Do Larger Health Insurance Subsidies Benefit Patients or Producers? Evidence from Medicare Advantage

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Motivation

- Medicare is the primary source of health insurance for the elderly
  - In 2012, Medicare spending was $572.5 billion and growing at 4.8%
  - Given the large scale and rapid growth, reforming Medicare is a perpetual policy issue

- One commonly discussed proposal is adjusting subsidies to private Medicare Advantage plans
  - Proponents of larger subsidies argue that increased payments will result in lower premiums / generous benefits
  - Opponents argue that such a move would lead to large profits for insurance companies and health care providers

- At its core, these debates are about economic incidence: Does increasing government subsidies to private Medicare Advantage plans benefit patients or producers?
Background on Medicare

Medicare beneficiaries have two options for hospital + physician coverage:

- **Traditional Fee-for-Service Medicare (TM)**
  - Public coverage
  - Virtually no provider restrictions
  - Significant patient cost-sharing

- **Medicare Advantage (MA)**
  - Private coverage
  - Restricted network of providers
  - Little or no patient cost-sharing
  - Often offer supplemental benefits (e.g., vision, dental, drug coverage)
Background on Medicare Advantage

- Medicare eligibles can choose any plan offered in their county
- Plans are given capitation payment from Medicare for each enrolled beneficiary
- Plans can charge a supplemental premium to beneficiaries

Plan payments = capitation payments + premiums
In this paper, CGM investigate the following questions:

1. To what degree are increased capitation payments passed through to consumers?

2. What market factors determine this pass-through rate?
Approach and Findings

- Leverage sharp, differential changes in county-level payments to MA insurers induced by the Benefits Improvement and Protection Act (BIPA) of 2000

- Use this difference-in-differences variation to estimate pass-through
  - For $1 increase in subsidy, premiums decrease by 45 cents and plan generosity increases by 8 cents

- Write down a simple model to illustrate factors that determine pass-through: selection and market power

- Present empirical evidence on the importance of each of these factors in explaining incomplete pass-through
Outline

• Background

• Research design

• Pass-through

• Model

• Selection and market power
MA Payments

Capitation payments intended to reflect counterfactual TM costs

\[ \text{Capitation payment}_{ijt} = b_{jt} \times r_{it} \]

- \( b_{jt} \) is county-level “base payment”
  - Pre BIPA, largely determined by historical average TM costs
  - Base payments increased by approx 2% per year

- \( r_{it} \) is demographic risk adjustment
  - Normalized to have mean 1 in entire population
  - Comprehensive risk adjustment introduced in 2004
Data

- Multiple sources:
  - MA Rate-books: Payments for county × year
  - Plan Service Files: Benefits and premiums by plan × year
  - CMS Beneficiary Summary File: admin cost data for TM
  - CMS Denominator File: admin demographic data for all Medicare

- Time frame: 1997-2003
  - Premium data for 1997-2003
  - Benefits data for 2000-2003
  - Plan quality data for 1999-2003
  - Costs data for 1999-2003
Sample Construction

- Aggregate data to county × year panel
  - Weight plan-level attributes by enrollment shares
  - Weight county × years by number of beneficiaries in each county
- Only observe plan attributes when 1+ plan in county
  - Baseline: County × years with 1+ plan
  - Show that variation does not affect entry / exit into sample
## Summary Statistics

### Table: All Counties, 1997-2003

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Payment ($ per month)</td>
<td>490.58</td>
<td>83.96</td>
<td>222.99</td>
<td>777.91</td>
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<tr>
<td>At Least One Plan</td>
<td>65.1%</td>
<td>47.7%</td>
<td>0%</td>
<td>100%</td>
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<tr>
<td>Number of Plans</td>
<td>1.78</td>
<td>1.73</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>MA Enrollment</td>
<td>19.1%</td>
<td>18.4%</td>
<td>0%</td>
<td>69.8%</td>
</tr>
<tr>
<td>TM Costs ($ per month)</td>
<td>486.53</td>
<td>103.94</td>
<td>136.87</td>
<td>940.08</td>
</tr>
</tbody>
</table>
## Summary Statistics

