Insurer Innovation and Health Care Efficiency: Evidence From Utah

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Efficient Health Care Provision

- Widespread belief that U.S. health care delivery is inefficient

  ▶ Allocative and productive inefficiency (e.g. Cutler, 2010)
  ▶ Information structure requires 2nd best policies (Arrow, 1963)

- U.S. is unique in role of private insurers in determining outcomes (55% of total spending and few restrictions on benefit design)
Tools to Improve Efficiency

Insurers and policymakers consider a number of alternative market policies to encourage the efficient provision of health care:

- Consumer cost-sharing
- Direct supply-side incentives for value-based care
- Narrow insurance plan networks
- Organizational integration (production efficiencies)

Left: Chen and Goldman (2016), Right: Kaiser Family Foundation (Truven, BLS, CPS)
Can Competition Among Private Insurers Deliver Efficiency?

Private insurers competing is a central component of U.S. health care (e.g. ACA marketplaces, Medicare Advantage, ESHI)

- **Benefits:** 1) price/premium competition 2) product variety and/or 3) innovation
- **Costs:** Maintaining competition in health insurance is challenging market design/policy problem
  - Adverse selection distorts prices and plan designs (e.g. Akerlof, 1970; Rothschild and Stiglitz, 1976)
  - Enrollees make sub-optimal choices limiting match between plan choices and utility (e.g. Abaluck and Gruber, 2013; Handel and Kolstad, 2015)

- Value from insurer competition is an empirical question
Innovation and Productivity Heterogeneity: Health Care and Beyond

“[Economists studying productivity] have documented virtually without exception, enormous and persistent measured productivity differences across producers, even within narrowly defined industries.”
- Syverson, 2011

- U.S. health care productivity differences are large (e.g. Fischer, et al, 2003) though perhaps not exceptional relative to other industries (Chandra, et al, 2016)
  - 40-50% due to demand (individual preferences) and remainder from supply (providers) (e.g. Finkelstein, Gentzkow and Williams, 2016)
  - Little study of role of insurers beyond extensive margin (e.g. Card, Dobkin, Maestas, 2009; Finkelstein, et al., 2012), cost sharing (e.g. Newhouse, et al., 1993; Brot Goldberg, et al., 2017) and managed care (e.g. Cutler, McClellan and Newhouse, 2000)
Preview of Key Questions and (Preliminary) Results

1. Does health care spending differ between health insurers?
   Yes: Large differences between insurers. E.g. moving from UHC to Regence (Blue) changes cost by 28% (75% of the cost difference between McCallen and El Paso, Tx).

2. Do health outcomes differ between health insurers (including the long run)?
   Maybe: Ongoing work but AMI suggests long run impacts on survival.

3. Do approaches to treatment and coverage differ across insurers?
   Yes: Clear evidence for variation in approaches (e.g. 90 day fills for statins, reliance on Intermountain, deductibles, P vs. Q).
4 Is it possible to estimate production differences given the complexity of health care?
Maybe: Ongoing work but rich data combined with methods from econometrics and ML offer new approach.

5 How can we measure long run cost and outcomes?
Maybe: Ongoing work but rich data combined with methods from econometrics and ML offer new approach.
Overview

1. Data and Setting
2. Model
3. Empirical Strategy
4. Impact on Aggregate Health Care Utilization
5. Mechanisms
6. Condition Specific Analysis
7. Impact on Long Run Cost and Health Outcomes
8. Conclusion and Next Steps
Overview

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Our Setting: Entire Utah Market

- Population of 3 million
- APCD spanning 2010-2015 for 2.1 million
- Leverage employer linkage to get exogenous coverage changes
- Presence of Select / Intermountain as well as many national insurers in same dataset
Data

- Data included for:
  - Employer sponsored market (65% of non-elderly)
  - Federal ACA exchange (about 10% non-elderly in 2016)
  - Small business exchange (about 1% non-elderly)
  - Medicaid (about 18% non-elderly)
  - Medicare Advantage / Part D

- Data not included for:
  - Traditional Medicare (20-25% of state population)
  - Uninsured

