Health Insurance Reform: The impact of a Medicare Buy-In

Gary Hansen (UCLA)   Minchung Hsu (GRIPS)   Junsang Lee (KDI)

October 7, 2011
Macro-Labor Conference, USC Marshall School
Motivation

Table: Insurance coverage in the US (2008)

<table>
<thead>
<tr>
<th>Age</th>
<th>19–34</th>
<th>35–54</th>
<th>55–64</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>28</td>
<td>18</td>
<td>13</td>
</tr>
</tbody>
</table>

Unhealthy among the uninsured

| %       | 7     | 17    | 26    |

Source: The Henry J. Kaiser Family Foundation.
Health care reform: how do we reduce the number of uninsured? Will the reform improve welfare?

A universal health insurance law has been passed – however, still controversial.

Possibilities:

- Public option – More affordable for some than individual private insurance since allows for pooling.
- Single payer – ”Medicare for all”
- Individual mandate.
- All are controversial in the US.
What we do

- We consider a modest version of a public option: a Medicare buy-in optional for people 55-64.
  - Potentially a political compromise given opposition to universal health insurance.
  - Idea has been proposed by President Clinton in the early 1990’s.
- Compare with current system of individual health plans (IHI) and group insurance provided through employer (EHI).
- Compare with individual mandate
Questions & Methodology

- **Issues:**
  - Does Medicare buy-in actually reduce the number of uninsured? Or, does adverse selection lead to no one purchasing this insurance?
  - What subsidy is required to get all 55-64 year olds to be insured? How much would this cost?
  - Does this insurance affect labor participation since individuals can rely less on EHI?
  - How does welfare compare across different arrangements?

- **Method of Analysis:**
  - Construct a general equilibrium life-cycle model with endogenous health insurance choice
  - Perform quantitative policy experiments
Related Literature

- Auerbach and Kotlikoff (1987) and growing literature - calibrated general equilibrium life cycle model to study dynamic fiscal policy and social insurance programs.

- Attansio, Kitao and Violante (2008) - closest to us, evaluate alternative funding schemes for Medicare given projected aging of population.

- Jeske and Kitao (2009) - study adverse selection and welfare improving role of tax deductible premiums for group insurance programs.
Model Economy

- A general equilibrium life-cycle model with
  1. Endogenous demand for private health insurance
  2. Endogenous labor supply (indivisible)
  3. Market incompleteness due to a borrowing constraint and lack of annuity markets.
  4. Uncertainty due to
     - income shocks
     - health status
     - medical expenditure shocks – depends on health status and age
     - length of life – survival probability depends on health status and age
Model Economy: Demographics

- A continuum of finitely-lived households

- Overlapping generations of individuals of age $j = 1, 2, \ldots, J$, where $j = 1$ corresponds to age 21 and $J = 80$ corresponds to age 100.

- Lifespan is uncertain

  1. $\rho_{j,h}$ – probability of an individual of age $j$ with health status $h$ surviving to age $j + 1$.
  2. $h \in \{h_g, h_b\}$ denotes good or bad health status
  3. $\rho_{J,h} = 0$
Endowment and Income

- Individuals start life with zero assets ($j = 1$).
- Individuals endowed with one unit of time each period.
  - Indivisible labor: work $\bar{n}$ or zero
  - If work, earn $wz\bar{n}$,
    - where $w$: market wage (determined in equilibrium)
    - $z$: idiosyncratic labor productivity (random shock)
- Idiosyncratic labor productivity shock $z \in Z$,
  - where $Z = \{z_1, z_2, ..., z_L\}$
    - evolves following an age-dependent first-order Markov process
Preferences

\[ E \left[ \sum_{j=1}^{J} \beta^{j-1} \left( \prod_{t=1}^{j-1} \rho_{t,h} \right) u(c_j, n_j) \right], \]

where

\[ u(c, 1-n) = \frac{[c^{\phi} (1-n)^{1-\phi}]^{1-\mu}}{1-\mu} \]
Health Status and Medical Expenditure Uncertainty

