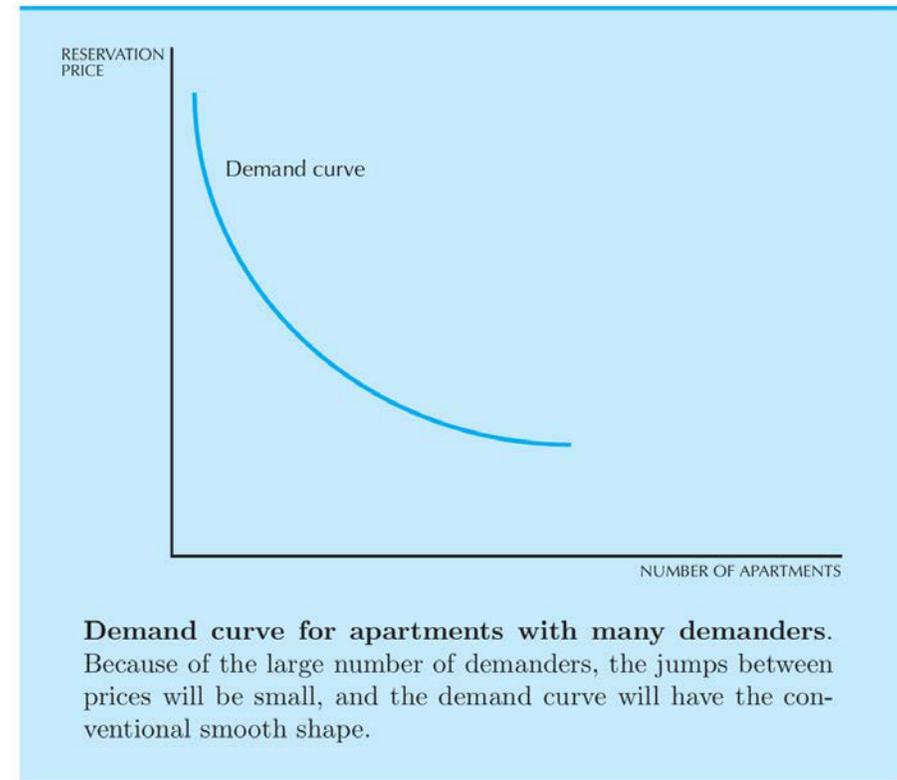
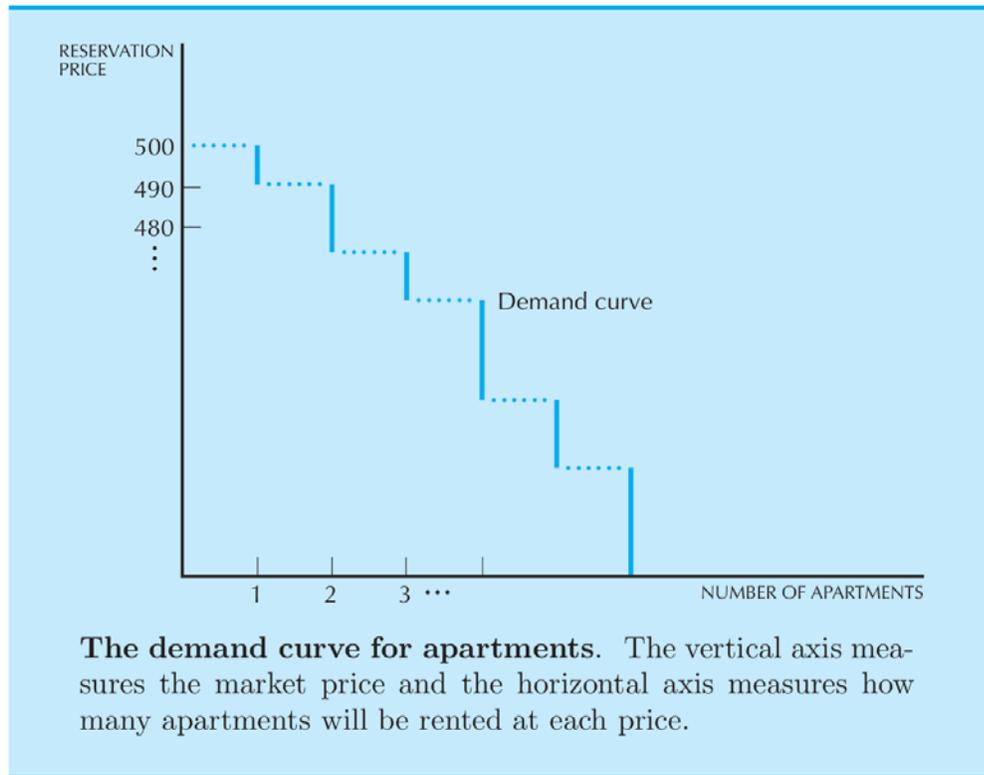
The Most Important Model in Economics

Supply and Demand:

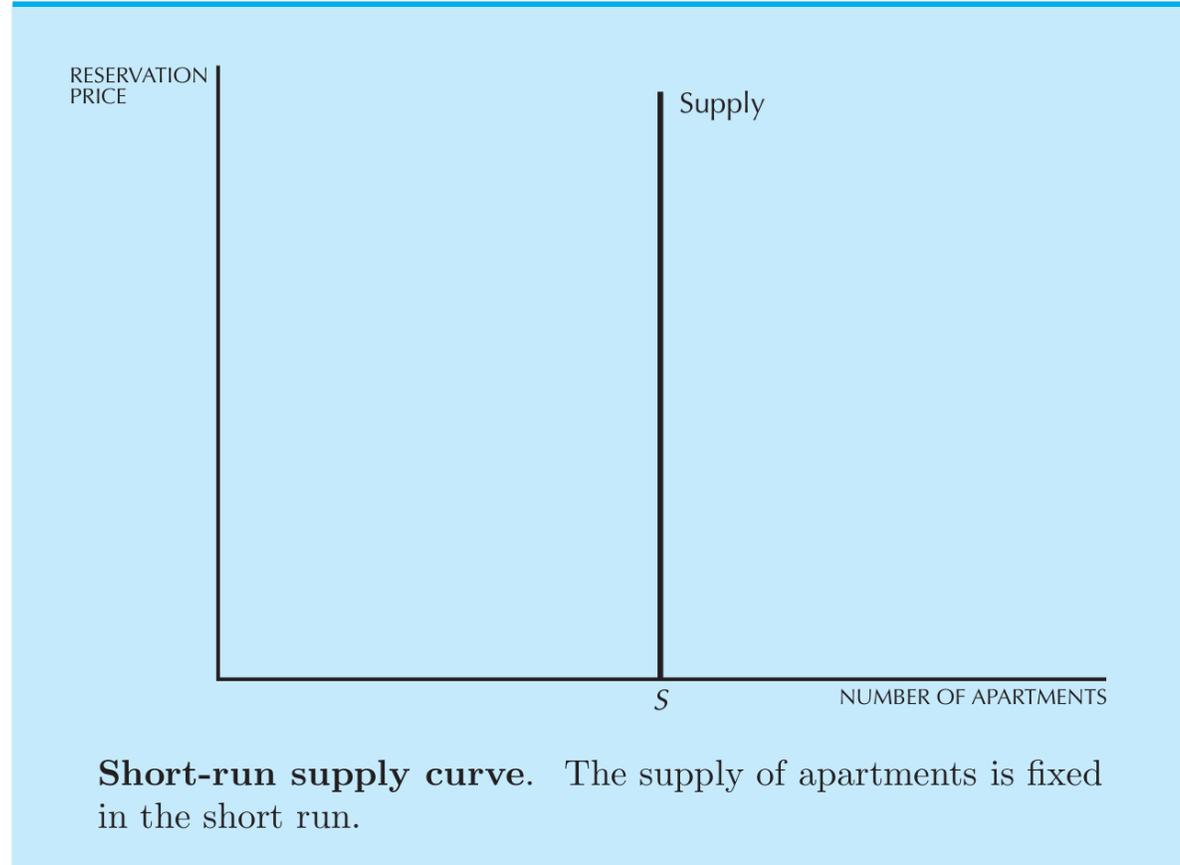
Explain how buyers and sellers get together in **markets** to determine the price and quantity of a good sold.

