Public health insurance for the elderly

- Medicare: Virtually everyone age 65+ is eligible
  - No income or asset tests
  - Pays for most medical services, but not all (e.g., nursing homes)
Public health insurance for the elderly

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- Medicaid: Means-tested health insurance that assists the poor or impoverished
  - Medicaid assists 70% of nursing home residents.
  - Nursing homes are very expensive.
Questions

Medicaid was designed to insure the poorest retirees against medical expenses. We ask:

- What is the degree of Medicaid redistribution?
- How big are Medicaid payments for high-income versus low-income people?
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- How much do people value Medicaid insurance?
  - How big is this valuation for high-income versus low-income people?
- Is Medicaid of about the right size?
- Who pays for Medicaid?
AHEAD cohort of HRS + MCBS

- Household heads aged 70 or older in 1994
- Retired singles
- Use full, unbalanced panel
- Sort households by permanent income
Share receiving Medicaid

- **Bottom income quintile:**
  - Age 74: 60-70% on Medicaid.
  - Age 95: 60-70% on Medicaid.

- **Top income quintile:**
  - Age 74: 2-3% on Medicaid.
  - Age 95: over 10% on Medicaid.
High income live longer than low income. Life expectancy at age 70

- 10th percentile of income distribution: 10.4 years.
- 90th percentile of income distribution: 14.4 years.
Forces working against redistribution

High income live longer than low income. Life expectancy at age 70

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Two pathways to qualify for Medicaid

- Categorically needy: low income
- Medically needy: low income net of medical spending

High income retirees wind up on Medicaid only if they have catastrophic medical spending
<table>
<thead>
<tr>
<th>Permanent Income Quintile</th>
<th>Average Payment</th>
<th>Recipiency Rate</th>
<th>Average Payment/ Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom</td>
<td>9.080</td>
<td>.70</td>
<td>12,990</td>
</tr>
<tr>
<td>Fourth</td>
<td>5,720</td>
<td>.42</td>
<td>13,690</td>
</tr>
<tr>
<td>Third</td>
<td>2,850</td>
<td>.16</td>
<td>18,350</td>
</tr>
<tr>
<td>Second</td>
<td>1,950</td>
<td>.08</td>
<td>24,360</td>
</tr>
<tr>
<td>Top</td>
<td>1,280</td>
<td>.05</td>
<td>23,790</td>
</tr>
</tbody>
</table>

**Table:** Average Medicaid payments, recipiency, and payments per beneficiary, 1996-2010 waves of the Medicare Current Beneficiary Survey.
Key model features

- Single people aged 70 and older
- Consumption of medical and non-medical goods, and savings decision
- Medical care does not affect longevity
Key model features

- Single people aged 70 and older
- Consumption of medical and non-medical goods, and savings decision
- Medical care does not affect longevity
  - Consistent with many papers
  - Much of medical spending, especially late in life, is on long-term care
  - Spending improves quality of life, not length of life
Nursing home quality varies a lot
Model

- Single people aged 70 and older
- Flow utility from medical and non-medical consumption

\[ u(c_t, m_t, \mu_t) = \frac{1}{1 - \nu} c_t^{1-\nu} + \mu_t \frac{1}{1 - \omega} m_t^{1-\omega}, \]

where:

- \( t = \text{age}; \)
- \( c_t = \text{non-medical consumption}; \)
- \( m_t = \text{consumption of medical goods and services, includes} \)
  - nursing home, drugs, doctor visits;
  - items paid out of pocket as well as by Mediciad, Medicare, or other insurers
- \( \mu_t = \text{stochastic medical needs shifter}. \)
Health and lifespan

- Health takes on 3 states: good, bad, nursing home, dead.
- Transition probabilities vary by:
  - gender
  - permanent income
  - age
  - past health
Medical needs shocks components

- A deterministic function of age, gender, and health status.
- A persistent shock.
- A transitory shock.
Two key features of the insurance system

- Private, Medicare, Veterans Administration health insurance
  - pay a share of total medical expenditure $m_t(1 - q(h_t))$
  - Using data from the MCBS we find
    - $q(\text{nursing home}) = .68$
    - $q(\text{good or bad}) = .27$
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- Social insurance programs (Medicaid and Supplemental Security Income (SSI))
  - Medicaid utility floors
Medicaid as providing utility floor

Need a model in which

- Medicaid transfers vary with medical needs.
- Model matches distribution of Medicaid payments.