- Health status $h \in \{h_g, h_b\}$
  - Two state Markov chain with a transition matrix $\pi^h_j (h', h)$

- Medical expenditure shock $x \in X_{j,h}$
  - $X_{j,h} = \{x^1_{j,h}, x^2_{j,h}, \ldots, x^m_{j,h}\}$
  - Probability of expenditure $x$, $\pi^x_j (x|h')$, depends on age and health status revealed mid period.
Employment-based and Individual Health Insurance

1. Employment-based Health Insurance (EHI)
   ▶ offered by employers to employees, \( e = 1 \) if EHI offered; \( e = 0 \) if not.
   ▶ premium does not depend on age or health status
   ▶ premium \( q^e \) is tax free income to employees.

2. Individual Health Insurance (IHI)
   ▶ Everyone has access to IHI
   ▶ Price is a function of individual specific characteristics
   ▶ The premium \( q^i (j, h) \) paid before this period’s medical expenditure \( x \) is realized.
Government: Tax Revenues

1. Consumption tax: $\tau_c$

2. Income taxes:
   2.1 Labor income tax, $\tau_l$
   2.2 Capital income tax, $\tau_k$
Government Funded Social Programs

- **Medicare**
  - public health insurance for the elderly
  - eligibility age $J^r = 45$ (corresponds to age 65)
  - covers a fraction $\omega_m$ of medical expenditures
  - financed by government revenue (88%) and a Medicare premium $q^m$ (12%)

- **Social Security**
  - provides the elderly with a benefit $s$ at the eligibility age of $J^r = 45$ (corresponds to age 65)

- **Welfare**
  - guarantees a minimum level of consumption $c$ for all households
  - Transfer $T$ is made such that a minimum level of consumption $c$ is affordable
Government Budget Constraint

- Government budget constraint

\[
\int \left\{ \tau_l \left[ (w \eta_j z n - q^e \cdot e) + s \right] + \tau_k r (a + b) + \tau_c c + q^m \right\} d\Phi \\
= \int \left[ T + s + \omega_m \cdot x \right] d\Phi + G,
\]

where \( \Phi \) is the distribution of population over state variables.

- \( G \) is residual
Supply Side

- Production Technology

\[ Y = F(K, L) = AK^\theta L^{1-\theta}, \]

where \( Y \) denotes aggregate output, \( K \) aggregate capital stock, \( L \) aggregate effective labour, and \( \theta \) the capital income share.
Agent’s Problem

- Time line for decisions within a period
  - Stage 1: Employment and health insurance are chosen given $(e, z, a, h, j)$.
  - Stage 2: Consumption and savings are chosen after health status and medical expenditure, $(h', x)$, are realized.
Agent’s Problem

State vector $s = (a, h, z, e, j)$

$$V(s) = \max_{n \in \{0, \bar{n}\}, \ IHI} \sum_{(h', x)} \pi^x_{j}(x|h') \pi^h_{j}(h', h) \left\{ \max_{c, a'} u(c, n) + \beta \rho_{j, h'} \sum_{(z', e')} P^j_{(z', e')|(z, e)} V(s') \right\}$$

subject to

$$(1 + \tau_c) c + a' + q^i(j, h)i_{IHI} = W + T$$

$W \equiv (1 - \tau_l) (wzn - q^e * \iota_{EHI}) + (1 + (1 - \tau_k) r) (a + b) - (1 - \hat{\omega}) x$$

$$T = \max\{0, (1 + \tau_c)c - W\}$$
Agent’s Problem

\[ \hat{\omega} = \begin{cases} \omega & \text{if } \iota_{EHI} = 1 \text{ or } \iota_{IHI} = 1 \\ 0 & \text{otherwise} \end{cases} \]

\[ \iota_{EHI} = \begin{cases} 1 & \text{if } e = 1 \text{ and } n = \bar{n} \\ 0 & \text{otherwise} \end{cases} \]

\[ a' \geq 0; \ c \geq 0. \]
Old Agent’s Problem

\[ V(j, a, h) = \max_{c, a'} \{ u(c, 0) + \beta \rho_{j, h'} V(j + 1, a', h') | h', x \} \]

