Behavioral Health Economics

Josh Schwartzstein (HBS)

December 4, 2019
NBER Health Economics Research Boot Camp

Behavioral Health Economics Applications

Topics Covered	**Sample References**
Consumer insurance choices	Handel (2013) Bhargava, Loewenstein and Sydnor (2017)
Insurance impact on consumer health-care utilization	Brot-Goldberg et al. (2017) Baicker, Mullainathan and Schwartzstein (2015)
Provider-consumer joint treatment choices	
Consumer adherence to medications / treatments	Sokol et al. (2005)
Topics Not Covered	
Diet	Volpp et al. (2008) Oster (2018)
Exercise	DellaVigna and Malmendier (2006) Carrera et al. (2018)
Addiction	Gruber and Koszegi (2013) Bernheim and Rangel (2004)
End-of-life care	Halpern et al. (2013), Sudore et al. (2017)
Medical-testing decisions	Kőszegi (2003) Oster, Shoulson and Dorsey (2013)
Provider treatment choices	Chandra et al. (2012)
Provider responses to incentives / quality programs	
Provider use of information / information technology	Kolstad (2013)
Residency match mechanism design	Rees-Jones (2018)

Source: Chandra, Handel, and Schwartzstein (2018)

Focus

- Following Chandra, Handel, and Schwartzstein (2018) I'll focus on medical-care markets, not health more broadly
- Big theme: recognizing that health-care consumers make mistakes causes us to fundamentally re-think what we know about these markets
  - E.g., how to interpret demand elasticities for treatment

What We'll Cover Today

Behavioral Health Economics Applications

Topics Covered	**Sample References**
Consumer insurance choices	Handel (2013) Bhargava, Loewenstein and Sydnor (2017)
Insurance impact on consumer health-care utilization	Brot-Goldberg et al. (2017) Baicker, Mullainathan and Schwartzstein (2015)
Provider-consumer joint treatment choices	
Consumer adherence to medications / treatments	Sokol et al. (2005)

Outline for Today

1. Evidence of mistakes in treatment choices and implications of those mistakes for
   - how we analyze health insurance plans
   - optimal plan design
   - follow Baicker, Mullainathan, and Schwartzstein (2015); Chandra, Handel, and Schwartzstein (2018)

2. Some evidence on mistakes in insurance-plan choice
   - primarily discuss Bhargava et al. (2017)

Behavioral Hazard in Health Insurance

Behavioral Health Economics Applications

Topics Covered	Sample References
Consumer insurance choices	Handel (2013) Bhargava, Loewenstein and Sydnor (2017)
Insurance impact on consumer health-care utilization	Brot-Goldberg et al. (2017) Baicker, Mullainathan and Schwartzstein (201
Provider-consumer joint treatment choices	
Consumer adherence to medications / treatments	Sokol et al. (2005)

Behavioral Hazard in Health Insurance: Background

Traditional problem of health insurance design: trade-off between financial protection and moral hazard

The financial protection afforded by health insurance comes at a price: lowering the cost of health care causes people to use too much of it

- Arrow (1963), Pauly (1968), Zeckhauser (1970), Cutler and Zeckhauser (2000)

Example

- Josh gets a headache of severity s
- Treatment provides benefit $b(s)$ and costs c
- It is socially efficient for Josh to get treated only if headache is sufficiently severe: $b(s) > c$
- The problem of health insurance
  - Insurance means Josh only pays $p < c$
  - Josh seeks treatment if $b(s) > p$

Standard Model Emphasizes a Particular Form of Misutilization

Standard model: The concern is overutilization due to moral hazard

Example: Type-II Diabetes

Diabetes:

- Can have many serious complications (e.g., blindness, lost limbs, coma)
- Broad consensus of how to treat
- Adherence to treatment recommendations has been shown to reduce the probability of adverse events
- But many do not adhere
  - Recent study: almost half of diabetic patients did not consistently fill prescriptions, doubling their risk of hospitalization (Sokol et al. 2005)