- Required participation as of 2013. High participation prior.
Data

Key data elements include:

▶ Claims data for all insured medical / pharma / dental events
▶ Demographics such as age, gender, census block, family
▶ Employer (for those providing ESI)
▶ Insurance carriers / market
▶ Provider location

Crucial for our empirical strategy:

▶ Can follow individuals as they switch to and from insurance carriers in the entire population
▶ Understand degree of choice individual had choosing coverage
▶ Can study employer care transitions, and employees switching employers
Intermountain among widely discussed high performing organizations (e.g. Mayo Clinic, KP, Geisinger)

Prior work on supply-side models/specific organizations has important limitations:

- Most studies rely on anecdotes and cases (e.g. Cutler, 2014; James and Savitz, 2011; HBS cases)
Important dynamics to health care utilization and cost: trade-off short run cost for long run gains (e.g. preventive care)
Gap in literature on impact of insurance on cost and outcomes
Unique data environment allows us to study long run impacts of different insurer models
Baseline Sample Restrictions

<table>
<thead>
<tr>
<th>Counts in Millions</th>
<th>(1) Persons</th>
<th>(2) Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Sample</td>
<td>2.83</td>
<td></td>
</tr>
<tr>
<td>Drop 65+</td>
<td>2.56</td>
<td></td>
</tr>
<tr>
<td>Drop Plans Which Don’t Cover Medical</td>
<td>2.39</td>
<td></td>
</tr>
<tr>
<td>Drop Multiple Plans</td>
<td>2.30</td>
<td></td>
</tr>
<tr>
<td>Keep Switchers</td>
<td>0.76</td>
<td>1.02</td>
</tr>
<tr>
<td>1-to-1 Switchers Only</td>
<td>0.15</td>
<td>.16</td>
</tr>
</tbody>
</table>

Restrictions made for baseline sample:

- Drop 65+ and Medicaid, potential to include Medicare Advantage
- Drop dental plans and drug only plans
- Keep only “forced switchers” who switch insurance due a change in employment or an employer changing insurance providers.

Remaining: Entire under 65 non-Medicaid market
### Summary Statistics: Demographics and Spending

<table>
<thead>
<tr>
<th></th>
<th>Full Sample</th>
<th>Switchers</th>
<th>Analysis Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean Age (Jan 2013)</strong></td>
<td>30.35</td>
<td>26.79</td>
<td>27.88</td>
</tr>
<tr>
<td><strong>Percent Male</strong></td>
<td>.4939</td>
<td>.4961</td>
<td>.508</td>
</tr>
<tr>
<td><strong>Average Yearly Medical Spending</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>3664</td>
<td>2936</td>
<td>2634</td>
</tr>
<tr>
<td>Median</td>
<td>505</td>
<td>607</td>
<td>632.6</td>
</tr>
<tr>
<td>95th Pct.</td>
<td>12399</td>
<td>10827</td>
<td>9938</td>
</tr>
<tr>
<td><strong>Average Yearly Pharma Spending</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>687.7</td>
<td>559.5</td>
<td>535.6</td>
</tr>
<tr>
<td>Median</td>
<td>26.41</td>
<td>31.6</td>
<td>31.57</td>
</tr>
<tr>
<td>95th Pct.</td>
<td>2882.1</td>
<td>2106.3</td>
<td>1983.3</td>
</tr>
<tr>
<td><strong>Number of People</strong></td>
<td>2982927</td>
<td>758561</td>
<td>147014</td>
</tr>
</tbody>
</table>
### Summary Statistics: Insurance Shares