subject to

\[ (1 + \tau_c) c + a' = W + T \]
\[ W \equiv s + (1 + (1 - \tau_k) r) (a + b) - (1 - \omega_m) x - q^m \]
\[ T = \max\{0, (1 + \tau_c) c - W\} \]
\[ a' \geq 0; \quad c \geq 0. \]
Equilibrium Conditions

\[ L = \int n(s)z\eta_j \, d\Phi \]

\[ K = \int (a + b) \, d\Phi \]

where

\[ b = \int \frac{(1 - \rho_j^{1, h})a}{1 + g} \, d\Phi \]
Equilibrium Conditions

\[ q^i (j, h) = \psi \sum_{(h', x)} \pi^x_j (x | h') \pi^h_j (h', h) \omega x \]

\[ q^e = \int \sum_{(h', x)} \pi^x_j (x | h') \pi^h_j (h', h) \omega x \nu_{EHI} \ d\Phi \]

\[ q^m = (1 - \sigma_m) \int \sum_{(h', x)} \pi^x_j (x | h') \pi^h_j (h', h) \omega_m x (\nu_{j \geq J_r}) d\Phi \]

where $\psi$ is the markup for IHI and $\Phi$ is the equilibrium distribution of population over state variables.
Medicare Buy-in

\[ V(s) = \max_{n \in \{0, \bar{n}\}, \iota_{IHI}, \iota_{MB}} \sum_{(h',x)} \pi^x_j(x|h') \pi^h_j(h', h) \left\{ \max_{c, a'} u(c, n) + \right. \]

\[ \beta \rho_{j,h'} \sum_{(z', e')} P_{j,(z', e')} V(s') \left\} \right. \]

subject to

\[ (1 + \tau_c) c + a' + q^i(j, h) \cdot \iota_{IHI} + q^{mb}(j) \cdot \iota_{MB} = W + T \]

\[ W \equiv (1 - \tau_l)(wzn - q^e i_{EHI}) + (1 + (1 - \tau_k)r)(a + b) - (1 - \hat{\omega})x \]

\[ T = \max\{0, (1 + \tau_c)c - W\} \]
Medicare Buy-in

\[
\hat{\omega} = \begin{cases} 
\omega & \text{if } \iota_{EHI} = 1, \text{ or } \iota_{IHI} = 1 \\
\omega_b & \text{if } \iota_{MB} = 1 \\
0 & \text{otherwise}
\end{cases}
\]

\[
\iota_{EHI} = \begin{cases} 
1 & \text{if } e = 1 \text{ and } n = \bar{n} \\
0 & \text{otherwise}
\end{cases}
\]

\[a' \geq 0; \quad c \geq 0;\]
Medicare Buy-in–Insurance premium

\[ q^b(j) = (1 - \sigma_b) \int \sum_{(h',x)} \pi^x_j(x|h') \pi^h_j(h',h) \omega_b \ x \ \iota_{MB} \ \iota_j d\Phi \]

where \( \sigma_b \) is the government subsidy rate.

If the Medicare buy-in is not priced by age:

\[ q^b = (1 - \sigma_b) \int \sum_{(h',x)} \pi^x_j(x|h') \pi^h_j(h',h) \omega_b x \iota_{MB} d\Phi \]
Calibration

- Medical Expenditure Panel Survey (MEPS) is used for our calibration of income fluctuations, health status transition, and medical expenditures.
  - All values are transformed to 2007 dollars.
Labor Productivity Shocks $z$ and EHI offer $e$

- Specify 5 earning groups from whole sample with equal size

\[ Z = \{0.05, 0.43, 0.79, 1.23, 2.50\} \]

expressed as fraction of average earnings in 2007 dollars ($30,678$).

- $e$, an indicator of EHI offer, is either 0 or 1.

