Income Distribution and Welfare Programs
(Chapters 17)
Income Distribution and Welfare Programs

• Welfare programs in the U.S.
  – Relatively smaller programs: only 1.7% of the federal budget is used for cash welfare programs.
  – Yet, very controversial
    • Opponents: provides disincentives to work
    • Proponents: increase welfare through redistribution
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• Why redistribute income?
  – Assume two individuals in the economy with identical utility functions.
  – Both individuals spend all of their income \((I_1, I_2)\) on one consumption item \((X)\) with unit price.
  – \(U(X) = \ln(X)\) for both individuals.
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• Why redistribute income?
  – Assume that initially $I_1 = $80 and $I_2 = $10.
  – Suppose that the government introduces a welfare program that takes away $10 from individual-1 and gives it to individual-2.
  – Consider the impact on social welfare under two social welfare functions:
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• Why redistribute income?
  – Utilitarian welfare function
    \[ W(U_1, U_2) = U_1 + U_2 \]
  – Initially, \( U_1 = 4.38 \) and \( U_2 = 2.3 \) \( \Rightarrow \) \( W = 7.18 \)
  – After the welfare program, \( U_1 = 4.25 \) and \( U_2 = 3 \) \( \Rightarrow \) \( W = 7.25 \) \( \Rightarrow \) increase in social welfare.
  – Why?
    • Decreasing marginal utility.
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• Why redistribute income?
  – Rawlsian welfare function
    \[ W(U_1, U_2) = \min(U_1, U_2) \]
  – Initially, \( U_1 = 4.38 \) and \( U_2 = 2.3 \) ⇒ \( W = 2.3 \)
  – After the welfare program, \( U_1 = 4.25 \) and \( U_2 = 3 \) ⇒ \( W = 3 \) ⇒ more dramatic increase in social welfare.
  – Why?
    • Rawlsian social welfare function values equity more.
Income Distribution and Welfare Programs

- How to evaluate distribution of income?
  - Relative income inequality
- Comparing share of income between the rich and the poor

<table>
<thead>
<tr>
<th>TABLE 17-1</th>
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<tbody>
<tr>
<td>Share of Aggregate Income Received by Quintile, 1967–2004</td>
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<tbody>
<tr>
<td>Lowest 20%</td>
<td>4.0</td>
<td>4.1</td>
<td>4.4</td>
<td>4.3</td>
<td>4.0</td>
<td>3.9</td>
<td>3.7</td>
<td>3.6</td>
<td>3.4</td>
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<tr>
<td>Second 20%</td>
<td>10.8</td>
<td>10.8</td>
<td>10.5</td>
<td>10.3</td>
<td>9.7</td>
<td>9.6</td>
<td>9.1</td>
<td>8.9</td>
<td>8.7</td>
</tr>
<tr>
<td>Third 20%</td>
<td>17.3</td>
<td>17.4</td>
<td>17.1</td>
<td>16.9</td>
<td>16.3</td>
<td>15.9</td>
<td>15.2</td>
<td>14.8</td>
<td>14.7</td>
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<tr>
<td>Fourth 20%</td>
<td>24.2</td>
<td>24.5</td>
<td>24.8</td>
<td>24.9</td>
<td>24.6</td>
<td>24.0</td>
<td>23.3</td>
<td>23.0</td>
<td>23.2</td>
</tr>
<tr>
<td>Highest 20%</td>
<td>43.8</td>
<td>43.3</td>
<td>43.2</td>
<td>43.7</td>
<td>45.3</td>
<td>46.6</td>
<td>48.7</td>
<td>49.8</td>
<td>50.1</td>
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</table>
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• How to evaluate distribution of income?
  – Absolute deprivation
    • Comparing the poor to a minimally acceptable level of poverty.
    • Poverty line: the federal government’s standard for measuring absolute deprivation.
Income Distribution and Welfare Programs

• How to evaluate distribution of income?
  – Absolute deprivation

<table>
<thead>
<tr>
<th>TABLE 17-3</th>
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<tbody>
<tr>
<td><strong>Poverty Lines by Family Size (2006)</strong></td>
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<table>
<thead>
<tr>
<th>Size of family unit</th>
<th>Poverty line</th>
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<tbody>
<tr>
<td>1</td>
<td>$9,800</td>
</tr>
<tr>
<td>2</td>
<td>$13,200</td>
</tr>
<tr>
<td>3</td>
<td>$16,600</td>
</tr>
<tr>
<td>4</td>
<td>$20,000</td>
</tr>
<tr>
<td>5</td>
<td>$23,400</td>
</tr>
<tr>
<td>6</td>
<td>$26,800</td>
</tr>
<tr>
<td>7</td>
<td>$30,200</td>
</tr>
<tr>
<td>8</td>
<td>$33,600</td>
</tr>
</tbody>
</table>

