CHAPTER 19: The Equity Implications of Taxation:Tax Incidence

Abel Embaye

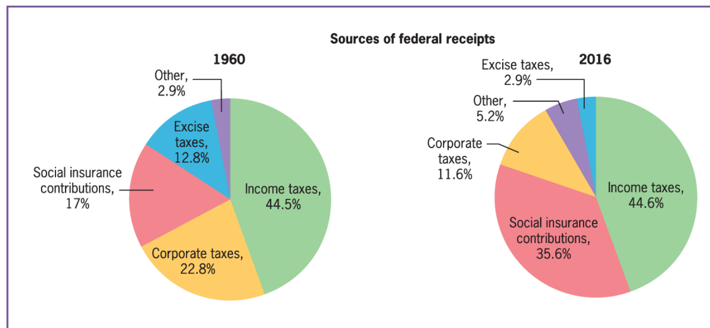
UofA

April 12, 2026

The Equity Implications of Taxation: Tax Incidence

1. The Three Principles of Tax Incidence
2. Tax Incidence Extensions
3. General Equilibrium Tax Incidence
4. The Incidence of Taxation in the United States
5. Conclusion

Sources of Federal Receipts, 1960 and 2016



Gruber, *Public Finance and Public Policy*, 6e, © 2019 Worth Publishers

The Three Principles of Tax Incidence

1. The statutory burden of a tax does not describe who really bears the tax.
2. The side of the market on which the tax is imposed is irrelevant to the distribution of the tax burdens.
3. Parties with inelastic supply or demand bear taxes; parties with elastic supply or demand avoid them.

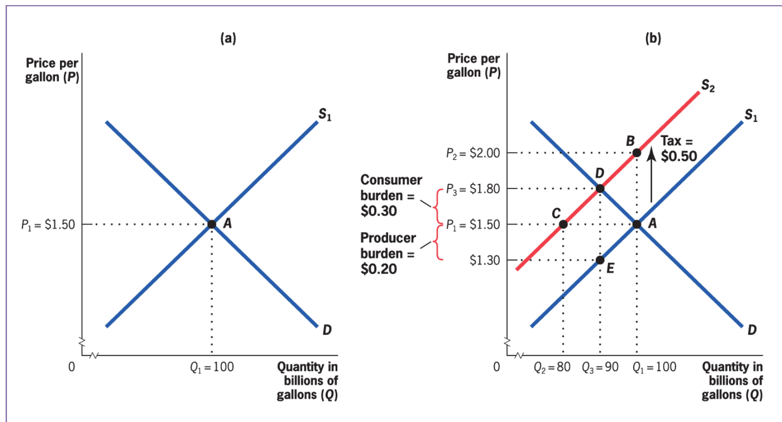
Principle 1: The Statutory Burden of a Tax Does Not Describe Who Really Bears the Tax

- **Statutory incidence:** The burden of a tax borne by the party that sends the check to the government.
- **Economic incidence:** The burden of taxation measured by the change in the resources available to any economic agent as a result of taxation.
- Economic incidence includes tax payments paid and any price changes caused by the tax.

Principle 1: The Statutory Burden of a Tax Does Not Describe Who Really Bears the Tax

- consumer tax burden = the net increase in price consumers pay after tax
- Sellers tax burden = the net decrease in price sellers receive after tax

Principle 1: The Statutory Burden of a Tax Does Not Describe Who Really Bears the Tax

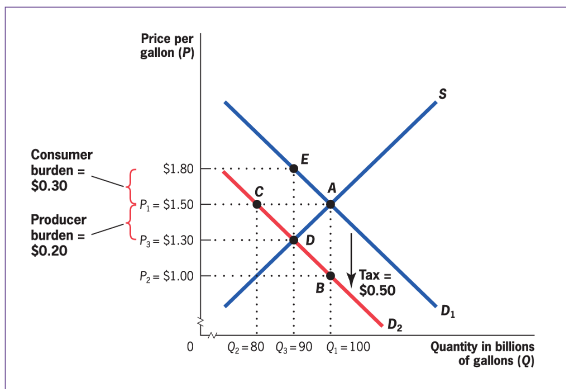


Gruber, *Public Finance and Public Policy*, 6e, © 2019 Worth Publishers

Burden of the Tax on Consumers and Producers

- **Tax wedge:** The difference between what consumers pay and what producers receive (net of tax) from a transaction.
- If the consumer burden is $0.30 and the producer burden is $0.20, the tax wedge is $0.50.

