Public Economics

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with assistance of
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"Where I am not understood, it shall be concluded that something very useful and profound is couched underneath." J. Swift.

Requirements

- 4+ homeworks
- Project
- Final exam

Distribution: 40-20-40

read before class

no cheating

Textbooks

- J. Gruber "Public Finance and Public Policy," Worth Publishers, 2007 or later editions
  - Russian translation also exists

- Аткинсон, Энтони Б., Стиглиц, Джозеф Э. (1995) "Лекции по экономической теории государственного сектора", Изд. Аспект Пресс, 1995.

Topics

1. Subject and methods of Public Finance.
2. Externalities. Applications to Environment and Health.
3. Public Goods. Optimal, private, and public provision.
4. Political economy. Voting. Privatization. Corruption.
5. Education. The role of government. Competition. Returns to education.

Topics (cont)

6. Social Insurance. Adverse selection and moral hazard.
7. Social security. Unemployment insurance.
8. Health Insurance. Public vs. Private. Health Care Reforms.
9. Income Distribution and Welfare programs.
10. Overview of taxation topics.
11. Local public goods. Tiebout model.
12. Fiscal federalism.

Introduction
What is the proper role of government?

- **Expenditure side**: What services should the government provide?
- **Taxation side**: How should the government raise its money?

THE FOUR QUESTIONS OF PUBLIC FINANCE

- ***When*** should the government intervene in the economy?
- ***How*** might the government intervene?
- ***What*** is the effect of those interventions on economic outcomes?
- ***Why*** do governments choose to intervene in the way that they do?

When Should the Government Intervene in the Economy?

- Normally, private markets are competitive and efficient.
- Generally hard to justify government intervention in markets. But two main justifications are:
  - Market failures
  - Redistribution
- "Abnormal" situations: crises, disasters.

When Should the Government Intervene? Market failures

- "Problems" for markets:
  - Externalities
  - Private (Asymmetric) Information
  - Small number of agents on one or both sides of the market / market (monopoly) power

In the context of health insurance, some people are uninsured…

Application When Should the Government Intervene? *Market failures*

- In 2003, there were **45 million** people without health insurance in the United States, or 15.6% of the population.
- Does it imply that the market does not work?
- Lack of insurance could cause ***negative externalities*** from contagious disease–the uninsured may not take account of their impact on others.

Application When Should the Government Intervene? *Market failures*

- Measles epidemic from 1989-1991, caused by low immunization rates for disadvantaged youth, was the problem.
  - In 1960s: 3-4 m. cases, 500 deaths per year
  - In 1963 vaccine introduced; by 1980 less than 3000 cases per year
  - 1989-1991 a huge resurgence occurred: over 50000 cases and 123 deaths.
  - What happened?
  - Solution: Propaganda plus subsidy for vaccines for low-income families.
  - Did it work?
  - Immunization rates increased from 70% to 90% in 1995: less then 300 confirmed cases.

When Should the Government Intervene? Redistribution

- Government may care about both the size of the "economic pie" as well as the size of each person's slice of that pie.
- For example, society may value an additional $1 of consumption by a poor person more highly than $1 of consumption by a rich person.
- ***Redistribution*** is the shifting of resources from some groups in society to others.
- Other reasons?

When Should the Government Intervene? Redistribution

- Of the uninsured, for example, roughly three-quarters are in families with incomes below the median income level in the United States.
  - Society may feel that it is appropriate to redistribute from those with insurance (who tend to have higher incomes) to those without insurance (who tend to have lower incomes).
- Redistribution often involves ***efficiency*** losses.
  - The act of redistribution can change a person's behavior. Taxing the rich to distribute money to the poor could cause *both* groups to work less hard.

How Might the Government Intervene?

- If the government wants to intervene in a market, there are a number of options:
  - Using the ***price mechanism*** with taxes or subsidies.
    - Tax credits that lower the "effective price" of health insurance.
  - ***Mandate*** that either individuals or firms provide the good.
    - "Pay-or-play" mandates that require employers to provide health insurance, such as California's Health Insurance Act.
  - ***Public Provision***
    - The Medicare program for U.S. senior citizens.
  - ***Public Financing of Private Provision***
    - Medicare prescription drug cards, where private companies administer the drug insurance.

What Are the Effects of Alternative Interventions?

- Much of the focus of *empirical public finance* is assessing the "direct" and "indirect" effects of government actions.
- ***Direct effects*** of government actions assume "no behavioral responses" and examine the intended consequences of those actions.
- ***Indirect effects*** arise because some people change their behavior in response to an intervention. This is sometimes called the "law of unintended consequences."

What Are the Effects of Alternative Interventions? Expanding health insurance

- **Direct effect** of government provision of health insurance for the uninsured: Roughly 44 million Americans could be covered at cost of $88 billion. This would be the *intent* of the law.
- **Indirect effect** of such a policy: Some "crowd-out" of other sources of health insurance for the "free" government health insurance.
  - Potentially large, because nearly 200 million Americans had private insurance in 2003.
    - If 90 million people dropped private insurance, this would triple the cost to $268 billion.
    - If only 10% of people (20 million) dropped insurance, the costs would rise to only $124 billion.
  - *Key question:* How many of these people would respond? The theory does not provide guidance on magnitudes.

Application

The Congressional Budget Office

- Congressional Budget Office (CBO) provides nonpartisan analyses needed for economic decisions of the government.
- Plays role as "scorekeeper" by estimating costs.
- Played a role in the defeat of the Clinton 1994 health care plan because of its estimate of the cost.

Why Do Governments Do What They Do?

- Governments do not simply behave as benign actors who intervene only because of market failure and redistribution.
- Tools of ***political economy*** helps us understand how governments make public policy decisions.
  - Just as market failures can lead to market inefficiency, there are a host of *government failures* that lead to inappropriate government intervention.

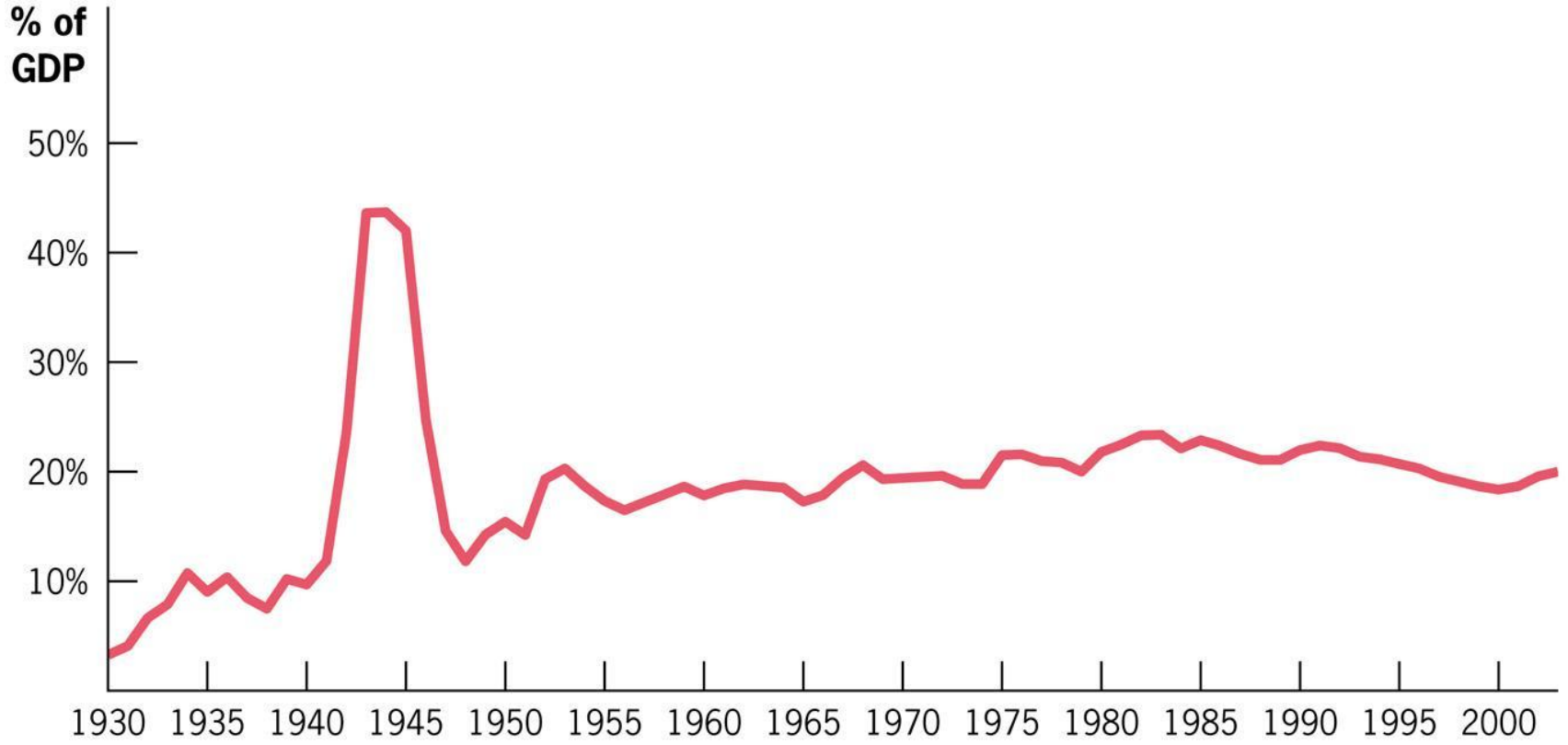
Why Do Governments Do What They Do?