- Calibrate transition probabilities of $z$ and $e$ jointly – a 10 by 10 matrix for each 5-year age group.
EHI offer and Labor Productivity Shocks $z_t$

Table: Joint transition matrices of earnings and EHI offer by age group 20-24

<table>
<thead>
<tr>
<th>Age</th>
<th>$e' = 1$</th>
<th>$e' = 1$</th>
<th>$e' = 1$</th>
<th>$e' = 1$</th>
<th>$e' = 1$</th>
<th>$e' = 0$</th>
<th>$e' = 0$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$z' = z_1$</td>
<td>$z' = z_2$</td>
<td>$z' = z_3$</td>
<td>$z' = z_4$</td>
<td>$z' = z_5$</td>
<td>$z' = z_1$</td>
<td>$z' = z_2$</td>
</tr>
<tr>
<td>$e = 1 z = z_1$</td>
<td>0.08</td>
<td>0.24</td>
<td>0.25</td>
<td>0.09</td>
<td>0.07</td>
<td>0.10</td>
<td>0.11</td>
</tr>
<tr>
<td>$e = 1 z = z_2$</td>
<td>0.04</td>
<td>0.38</td>
<td>0.24</td>
<td>0.09</td>
<td>0.02</td>
<td>0.07</td>
<td>0.11</td>
</tr>
<tr>
<td>$e = 1 z = z_3$</td>
<td>0.01</td>
<td>0.11</td>
<td>0.48</td>
<td>0.24</td>
<td>0.03</td>
<td>0.02</td>
<td>0.04</td>
</tr>
<tr>
<td>$e = 1 z = z_4$</td>
<td>0.01</td>
<td>0.04</td>
<td>0.16</td>
<td>0.58</td>
<td>0.13</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>$e = 1 z = z_5$</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
<td>0.19</td>
<td>0.63</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>$e = 0 z = z_1$</td>
<td>0.01</td>
<td>0.04</td>
<td>0.02</td>
<td>0.02</td>
<td>0.00</td>
<td>0.59</td>
<td>0.24</td>
</tr>
<tr>
<td>$e = 0 z = z_2$</td>
<td>0.01</td>
<td>0.06</td>
<td>0.05</td>
<td>0.02</td>
<td>0.01</td>
<td>0.22</td>
<td>0.47</td>
</tr>
<tr>
<td>$e = 0 z = z_3$</td>
<td>0.01</td>
<td>0.04</td>
<td>0.07</td>
<td>0.05</td>
<td>0.01</td>
<td>0.09</td>
<td>0.26</td>
</tr>
<tr>
<td>$e = 0 z = z_4$</td>
<td>0.01</td>
<td>0.02</td>
<td>0.04</td>
<td>0.15</td>
<td>0.06</td>
<td>0.08</td>
<td>0.14</td>
</tr>
<tr>
<td>$e = 0 z = z_5$</td>
<td>0.00</td>
<td>0.00</td>
<td>0.04</td>
<td>0.17</td>
<td>0.00</td>
<td>0.04</td>
<td>0.12</td>
</tr>
</tbody>
</table>
Health Status and Medical Expenditure Shocks $x_t$

- Self-reported health status in MEPS, from 1 to 5 representing excellent, very good, good, fair and poor health.
- Mapping to health status in model: Scores from 1 to 3, $h = g$; scores from 4 to 5, $h = b$.
- To capture the long-tail in the distribution of health expenditures, we use three expenditure states with uneven measures (top 5%, 35% and 60%) for each age and health status.
## Health Status and Medical Expenditure Shocks $x_t$