Principle 2: The Side of the Market on Which the Tax Is Imposed Is Irrelevant to the Distribution of the Tax Burden



Gruber, *Public Finance and Public Policy*, 6e, © 2019 Worth Publishers

Gross Versus After-Tax Prices

- **Gross price:** The price in the market.
- **After-tax price:** The gross price minus the amount of the tax (if producers pay the tax) or plus the amount of the tax (if consumers pay the tax).
- Different statutory Principles produce different gross prices for the same after-tax price.

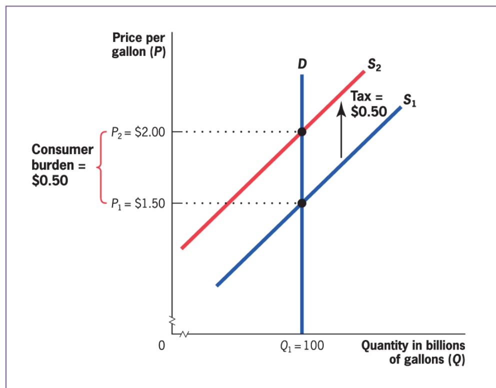
Principle 3: Parties with Inelastic Supply or Demand Bear more of the Taxes

- The economic incidence of taxation does not depend on the statutory incidence.
- It is ultimately determined by the relative **price elasticities of supply and demand**
- The more price elastic is demand relative to supply, the less consumers bear the burden relative to the sellers.
- Useful formula:

$$\text{Tax burden on Consumers } = 100 \cdot \frac{\epsilon_S}{\epsilon_S + \epsilon_D}$$

- Example: if $\epsilon_D = 0$, perfectly price inelastic demand, consumers bear 100% of the tax

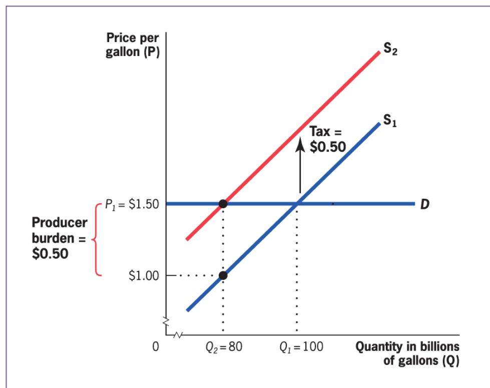
Perfectly Inelastic Demand



Gruber, *Public Finance and Public Policy*, 6e, © 2019 Worth Publishers

- When demand is perfectly inelastic, producers bear *none* of the tax, and consumers bear *all* of the tax.

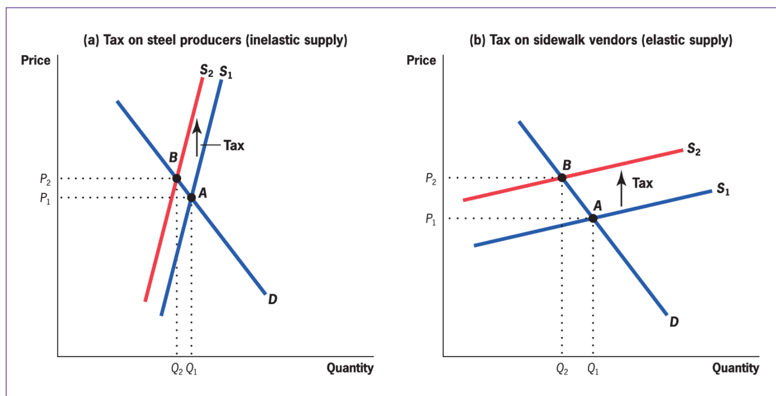
Perfectly Elastic Demand



Gruber, *Public Finance and Public Policy*, 6e, © 2019 Worth Publishers

- Producers bear all of the tax, and consumers bear none of the tax.