- For example, substantial variation across developed countries in health care delivery suggests efficiency and redistribution are not the only considerations.
  - U.S.: Private health insurance
  - Canada: National public health insurance
  - Germany: Mandates private health coverage
  - U.K.: Free national health care

FACTS ON GOVERNMENT
The size and growth of government

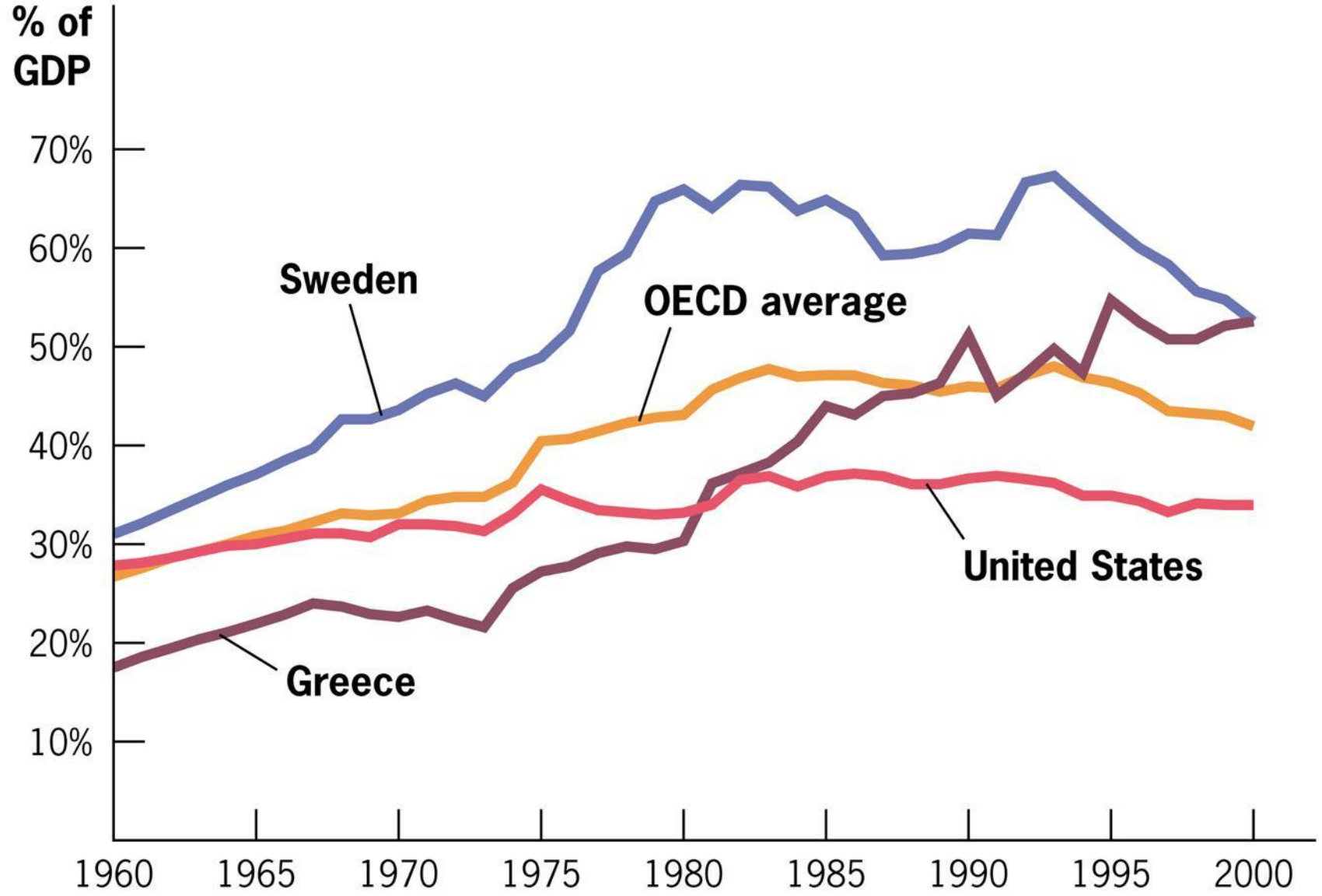
- The "size" of the government is often measured relative to some benchmark, the most common one being GDP. It adjusts the size of government for inflation and population growth.
- 1930s: U.S. government spending 5% of GDP.
- 1970s onward: About 20% of GDP (**Figure 1**).
- Trend is similar in other countries until 1960s; U.S. government grew more slowly thereafter (**Figure 2**).

Figure 1



Source: OMB Historical Tables: Budget of the United States Government, Fiscal Year 2004