1. Duck
2. Labor
3. Marriage
4. **Housing**

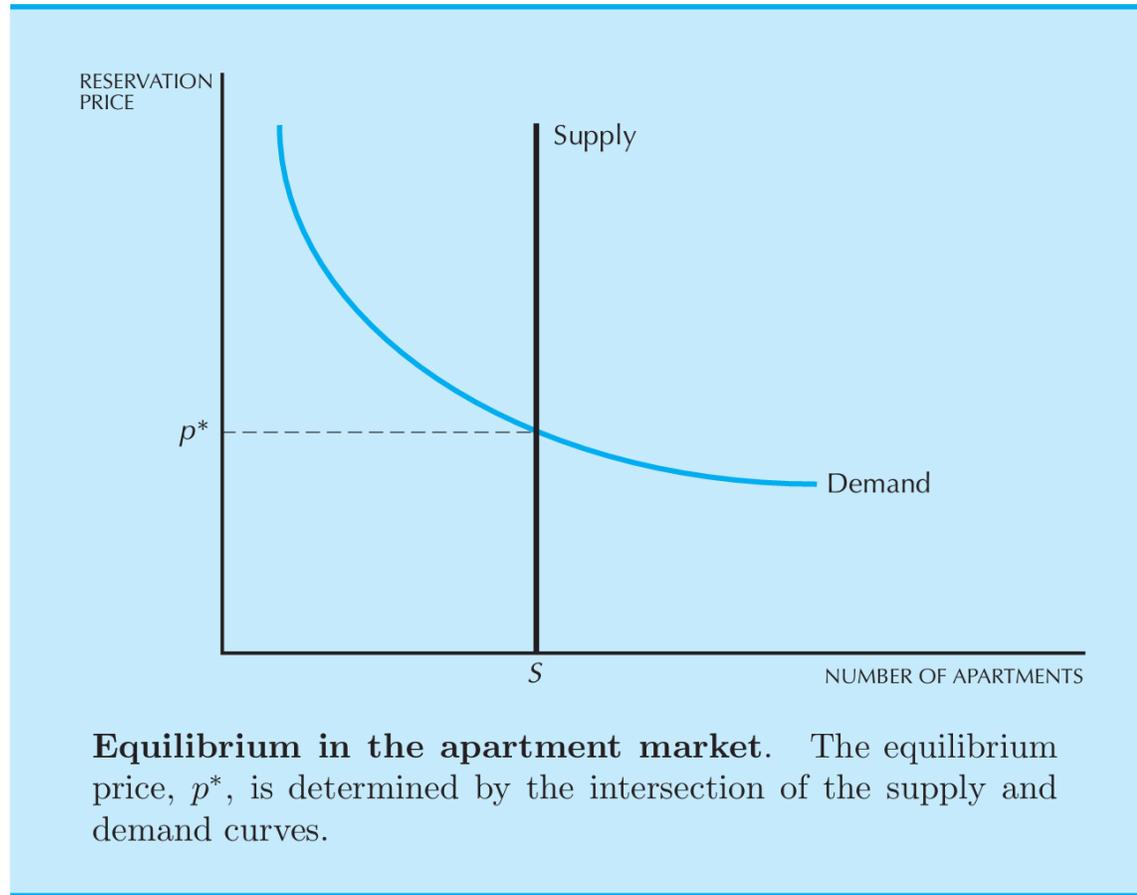
Housing Market: Demand Curve



Housing Market: Supply Curve

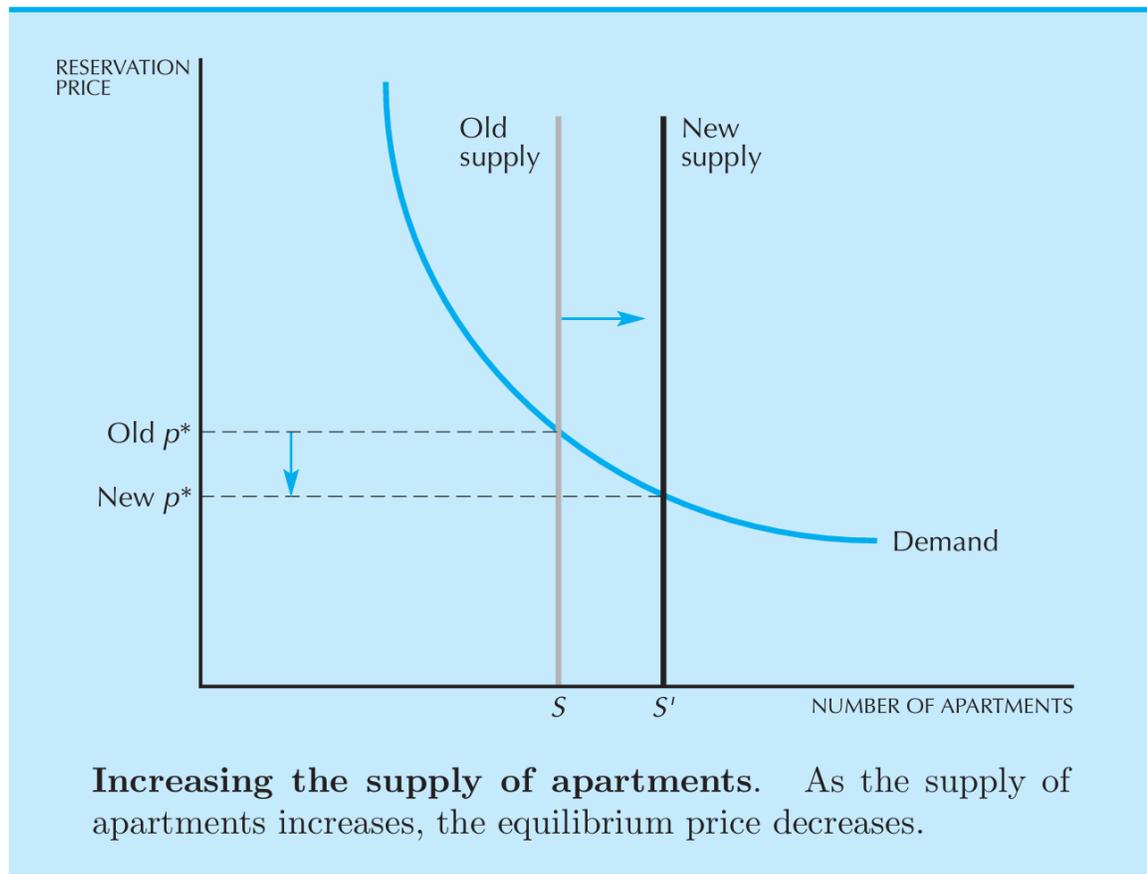


Housing Market: Market Equilibrium



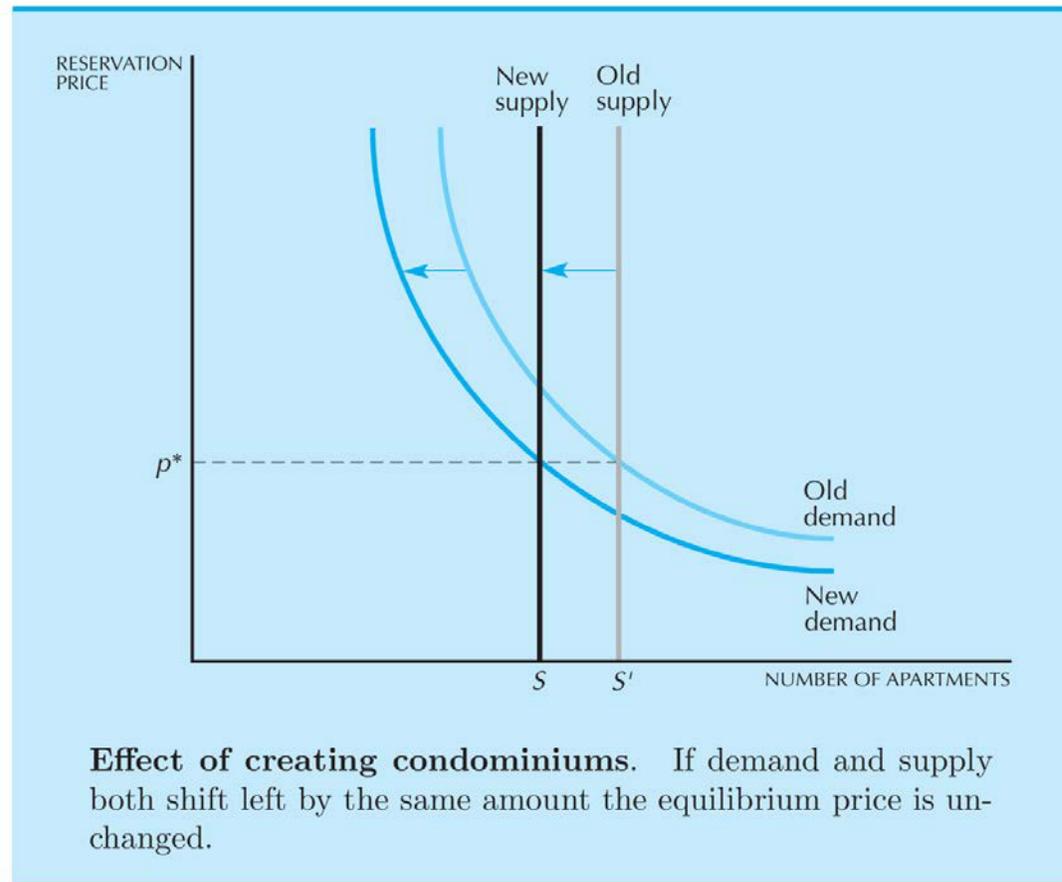
Housing Market: Comparative Statics

Case 1: The supply of apartment is increased



Housing Market: Comparative Statics

Case 2: A developer decides to turn several of the apartments into condominiums.



Housing Market: Comparative Statics

Case 3: Urban Renewal



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推进城镇老旧小区、街区等改造 城市更新提速

2025-01-07 10:24 来源：经济参考报

字号：默认 大 超大

| 打印



2025年首场**国务院常务会议**对“研究推进城市更新工作”作出部署。会议指出，城市更新关系城市面貌和居住品质的提升，是扩大内需的重要抓手。要坚持问题导向和目标导向相结合，统筹推动城市结构优化、功能完善、品质提升，打造宜居、韧性、智慧城市。要加快推进城镇老旧小区、街区、厂区和城中村等改造，加强城市基础设施建设改造，完善城市功能，修复城市生态系统，保护和传承城市历史文化。

业内人士认为，城市更新将是2025年扩大内需的重要抓手，这意味着我国城市更新工作进入了新的加速阶段。未来，相关部门以及地方政府有望进一步出台更多支持性政策，推动城市更新进入多模式创新、多机制支持、多要素保障、多主体参与的新的发展时期。