Supply Elasticities



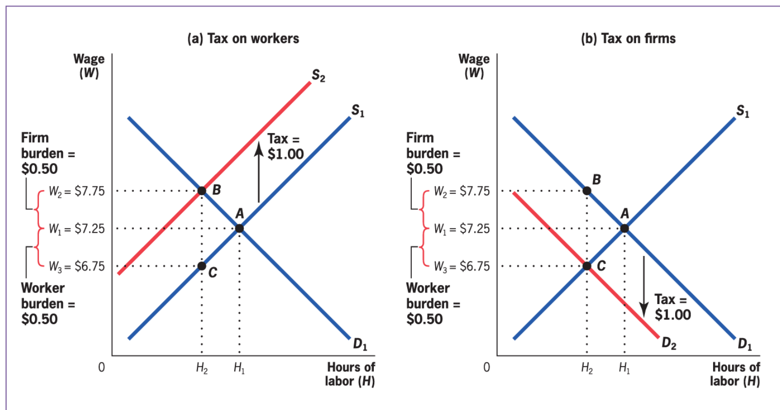
Gruber, *Public Finance and Public Policy*, 6e, © 2019 Worth Publishers

- The same principles hold for supply as for demand elasticities; elastic factors avoid taxes, while inelastic factors bear them.

Reminder: Tax Incidence Is About Prices, Not Quantities

- When the demand for gas is perfectly elastic, consumers bear none of the burden of taxation, yet the quantity of gas consumed fell dramatically.
  - Doesn't this fall in consumption hurt consumers?
  - If so, shouldn't tax incidence take that into account?
- Perfectly inelastic demand means consumers are indifferent between the gas and other goods, so they are not hurt by the fall in gas consumption.

Tax Incidence in Factor Markets: Social Security Payroll tax



Gruber, *Public Finance and Public Policy*, 6e, © 2019 Worth Publishers

Impediments to Wage Adjustment 1/2

- Tax incidence analysis assumes that prices can freely adjust.
- But wages cannot fall below the minimum wage.
  - **Minimum wage:** Legally mandated minimum amount that workers must be paid for each hour of work.
- Barriers to price adjustment change the incidence of the tax burden.

Learn by Doing: Practice Question

- Suppose that the supply of bagels is given by $Q = 200P$ and the demand for bagels is given by $Q = 500 - 200P$. What is the consumer's tax burden from a $1 per unit tax on the sale of bagels?