Figure 2

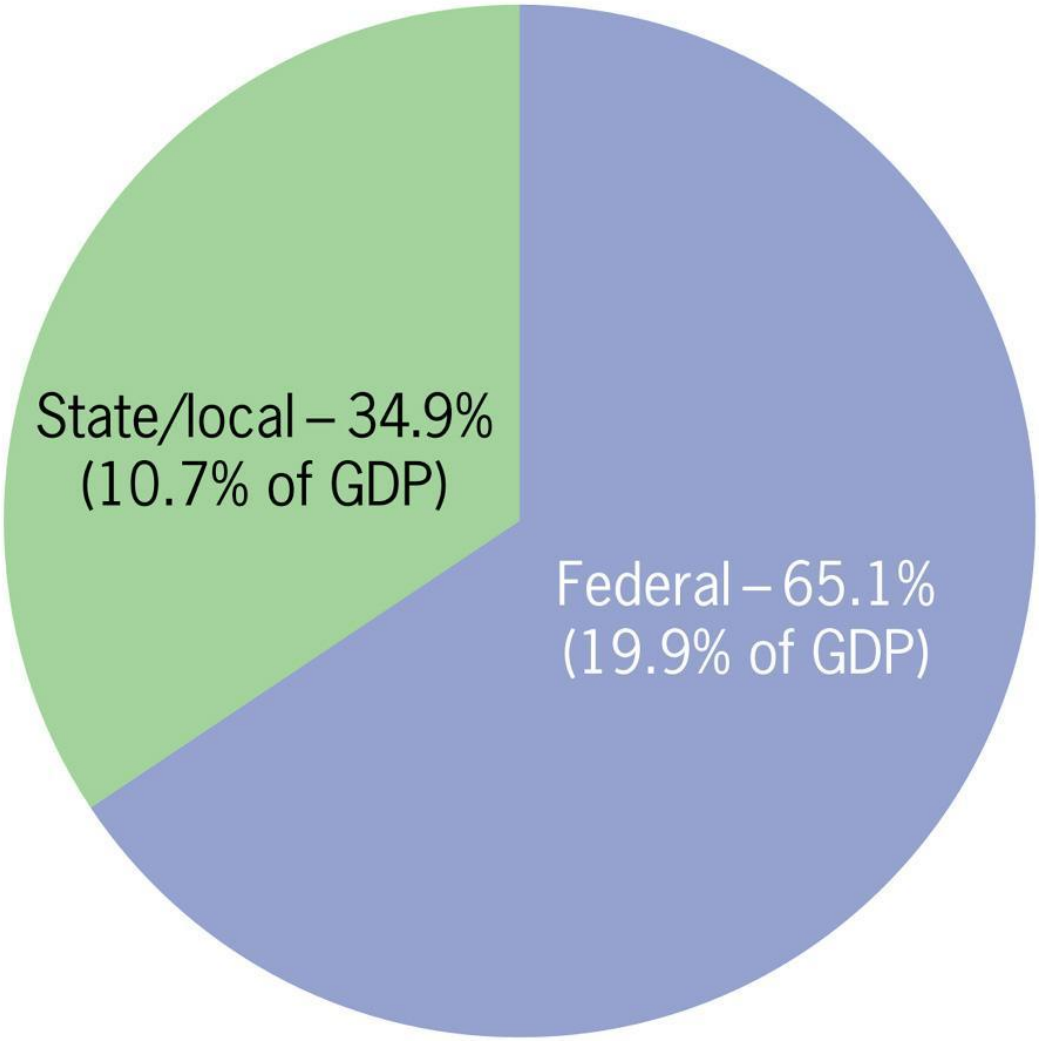


Source: OECD Historical Statistics

FACTS ON GOVERNMENT
Decentralization and budgeting

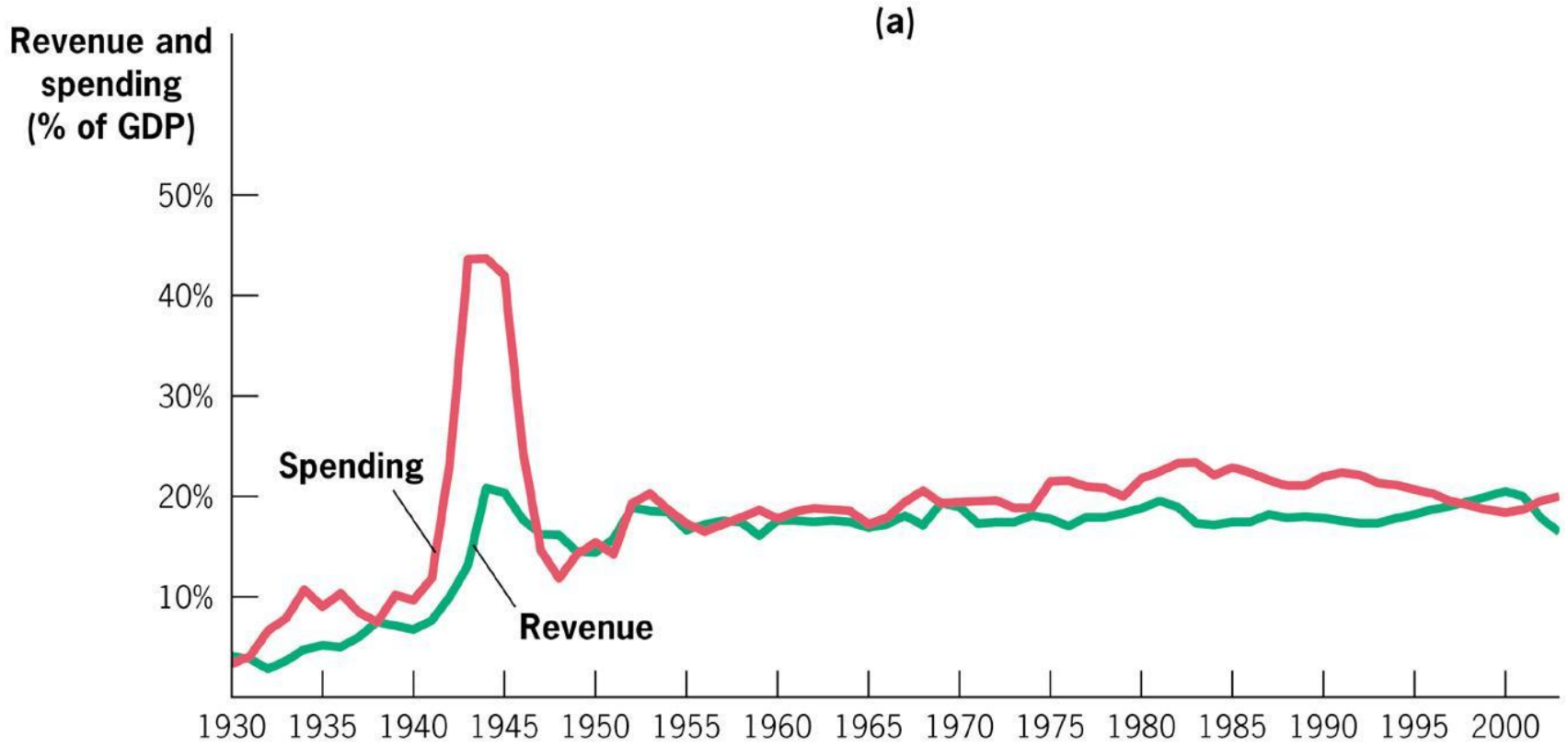
- Other features
  - Decentralization: In the United States., local, state and federal governments all spend substantial amounts of money (**Figure 3**).
  - Spending, taxes, deficits, and debts: Federal government was close to a balanced budget until the mid-1970s (**Figure 4**).

Figure 3



Source: OMB Historical Tables: Budget of the United States Government, Fiscal Year 2004

Figure 4

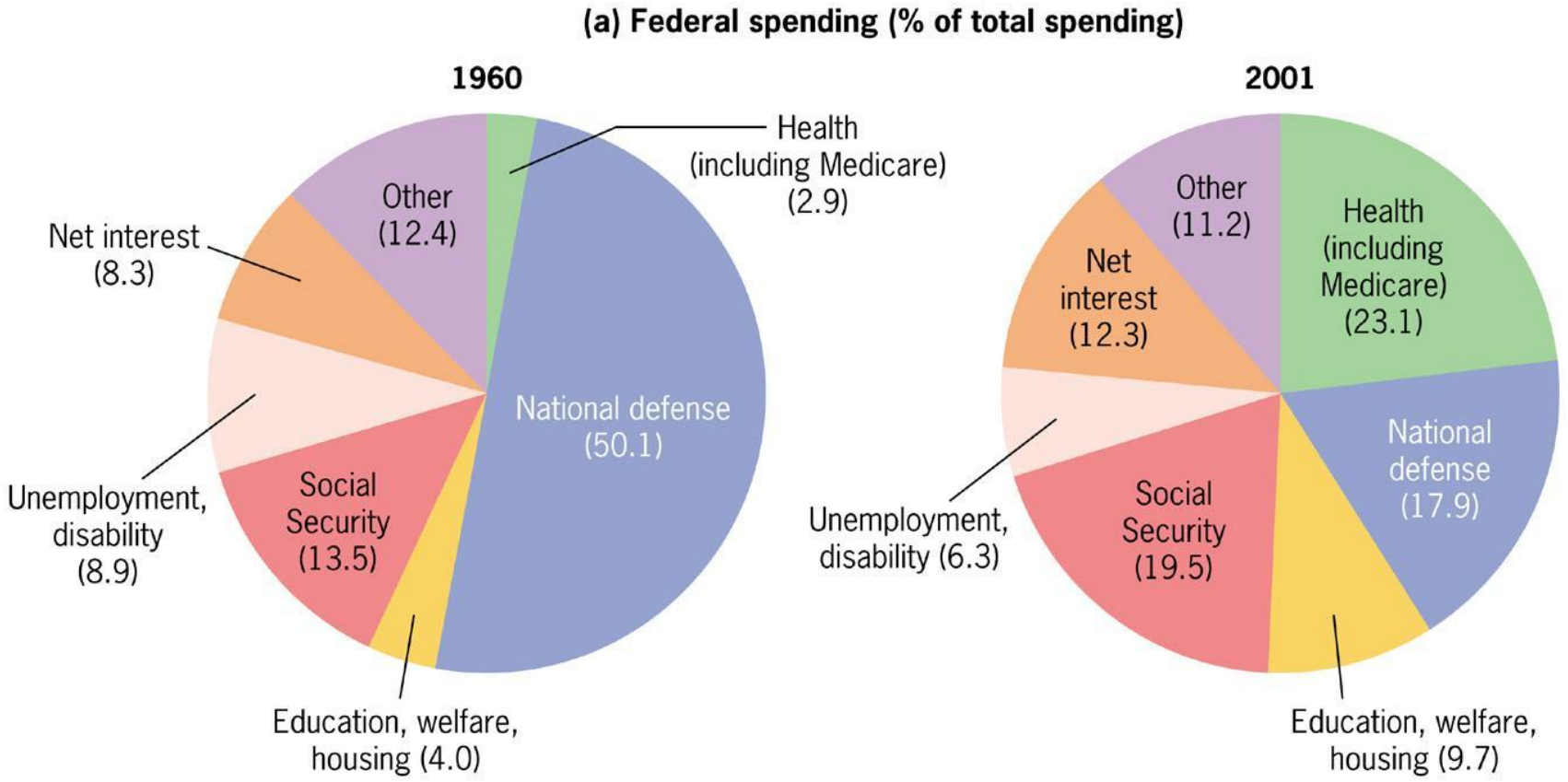


Source: OMB Historical Tables: Budget of the United States Government, Fiscal Year 2004

FACTS ON GOVERNMENT
Distribution of spending

- Other features
  - Distribution of spending (**Figure 7**).
    - In 1960: over half of federal government spending on defense (a classic "public good").
    - In 2001: Less than 20% of budget for defense, much more devoted to social insurance programs.
    - Distribution in state and local spending has not changed as dramatically; education makes up the single largest component of spending.

Figure 7


(a) Federal spending (% of total spending)
1960
Health (including Medicare) (2.9)
Other (12.4)
Net interest (8.3)
National defense (50.1)
Unemployment, disability (8.9)
Social Security (13.5)
Education, welfare, housing (4.0)
2001
Other (11.2)
Health (including Medicare) (23.1)
Net interest (12.3)
National defense (17.9)
Unemployment, disability (6.3)
Social Security (19.5)
Education, welfare, housing (9.7)

FACTS ON GOVERNMENT
Distribution of revenue sources

- Other features
  - Distribution of revenue (**Figure 8a and 8b**).
    - The *individual income tax* provides somewhat less than half of federal revenue and has remained roughly constant over time.
    - Big decline in revenue from *corporate income tax*, now less than 10% of federal tax revenue.
    - Reduction in *excise taxes*.
    - Large growth in *payroll taxes*; now one-third of revenue.

FACTS ON GOVERNMENT
Distribution of revenue sources

- Other features
  - Distribution of revenue different at state/local level.
    - Sales taxes
    - Grants-in-aid (from federal government)
    - Income taxes
    - Property taxes
  - Roughly equal in importance.