<table>
<thead>
<tr>
<th>Plan Market / Type</th>
<th>Fraction of Utah Market</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
</tr>
<tr>
<td>Employer Market</td>
<td>0.68</td>
</tr>
<tr>
<td>Non-Group Market</td>
<td>0.06</td>
</tr>
<tr>
<td>Medicaid</td>
<td>0.15</td>
</tr>
<tr>
<td>HMO Plan</td>
<td>0.28</td>
</tr>
<tr>
<td>PPO Plan</td>
<td>0.16</td>
</tr>
<tr>
<td>POS Plan</td>
<td>0.22</td>
</tr>
<tr>
<td>Other Plan Type</td>
<td>0.34</td>
</tr>
<tr>
<td>High Deductible Plan</td>
<td>0.16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insurer</th>
<th>Fraction of Utah Market</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
</tr>
<tr>
<td>Aetna</td>
<td>0.13</td>
</tr>
<tr>
<td>Cigna</td>
<td>0.04</td>
</tr>
<tr>
<td>Humana</td>
<td>0.03</td>
</tr>
<tr>
<td>PEHP</td>
<td>0.05</td>
</tr>
<tr>
<td>Regence</td>
<td>0.10</td>
</tr>
<tr>
<td>Select Health (Intermountain)</td>
<td>0.24</td>
</tr>
<tr>
<td>United Health Care</td>
<td>0.14</td>
</tr>
<tr>
<td>Other</td>
<td>0.27</td>
</tr>
</tbody>
</table>

| Number of People            | 2350356 | 2452707 | 2610808 |

What do these insurers do differently from one another?
## Summary Statistics: Employer Market

<table>
<thead>
<tr>
<th>Number of Employees</th>
<th>Full Sample</th>
<th>Switchers</th>
<th>Analysis Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 50</td>
<td>0.20</td>
<td>0.26</td>
<td>0.32</td>
</tr>
<tr>
<td>50 and 500</td>
<td>0.27</td>
<td>0.31</td>
<td>0.40</td>
</tr>
<tr>
<td>500 and 1000</td>
<td>0.11</td>
<td>0.10</td>
<td>0.11</td>
</tr>
<tr>
<td>1000 and 5000</td>
<td>0.21</td>
<td>0.17</td>
<td>0.12</td>
</tr>
<tr>
<td>5000 and 20,000</td>
<td>0.04</td>
<td>0.02</td>
<td>0.00</td>
</tr>
<tr>
<td>Over 20,000</td>
<td>0.17</td>
<td>0.13</td>
<td>0.04</td>
</tr>
<tr>
<td>Person Years</td>
<td>5159067</td>
<td>1575326</td>
<td>434942</td>
</tr>
</tbody>
</table>
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Demand for Health Care and Insurance

- Population of individuals indexed by $i$ consume health care $y_{i,t} \in R^+$ in period $t$
- Individuals vary in health status $h$
- Health care generates utility according to $u(y|h_{i,t})$
- Enrollees are risk averse (indexed by a coef of risk aversion $\gamma$)
- Utility from insurance due to i) financial risk protection, ii) quality/utility of health care provided and iii) premium
Insurer Innovation/Productivity

- Build on models of productivity (e.g. Syverson, 2011)
- Insurer $j$ facing individuals $i$ with conditions $n$ maximize profit:

$$\pi_j = R(\tau_{jn}, P_j, D) - \sum_n (y_{jn} - s_n)$$

- revenue $R$
- productivity/innovation $\tau_{jn}$
- price $P_j$
- demand $D$
- cost of claims $y_{jn}$
- innovation investment $s_n$

Note: $\tau_{jn}$ could enter cost side of equation.
Insurers choose to invest in innovation for condition $n$ by paying $s_n$ and get a realization from $g(\tau_n)$

- e.g. Intermountain Care Process Model

The equilibrium distribution of productivity is:

$$\gamma(\tau_{jn}) = \begin{cases} \frac{g(\tau_n)}{1-G(\tau_n)}, & \text{if } \tau_{jn} \geq \tau_n \\ \tau_n, & \text{otherwise} \end{cases}$$

In general $n \gg j$

Expect heterogeneity across insurers ($j$) and within insurers ($n$) and insurer by condition ($n, j$)
## Innovation Drivers and Predicted Heterogeneity

