CHAPTER CHECKLIST

1. Explain the effects of taxes on goods and labor and determine who pays the taxes.
2. Explain how a rent ceiling creates a housing shortage, inefficiency, and unfairness.
3. Explain how the minimum wage creates unemployment, inefficiency, and unfairness.

7.1 TAXES

Tax Incidence

The division of the burden of a tax between the buyer and the seller.

- If the price rises by the full amount of the tax, then the burden of the tax falls entirely on the buyer.
- If the price rises by a lesser amount than the tax, then the burden of the tax falls partly on the buyer and partly on the seller.
- If the price doesn’t change, then the burden of the tax falls entirely on the seller.
1. With no tax, the price of a CD player is $100 and 5,000 CD players a week are bought.
2. A $10 tax on CD players shifts the supply curve to $S + tax.
3. The price rises to $105—an increase of $5 a CD player.
4. The quantity decreases to 2,000 CD players a week.
5. Sellers receive $95—a decrease of $5 a CD player.
6. The government collects tax revenue of $20,000 a week—the purple rectangle.

The burden of the tax is split equally between the buyer and the seller—each pays $5 per CD player.

Tax Incidence and Elasticities of Demand and Supply

- For a given elasticity of supply, the buyer pays a larger share of the tax the more inelastic is the demand for the good.
- For a given elasticity of demand, the seller pays a larger share of the tax the more inelastic is the supply of the good.
7.1 TAXES

Tax Incidence and Elasticity of Demand

Perfectly Inelastic Demand: Buyer Pays Entire Tax
Perfectly Elastic Demand: Seller Pays Entire Tax

Figures 7.2(a) and 7.2(b) illustrate these two extreme cases.

Figure 7.2(a) shows tax incidence in a market with perfectly inelastic demand—the market for insulin. A tax of 20¢ a dose raises the price by 20¢, and the buyer pays all the tax.

Figure 7.2(b) shows tax incidence in a market with perfectly elastic demand—the market for pink marker pens. A tax of 10¢ a pen lowers the price received by the seller by 10¢, and the seller pays all the tax.

Tax Incidence and Elasticity of Supply

Perfectly Inelastic Supply: Seller Pays Entire Tax
Perfectly Elastic Supply: Buyer Pays Entire Tax

Figures 7.2(c) and 7.2(d) illustrate these two extreme cases.
7.1 TAXES

Figure 7.2(c) shows tax incidence in a market with perfectly inelastic supply—the market for spring water.

A tax of 5¢ a bottle lowers the price received by the seller by 5¢, and the seller pays all the tax.

Figure 7.2(d) shows tax incidence in a market with perfectly elastic supply—the market for sand.

A tax of 1¢ a pound increases the price by 1¢ a pound, and the buyer pays all the tax.

7.1 TAXES

Taxes on Income and Employment

The principles you’ve just learned apply to all types of taxes, including income taxes.

Figure 7.3 shows a labor market and the effects of an income tax.

With no income tax, the wage rate is $6.00 an hour and 4,000 people are employed.

1. An income tax of 20 percent shifts the supply curve to $ + tax.
2. The wage rate paid by employers rises to $6.25 an hour—an increase of 25 cents an hour.
3. The number of people employed decreases to 3,000.
4. Workers receive $5.00 an hour—a decrease of $1 an hour.

5. The government collects tax revenue shown by the purple rectangle.
   Workers pay most of the tax because the supply of labor is more inelastic than the demand for labor.

Payroll tax
A tax on employers based on the wages they pay their workers.
A payroll tax delivers the same outcome as the income tax.
Figure 7.4 shows the effects of a payroll tax.

With no taxes, the wage rate is $6.00 an hour and 4,000 people are employed.
1. A payroll tax of $1.25 an hour shifts the demand curve to $D – tax.
2. The wage rate falls to $5 an hour—a decrease of $1.00 an hour.
7.1 TAXES

3. The number of workers employed decreases to 3,000.
4. Employers’ total cost of labor rises to $6.25 an hour—the $5.00 wage rate plus the $1.25 payroll tax.
5. The government collects tax revenue shown by the purple rectangle.

7.1 TAXES

A tax places a wedge between the buyers’ price (marginal benefit) and the sellers’ price (marginal cost).

The equilibrium quantity is less than the efficient quantity and a deadweight loss arises.

Excess burden
The deadweight loss from a tax—the amount by which the burden of a tax exceeds the tax revenue received by the government.

Figure 7.5 shows the inefficiency of taxes.
In Figure 7.5(a), the market is efficient with marginal benefit equal to marginal cost.

Figure 7.5(b) shows how taxes create inefficiency.
A $10 tax shifts the supply curve to $+tax.
Marginal benefit exceeds marginal cost.
Consumer surplus and producer surplus shrink.
The government collects its tax revenue.
A deadweight loss arises.
The loss of consumer surplus and producer surplus is the burden of the tax, which equals the tax revenue plus the deadweight loss.

The deadweight loss is the excess burden of the tax.