**Table:** County × Years with At Least One Plan, 1997-2003

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>County-Level Premium</strong> ($ per month)</td>
<td></td>
<td></td>
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<tr>
<td>Mean</td>
<td>22.71</td>
<td>27.82</td>
<td>0</td>
<td>156.29</td>
</tr>
<tr>
<td>Min</td>
<td>15.05</td>
<td>26.25</td>
<td>0</td>
<td>156.29</td>
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<tr>
<td>Median</td>
<td>21.60</td>
<td>29.60</td>
<td>0</td>
<td>156.29</td>
</tr>
<tr>
<td>Max</td>
<td>33.56</td>
<td>33.54</td>
<td>0</td>
<td>194.47</td>
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<td><strong>County-Level Benefits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Physician Copay ($ per visit)</td>
<td>7.89</td>
<td>4.95</td>
<td>0</td>
<td>56.15</td>
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<tr>
<td>Specialist Copay ($ per visit)</td>
<td>14.39</td>
<td>6.79</td>
<td>0</td>
<td>95.72</td>
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<tr>
<td>Drug Coverage</td>
<td>70.5%</td>
<td>41.1%</td>
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<td>Dental Coverage</td>
<td>27.4%</td>
<td>35.7%</td>
<td>0%</td>
<td>100%</td>
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<tr>
<td>Vision Coverage</td>
<td>69.9%</td>
<td>39.8%</td>
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<td>100%</td>
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<tr>
<td>Hearing Aid Coverage</td>
<td>40.0%</td>
<td>42.1%</td>
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<td><strong>Number of Plans</strong></td>
<td>2.75</td>
<td>1.41</td>
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<td>HHI</td>
<td>5,696</td>
<td>2,584</td>
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<tr>
<td><strong>MA Enrollment</strong></td>
<td>28.8%</td>
<td>16.1%</td>
<td>1.1%</td>
<td>67.6%</td>
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<tr>
<td><strong>TM Costs ($ per month)</strong></td>
<td>521.80</td>
<td>106.65</td>
<td>254.96</td>
<td>940.08</td>
</tr>
</tbody>
</table>

*Benefits data are only available for 2000-2003*
Outline

- Background
- Research design
- Pass-through
- Model
- Selection and market power
MA Payments and BIPA

- Benefits Improvement and Protection Act of 2000
  - Implemented rural and urban payment floors*

- Base payments
  \[
  b_{jt} = \begin{cases} 
  \tilde{c}_{jt} & \text{if } t < 2001 \\
  \max \left\{ \tilde{c}_{jt}, b_{u(j)t} \right\} & \text{if } t \geq 2001,
  \end{cases}
  \]

- $\tilde{c}_{jt}$ is the base payment absent the BIPA floors
- $b_{u(j)t}$ is the relevant urban or rural payment floor

*Required plans to submit new premiums and benefits to take effect in February 2001. We define 2001 premiums using these post-update value
BIPA Payment Floors

<table>
<thead>
<tr>
<th>Urban Floor</th>
<th>Rural Floor</th>
<th>Distances to Floors</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>400</td>
<td>2001 Monthly Base Payment ($)</td>
</tr>
<tr>
<td>500</td>
<td>500</td>
<td>2000 Monthly Base Payment ($)</td>
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<tr>
<td>600</td>
<td>600</td>
<td>2001 Monthly Base Payment ($)</td>
</tr>
<tr>
<td>700</td>
<td>700</td>
<td>2000 Monthly Base Payment ($)</td>
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</table>

Distances to Floors

2000 Monthly Base Payment ($)

2001 Monthly Base Payment ($)
**Effect of BIPA on Payments**

**Figure:** Pre-BIPA Payments, 2000

![Map](image-url)
Effect of BIPA on Payments

**Figure:** Post-BIPA Payments, 2001

![Map showing the effect of BIPA on payments](image_url)