Examples of Underuse of High Value Care

	Estimates of return to care	Usage rates of clinically relevant population
Statins	Reduce all cause mortality (Relative Risk .90), cardiovascular disease mortality (RR .8), fatal myocardial infarction (RR.82), non-fatal MI (RR.74), and strokes (RR .86)	Adherence < 70%
Beta-blockers	Reduce mortality by 25% post heart attack	Adherence < 70%
Anti-asthmatics	Reduced Hospital Admissions (OR .58). Improvement in airflow obstruction (OR .43)	Adherence < 50%
Anti-diabetics	Decrease of cardiovascular mortality (OR .74); risk of hospitalization halved	Adherence < 65%
Immunosuppresants	Reduction in the risk of organ rejection seven-fold	Adherence < 66-75%
Recommended Preventive Care	Care of known efficacy including immunizations, disease management, follow-up care post surgery	<55% care delivered (36% diabetics receiving semi-annual blood tests, 40% colorectal cancer
Pre-natal care	Inadequate prenatal care increases infant mortality (RR 2.13)	45.8 % received adequate or better care

Source: Baicker, Mullainathan, and Schwartzstein

Misutilization

There are important patterns of use that are hard to reconcile with moral hazard models

- People *underuse* care with high health benefits and low cost
- People use ineffective or even potentially harmful treatments
  - antibiotics for children's ear infections (Spiro et al. 2006); prostate cancer surgery in some instances (Cohen et al. 2008); perhaps certain back pain tests or treatments (Jarvik 2003)

People seem to be making mistakes

Other Possibilities?

Mis-measurement?

- Perhaps unobserved side effects drive underuse
- Given clinical evidence, hard to argue for many of these examples

Heterogeneity?

- Perhaps there is a lot of heterogeneity and people properly self sort
- Evidence tends to be inconsistent with this hypothesis
  - e.g., studies examining heterogeneous demand responses to co-pay changes by clinical status (Goldman et al. 2006)

Dynamic moral hazard?

- Perhaps people underuse preventive care because they are insured in the future
- We focus on underuse where benefits seem to outweigh costs *to the consumer*; i.e., uninsurable costs of non-adherence are large

Behavioral Hazard

We call misutilization that results from mistakes or behavioral biases behavioral hazard

- Parallel to the moral hazard that results from copays deviating from the social marginal cost of care

Many psychologies contribute to behavioral hazard

- *Attention or symptom salience* matters for many chronic conditions like heart disease (Osterberg and Blaschke 2005; Rubin 2005)
- *Present-bias*: people may overweigh the immediate costs of care (Newhouse 2006)
- *Memory*: people may simply forget to fill prescriptions
- *Beliefs*: people may mis-understand efficacy (Pauly and Blavin 2008)

Our model of BH nests these biases

Goal

Goal: Draw out the implications of behavioral hazard for welfare calculations and optimal co-pay formulas

- Builds on Chernew et al. (2007); Pauly and Blavin (2008); Chandra et al. (2010)
- Methodologically builds on Chetty (2009) and especially Mullainathan, Schwartzstein and Congdon (2012)

Broad Insights

Behavioral hazard matters for thinking about:

- *Basic trade-offs.* Health insurance no longer just provides financial protection: it can create incentives for more efficient treatment decisions

- *Measurement.* The demand response no longer measures the degree of MH: the health response needs to be considered as well
  - Empirically, much high value care is discouraged when co-pays go up
  - Calibrationally, ignoring BH can lead to welfare estimates that are both wrong in sign and off by an order of magnitude