Figure 8a

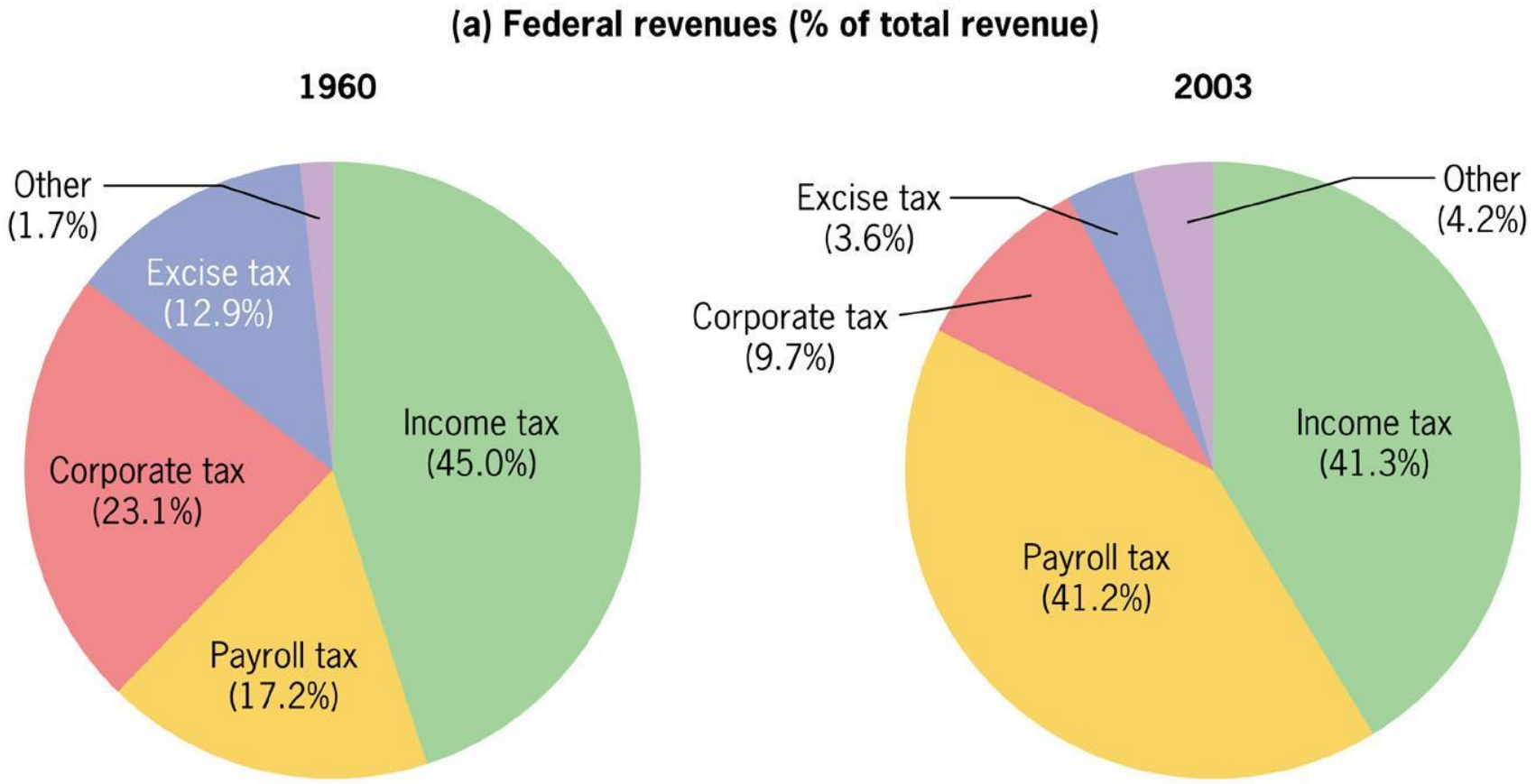
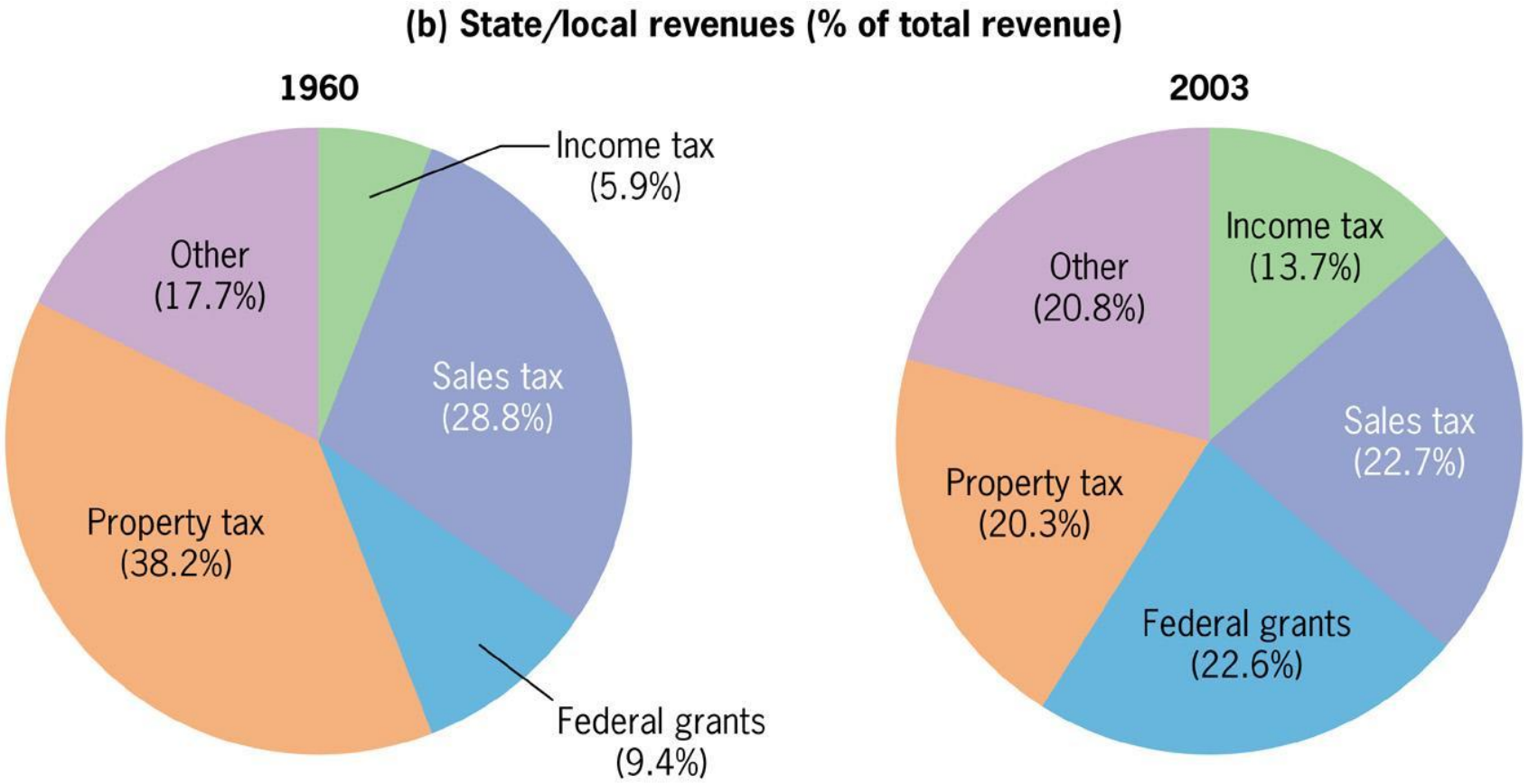

(a) Federal revenues (% of total revenue)
1960
Other (1.7%)
Excise tax (12.9%)
Corporate tax (23.1%)
Income tax (45.0%)
Payroll tax (17.2%)
2003
Excise tax (3.6%)
Corporate tax (9.7%)
Other (4.2%)
Income tax (41.3%)
Payroll tax (41.2%)

Figure 8b


(b) State/local revenues (% of total revenue)
1960
Income tax
(5.9%)
Other
(17.7%)
Sales tax
(28.8%)
Property tax
(38.2%)
Federal grants
(9.4%)
2003
Income tax
(13.7%)
Other
(20.8%)
Sales tax
(22.7%)
Property tax
(20.3%)
Federal grants
(22.6%)

FACTS ON GOVERNMENT
Regulatory role of the government

- Other features
  - Regulatory role–does not usually show up as a government "cost" but does increase the reach of government.
  - FDA regulates nearly 25% of consumer expenditures.
  - OSHA regulates workplace safety at 7 million job sites.
  - FCC, EPA.

Recap

- Four key questions in public finance
  - ***When*** should the government intervene in the economy?
  - ***How*** might the government intervene?
  - ***What*** is the effect of those interventions on economic outcomes?
  - ***Why*** do governments choose to intervene in the way that they do?

- How should the government intervene?
- What is the optimal size of the government?

Theoretical tools (recap):

- Income and substitution effects. Equivalent and compensating variations. Consumer surplus.
- What are the social objectives?
- Asymmetric information modeling: adverse selection and moral hazard.
- Mechanism design: auctions/procurement/voting schemes/optimal taxation.
- Dynamic optimization.