<table>
<thead>
<tr>
<th>Range</th>
<th># 2000</th>
<th># 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>(479, 850]</td>
<td>777</td>
<td>1234</td>
</tr>
<tr>
<td>(434, 479]</td>
<td>792</td>
<td>1874</td>
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<tr>
<td>(405, 434]</td>
<td>628</td>
<td>0</td>
</tr>
<tr>
<td>[400, 405]</td>
<td>911</td>
<td>0</td>
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## Payment Floors

<table>
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<tr>
<th></th>
<th>Mean</th>
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<th>50th</th>
<th>75th</th>
<th>75th</th>
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<td><strong>Non-Floor County (N = 886)</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Δ Base Payment</td>
<td>14.39</td>
<td>1.58</td>
<td>13.17</td>
<td>14.03</td>
<td>15.10</td>
<td></td>
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<tr>
<td>% Change in Base Payment</td>
<td>3.0%</td>
<td>0.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
<td>3.0%</td>
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<tr>
<td><strong>Rural Floor County (N = 1,831)</strong></td>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td>Δ Base Payment</td>
<td>52.94</td>
<td>17.16</td>
<td>39.67</td>
<td>62.59</td>
<td>67.18</td>
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<tr>
<td>% Change in Base Payment</td>
<td>14.1%</td>
<td>4.9%</td>
<td>10.0%</td>
<td>16.8%</td>
<td>18.3%</td>
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<tr>
<td><strong>Urban Floor County (N = 426)</strong></td>
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<tr>
<td>Δ Base Payment</td>
<td>64.67</td>
<td>29.56</td>
<td>38.90</td>
<td>62.33</td>
<td>89.05</td>
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<tr>
<td>% Change in Base Payment</td>
<td>16.1%</td>
<td>8.4%</td>
<td>8.8%</td>
<td>14.9%</td>
<td>22.7%</td>
<td></td>
</tr>
</tbody>
</table>
Econometric Model

- Measure exposure to BIPA with a *distance-to-floor* measure

\[ \Delta b_{jt} = \max \left\{ \tilde{b}_{u(j)t} - \tilde{c}_{jt}, \ 0 \right\} \]

- \( \tilde{b}_{u(j)t} \) is relevant urban/rural floor in year \( t \)

- \( \tilde{c}_{jt} \) is payment rate in absence of the floor in county \( j \) in year \( t \)

▶ More Details
Econometric Model

- Difference-in-differences with year-specific coefficients

\[ y_{jt} = \alpha_j + \alpha_t + \left( \sum_{t \neq 2000} \beta_t \times l_t \times \Delta b_{jt} \right) + f(X_{jt}) + \epsilon_{jt} \]

- \( \alpha_j \) and \( \alpha_t \) are county and year fixed effects
- \( f(X_{jt}) \) is a flexible set of controls

- Normalize \( \beta_{2000} = 0 \) in year when BIPA was passed

- Cluster standard errors at the county level
Identification

**Assumption:** In the absence of BIPA, outcomes for counties that were differentially affected by the payment floors would have evolved in parallel.

- Two broad approaches to assessing the validity of this assumption:
  - Plot $\beta_t$’s over time to visually inspect for spurious pre-existing trends.
  - Show results robust to alternative specifications that isolate two complementary sources of identifying variation:
    1. Include pre-BIPA Base Payment $\times$ Year FE.
    2. Include Urban $\times$ Year FE.
Identification

Assumption: In the absence of BIPA, outcomes for counties that were differentially affected by the payment floors would have evolved in parallel.

- Two broad approaches to assessing the validity of this assumption:
  - Plot $\beta_t$’s over time to visually inspect for spurious pre-existing trends
  - Show results robust to alternative specifications that isolate two complementary sources of identifying variation
    1. Include pre-BIPA Base Payment X Year FE
    2. Include Urban X Year FE
BIPA Payment Floors

Alternative Spec 1: preBIPA base pay X year FE
Assumption: In the absence of BIPA, outcomes for counties that were differentially affected by the payment floors would have evolved in parallel.