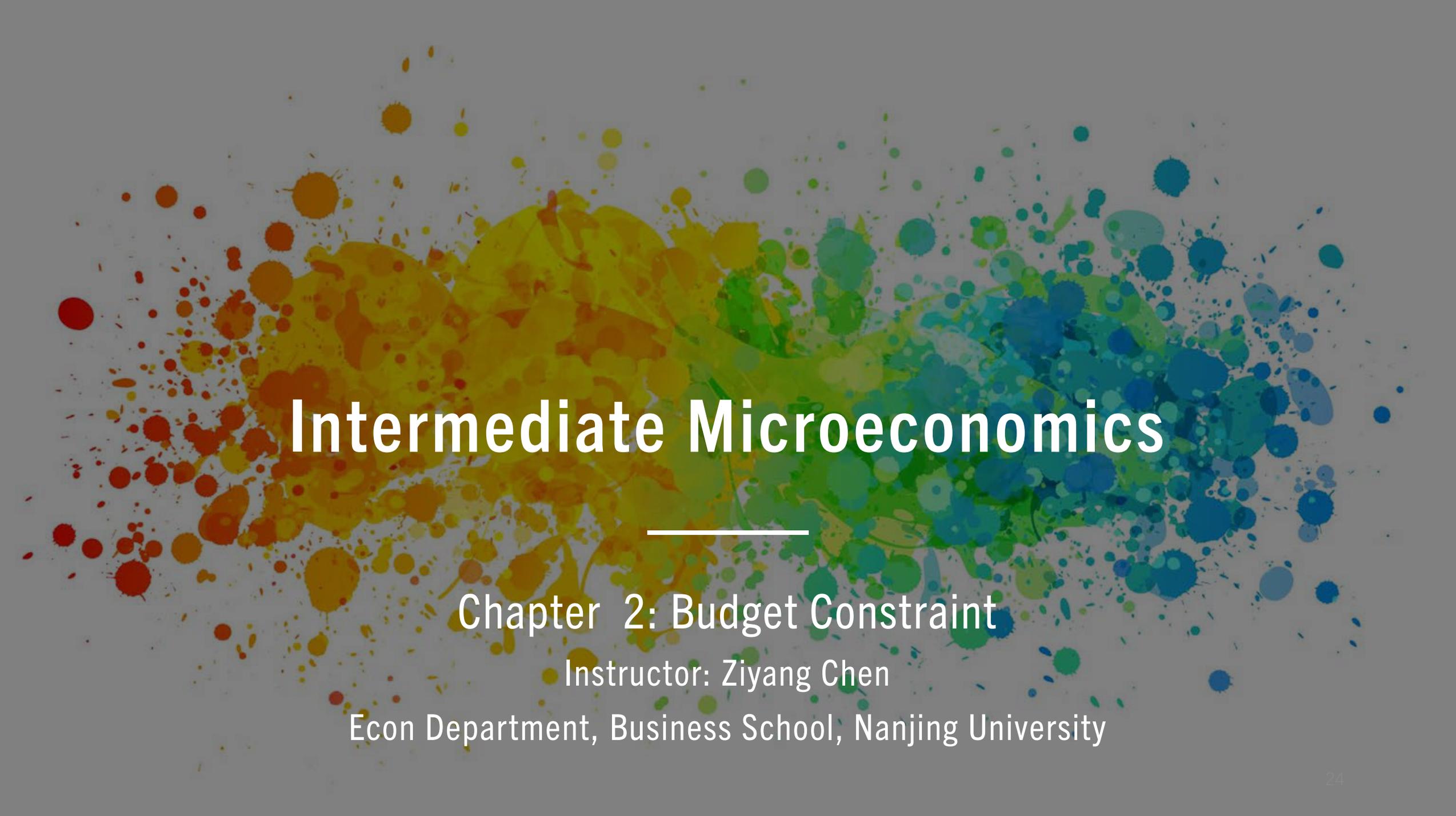
General Equilibrium

The Marshallian Demand-Supply model is a partial equilibrium model.

—It focuses only on one market at a time

To answer more general questions, we need a general equilibrium model of the entire economy.

—It includes the interrelationships between markets and economic agents



Intermediate Microeconomics

Chapter 2: Budget Constraint

Instructor: Ziyang Chen

Econ Department, Business School, Nanjing University

Consumption Choice Sets

A consumption choice set is the collection of all consumption choices available to the consumer.

What constrains consumption choice?

—Budgetary, time, and other resource limitations.

Budget Constraint: Definition

A consumption bundle containing x_1 units of commodity 1, x_2 units of commodity 2, and so on up to x_n units of commodity n .

—Denoted by the vector (x_1, x_2, \dots, x_n)

Commodity prices are p_1, p_2, \dots, p_n

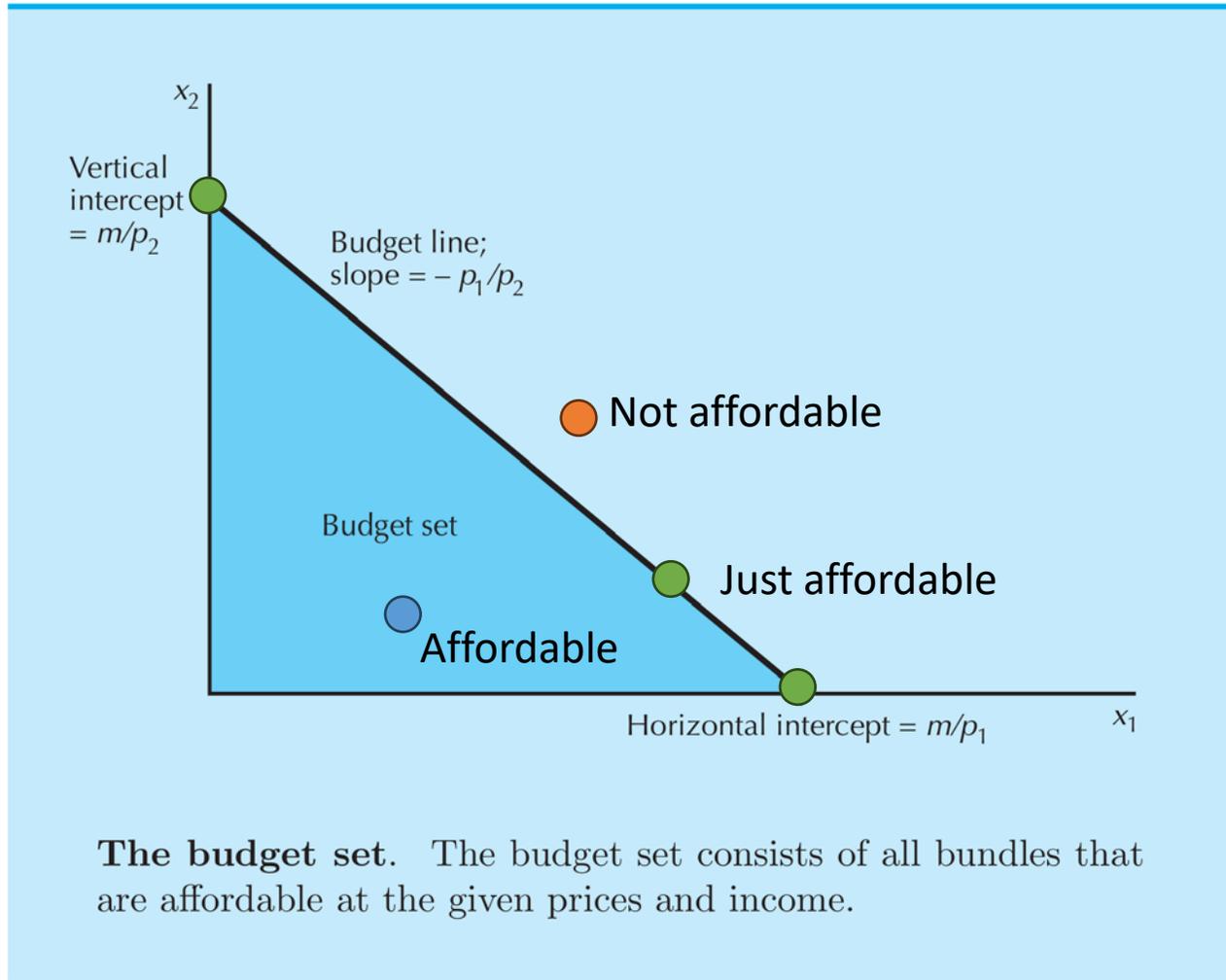
Q: When is a consumption bundle (x_1, \dots, x_n) affordable at given p_1, \dots, p_n ?