For each additional person, add $3,400
Income Distribution and Welfare Programs

• How to evaluate distribution of income?
  – Absolute deprivation

![Poverty rate graph](chart.png)
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- How to evaluate distribution of income?
  - Relative or absolute deprivation?
    - If the income of the rich does not matter given an acceptable level of consumption by the poor ⇒ absolute deprivation.
    - If the standard of living improves over time, the minimum acceptable level must be adjusted ⇒ moves us toward relative deprivation.
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- Welfare policy in the U.S.
  - Categorical and means-tested programs
    - **Categorical welfare**: Restricted by some demographic characteristics
    - **Means-tested welfare**: Restricted only by income and asset levels
  - Cash and in-kind programs
    - **Cash welfare**: Provides cash benefits.
    - **In-kind welfare**: Delivers goods such as medical care or housing.
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• Welfare policy in the U.S.
  – Cash welfare programs
    • Temporary Assistance for Needy Families (TANF):
      – Federal and state funded
      – Families become eligible for TANF by having sufficiently low income ⇒ qualify for a benefit guarantee.
      – The benefit payment is reduced as the family’s income increases (benefit reduction rate).
      – Limits and work requirements change across states.
    • Supplemental Security Income (SSI):
      – Designed to help those who have not work enough to be eligible for Social Security and Disability Insurance.
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• Welfare policy in the U.S.
  – In-kind programs
    • **Food stamps**: provide vouchers to purchase food
    • **Medicaid**: provides free health care
    • **Public housing**: provides free or subsidized housing
    • **Nutritional programs**:
      – **WIC**: provides funds for nutritious food purchases to improve fetal development and infant health.
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• Three types of inefficiencies in welfare programs
  – Administrative costs
  – Inefficiencies related to taxation
  – Moral hazard
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- Moral Hazard Effects of a Mean-Tested Transfer System
  - The government guarantees an income transfer to each individual, but the transfer is reduced as the income increases.
  - $B = G - t \cdot w \cdot h$

  - $B$: benefit the individual receives
  - $G$: guaranteed level
  - $w$: wage rate
  - $h$: hours worked
  - $t$: benefit reduction rate
Income Distribution and Welfare Programs

• Moral Hazard Effects of a Mean-Tested Transfer System

  – **Example:** Each individual can work a maximum of 2000 hours per year.
    
    $G = $9,800$
    
    $t = 1$
    
    $w = $12.5/hour
Income Distribution and Welfare Programs

• Moral Hazard Effects of a Mean-Tested Transfer System
  
  – **Example:** Each individual can work a maximum of 2000 hours per year.

  \[
  B = 0 \text{ if } G \leq t \cdot w \cdot h \implies h \geq 784 \\
  B = G - t \cdot w \cdot h \text{ if } G > t \cdot w \cdot h \implies h < 784
  \]
Income Distribution and Welfare Programs

- Moral Hazard Effects of a Mean-Tested Transfer System

![Diagram showing the relationship between hours of leisure and consumption, with points A, B, C, and D, and a slope indicating wage rate.]
Income Distribution and Welfare Programs

• What if we reduce the reduction rate?
  – Now assume that $t = 0.5$

\[
B = 0 \text{ if } G \leq t \times w \times h \Rightarrow h \geq 1532 \\
B = G - t \times w \times h \text{ if } G > t \times w \times h \Rightarrow h < 1532
\]
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- What if we reduce the reduction rate?
Income Distribution and Welfare Programs

• The “Iron triangle” of redistributive programs: There is no way to change either the benefit reduction rate or the benefit guarantee to simultaneously encourage work, redistribute income and lower costs.
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• How to reduce moral hazard costs?
  – Moving to categorical welfare payments
    • If the government can identify the target group of the welfare payments, then we would overcome the moral hazard issue.
    • The Issue: The government can not observe the real types, can only observe the revealed types.
      – Hard-working, low-ability, low-income workers (target)
      – Lazy, high-ability, low-income workers.
Income Distribution and Welfare Programs

• How to reduce moral hazard costs?
  – Moving to categorical welfare payments
    • What makes a good targeting mechanism?
      – Unchangeable characteristic to define the target
      – Target those with low earning capacities
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• How to reduce moral hazard costs?
  – Moving to categorical welfare payments
  • Single mothers
    – Targets individuals with low earning capacity.
    – Unlikely that people will become single mothers just to benefit from the welfare program
    – Satisfies both conditions of a good targeting program.
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- How to reduce moral hazard costs?
  - Moving to categorical welfare payments
- Single mothers
Income Distribution and Welfare Programs

• How to reduce moral hazard costs?
  – Using ‘Ordeal Mechanisms’

  • Solution: Make the welfare program less-appealing to the non-target group by imposing restrictions.
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• **How to reduce moral hazard costs?**
  – **Using ‘Ordeal Mechanisms’**
    • **Example:**
      – Proposed target: people with low earning capacities
      – Might also attract: lazy individuals with high earning capacities.
      – **Solution:** Impose a ‘working’ or a ‘training’ requirement to be eligible for welfare.
        » Only the hard-working, low-ability workers will participate (self-selection).
      – **Paradox:** Apparently making the less able worse-off can make them better-off.
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• How to reduce moral hazard costs?
  – Increasing outside options
    • Suppose that there is a training requirement associated with the welfare program, which leads to an increase in the participating workers’ wages.
    • Consider our earlier example with the exception that those on welfare now make $17.50 per hour.
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• How to reduce moral hazard costs?
  – Increasing outside options
Income Distribution and Welfare Programs

• How to reduce moral hazard costs?
  – Increasing outside options
    • Training
      – If the welfare program is associated with a training program, then the welfare program participants will have higher wages once they finish the training.
    • Labor market subsidies (Earned Income Tax Credit)
      – Provides tax credits to ‘working’ low-income families.
    • Child care
      – Providing child care to single parents might make the labor market more attractive.
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• How to reduce moral hazard costs?
  – Increasing outside options
    • Child support
      – Enforce child support obligations of the fathers of the children whose mothers are welfare recipients.
      – Compliance rate: only 50%
      – If more child support were paid, there would be an outward shift in the non-welfare budget constraint \( \Rightarrow \) welfare would be less-attractive.
      – However, if the fathers are also welfare recipients, not much can be extracted from them
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• How to reduce moral hazard costs?
  – Increasing outside options
    • Remove welfare lock
      – Unlink any benefits (health care) associated with cash welfare programs.
      – If the welfare program comes with an in-kind benefit as well such as health care or housing, leaving welfare becomes harder since you also lose the in-kind benefit.
Income Distribution and Welfare Programs

- **How to reduce moral hazard costs?**
  - Increasing outside options
    - Remove welfare lock