- Two broad approaches to assessing the validity of this assumption:
  - Plot $\beta_t$'s over time to visually inspect for spurious pre-existing trends.
  - Show results robust to alternative specifications that isolate two complementary sources of identifying variation:
    1. Include pre-BIPA Base Payment X Year FE
    2. Include Urban X Year FE
### BIPA Payment Floors

#### Distances to Floors

- **400**
- **500**
- **600**
- **700**

#### 2001 Monthly Base Payment ($)

- **400**
- **500**
- **600**
- **700**

#### 2000 Monthly Base Payment ($)

- **400**
- **500**
- **600**
- **700**

**Alternative Spec 2:** Urban X year FE

![Graph showing the relationship between 2001 and 2000 monthly base payments for urban and rural floors. The graph includes a line indicating distances to floors.]
First Stage Impact on Base Payment

Figure: Impact of $1 Increase in Distance to Floor
## First Stage, Alternative Specifications

**Figure:** Impact of $1 Increase in Distance to Floor

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\Delta b \times X 2001)</td>
<td>0.993</td>
<td>0.996</td>
<td>0.993</td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.004)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>(\Delta b \times X 2002)</td>
<td>0.990</td>
<td>0.997</td>
<td>0.987</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.005)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>(\Delta b \times X 2003)</td>
<td>0.995</td>
<td>1.002</td>
<td>0.992</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.005)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Main Effects</td>
<td></td>
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</tr>
<tr>
<td>County FE</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Year FE</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Additional Controls</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Pre-BIPA Payment X Year FE</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Urban X Year FE</td>
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<td></td>
<td>X</td>
</tr>
<tr>
<td>Pre-BIPA Mean of Dep. Var.</td>
<td>515.15</td>
<td>515.15</td>
<td>515.15</td>
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<tr>
<td>R-Squared</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>
Outline

- Background and data
- Research design
- Pass-through
- Model
- Selection and market power
Figure: Impact of $1 Increase in Monthly Payments

Mean Premiums

Year:
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003

Mean Premium ($)
Distribution of Premiums

**Figure:** Impact of $1 Increase in Monthly Payments

(a) Min

(b) Median

(c) Max
Premiums Robustness

For every $1 increase in subsidy, mean premiums decline by 45 cents.

Obtain similar estimates when...

1. Investigate effect on distribution of premiums

2. Estimate alternative specifications that isolate subsets of identifying variation.

3. Estimate Tobit specifications that take into account that plans could not give rebates during our time period.

4. Aggregate up to a higher level.

5. Examine detailed timing using monthly data.
Benefits

Insurers could have alternatively passed-through subsidies via benefits

- We evaluate the impact on benefits using multiple approaches:

  1. Impact of $50 increase (≈ 10%) in payments on copays, dental, etc.

  2. Impact on actuarial value using data on utilization / insurance payments from MEPS
Monetized Benefits

**Figure:** Impact of $1 Increase in Monthly Payments

- By 2003, max pass-through in benefits of 8 cents on the dollar
Unobserved Quality

Limited concern in this setting for two reasons

1. Rich product characteristics data
   - We see everything consumers see at the point of sale
   - Many other characteristics significantly constrained by regulation (e.g., essential benefits, network adequacy)

2. Additional analysis of quality data
   - Precisely estimated zero on beneficiary’s subjective evaluations of plan quality (CAHPS)
   - Precisely estimated zero on clinical quality measures (HEDIS)
Examine two margins

- Extensive: Percent of counties with at least one plan
- Intensive: HHI conditional on having at least one plan
Plan Availability: Extensive and Intensive Margins

Figure: Impact of $50 Increase in Monthly Payments

(a) Extensive Margin (1+ plan)  (b) Intensive Margin, (HHI)

Plan Availability Table
Pass-through Estimates: Key Takeaways

For every $1 marginal increase in subsidy:

- 45 cents passed-through in lower premiums
- 8 cents passed-through in more generous benefits
- No detectable effect on entry

⇒ About one-half (53 cents) of increase flows to consumers, with 95% confidence interval (35 cents, 71 cents)
Outline

• Background and data
• Research design
• Pass-through

• Model
• Selection and market power
Potential Mechanisms: Advantageous Selection and Market Power

- Graphical intuition
- Model that relates pass-through to these factors
No Selection, Perfect Competition
Advantageous Selection, Perfect Competition

Price and Cost

\[ P = MR \]

\[ p \]

\[ p' \]

\[ p'' \]

\[ q \]

\[ q'' \]

\[ q' \]

\[ AC-b \]

\[ AC-b' \]

\[ P = MR \]
No Selection, Monopoly

Price and Cost

Quantity

$P$

$p$

$p'$

$p''$

$q$

$q''$

$q'$

$MR$

$p'''$

$MC-b$

$MC-b'$
Model Setup

Build more general model that expresses pass-through as a function market power and selection

- Aggregate demand: $Q(p) \in [0, 1]$

- Aggregate costs for industry: $C(Q) \equiv \int_{v_i \geq p^{-1}(Q)} c_i$
  
  - Average costs: $AC(Q) \equiv \frac{C(Q)}{Q}$
  
  - Marginal costs: $MC(Q) \equiv C'(Q)$

- Selection
  
  - Adverse selection: $MC'(Q) < 0$
  
  - Advantageous selection: $MC'(Q) > 0$
Equilibrium

- Perfect competition characterized by zero profits

\[ p = AC(Q) - b \]

- Monopolist’s first order condition

\[ p = \mu(p) + MC(Q) - b \]

- \( \mu(p) \equiv - \frac{Q(p)}{Q'(p)} \) is absolute markup term
Market Power

Following Weyl-Fabinger (2013), introduce conduct parameter $\theta \in [0, 1]$

$$p = \theta \left( \mu(p) + MC(Q) - b \right) + (1 - \theta) \left( AC(Q) - b \right)$$

- Nests extremes
  - Perfect competition: $\theta = 0$. Monopoly: $\theta = 1$

- Reduced form of standard models
  - Cournot: $\theta = 1/n$
  - Diff product Bertrand: $\theta = 1 - \text{aggregate diversion ratio}$

- Requires “symmetry assumptions” on selection (see Mahoney and Weyl, 2014)
Pass-Through

- Define pass-through as $\rho \equiv -\frac{dp}{db}$

- Fully differentiating FOC yields

$$\rho = \frac{1}{1 - (1 - \theta) \left( \frac{dAC}{dp} \right) - \theta \left( \frac{d\mu}{dp} + \frac{dMC}{dp} \right)}$$

- Assuming linear demand and costs

$$\rho = \left( \frac{1}{1 - \frac{dAC}{dp}} \right) \left( \frac{1}{1 + \theta} \right)$$

Selection  Market power
Outline

- Background and data
- Research design
- Pass-through
- Model

- Selection and market power
Impact of Selection

• Want to estimate

\[ \hat{\rho} = \frac{1}{1 - \frac{dAC}{dp}} \]

• Two interpretations

1. Reduction in pass-through due to selection in perfect comp baseline
2. Proportional reduction in pass-through in linear model with any level of competition
Impact of Selection

Introducing risk rating

\[ \tilde{\rho} = \frac{AR}{1 - \left( \frac{dAC}{dp} - b \frac{dAR}{dp} \right)} \]

- \( \frac{dAC}{dp} - b \frac{dAR}{dp} \) measures selection *net of risk adjustment payments*
- Scaled by \( AR \) to convert base payment into capitation payment
Estimation Approach

- Main challenge: Have admin data on TM costs, not MA plan costs
  - Prior literature looks at switchers: Do beneficiaries who switch from FFS to MA have lower $t-1$ costs than beneficiaries who stay?
  - Evidence is mixed (e.g., Brown et al. 2014; Newhouse et al. 2012)
  - Magnitudes are not economically interpretable
  - Does not identify selection with respect to premiums
Estimation Approach