A: When

$$p_1x_1 + \dots + p_nx_n \leq m$$

where m is the consumer's (disposable) income.

Budget Set and Constraint for 2 Commodities



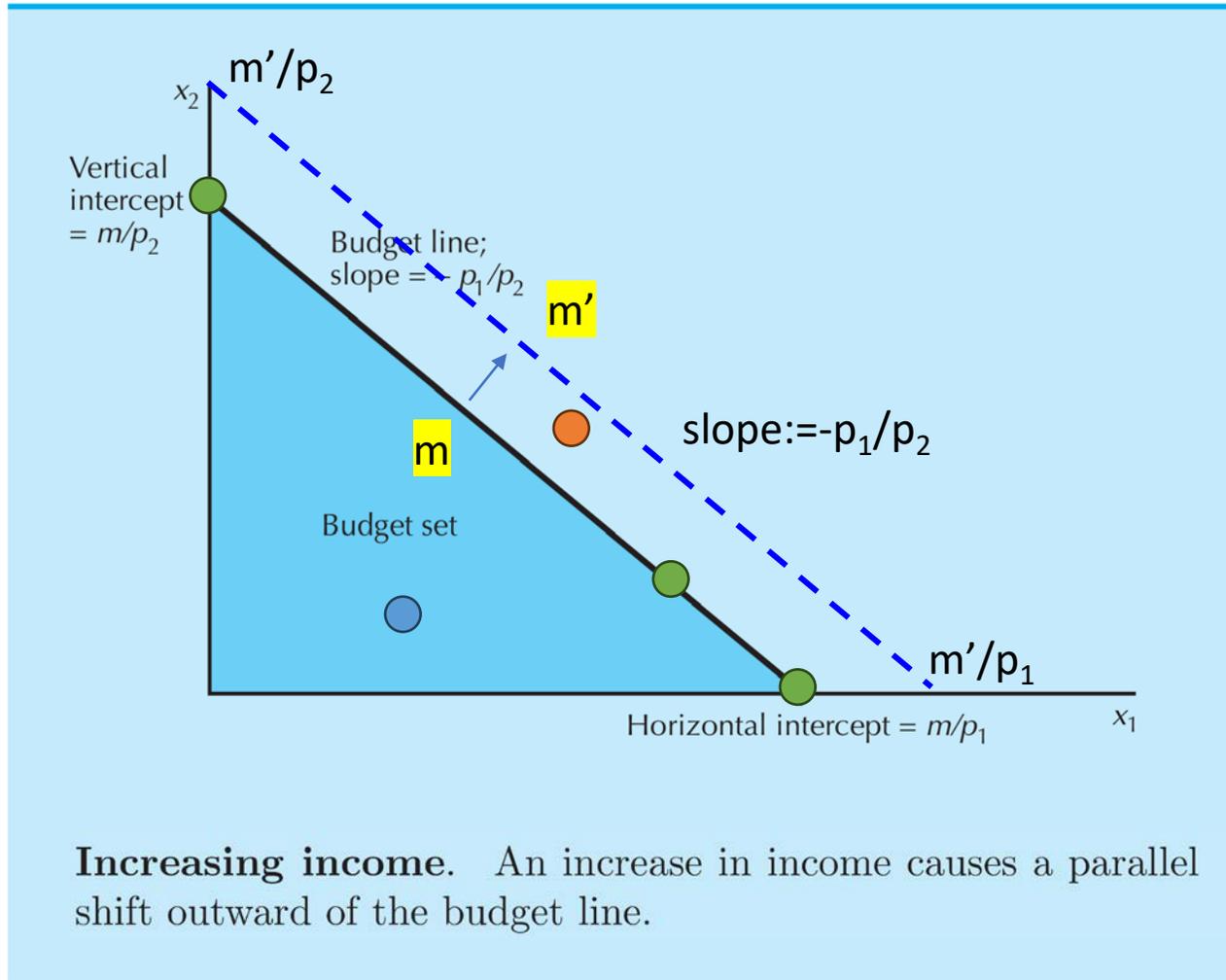
$$\text{Budget line: } p_1x_1 + p_2x_2 = m$$