**7.2 PRICE CEILINGS**

- **A Rent Ceiling**

  Rent ceiling
  
  A government regulation that makes it illegal to charge more than a specified rent for housing.

  Price ceiling
  
  The highest price at which it is legal to trade a particular good, service, or factor of production. A rent ceiling is an example of a price ceiling.

Figure 7.6 shows a housing market.

The demand for and supply of housing determine the equilibrium rent of $550 a month and the equilibrium quantity of 4,000 units of housing.

Figure 7.7 shows how a rent ceiling creates a shortage.

A rent ceiling is imposed below the equilibrium rent at $400 a month.

1. The quantity of housing supplied decreases to 3,000 units.
2. The quantity of housing demanded increases to 6,000 units.
3. A shortage of 3,000 units arises.
When a rent ceiling creates a housing shortage, two developments occur:
- A black market
- Increased search activity

**Black market**
An illegal market that operates alongside a government-regulated market.

**Search activity**
The time spent looking for someone with whom to do business.

Figure 7.8 shows how a rent ceiling creates a black market and housing search.

With a rent ceiling of $400 a month:
1. 3,000 units of housing are available.
2. Someone is willing to pay $625 a month for the 3,000th unit of housing.

3. Black market rents might be as high as $625 a month and resources get used up in costly search activity.

- **Are Rent Ceilings Efficient?**
  With a rent ceiling, the outcome is inefficient.
  Marginal benefit exceeds marginal cost.
  Producer surplus and consumer surplus shrink, and a deadweight loss arises.
  People who can't find housing and landlords who can't offer housing at a lower rent lose.
1. The market is efficient with marginal benefit equal to marginal cost.

2. Consumer surplus and producer surplus are as large as possible.

Figure 7.9(a) shows an efficient housing market.

1. A rent ceiling restricts the quantity supplied and marginal benefit exceeds marginal cost.

2. Consumer surplus (green area) and producer surplus (blue area) shrink.

3. A deadweight loss arises.

4. Other resources are lost in search activity and evading and enforcing the rent ceiling law.

Resource use is inefficient.

Figure 7.9(b) shows the inefficiency of a rent ceiling.

1. Consumer surplus and marginal benefit exceed marginal cost.

Figure 7.9(c) shows the inefficiency of a rent ceiling.

1. Resource use is inefficient.

1. Are the rules fair?
2. Are the results fair?
3. Does blocking rent adjustments avoid scarcity?
4. What mechanisms allocate resources when prices don’t do the job?
5. Are those non-price mechanisms fair?
7.2 PRICE CEILINGS

If Rent Ceilings Are So Bad, Why Do We Have Them?

Current renters gain and lobby politicians.
More renters than landlords, so rent ceilings can tip an election.

7.3 PRICE FLOORS

The labor market influences employment opportunities and wage rates.

Figure 7.10 shows a market for fast-food servers.
The demand for and supply of fast-food servers determine the equilibrium wage rate of $5 an hour and the equilibrium quantity of 5,000 servers employed.

7.3 PRICE FLOORS

The Minimum Wage

Minimum wage law
A government regulation that makes hiring labor for less than a specified wage illegal.

Price floor
The lowest price at which it is legal to trade a particular good, service, or factor of production. The minimum wage is an example of a price floor.

The Minimum Wage

Figure 7.11 shows how a minimum wage creates unemployment.

A minimum wage is introduced at $7 an hour.

1. The quantity of labor demanded decreases to 3,000 workers.
2. The quantity of labor supplied increases to 7,000 people.
3. 4,000 people are unemployed.
1. At the minimum wage rate of $7 an hour, 3,000 jobs are available.

2. Someone is willing to take the 3,000th job for $3 an hour.

3. Illegal wage rates might range from just below $7 an hour to $3 an hour. People are willing to spend time on job search that is worth the equivalent of lowering their wage rate by $4 an hour.

Is the Minimum Wage Efficient?

The firms’ surplus and workers’ surplus shrink, and a deadweight loss arises. Firms that cut back employment and by people who can’t find jobs at the higher wage rate lose. The total loss exceeds the deadweight loss because resources get used in costly job-search activity.

Figure 7.13(a) shows an efficient labor market.

1. At the market equilibrium, the marginal benefit of labor to firms equals the marginal cost of working.

2. The firms’ and workers’ surpluses are as large as possible.
7.3 PRICE FLOORS

Figure 7.13(b) shows an inefficient labor market with a minimum wage.

1. The minimum wage restricts the quantity demanded.
2. The workers’ surplus and the firms’ surplus shrinks.

3. A deadweight loss arises.
4. Other resources are used up in job search activity
   The outcome is inefficient.

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Is the Minimum Wage Fair?

- Is the rule fair?
- Is the result fair?
- If the wage rate doesn’t allocate labor, what does?
- Are non-wage allocation mechanisms fair?

If the Minimum Wage Is So Bad, Why Do We Have It?

- The effects of minimum wage on employment might be small.
- What would make the effects on employment small?
- Labor unions might lobby for a minimum wage: why?
The End

Chapter 7

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