### Table: Health expenditures from MEPS (2007 dollars)

<table>
<thead>
<tr>
<th>Age</th>
<th>Health</th>
<th>60%</th>
<th>35%</th>
<th>5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>Good</td>
<td>62</td>
<td>1,353</td>
<td>10,870</td>
</tr>
<tr>
<td></td>
<td>Bad</td>
<td>158</td>
<td>3,132</td>
<td>20,560</td>
</tr>
<tr>
<td>30-39</td>
<td>Good</td>
<td>110</td>
<td>1,670</td>
<td>12,259</td>
</tr>
<tr>
<td></td>
<td>Bad</td>
<td>252</td>
<td>4,108</td>
<td>33,161</td>
</tr>
<tr>
<td>40-49</td>
<td>Good</td>
<td>214</td>
<td>2,285</td>
<td>14,394</td>
</tr>
<tr>
<td></td>
<td>Bad</td>
<td>548</td>
<td>6,082</td>
<td>40,926</td>
</tr>
<tr>
<td>50-64</td>
<td>Good</td>
<td>521</td>
<td>3,863</td>
<td>24,336</td>
</tr>
<tr>
<td></td>
<td>Bad</td>
<td>1,225</td>
<td>9,645</td>
<td>53,103</td>
</tr>
<tr>
<td>65-</td>
<td>Good</td>
<td>1,258</td>
<td>8,118</td>
<td>47,871</td>
</tr>
<tr>
<td></td>
<td>Bad</td>
<td>2,597</td>
<td>15,540</td>
<td>63,096</td>
</tr>
</tbody>
</table>
## Summary of Parameter Values

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Notations</th>
<th>Values</th>
<th>Target/Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount Factor</td>
<td>$\beta$</td>
<td>0.974</td>
<td>$K/Y$ ratio $= 2.5$</td>
</tr>
<tr>
<td>Risk Aversion</td>
<td>$\mu$</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Depreciation Rate</td>
<td>$\delta$</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>Labor Parameter</td>
<td>$\phi$</td>
<td>0.7</td>
<td>Agg. labor $= 0.34$</td>
</tr>
<tr>
<td>Capital Income Share</td>
<td>$\theta$</td>
<td>0.36</td>
<td></td>
</tr>
<tr>
<td>IHI premium Markup</td>
<td>$\psi$</td>
<td>0.08</td>
<td>PHI take up $= 0.64$</td>
</tr>
<tr>
<td>Social assistance</td>
<td>$c$</td>
<td>24% of avg earnings</td>
<td>Jeske and Kitao (2009)</td>
</tr>
<tr>
<td>Social security benefit</td>
<td>$s$</td>
<td>45% of avg earnings</td>
<td></td>
</tr>
</tbody>
</table>
## Summary of Parameter Values (cont’d)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Notations</th>
<th>Values</th>
<th>Target/Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHI coverage rate</td>
<td>$\omega$</td>
<td>0.70</td>
<td>AKV (2008)</td>
</tr>
<tr>
<td>Medicare coverage rate</td>
<td>$\omega_m$</td>
<td>0.50</td>
<td>AKV (2008)</td>
</tr>
<tr>
<td>Medicare Buy-in coverage rate</td>
<td>$\omega_{mb}$</td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td>Consumption tax rate</td>
<td>$\tau_c$</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Capital tax rate</td>
<td>$\tau_k$</td>
<td>0.40</td>
<td></td>
</tr>
<tr>
<td>Labor tax rate</td>
<td>$\tau_l$</td>
<td>0.35</td>
<td></td>
</tr>
</tbody>
</table>
Quantitative Analysis

▶ Benchmark economy
▶ Policy experiments
  1. Mandate
  2. Medicare buy-in
▶ Policy implications
  1. Insurance coverage
  2. Tax burden
  3. Labor market
  4. Welfare
## Benchmark economy

**Table: Benchmark properties**

<table>
<thead>
<tr>
<th>Working-age population</th>
<th>Total PHI coverage</th>
<th>EHI take-up</th>
<th>IHI take-up</th>
<th>Labor hours</th>
<th>Capital-output ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Bench</td>
<td>0.64</td>
<td>0.54</td>
<td>0.10</td>
<td>0.34</td>
<td>2.5</td>
</tr>
<tr>
<td>MEPS data</td>
<td>0.64</td>
<td>0.51</td>
<td>0.13</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>
Benchmark economy (cont’d)

Figure 1: Age profile of HI take-up ratio (Benchmark)
Benchmark economy (cont’d)

Figure: PHI, EHI and IHI take-up ratios (Benchmark)
Benchmark economy (cont’d)

Figure: Total PHI take-up ratio by health status (Benchmark)
Benchmark economy (cont’d)