Government computes minimum expenditure to achieve a given level of utility, for each possible level of medical needs shocks.

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\frac{1}{1 - \nu} c_t^{1 - \nu} + \mu_t \frac{1}{1 - \omega} m_t^{1 - \omega} = u,
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\[
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\]

- Given needed expenditure, government makes transfer, netting out individual resources
- Given exogenous transfer, the person makes optimal decisions.
Two-step estimation strategy

- First step: estimate parameters of income, health, mortality, and co-pay profiles.
Two-step estimation strategy

- First step: estimate parameters of income, health, mortality, and co-pay profiles.
- Second step: taking as given the estimated first-step parameters, choose preference parameters, utility floor, and medical needs shocks to match
  - Median assets
  - Medicaid recipiency rate
  - Median and 90th percentile of out-of-pocket medical expenditures
  - First and second autocorrelations of medical expenditures by PI quintile, cohort and age, using the method of simulated moments (MSM).
Fix preference parameters at baseline estimates and

- Reduce consumption value of both categorically and medically needy floors by 10%
- Increase consumption value of both floors by 10%
<table>
<thead>
<tr>
<th>Permanent Income Quintile</th>
<th>(1) Reduction in PDV of Payments</th>
<th>(2) Compensating Variation</th>
<th>(3) Ratio of (2)/(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom</td>
<td>4,500</td>
<td>6,300</td>
<td>1.40</td>
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<tr>
<td>Fourth</td>
<td>4,000</td>
<td>5,000</td>
<td>1.25</td>
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<tr>
<td>Third</td>
<td>2,900</td>
<td>4,400</td>
<td>1.52</td>
</tr>
<tr>
<td>Second</td>
<td>2,200</td>
<td>4,100</td>
<td>1.86</td>
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<td>4,400</td>
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<tr>
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<td>1,100</td>
<td>0.85</td>
</tr>
<tr>
<td>Women</td>
<td>3,100</td>
<td>5,600</td>
<td>1.81</td>
</tr>
<tr>
<td>Good Health</td>
<td>2,600</td>
<td>4,800</td>
<td>1.85</td>
</tr>
<tr>
<td>Bad Health</td>
<td>3,300</td>
<td>5,000</td>
<td>1.52</td>
</tr>
</tbody>
</table>

**Table:** The costs and benefits of cutting Medicaid by 10%.

De Nardi et al. (UCL, SUNY-Albany)
<table>
<thead>
<tr>
<th>Permanent Income Quintile</th>
<th>(1) Payment Increase</th>
<th>(2) Compensating Variation</th>
<th>(3) Ratio (2)/(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom</td>
<td>4,700</td>
<td>2,600</td>
<td>0.55</td>
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<tr>
<td>Fourth</td>
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<td>3,100</td>
<td>0.74</td>
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<tr>
<td>Third</td>
<td>3,100</td>
<td>3,600</td>
<td>1.16</td>
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<td>Second</td>
<td>2,300</td>
<td>2,900</td>
<td>1.26</td>
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<tr>
<td>Top</td>
<td>1,300</td>
<td>2,600</td>
<td>2.00</td>
</tr>
<tr>
<td>Men</td>
<td>1,400</td>
<td>600</td>
<td>0.43</td>
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<tr>
<td>Women</td>
<td>3,300</td>
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<td>1.06</td>
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<td>2,500</td>
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<tr>
<td>Bad Health</td>
<td>3,500</td>
<td>3,000</td>
<td>0.86</td>
</tr>
</tbody>
</table>

**Table:** The costs and benefits of increasing Medicaid payments by 10%.
<table>
<thead>
<tr>
<th>Permanent Income Quintile</th>
<th>(1) Marginal Valuation</th>
<th>(2) Tax Cost</th>
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</thead>
<tbody>
<tr>
<td>Bottom</td>
<td>0.55</td>
<td>0.20</td>
</tr>
<tr>
<td>Fourth</td>
<td>0.74</td>
<td>0.29</td>
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<tr>
<td>Third</td>
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<td>1.01</td>
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<tr>
<td>Second</td>
<td>1.26</td>
<td>2.00</td>
</tr>
<tr>
<td>Top</td>
<td>2.00</td>
<td>4.59</td>
</tr>
</tbody>
</table>

**Table:** The benefits of increasing Medicaid payments by 10% and their tax cost.
Key Findings

- High income people ...
  - receive significant Medicaid transfers
  - value these transfers a lot
- Medicaid provides valuable insurance and its size is about right.