<table>
<thead>
<tr>
<th>Source of innovation</th>
<th>Empirical Prediction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed budget and large $n$</td>
<td>$\uparrow \text{Var}(\psi_j^n)$ within but not across $j$</td>
</tr>
<tr>
<td>Firm investments/diffs</td>
<td>$\text{Var}(\psi_j^n)$ across $j$ &amp; common order w/ in $n$</td>
</tr>
<tr>
<td>Adverse Selection</td>
<td>$\downarrow \text{Var}(\psi_j^n)$ for higher cost $n$</td>
</tr>
<tr>
<td>Longevity/turnover</td>
<td>$\uparrow \text{Var}(\psi_j^n)$ with $\downarrow$ turnover $j$ or $n$</td>
</tr>
</tbody>
</table>
Combining Supply and Demand

- Define individual level health: \( h_{i,t} = \alpha_i + x'_{i,t} \beta \)
- Cost sharing rules/actuarial value indexed by \( c \) (varying within an insurer): \( AV^c \)
- Insurer \( j \) for condition \( n \) has a supply side “technology” (benefit design): \( \psi^j_n \) (e.g. P4P, IT systems, networks)
- We can write utilization of individual \( i \) in period \( t \) as:
  \[
  y_{i,t} = \alpha_i + \psi^j_{n(i,t)} + \rho AV^c_{i,t} + x'_{i,t} \beta + \epsilon_{i,t}
  \]
- Demand: \( \rho \)
- Supply: \( \psi_j \)
- Empirical focus on identification given potential endogeneity of individual plan enrollment
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Empirical Strategy

**Main idea:** Study individuals forced to change insurance during period 2013-2015 due to job change or change in employer insurance offering

- Focus on switches with only 1 plan option at originating and destination employer
Empirical Strategy: Forced Switchers

Analysis Sample: Total Number of Switchers (Thousands)

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>373</td>
</tr>
<tr>
<td>Employer Switches</td>
<td>198</td>
</tr>
<tr>
<td>Job Changes</td>
<td>175</td>
</tr>
<tr>
<td>Select Adopters</td>
<td>42</td>
</tr>
<tr>
<td>Select Leavers</td>
<td>37</td>
</tr>
</tbody>
</table>

- The analysis sample a close to even split between switchers whose firm changes insurance vs. employee switching firms.

- Switchers to Select: Close to proportional to market shares of insurers they are leaving
  - 32% Select to Select, 15% from UHC, 20% from Aetna, 18% Regence, 5% PEHP, 4% Humana, 6% Other
We use methods similar to studies of firm/worker wages (Abowd et al., 1999), but limit to our sample to forced switchers.

\[
y_{i,t} = \alpha_i + \psi_j(i,t) + \rho AV_{i,t}^c + x'_{i,t}\beta + \gamma_{t-t_0^e} + \epsilon_{i,t}
\]

Fixed effects

\( j \) is the insurance company assigned to a forced switcher \( i \) immediately before and after a switching event. Don’t update \( j \) for subsequent switches so estimates like “intent-to-treat”

\( \hat{\psi}_j \) are the coefficients of interest (insurer-specific effects)

\( \rho \) captures impact of demand side approaches on spending

- Estimate model w/ and w/o \( AV^c \)

\( \gamma_{t-t_0^e} \) are event-time dummies to capture any disruption caused by insurance switching that is common across all insurers.
Disruption Effect: Medical Spending

No Cost-Sharing Controls

With Cost-Sharing Controls
Disruption Effect: Pharma Spending

No Cost-Sharing Controls

With Cost-Sharing Controls

Mean of Dependent Variable At Data Zero: .898

Handel et al.  Insurer Innovation  32 / 87
Insurer Estimates: Medical Spending

Plan Estimates

Cost-Sharing Controls

Aetna
Cigna
Humana
PEHP
Regence
Select Health (Intermountain)
United Health Care

IHS Medical Spending

Month/Yr Controls
Ded & Linear Coins Controls

Aetna Mean: 1.515
Insurer Estimates: Pharma Spending

Plan Estimates

Cost-Sharing Controls

Aetna
Cigna
Humana
PEHP
Regence
Select Health (Intermountain)
United Health Care

IHS Pharma Spending

Month/Yr Controls
Ded & Linear Coins Controls

Aetna Mean: .9731
Overview

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4. Impact on Aggregate Health Care Utilization
5. Mechanisms
   - Cost Sharing
   - Prices and Quantities
   - “High” and “Low” Value care
   - Spending on Prescription Drugs
   - Provider Network and Integration
6. Condition Specific Analysis
Mechanisms

- What might an insurer do differently to affect utilization of care?