Figure: IHI purchase by health status (Benchmark)
Benchmark economy (cont’d)

Figure 2: Income, Consumption and Asset Holding (Benchmark)
Benchmark economy (cont’d)

Figure 3: Labor Participation (Benchmark)
Policy Experiments

- **Mandate – No government financing**
  - 1. A mandate without new health insurance options
  - 2. A mandate with voluntary Medicare Buy-in for age 55-64
    - adverse selection problem
    - results same as the first policy
  - 3. With mandatory Medicare Buy-in for age 55-64

- **Voluntary Medicare Buy-in – subsidy required**
  - 1. No price discrimination with various subsidy rates
  - 2. Priced by age with various subsidy rates
Policy implication: insurance coverage and tax burden

<table>
<thead>
<tr>
<th>Reform policy</th>
<th>MB take-up ratio without EHI offer</th>
<th>MB subsidy to GDP ratio</th>
<th>Labor tax rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandate</td>
<td>–</td>
<td>–</td>
<td>35%</td>
</tr>
<tr>
<td>Mandate MB</td>
<td>100%</td>
<td>0%</td>
<td>35%</td>
</tr>
<tr>
<td>MB (10% S)</td>
<td>28.5%</td>
<td>0.009%</td>
<td>35.015%</td>
</tr>
<tr>
<td>MB (20% S)</td>
<td>44.6%</td>
<td>0.028%</td>
<td>35.048%</td>
</tr>
<tr>
<td>MB (44% S)</td>
<td>100%</td>
<td>0.100%</td>
<td>35.160%</td>
</tr>
<tr>
<td>MB PA (10% S)</td>
<td>44.0%</td>
<td>0.014%</td>
<td>35.025%</td>
</tr>
<tr>
<td>MB PA (20% S)</td>
<td>44.8%</td>
<td>0.028%</td>
<td>35.047%</td>
</tr>
<tr>
<td>MB PA (38% S)</td>
<td>100%</td>
<td>0.088%</td>
<td>35.140%</td>
</tr>
</tbody>
</table>
Policy implication: Impact on labor market

Figure 6: Labor participation
Policy implication: Welfare

**Table:** Welfare comparison (CEV from Bench)

<table>
<thead>
<tr>
<th></th>
<th>New-born</th>
<th>All</th>
<th>Without EHI offer</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Young good H</td>
<td>Young bad H</td>
<td>Mid age good H</td>
<td>Mid age bad H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mandate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandate</td>
<td>-0.141%</td>
<td>-0.112%</td>
<td>-0.139%</td>
<td>-0.092%</td>
<td>-0.301%</td>
<td>-0.119%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandate MB</td>
<td>-0.136%</td>
<td>-0.082%</td>
<td>-0.122%</td>
<td>-0.065%</td>
<td>-0.359%</td>
<td>0.251%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Voluntary MB with subsidy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MB (44% S)</td>
<td>-0.012%</td>
<td>0.010%</td>
<td>-0.051%</td>
<td>-0.014%</td>
<td>0.349%</td>
<td>0.919%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MB PA (38% S)</td>
<td>-0.122%</td>
<td>0.013%</td>
<td>-0.041%</td>
<td>-0.006%</td>
<td>0.277%</td>
<td>0.850%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong> Young – age &lt; 55; Mid age – 55-64.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conclusion

- Without subsidy or mandate, adverse selection eliminates market for Medicare Buy-in.
- Even with mandate, adverse selection eliminates market for Medicare Buy-in if individuals can purchase IHI.
- To get 100 percent of 55-64 to purchase insurance requires 44% subsidy of Medicare Buy-in premium if all participants pay the same.
  - The subsidy is reduced to 38% if price differently by age.
Conclusion

- A subsidized Medicare Buy-in does not cause significant reduction in employment.
- All policies considered reduce lifetime expected welfare of an individual at the beginning of life.
- Mandate to purchase Medicare Buy-in for those without EHI improves welfare for those 55-64 and in bad health.
- Subsidized Medicare Buy-in improves average welfare.