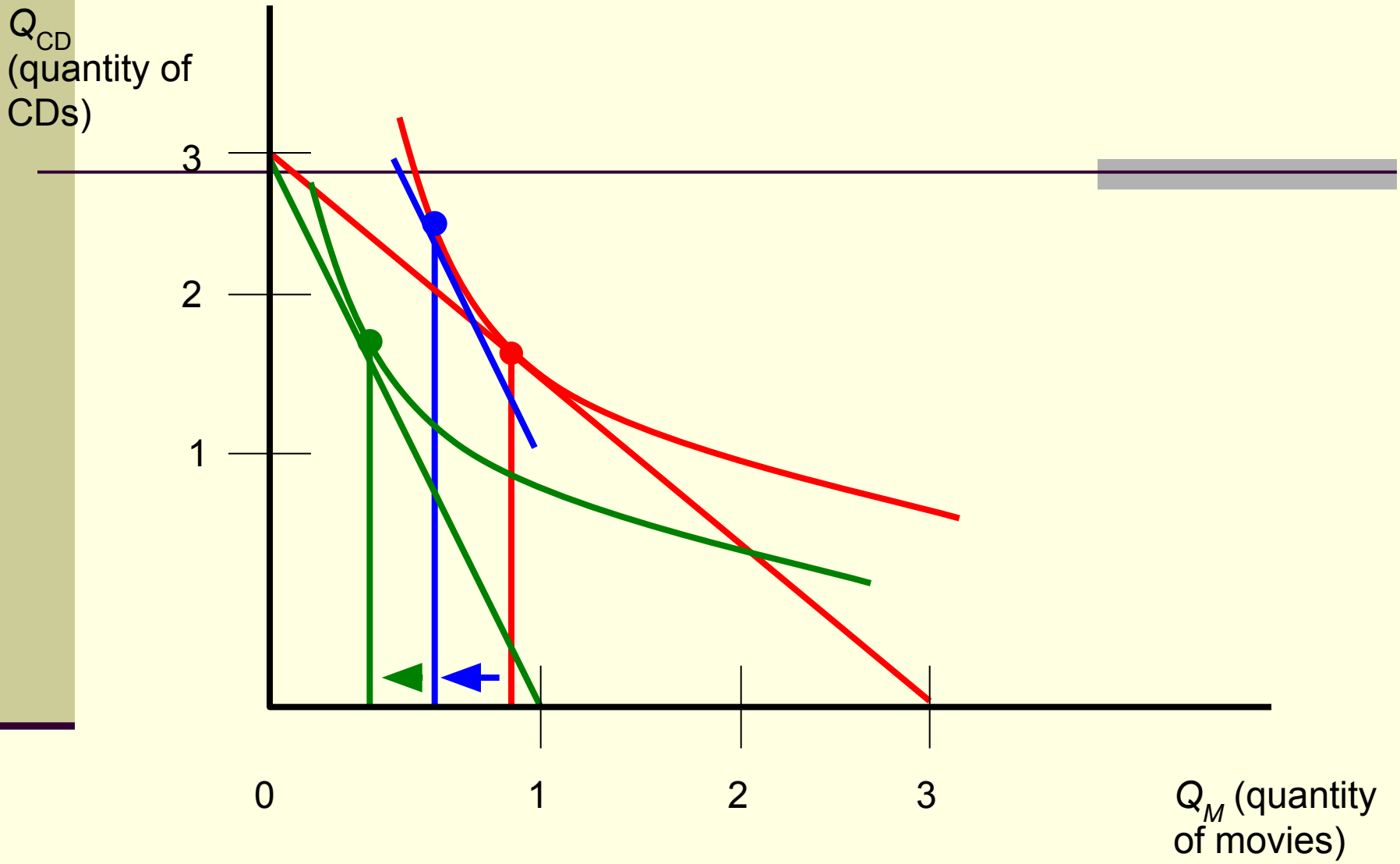


Figure 11 **Illustration of Income and Substitution Effects**

Spectrum auctions:

- Governments sell licenses to use a certain range of frequencies (electromagnetic spectrum).
- Many auctions. 3G are of particular interest.
- "All" European countries "at the same time" conducted such auctions. (2000-01)
- What are your expectations about the price per capita?
- Findings: UK 650 Euro/pc Total: 39 Bln Euros, 2.5% of GDP (!)
- Switzerland : Expectations 1000 Epc after UK auction; 400-600 Epc a week before.
- Result: 20 Euro/pc
- Problems: Low Reserve, "allowed collusion."

Dynamic Optimal taxation. (Acemoglu, Golosov, Tsyvinski)

Proposition 1 *Suppose Assumptions 1-5 hold. Then, the best sustainable mechanism is a solution to the following maximization program:*

$$\mathbf{MAX}_1 : \mathbf{U}^{SM} = \max_{\left\{c_t\left(\theta^t\right), l_t\left(\theta^t\right), x_t, K_{t+1}\right\}_{t=0}^{\infty}} \mathbb{E}\left[\sum_{t=0}^{\infty} \beta^t u\left(c_t\left(\left(\theta^{i,t}\right)\right), l_t\left(\theta^{i,t}\right) \mid \theta_t^i\right)\right] \tag{10}$$

subject to some initial condition K_0, the resource constraint

$$K_{t+1} = F\left(K_t, L_t\right) - C_t - x_t, \tag{11}$$

a set of incentive compatibility constraints for individuals,

$$\begin{aligned} & \mathbb{E}\left[\sum_{s=0}^{\infty} \beta^s u\left(c_{t+s}\left(\theta^{i,t+s}\right), l_{t+s}\left(\theta^{i,t+s}\right) \mid \theta_{t+s}^i\right) \middle| \theta^{i,t}\right] \\ \geq \quad & \mathbb{E}\left[\sum_{s=0}^{\infty} \beta^s u\left(c_{t+s}\left(\hat{\theta}^{i,t+s}\right), l_{t+s}\left(\hat{\theta}^{i,t+s}\right) \mid \theta_{t+s}^i\right) \middle| \theta^{i,t}\right] \end{aligned} \tag{12}$$

for all t, all $\theta^{i,t} \in \Theta^t$ and all possible sequences of $\left\{\hat{\theta}_{t+s}^i\right\}_{s=0}^{\infty}$, and the sustainability constraint of the politician

$$\mathbb{E}\left[\sum_{s=0}^{\infty} \delta^s v\left(x_{t+s}\right)\right] \geq v\left(F\left(K_t, L_t\right)\right), \tag{13}$$

PUTTING THE TOOLS TO WORK
TANF and labor supply among single mothers

- ***TANF*** is "Temporary Assistance for Needy Families."
- Cash welfare for poor families, mainly single mothers.
  - For example, in New Mexico, family of three receives $389 per month.
- Assume the two "goods" in utility maximization problem are leisure and food consumption.
- Whatever time is not devoted to leisure is spent working and earning money.

PUTTING THE TOOLS TO WORK
Identifying the budget constraint

- What does the budget constraint look like?
- Assume the person can work up to 2000 hours per year, at a wage rate of $10 per hour, and that TANF is not yet in place.
- Price of food is $1 per unit.

PUTTING THE TOOLS TO WORK
Identifying the budget constraint

- The "price" of one hour of leisure is the hourly wage rate.
- Creates a direct tradeoff between leisure and food: each hour of work brings her 10 units of food.
- **Figure 12** illustrates this.