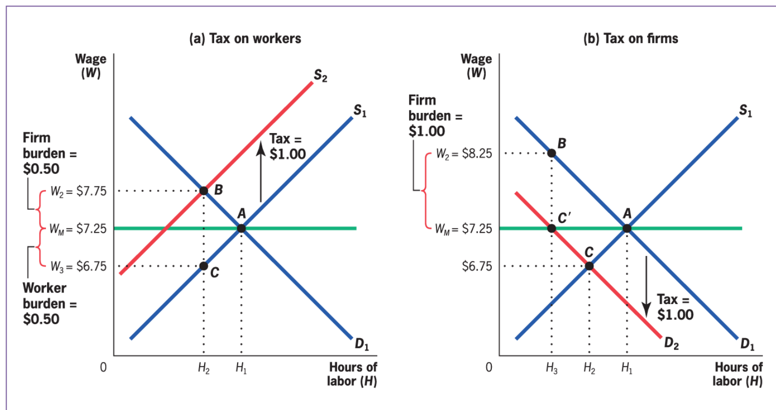
a. $0

b. $0.30

c. $0.50

d. $1

Impediments to Wage Adjustment 2/2



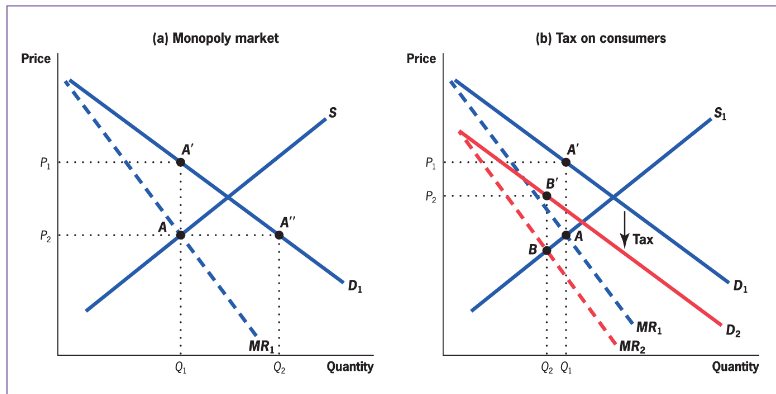
Gruber, *Public Finance and Public Policy*, 6e, © 2019 Worth Publishers

Tax Incidence in Imperfectly Competitive Markets 1

Monopoly markets are an extreme case of imperfectly competitive markets.

- **Monopoly markets:** Markets in which there is only one supplier of a good.
- For price-taking firms, marginal revenue (MR) is equal to price.
- Monopolists must lower the price to sell more, though, so marginal revenue falls faster than price.
- Monopolist produces such that $MR = MC$.

Background: Market Equilibrium in Monopoly Markets



Gruber, *Public Finance and Public Policy*, 6e, © 2019 Worth Publishers

Tax Incidence in Imperfectly Competitive Markets

- Even in monopoly markets, a tax on either side of the market results in the same sharing of the tax burden.
- Monopolists cannot "exploit their market power" to avoid the principles of tax incidence.
- Economists tend to assume that the same Principles of incidence apply in more general oligopoly markets.
  - **Oligopoly markets:** Markets in which firms have some market power in setting prices but not as much as a monopolist.

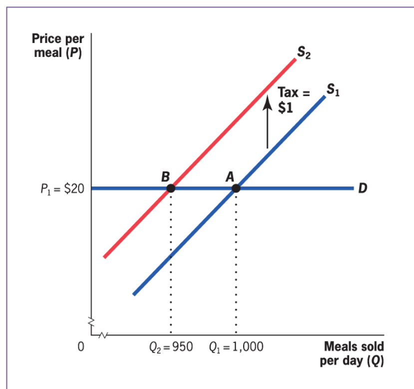
Balanced Budget Tax Incidence

- Tax incidence analysis typically only accounts for who pays the tax.
  - **Balanced budget incidence:** Tax incidence analysis that accounts for both the tax and the benefits it brings.
  - Balanced budget incidence is difficult because it is hard to determine who benefits from a given tax increase.

General Equilibrium Tax Incidence

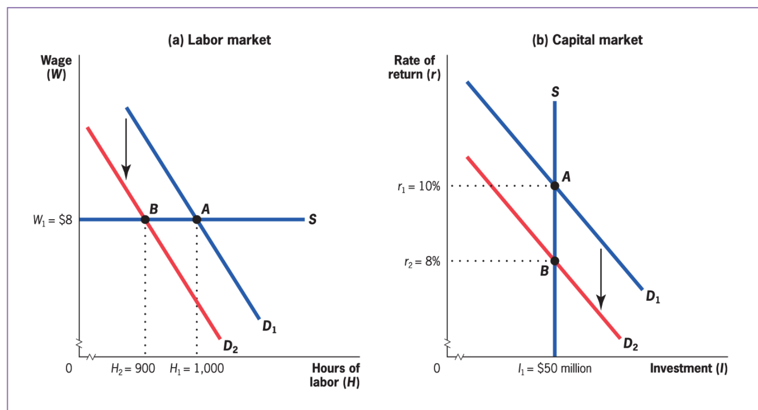
- So far, we have considered incidence in only a single market, such as the gas market.
- **Partial equilibrium tax incidence:** Analysis that considers the impact of a tax on a market in isolation.
- **General equilibrium tax incidence:** Analysis that considers the effects on related markets of a tax imposed on one market.
- Taxes in one market affect prices in others, complicating the analysis.