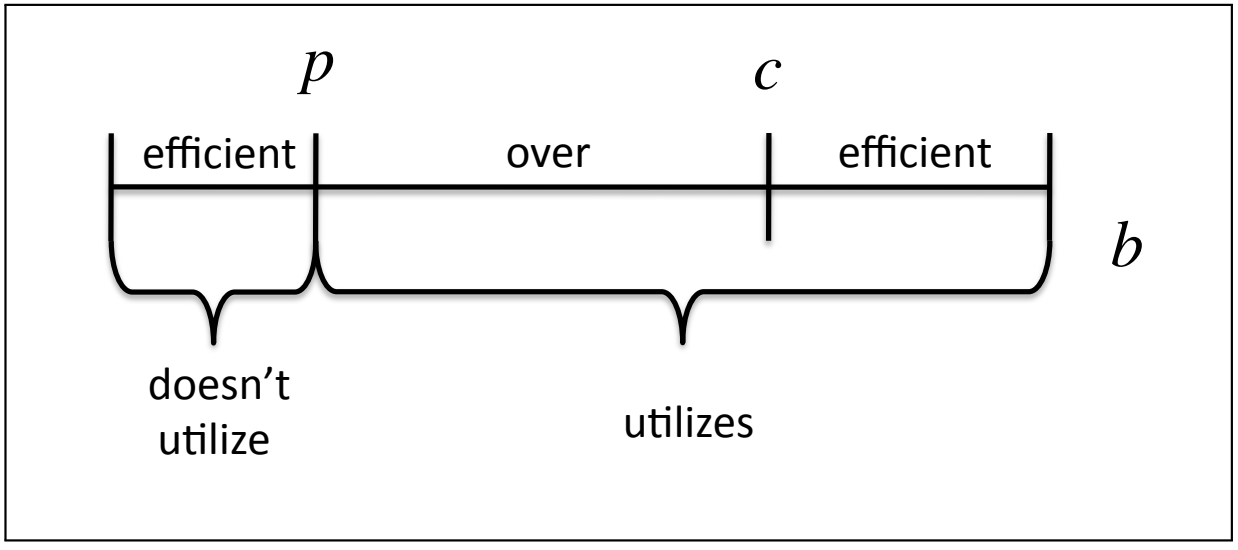
- *Optimal design.* Optimal co-pays depend on health value, not just demand elasticities
  - Provides a theoretical foundation for value-based insurance design (Chernew, Rosen and Fendrick 2007)

Basic Setup

Setup:

- Individual has wealth y
- Insurance costs premium P
- When healthy, the individual has utility $U(y - P)$
- With probability q, she falls sick with varying degrees of severity $s \sim F(s)$
- Absent treatment, the sick individual receives utility $U(y - P - s)$
- Treatment costs society c and the patient co-pay p; its benefit $b(s)$ depends on severity: $b'(s) \in [0, 1]$
  - To simplify certain statements, will assume in the talk that $b(s) = s$
  - Paper allows benefits to vary, even conditional on severity
- With treatment, the sick individual receives utility $U(y - P - s + b(s) - p)$

Choice to Receive Treatment: Standard Model



- benefit to treatment b, cost c, co-pay p
- the standard agent gets treated whenever $b > p$, but should get treated when $b > c$
- $\Rightarrow$ overutilization when $p < c$