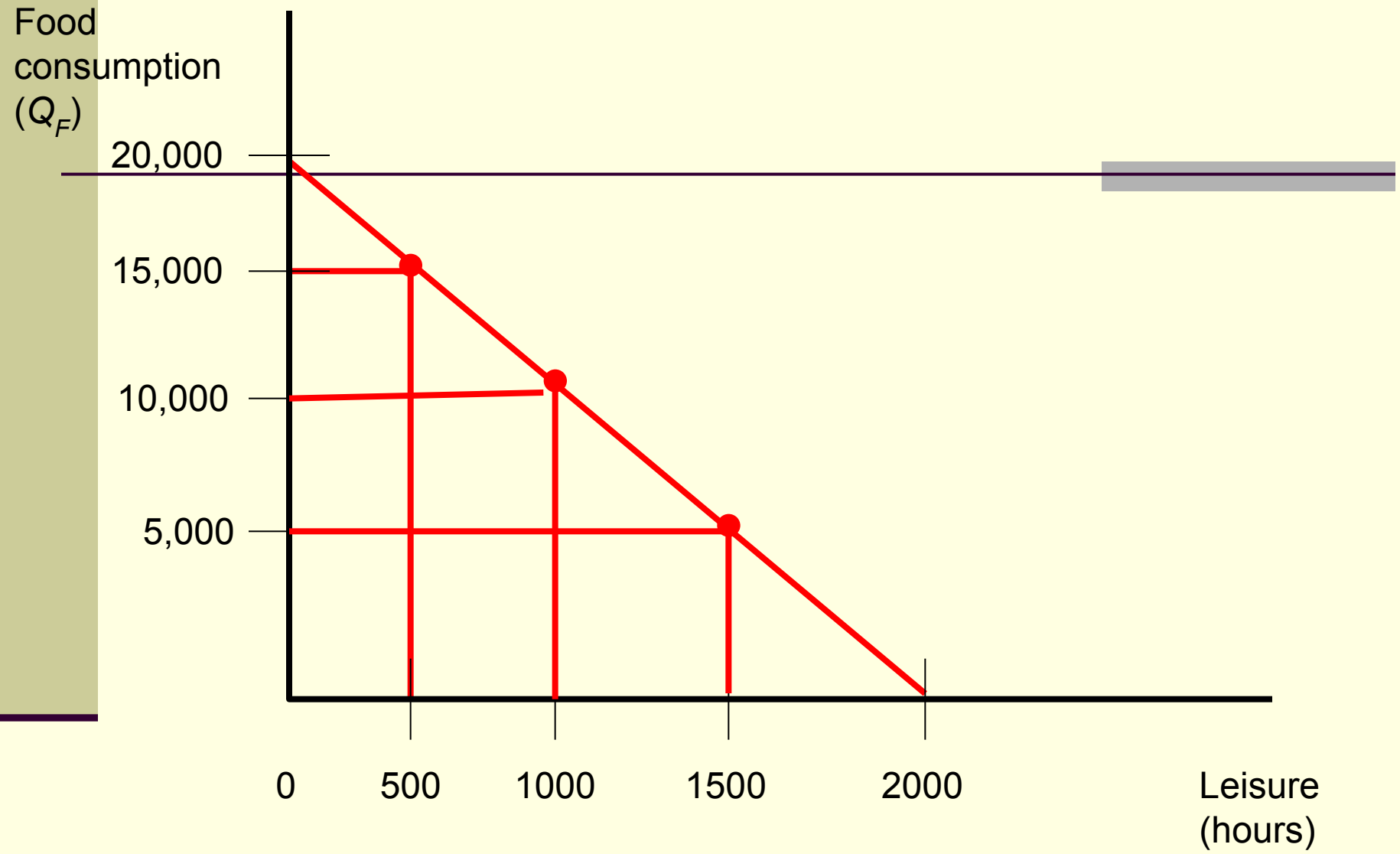


Figure 12 **Leisure is a "good" and labor is a "bad."**

PUTTING THE TOOLS TO WORK
The effect of TANF on the budget constraint

- Now, let's introduce TANF into the framework. TANF has two key features:
  - ***Benefit guarantee, G*** – amount that a recipient with $0 earnings gets.
  - ***Benefit reduction rate, J*** – rate at which benefit guarantee falls as earnings increases.

PUTTING THE TOOLS TO WORK
The effect of TANF on the budget constraint

- Assume that benefit guarantee, *G*, is $5,000 per year.
- Assume the benefit reduction rate, ***J***, is 50%.
- **Figure 13** illustrates this.

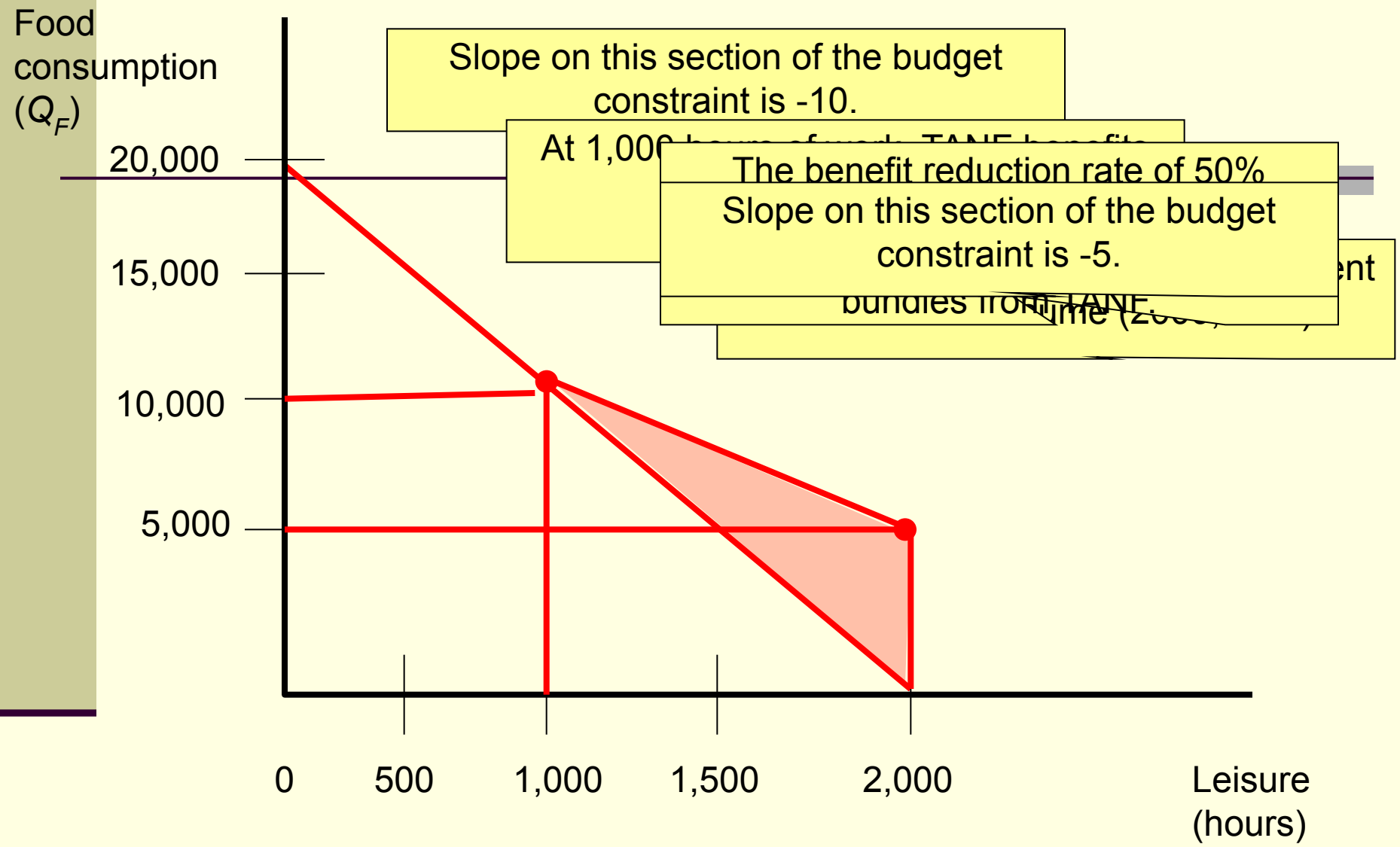


Figure 13 **Introduce Temporary Assistance to Needy Families**

PUTTING THE TOOLS TO WORK
The effect of changes in the benefit guarantee

- One possible "policy experiment" is reducing the benefit guarantee level *G*.
- What happens when *G* falls from $5,000 to $3,000, holding all other parameters constant?
- **Figure 14** illustrates this.

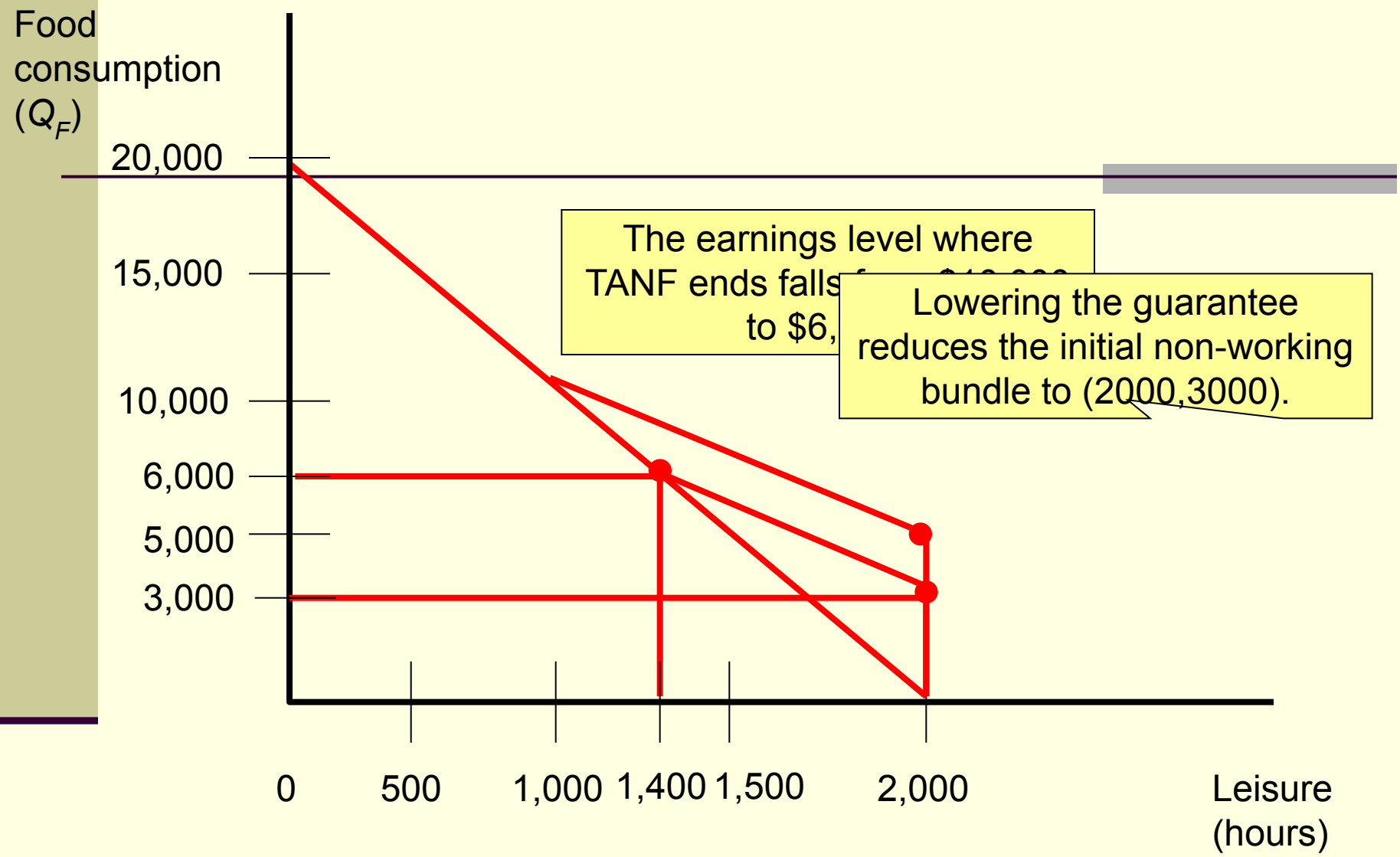


Figure 14 **Lower the Benefit Guarantee**

PUTTING THE TOOLS TO WORK
How large will the labor supply response be?