Effects of a Restaurant Tax: A General Equilibrium Example



Gruber, *Public Finance and Public Policy*, 6e, © 2019 Worth Publishers

General Equilibrium Tax Incidence 2



Gruber, *Public Finance and Public Policy*, 6e, © 2019 Worth Publishers

- If the burden of a tax on restaurants is borne by the restaurants, it must be borne by the factors of production used by the restaurants.

Effects of a Restaurant Tax

- The meal tax acts like an increase in the restaurant's marginal costs and shifts the supply curve left.
  - Because demand is perfectly elastic, any increase in price to consumers would drive all business away.
  - Thus, the restaurant bears the entire burden of the tax, and consumers bear none of it.
    - More specifically, it is borne by the factors of production (labor and/or capital and in this case more on capital).

Effect of Time Period on Tax Incidence: Short Run Versus Long Run

- Factors that are inelastically demanded or supplied in both the short and the long run bear taxes in the long run.
- Investments are irreversible, so the supply of capital is inelastic in the short run.
- Investors have many opportunities as the time horizon is longer. So, in the long run, elasticity of capital may be high.

Effect of Tax Scope on Tax Incidence

- Tax incidence depends on how broadly the tax is applied.
- Taxes that are broader based are harder to avoid than taxes that are narrower, so the response of producers and consumers to the tax will be smaller and more inelastic.
- A tax on local restaurants has a different incidence than a tax on all restaurants.

Spillovers Between Product Markets

Consider a tax on a restaurant. A higher after-tax price has three effects on other goods as well:

1. **Income effect** from lower real income (affected by normal vs inferior nature of the good).
2. **Substitution effect** toward goods that are substitutes for restaurants.
3. **Complementary effect:** Consumers may reduce their consumption of goods or services that are complements to restaurant meals.

EVIDENCE: The Incidence of Taxation: Real-World Complications

- Excise tax varies widely across the United States.
- This variation allows for quasi-experimental estimation of the impact of excise taxes on prices.
- An excellent example is taxes on cigarettes:
    - Low of $ 0.17 per pack in Missouri
    - High of $ 4.35 per pack in New York
- Harding et al. (2012) found that the majority of tax increases, 85%, were passed on to customers in the form of higher prices, suggesting fairly inelastic demand for cigarettes.

The Congressional Budget Office/Tax Policy Center Incidence Assumptions

The Congressional Budget Office and Urban Institute's Tax Policy Center analyze tax incidence in the United States, assuming:

- *Income taxes* are borne fully by households that pay them.
- *Payroll taxes* are borne fully by workers.
- *Excise* taxes are fully shifted to prices and so are borne by individuals in proportion to their consumption of the taxed item.
- *Corporate taxes* are borne 20% by workers and 80% by owners of capital .

Current Versus Lifetime Income Incidence

- Tax incidence is usually evaluated by *current*- rather than *lifetime*-income.
  - **Current tax incidence:** The incidence of a tax in relation to an individual 's current resources.
  - **Lifetime tax incidence:** The incidence of a tax in relation to an individual 's lifetime resources.
- Poterba (1989a) showed that gasoline and cigarette taxes are much less regressive from a lifetime income perspective than they are from a current income perspective.

Learn by Doing: Practice Question

- Suppose a tax is imposed on the purchasers of couches. Assume that demand for couches is perfectly elastic and that the supply is elastic but not perfectly elastic. The couches are produced in a factory using capital equipment and labor. The supply of labor is perfectly elastic and the supply of capital equipment inelastic in the short run. In the short run, partial equilibrium tax incidence analysis suggests that _____ bear the tax; general equilibrium tax incidence analysis suggests that _____ bear the tax.

a) consumers ; couch factories
b) consumers; capital owners
c) couch factories; capital owners
d) couch factories; couch factories

Conclusion

- The **fairness** of any tax reform is one of the primary considerations in policy makers' positions on tax policy.
- Therefore, it is crucial for public finance economists to have a deep understanding of who really bears the burden of taxation so that we can best inform these distributional debates over the fairness of a proposed or existing tax.