$$x_2 = \frac{m}{p_2} - \frac{p_1}{p_2}x_1$$

$$\text{Y-axis intercept term: } \frac{m}{p_2}$$

$$\text{X-axis intercept term: } \frac{m}{p_1}$$

How The Budget Line Changes: Income +



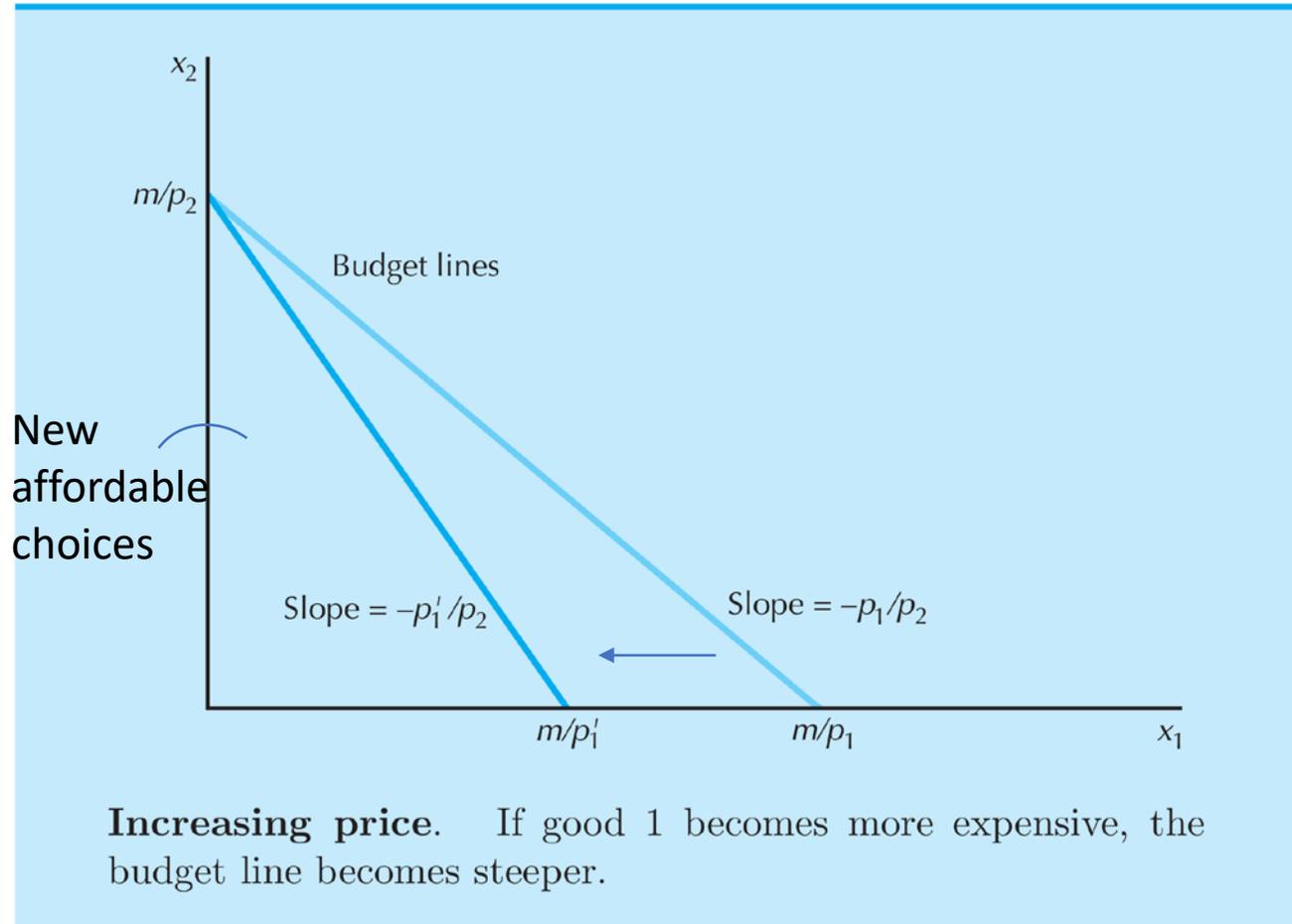
$$\text{Budget line: } p_1x_1 + p_2x_2 = m'$$

$$x_2 = \frac{m'}{p_2} - \frac{p_1}{p_2}x_1$$

$$\text{Y-axis intercept term: } \frac{m'}{p_2}$$

$$\text{X-axis intercept term: } \frac{m'}{p_1}$$

How The Budget Line Changes: Price +



$$B(p'_1, p_2, m) \subset B(p_1, p_2, m)$$

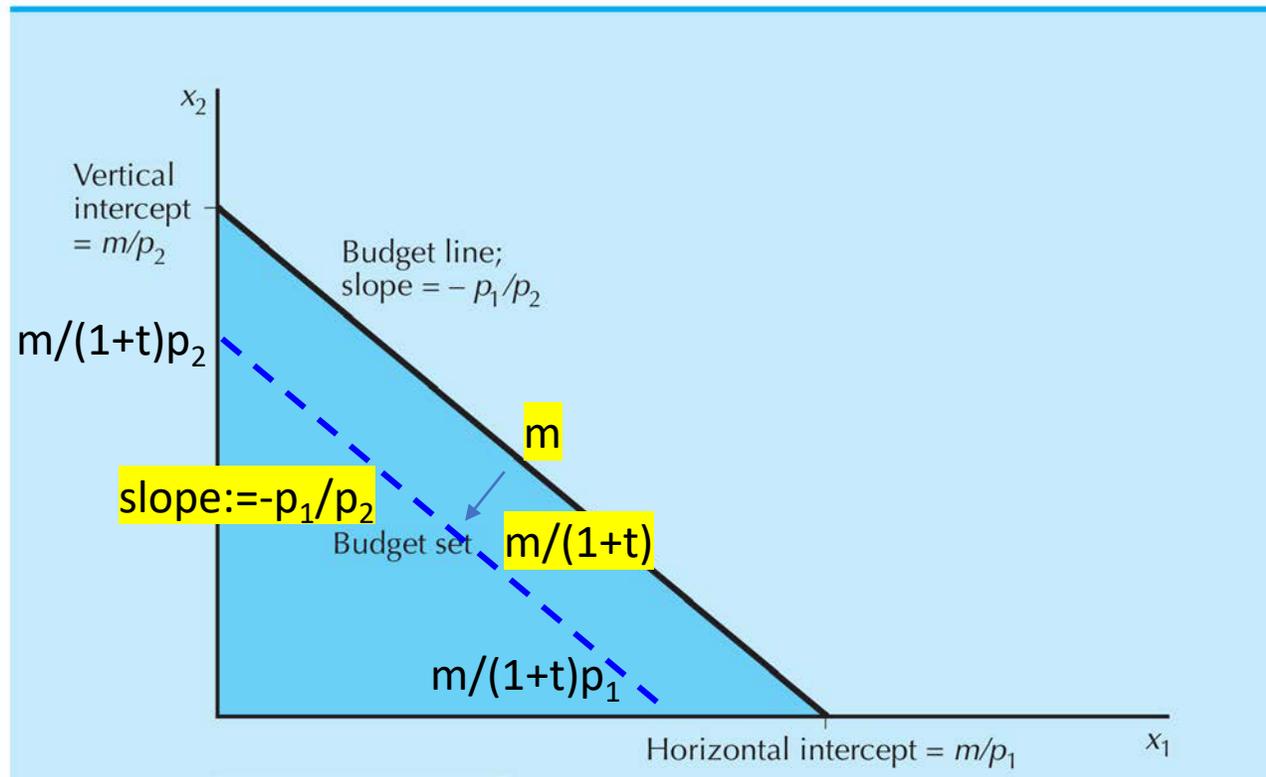
$$\forall p'_1 \succ p_1$$

Increasing one price shifts the horizontal intercept inwards, and therefore the budget line shifts inwards, reducing choice and making the consumer worse off.