- What is the expected labor supply response to such a policy change?
- It depends on where the single mother initially was on the budget constraint.
- If she initially earned less than $6,000 per year, the policy change involves only an income effect, not a substitution effect.
- **Figure 15** illustrates this.

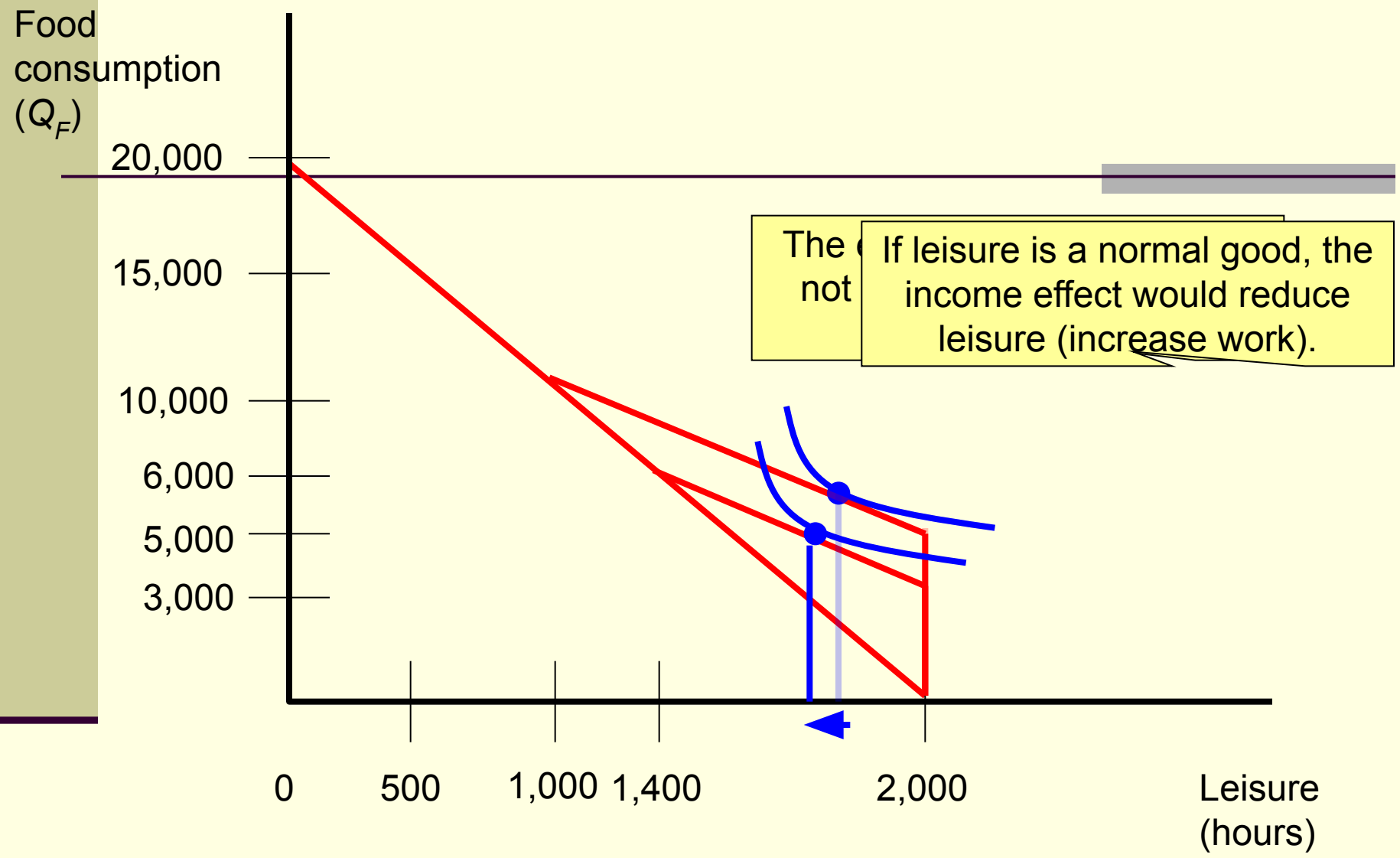


Figure 15 **Policy Change Generates Income Effect Only**

PUTTING THE TOOLS TO WORK
How large will the labor supply response be?

- If she initially earned between $6,000 and $10,000 per year, the policy change involves both an income and substitution effect.
- The substitution and income effects go in the same direction.
- **Figure 16** illustrates this.

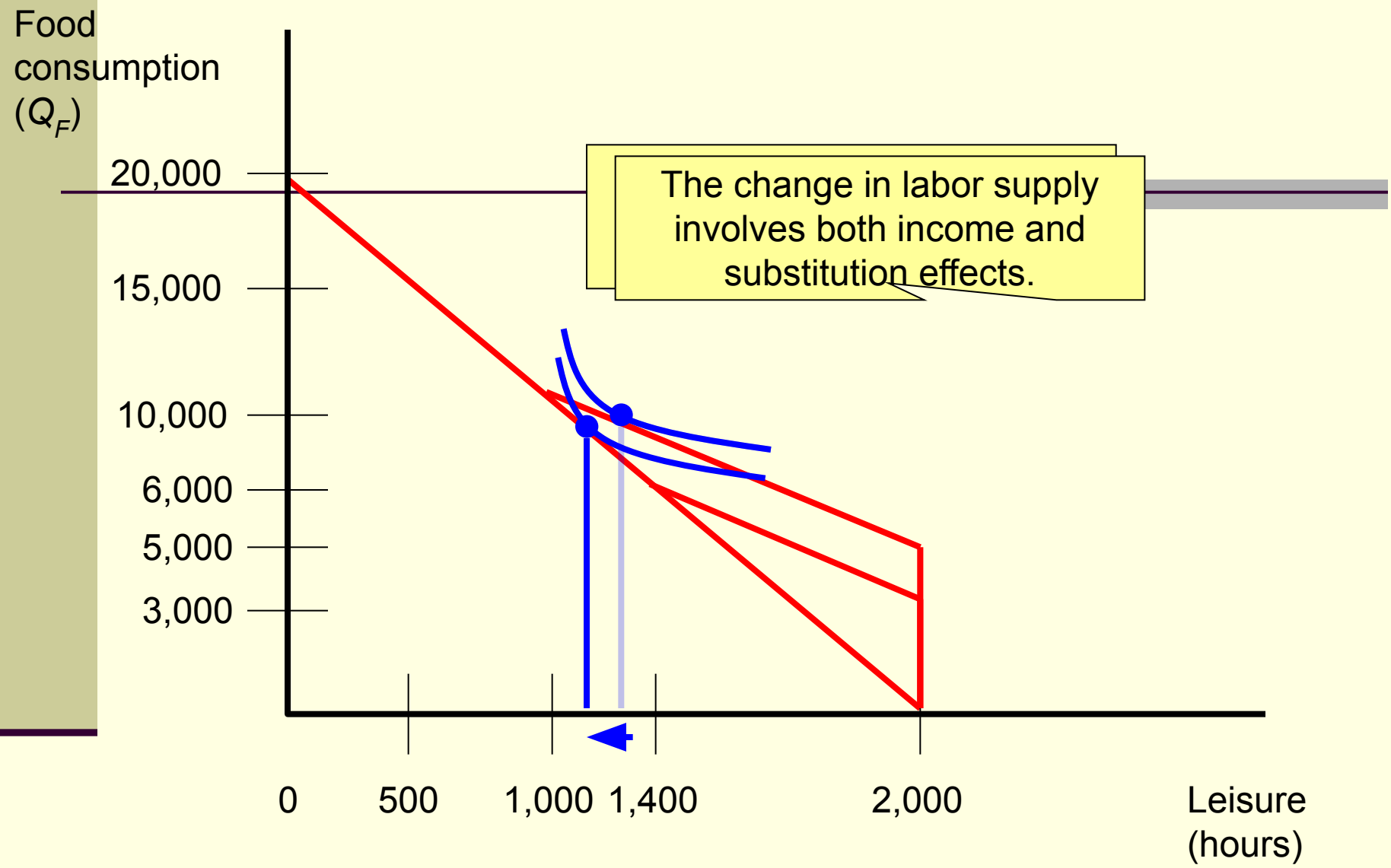


Figure 16 **Both Income and Substitution Effects From Policy**

PUTTING THE TOOLS TO WORK
How large will the labor supply response be?