  **Integration**: Insurers can be integrated tightly with physicians facilitating coordination between providers and between insurers and providers.

- **Demand incentives**: Innovative cost-sharing, e.g. HDHP or VBID

- **Network formation**: Insurers can (i) bargain to secure lower prices from the same providers for the same services (ii) steer consumers to certain providers via network construction.

- **Standard setting**: Insurers can set standards for specific paths of care to allow or encourage (e.g. primary care-based, medication adherence).
Effect on Estimated Cost Sharing

**Deductible**

- Aetna
- Cigna
- Humana
- PEHP
- Regence
- Select Health (Intermountain)
- United Health Care

*Actual Mean: 1228*

**Actuarial Value**

- Aetna
- Cigna
- Humana
- PEHP
- Regence
- Select Health (Intermountain)
- United Health Care

*Actual Mean: .7655*
How We Estimate Procedure Prices

We estimate the following model at the procedure level:

\[ \ln(P_{jhp}) = \alpha_{jh} + \delta_p + \eta_{jhp} \]

Where:
- \( \ln(P_{jhp}) \) is the average log price paid for insurer \( j \) at provider \( h \) for procedure \( p \).
- \( \alpha_{jh} \) is a set of fixed effects for insurer \( j \) interacted with provider \( h \).
- \( \eta_{jph} \) is the error term.
- We weight this regression by the number of procedures performed by insurer-provider-procedure cell.
- \( \hat{\delta}_p \) is the estimated average log price for procedure \( p \). To determine the relative price paid for any given procedure, we divide the reported price by \( \exp(\hat{\delta}_p) \). We also call this estimate a “private relative value unit (RVU).”
“Physician” or “professional” payments are made for fee-for-service services like consultations or surgery. They generally do not cover facility fees for hospital inpatient or outpatient stays.
Outpatient services are services performed in a hospital outpatient setting, which includes facility fees.
The dependent variable is the probability a patient receives any preventive care (as defined by the ACA and insurer provider manuals) in a given month.
Low-value care included here: Head imaging for uncomplicated headaches or syncope; having sinus CT on the same date as a brain CT; CT scans with and without contrast for the abdomen or thorax; and arthroscopic surgery for knee osteoarthritis.

Coefficients normalized to report percent differences from Aetna.
Denominator events are qualifying diagnoses which may or may not lead to low-value care. For example, a diagnosis of an uncomplicated headache is a qualifying diagnosis for “head imaging for uncomplicated headaches.”
Low-Value Care: Examples

- Head Imaging for Uncomplicated Headache
- Brain CTs on the same date as Sinus CTs
- Head Imaging for Syncope
- Arthroscopic Surgery for Knee Osteoarthritis
- Abdomen CT With and Without Contrast
- Thorax CT Combined Studies

Source for codes used: Charlesworth et al. (2016)
Patients who fail to take a prescribed acute-care drug are likely to have a serious event requiring hospitalization in 1-2 months (Chandra, Gruber & Mcknight, 2010)
Patients who fail to take a prescribed chronic-care drug are likely to have a serious event requiring hospitalization in a year (Chandra, Gruber & Mcknight, 2010)
Lifestyle drugs affect patient quality of life without affecting the probability of hospitalization for a negative health event. (Chandra, Gruber & Mcknight, 2010)
The dependent variable is total utilization of statin drugs by month in 30-day equivalent fills.
The dependent variable is the fraction of statin fills which are for 90+ days.
Asymmetric effect consistent with role for Intermountain process/providers
Unique Setting to Study Provider Role in Insurer Innovation/Productivity

- Select and Intermountain share ownership but are not fully vertically integrated/exclusive (compare e.g. to Kaiser)
  - Select unique in use of Intermountain
  - Observe other insurers’ enrollees at Intermountain providers to isolate role of Intermountain/provider vs. insurer