Example: Uniform *Ad Valorem* Sales Taxes

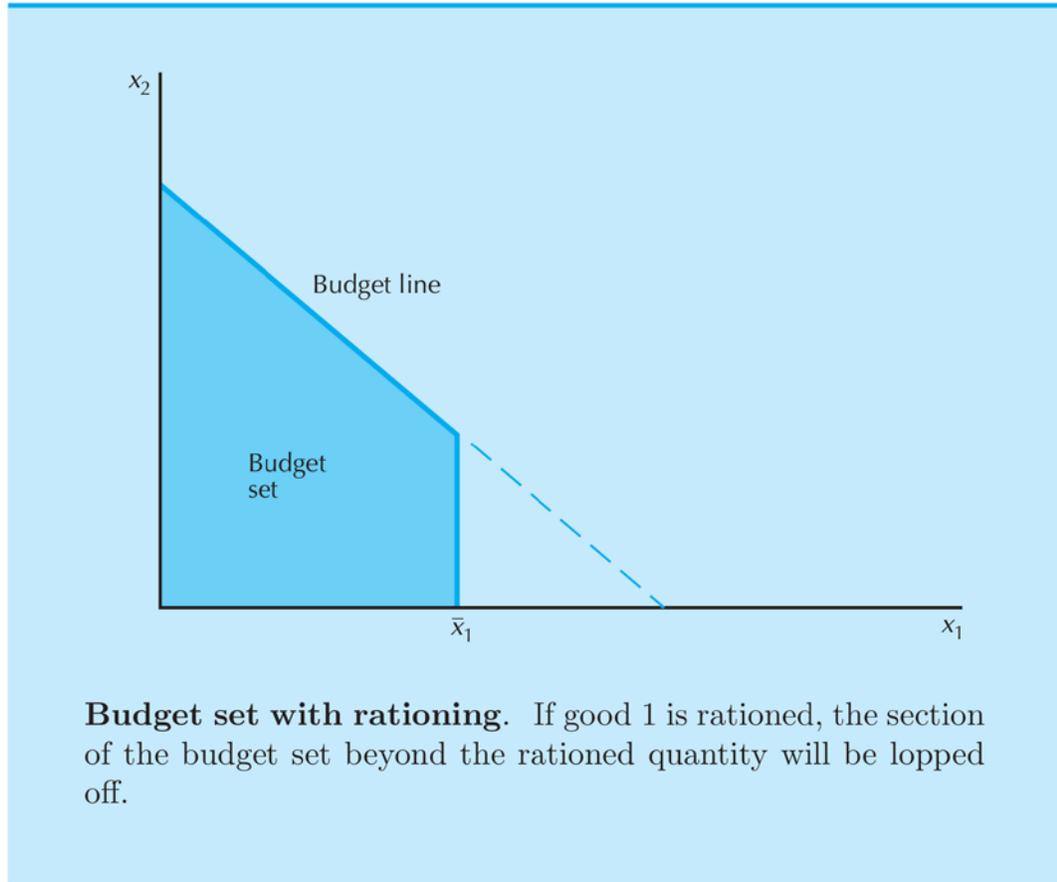
An *ad valorem* sales tax levied at a rate of t increases all prices by t , from p to $(1+t)p$.

A uniform sales tax is applied uniformly to all commodities.



An *ad valorem* sales tax levied at a rate of t is equivalent to an income tax levied at rate $1 - 1/(1+t) = t/(1+t)$

Example: Rationing



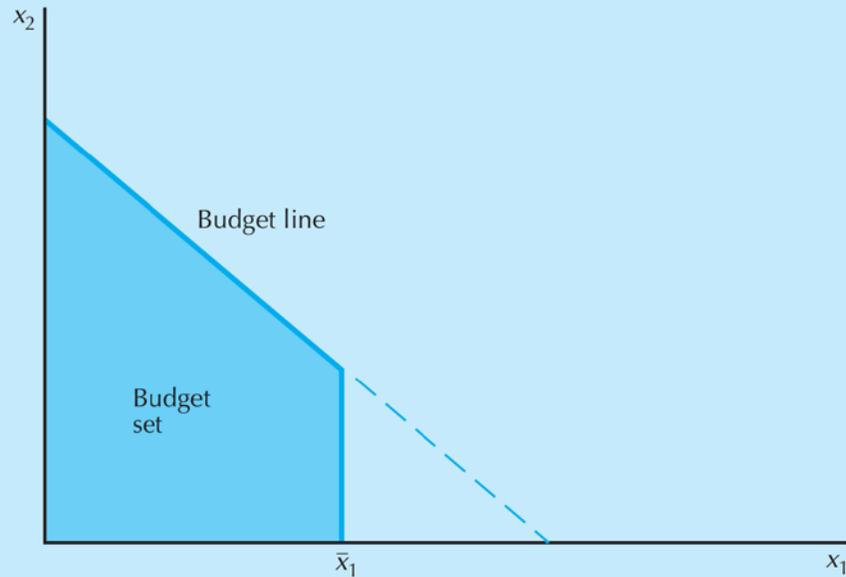
Rationing constraints:

The level of consumption of some good (commodity 1) is fixed to be no larger than some amount (\bar{x}_1).