- Our approach builds on / formalizes switcher idea with two assumptions:

A1. Costs under MA and TM are proportional \( c_i^{MA} / c_i^{TM} = \phi \) with \( \phi \leq 1 \)

  - \( \phi \leq 1 \) consistent with Bundorf Levin Mahoney (2012), other evidence on managed care vs. fee for service cost structures

A2. Cost curves are linear so that selection is parameterized by single slope parameter

- Under these assumptions

  - TM slope provides upper bound on MA slope and therefore explanatory power of selection
$23 decrease in premiums raises MA by 4.7 pp on base of 30.5%
Average Costs

**Figure:** Impact of $50 Increase in Monthly Payment

(a) Average TM Costs

(b) Risk Adjustment Payments

- Slope of \( \frac{dAC^{MA}_M}{dQ} - b \frac{dAR_{MA}^{R}}{dQ} \) is $149 with 95% CI of (-$9, $307)
- No effect on utilization

Evidence on Utilization
Impact of Market Power

- Estimates above imply that $\tilde{\rho} = 85$ cents

Table of Estimates

- Theory: Residual $\approx 35$ ppt due to market power

Can we find supporting empirical evidence?

- Idea: Heterogeneity in pass-through estimates by pre-BIPA measures of market power
  - Number of pre-BIPA insurance plans
  - Pre-BIPA Insurer HHI
Heterogeneity by pre-BIPA Number of Insurers

Figure: Pass-through

![Graph showing the relationship between pre-BIPA insurer count and mean premium. The x-axis represents the number of pre-BIPA insurers, ranging from 1 to 3+. The y-axis shows the mean premium, ranging from -1.25 to 0.25.]
Heterogeneity by pre-BIPA Insurer HHI

Figure: Pass-through
Conclusion

• Used sharp, differential increase in MA payments to study allocation of (marginal) surplus in privatized Medicare

  - One-half of increase passed-through to consumers

  ⇒ Implications for $156B in MA payment reductions scheduled under ACA

• Investigate explanations of incomplete pass-through

  - Advantageous selection has limited explanatory power

  - Evidence suggests market power more likely explanatory factor

  ⇒ Implication is that efforts to make markets more competitive may be key to increasing consumer surplus on the margin
• Measure exposure to BIPA with *distance-to-floor variable*:

\[ \Delta b_{jt} = \max \left\{ \tilde{b}_{u(j)t} - \tilde{c}_{jt}, \ 0 \right\}, \]

• Use data on base rates in the pre-period to construct \( \tilde{c}_{jt} \), the monthly payment in the absence of the floor

\[ \tilde{c}_{jt} = \begin{cases} c_{jt} & \text{if } t \leq 2001 \\ c_{j,2001} \cdot 1.02(t-2001) & \text{if } t > 2001 \end{cases} \]

• Use data on floors in the post-period to construct \( \tilde{b}_{jt} \), the counterfactual urban or rural payment floors:

\[ \tilde{b}_{u(j)t} = \begin{cases} b_{u(j),2001} \cdot 1.02(t-2001) & \text{if } t < 2001 \\ \tilde{b}_{u(j)t} & \text{if } t \geq 2001 \end{cases} \]

▶ [Back to Econometric Model]
Table: Impact of $1 Increase in Monthly Payments

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
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<td>Δb X 2001</td>
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<td>-0.178</td>
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<td>-0.352</td>
<td>-0.516</td>
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Main Effects
- County FE: X  X  X
- Year FE: X  X  X

Additional Controls
- Pre-BIPA Payment X Year FE: X
- Urban X Year FE: X

Pre-BIPA Mean of Dep. Var. | 12.10 | 12.10 | 12.10
R-Squared                   | 0.71  | 0.71  | 0.71

Dependent Variable: Mean Monthly Premium ($)