Select Event Study

Insurer Comparison

Handel et al.  Insurer Innovation
Overview

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6. Condition Specific Analysis
   - COPD
   - Diabetes
7. Impact on Long Run Cost and Health Outcomes
Chronic obstructive pulmonary disease (COPD)

- COPD is a chronic condition that worsens overtime.
  - Includes emphysema and chronic bronchitis.
  - Long run increases risk of heart disease, stroke, and lung cancer.
- 11 million COPD cases in the U.S. (American Lung Assoc.)
- COPD cannot be cured but there are multiple approaches to management:
  - Quitting smoking (including coaching and support in doing so)
  - COPD medications
  - Surgery in severe cases
- Investment in treatment early has potential for long run payoff in reduced cost/better health
Insurer Estimates: Medical Spending (COPD)

Plan Estimates

Cost-Sharing Controls

- Aetna
- Cigna
- Humana
- PEHP
- Regence
- Select Health (Intermountain)
- United Health Care

IHS Medical Spending

- Month/Yr Controls
- Ded & Linear Coins Controls

Aetna Mean: 2.471
Insurer Estimates: Pharma Spending (COPD)

Plan Estimates

Cost-Sharing Controls

Aetna Mean: 1.768
Diabetes mellitus (DM), commonly referred to as diabetes, is a group of metabolic disorders in which there are high blood sugar levels over a prolonged period.

- Type I: the body does not produce insulin
- Type II: the body does not produce enough insulin

In the U.S. 22 million people (7% of the U.S. population) have diabetes (American Diabetes Assoc., 2013)

Growing rapidly and thought to be an important contributor to cost of health care ($245 billion annually in 2012)

Clear process to monitor and manage care of diabetes:
- Managing smoking, diet and other lifestyle factors
- Regular monitoring of patients by primary care doctor (e.g. HbA1c, LDL, eye exam annually)
- Insulin (Type I and II) and diabetes management drugs (Type II)

Investment in treatment early has potential for long run payoff in reduced cost/better health
Plan Estimates

IHS Medical Spending

Cost-Sharing Controls

Aetna
Cigna
Humana
PEHP
Regence
Select Health (Intermountain)
United Health Care

Month/Yr Controls
Ded & Linear Coins Controls

Aetna Mean: 3.076
Plan Estimates

Cost-Sharing Controls

Aetna Mean: 3.067
Coming soon

- Impacts for types of care facilitated by organizational integration (e.g. referral follow-through)
- Impact of price paid to given physician
- Impact of price paid due to network steering
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Impact of Different Models of Care on Cost, Quality and Health

- Few studies of long run impact on health outcomes, cost yet most marginal decisions by insurers affect long run health production
- Primary impediment: data and empirical strategy
- Unique data make long run measurement feasible
  - Primary sample 2013-2015 but...
  - Rich data from 2007-pres. only missing employer link
  - Limited data from 1993-pres. on hospital discharges and mortality
- Use surrogacy assumptions to measure impact of i) Select health on treatment production and ii) treatment production differences on outcomes
  - Build on Athey, Chetty, Imbens and Kang (2016) based on multiple surrogates in utilization and health care delivery
AMI Mortality in the Long Run

- Long-run survival rate of year 2000 AMIs, conditional on surviving initial event separated by intermountain v. other hospitals, adj. for age and gender. Know death from SSN records / discharges.
Surrogacy and Long Run Impact of Intermountain

- High dimensional vector of surrogates based on quasi-experimental switcher design
  - Stack $\psi_j^n$ into a vector $\Psi$
  - Select $f()$ to max out-of-sample fit of $Pr(j = J) = f(\Psi)$

- Estimate two key elements (akin to propensity score)
  - Surrogate score: $Pr(\hat{j} = J) = f(Y, x_{i,t})$
  - Surrogate index: expectation of the outcome of interest (e.g. mortality, employment) conditional on surrogates

- Under a set of assumptions the many surrogate measures provide an ATE estimate of impact of treatment on outcomes
  - Intuition: use quasi-experiment to identify what is causally done differently and compare outcomes in the observational sample that max similarity on observables and min similarity on surrogacy score (e.g. same people, different treatments)
  - Using high-dimensional surrogates can bound potential bias

- Stay tuned: approach in progress
Overview

1. Data and Setting
2. Model
3. Empirical Strategy
4. Impact on Aggregate Health Care Utilization
5. Mechanisms
6. Condition Specific Analysis
7. Impact on Long Run Cost and Health Outcomes

8. Conclusion and Next Steps
Conclusion

- First large-scale evidence decomposing insurer differentiation and value-added via both demand-side incentives and supply-side mechanisms in the same population.