- Economic theory clearly suggests that such a benefit reduction will increase labor supply, but does not speak to the *magnitude* of the response.
- For example, some welfare recipients who were not initially working continue to choose not to work.
- **Figure 17** illustrates this.

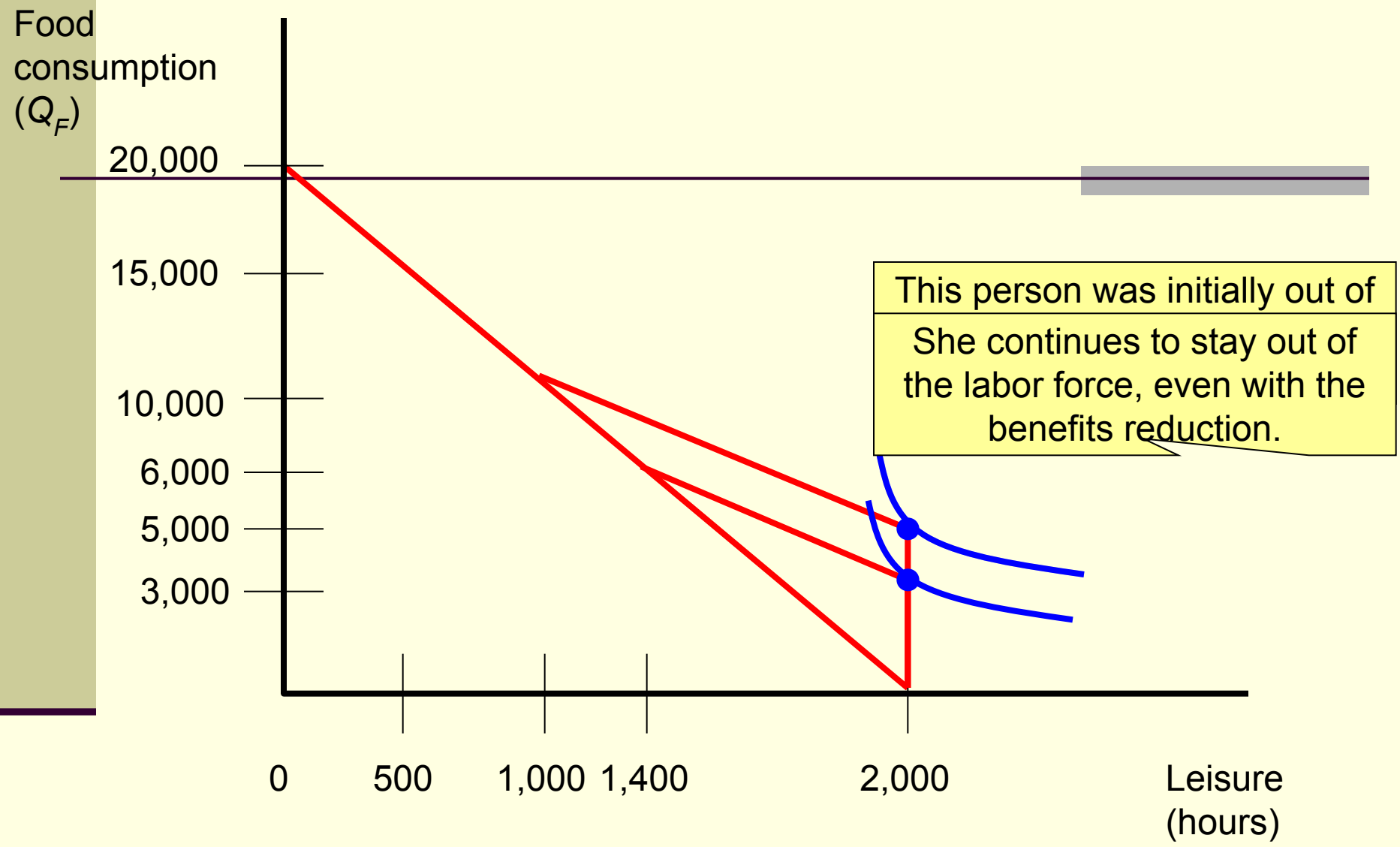


Figure 17 **No Labor Supply Response To Policy Change**

PUTTING THE TOOLS TO WORK
How large will the labor supply response be?

- The actual magnitude of the labor supply response therefore depends on the preferences of various welfare recipients.
  - To the extent the preferences are more like the first two cases, the larger the labor supply response.
- Thus, theory *alone* cannot say whether this policy change will increase labor supply, or by how much.
  - Must analyze available data on single mothers to figure out the magnitude.

WELFARE IMPLICATIONS OF BENEFIT REDUCTIONS: TANF continued

- Efficiency and equity considerations in introducing or cutting TANF benefits.
- In a typical labor supply/labor demand framework, these changes shift the labor supply curve for single parents.
- **Figure 27** illustrates this.

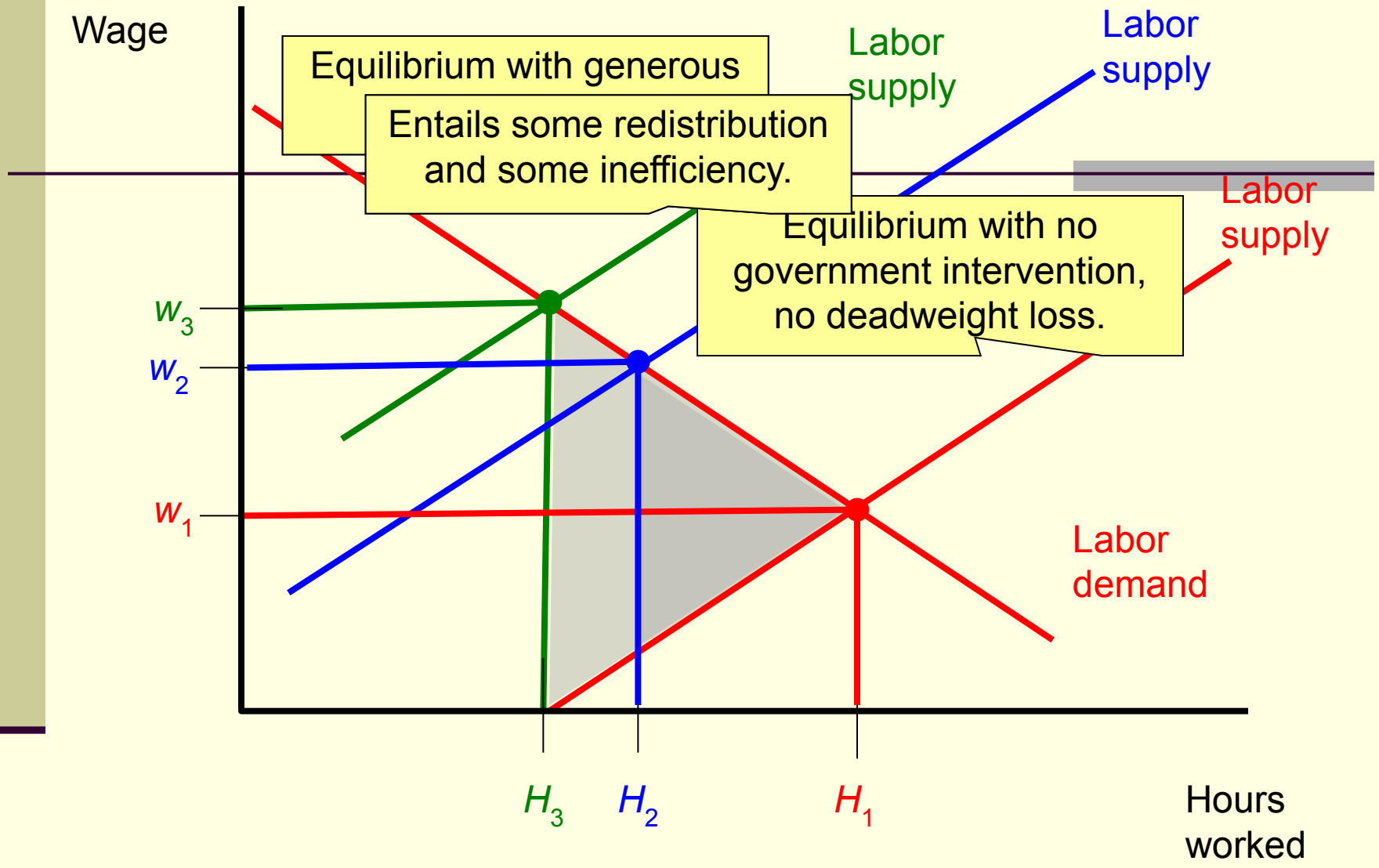


Figure 27 **Market Equilibrium with Labor Supply and Demand**

WELFARE IMPLICATIONS OF BENEFIT REDUCTIONS: TANF continued

- Different policies involve different deadweight loss triangles, but also different levels of redistribution for the poor.
- SWF helps determine the right policy for society.

$$SWF = \sum_i U_i$$

- Is SWF the right objective?
- Why its maximization might lead to an outcome that is not efficient (why redistribution necessary)?
- How to do it in practice?