Back to Premiums Robustness
## Premium Regressions, Plan Level Regressions

### Table: Impact of $1 Increase in Monthly Payments

<table>
<thead>
<tr>
<th>Dependent Variable: Monthly Premium ($)</th>
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<td>(0.123)</td>
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**Main Effects**
- County FE: X X X X X X
- Year FE: X X X X X X

**Additional Controls**
- Pre-BIPA Payment X Year FE: X
- Urban X Year FE: X X

**Pre-BIPA Mean of Dep. Var.**
- 12.56 12.56 12.56 12.56 12.56 12.56

**R-Squared**
- 0.60 0.60 0.60 N/A N/A N/A
Unit of observation aggregated to MSA \(\times\) state \(\times\) year

Figure: Impact of $1 Increase in Monthly Payments

(a) Mean

(b) Min

(c) Median

(d) Max

Back to Premiums Robustness
Detailed Timing of Effects

Figure: Impact of $1 Increase in Monthly Payments

- Jan 2001 premiums are locked-in by regulator in mid 2000 and do not respond
- Regulator allows a special adjustment in response to BIPA; plans can offer lower premiums starting Feb 2001

Mean Premium ($)

Jan 2001 premiums are locked-in by regulator in mid 2000 and do not respond
Regulator allows a special adjustment in response to BIPA; plans can offer lower premiums starting Feb 2001

Back to Premiums Robustness
Benefits: Average Copays

**Figure:** Impact of $50 Increase in Monthly Payments

(a) Physician

(b) Specialist

Pre-BIPA Mean: $7.28

Pre-BIPA Mean: $11.13

Back to Benefits
Benefits: Drugs, Dental, Vision, Hearing Aid Coverage

**Figure:** Impact of $50 Increase in Monthly Payments

(a) Drugs

(b) Dental

(c) Vision

(d) Hearing Aid

Back to Benefits
**Benefits Regressions**

**Table: Impact of Increase in Monthly Payments**

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>Physician Copay ($)</th>
<th>Specialist Copay ($)</th>
<th>Drug Coverage (%)</th>
<th>Dental Coverage (%)</th>
<th>Vision Coverage (%)</th>
<th>Hearing Aid Coverage (%)</th>
<th>Actuarial Value ($)</th>
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<td>Δb X 2001*</td>
<td>-0.136 (0.618)</td>
<td>0.402 (0.726)</td>
<td>0.589 (4.396)</td>
<td>3.827 (3.654)</td>
<td>3.622 (4.595)</td>
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<td>Δb X 2002*</td>
<td>-1.544 (0.769)</td>
<td>-2.717 (0.840)</td>
<td>0.180 (4.719)</td>
<td>5.111 (4.513)</td>
<td>3.756 (6.668)</td>
<td>22.721 (5.321)</td>
<td>0.053 (0.049)</td>
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<td>Δb X 2003*</td>
<td>-1.976 (0.917)</td>
<td>-3.010 (0.986)</td>
<td>3.571 (4.410)</td>
<td>-0.939 (3.664)</td>
<td>1.721 (6.643)</td>
<td>23.712 (5.132)</td>
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<td>Pre-BIPA Mean of Dep. Var.</td>
<td>7.28</td>
<td>11.13</td>
<td>74.20</td>
<td>26.11</td>
<td>75.84</td>
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<td>R-Squared</td>
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<td>0.68</td>
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*Final column displays the effect of a $1 increase in monthly payments. All other columns display the impact of a $50 increase in monthly payments.*

[Back to Monetized Benefits]
### Table: Impact of $50 Increase in Monthly Payments

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<td>Pre-BIPA Mean of Dep. Var.</td>
<td>7.28</td>
<td>7.28</td>
<td>11.13</td>
<td>11.13</td>
<td>74.20</td>
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<td>0.85</td>
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</tr>
</tbody>
</table>

*Final column displays the effect of a $1 increase in monthly payments. All other columns display the impact of a $50 increase in monthly payments.*
Plan Quality