- Data allows investigation of many possible insurer value-add mechanisms with strong instrument for type of coverage.

- Preliminary evidence shows meaningful insurer differentiation:
  - Overall quantities and prices
  - Types of services consumed

- Select / Intermountain suggests valuable impact of integration on engagement with primary care and chronic drug adherence.

- Next Steps:
  - Investigate additional mechanisms (i) steering via network formation (ii) insurer-provider bargaining (iii) organizational integration (e.g. referral chains)
  - Impacts on high vs. low value care and long-run health outcomes.
Most preventive office visits are annual comprehensive exams. This category also includes counseling for tobacco cessation, alcohol abuse screening, and other preventive counseling.
Preventive Care: Influenza Vaccine

Plan Estimates

Cost-Sharing Controls

Handel et al.  Insurer Innovation
Preventive Care: STI Screening

Plan Estimates

Cost-Sharing Controls
Probability of Getting Head Imaging for Uncomplicated Headache by Month

Plan Estimates

Cost-Sharing Controls
Probability of Having an Uncomplicated Headache by Month

Plan Estimates

Cost-Sharing Controls

- Aetna
- Cigna
- Humana
- PEHP
- Regence
- Select Health (Intermountain)
- United Health Care

Rate of Headache Diagnosis (Denom) Rel. to Aetna

- Month/Yr Controls
- Ded & Linear Coins Controls

Aetna Mean: 1

Deduct Coins Level

- 0
- 1.500
- 501-1249
- Over 1250

Coinsurance Rate

- Covers Drugs
- Covers Dental

Rate of Headache Diagnosis (Denom) Rel. to Aetna

-1
-0.5
0
0.5
Fraction of Brain CTs on the same date as Sinus CTs by Month

Plan Estimates

Cost-Sharing Controls

Return
Probability of Having a Brain CT by Month

Plan Estimates

Cost-Sharing Controls
Probability of Getting Arthroscopic Surgery for Knee Osteoarthritis

Plan Estimates

Cost-Sharing Controls

Handel et al. Insurer Innovation
Probability of Having Knee Osteoarthritis by Month

Plan Estimates

Cost-Sharing Controls
Probability of Getting Head Imaging for Syncope by Month

Plan Estimates

Cost-Sharing Controls
Probability of Having a Syncope Diagnosis by Month

Plan Estimates

Cost-Sharing Controls

Handel et al.
Insurer Innovation
Probability of Getting an Abdomen CT With and Without Contrast by Month

Plan Estimates

Cost-Sharing Controls

Handel et al.
Insurer Innovation
Probability of Getting an Abdomen CT by Month

Plan Estimates

Cost-Sharing Controls

Handel et al. Insurer Innovation
Probability a Thorax CT by Month

Plan Estimates

Cost-Sharing Controls
Figures show the probability of having a medical claim.
Figures show the probability of having a pharmacy claim.
This graph shows the same relationship as the number of 90+ day fills.
Overview

Deleted Tables

- Primary Care Access
Select is Unique in Integration/Use of Intermountain

Select Event Study

Insurer Comparison

- Medical spending at Intermountain-owned hospitals and physician clinics is substantially higher and differs from all other insurers
  - Notably, Regence does not differentially use Intermountain
- Mechanism and identification: Select enrollment is a first stage for Intermountain care delivery
New primary care visits are visits coded with CPT codes 99201-99205.

Select focus on primary care/engagement clear from approach to new enrollees.
Established primary care visits are those coded with CPT codes 99211-99215.

Select focus on primary care shows in large changes in interaction with established primary care physician.