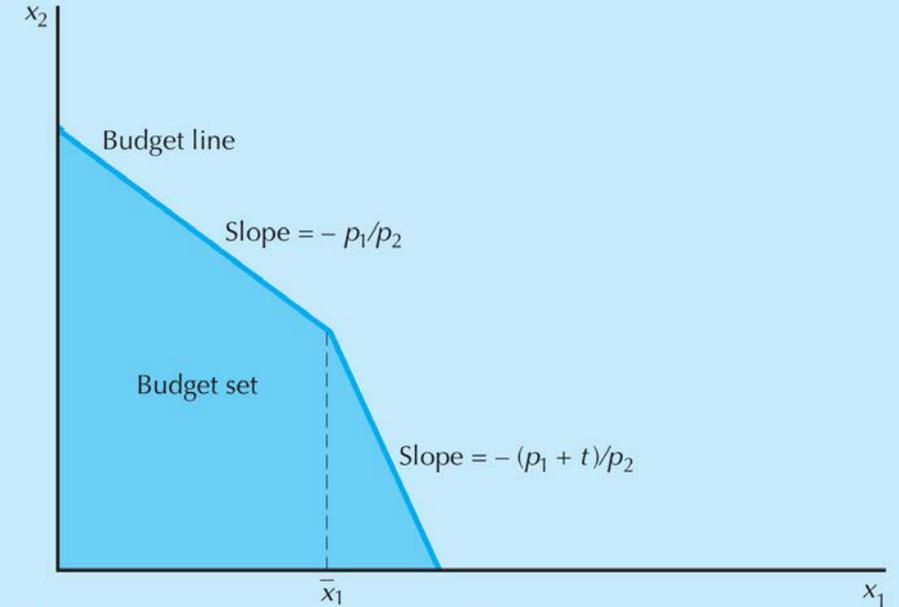
Consider a situation where a consumer could consume good 1 at a price of p_1 up to some level \bar{x}_1 , and then had to pay a tax t on all consumption exceeds \bar{x}_1 .

What is the budget set for this consumer?

Example: Combine Rationing and Taxes



Budget set with rationing. If good 1 is rationed, the section of the budget set beyond the rationed quantity will be lopped off.



Taxing consumption greater than \bar{x}_1 . In this budget set the consumer must pay a tax only on the consumption of good 1 that is in excess of \bar{x}_1 , so the budget line becomes steeper to the right of \bar{x}_1 .

Example: The Food Stamp Program

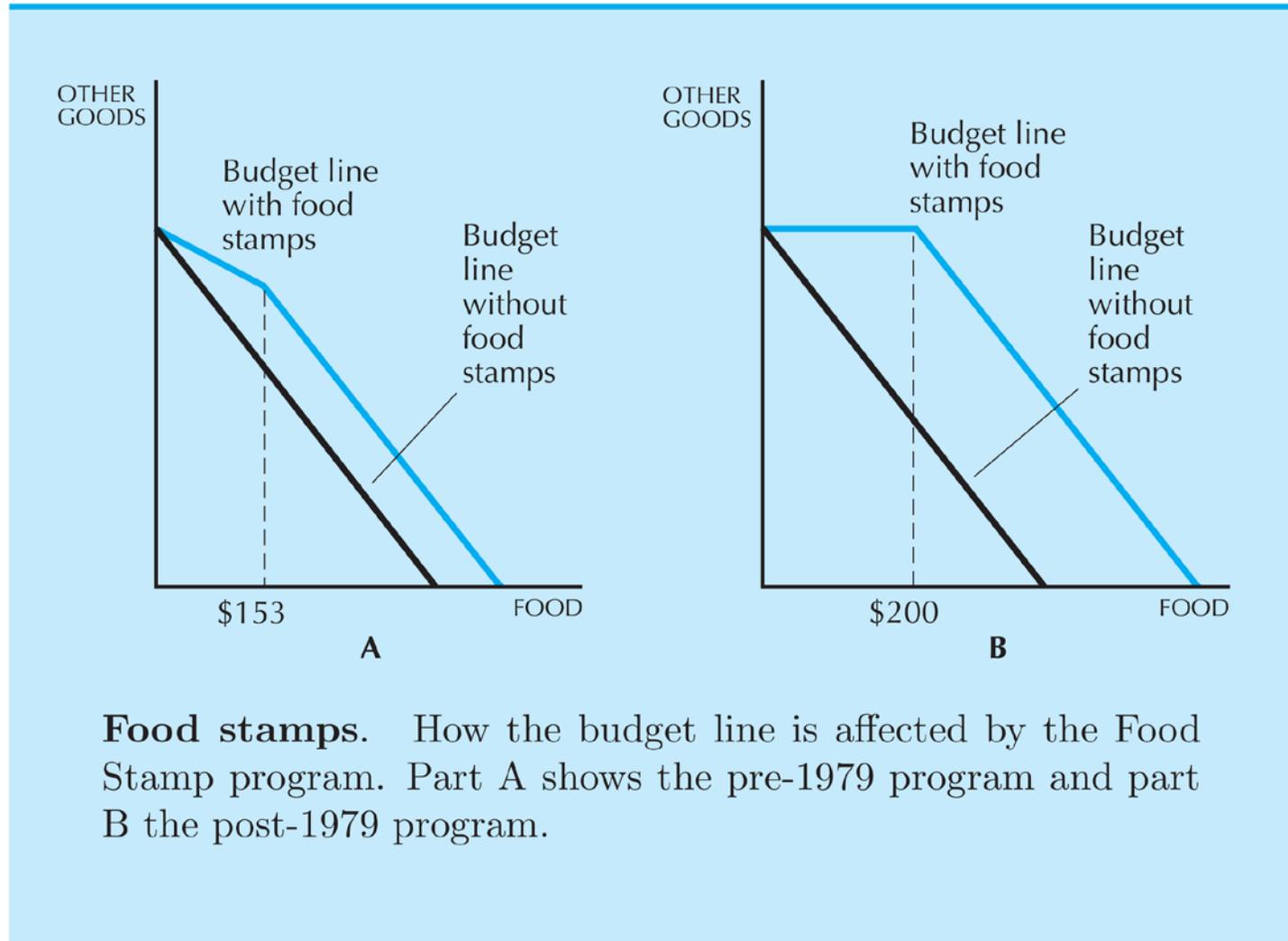
Food stamps are coupons that can be legally exchanged only for food

How does a commodity-specific gift such as a food stamp alter a family's budget constraint?

An example: The US Food Stamp Act of 1964

- pre-1979 program: an *ad valorem* subsidy on food (\$83 - \$153 food coupon)
- post-1979 program: a \$200 food coupon

Example: The Food Stamp Program



Food stamps. How the budget line is affected by the Food Stamp program. Part A shows the pre-1979 program and part B the post-1979 program.

Summary

1. The budget set consists of all bundles of goods that the consumer can afford at given prices and income. We will typically assume that there are only two goods, but this assumption is more general than it seems.
2. The budget line is written as $p_1x_1 + p_2x_2 = m$. It has a slope of $-p_1/p_2$, a vertical intercept of m/p_2 , and a horizontal intercept of m/p_1 .
3. Increasing income shifts the budget line outward. Increasing the price of good 1 makes the budget line steeper. Increasing the price of good 2 makes the budget line flatter.
4. Taxes, subsidies, and rationing change the slope and position of the budget line by changing the prices paid by the consumer.