- Measures of plan quality (Dafny and Dranove, 2008)

  1. Measures listed in Medicare & You booklet
     - Quality of care, quality of doctor communication from CAHPS, mammogram rate from HEDIS

  2. Unreported quality index
     - Beta blockers, diabetic eye exams, preventive routine exams from HEDIS
Plan Quality

Figure: Impact of $50 Increase in Payment Floor

(a) Quality of Care

(b) Doctor Communication

(c) Mammography
Unreported Quality Index

**Figure:** Impact of $50 Increase in Monthly Payments

Standardized composite of beta blockers, preventive care visits, diabetic eye exams

Back to Quality Discussion
Plan Availability, Alternative Specifications

**Table: Impact of $50 Increase in Monthly Payments**

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<tr>
<th></th>
<th>At Least One Plan (%)</th>
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<td>(2.52)</td>
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**Main Effects**
- County FE: X X X X X X X
- Year FE: X X X X X X X

**Additional Controls**
- Pre-BIPA Base Payment X Year FE: X X
- Urban X Year FE: X X

**Pre-BIPA Mean of Dep. Var.**
- 66.2 66.2 66.2 0.51 0.51 0.51

**R-Squared**
- 0.91 0.91 0.91 0.77 0.78 0.77

Back to Plan Availability Figure
Estimation Approach Details

• Proportional costs imply proportional costs for marginal individual

\[ MC^{MA}(Q^{MA}) = \phi MC^{TM}(Q^{TM}) \]

• Because \( Q^{TM} = 1 - Q^{MA} \), slopes under MA and TM are of reversed sign and proportional

\[ \frac{dMC^{MA}}{dQ^{MA}} = -\phi \frac{dMC^{TM}}{dQ^{TM}} \]

• Applying linearity to translate from MC to AC yields

\[ \frac{dAC^{MA}}{dQ^{MA}} = -\phi \frac{dAC^{TM}}{dQ^{TM}} \]
Part A Stays

**Figure:** Impact of $50 Increase in Monthly Payments

Pre-BIPA Mean: 0.03
Figure: Impact of $50 Increase in Monthly Payments

Pre-BIPA Mean: 0.22
Figure: Impact of $50 Increase in Monthly Payments

Pre-BIPA Mean: 2.06
### Table: Impact of $50 Increase in Monthly Payment

<table>
<thead>
<tr>
<th></th>
<th>MA Enrollment (%)</th>
<th>MA Risk Adjustment ($)</th>
<th>Mean Premiums* ($)</th>
<th>Implied Pass-Through with Selection (ρ)</th>
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<td>(2)</td>
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<td><strong>Panel A: Yearly BIPA Effect</strong></td>
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<td></td>
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<td><strong>Panel B: Pooled Post-BIPA Effect</strong></td>
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<tr>
<td>Δb X Post-BIPA</td>
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<td><strong>Controls: All Panels</strong></td>
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<td>Pre-BIPA Mean of Dep. Var.</td>
<td>30.53</td>
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*Column 4 displays the impact of a $1 increase in monthly payments; all other columns display the effect of a $50 increase in monthly payments.
## Table: Impact of $50 Increase in Monthly Payments

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<td></td>
<td>(0.62) (0.68) (0.63)</td>
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<td>(0.47) (0.91) (0.50)</td>
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<td>(0.92) (1.04) (0.93)</td>
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### Panel A: Yearly BIPA Effect

### Panel B: Pooled Post-BIPA Effect

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<th>3.27 5.95 3.47</th>
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<td>(0.60) (1.06) (0.62)</td>
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### Panel C: Pooled Post-BIPA Effect

**Main Effects**
- County FE: X X XX X X X X X
- Year FE: X X X X X X X X

**Additional Controls**
- Pre-BIPA Base Payment X Year FE: X X X
- Urban X Year FE: XX

**Pre-BIPA Mean of Dep. Var.**
- 30.53 30.53 30.53 484.48 484.48 484.48 485.25 485.25 485.25