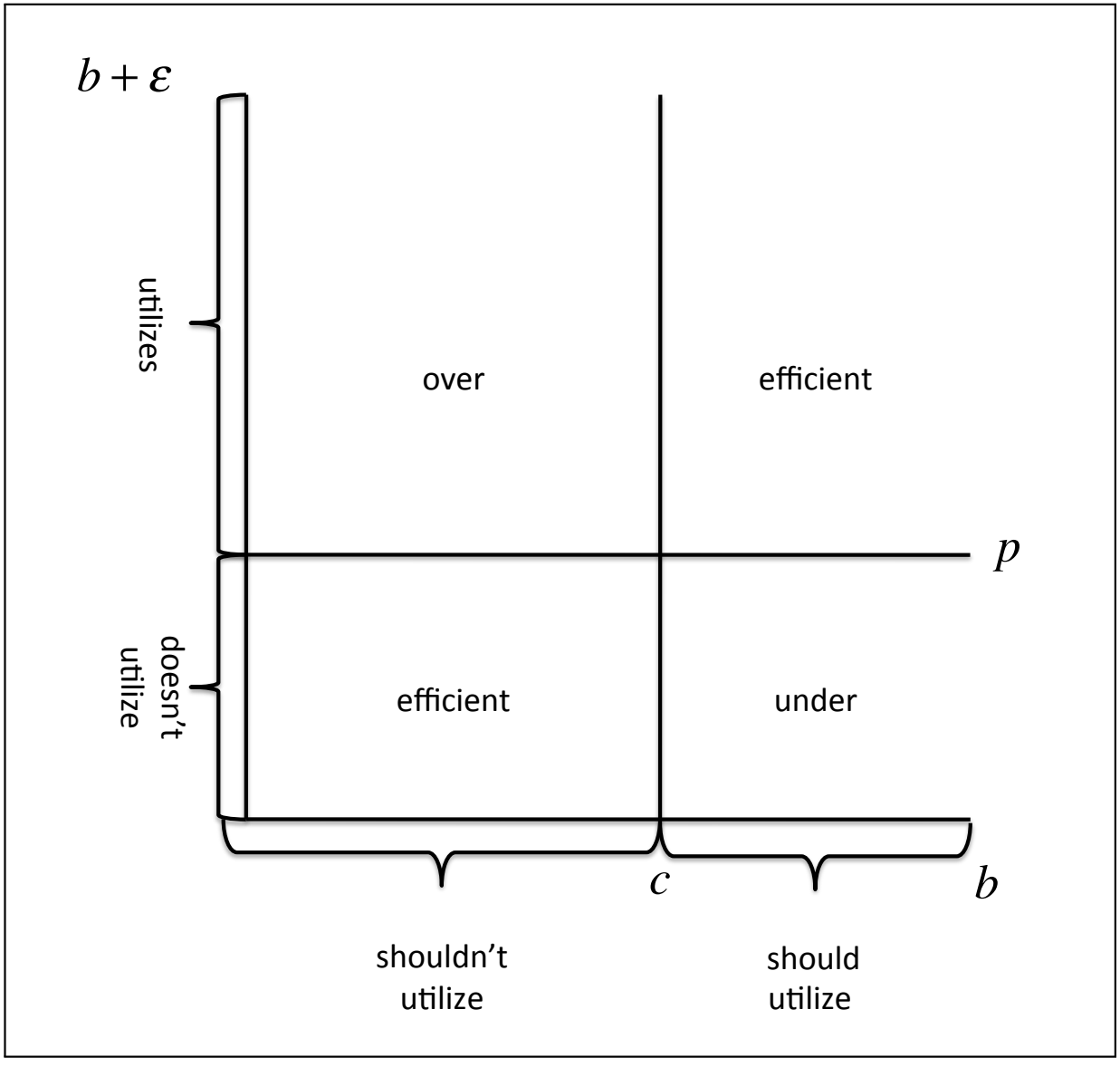
Choice to Receive Treatment

Without behavioral hazard: Choose to get treated if $b(s) > p$

With behavioral hazard: Choose to get treated if $b(s) + \varepsilon(s) > p$

- ε is a function of the disease and severity
  - We can write ε as a function of primitives of specific psychological models
- Examples
  - ε driven by salience of symptoms
    - e.g., symptoms of diabetes ($\varepsilon \leq 0$) vs. back pain ($\varepsilon \geq 0$)
  - ε driven by present-bias
    - e.g., medication to treat chronic illness ($\varepsilon \leq 0$) vs. antibiotic to treat ear infection ($\varepsilon \geq 0$)
- The paper also allows for heterogeneity in behavioral hazard across people

Choice to Receive Treatment with Behavioral Hazard



- *misutilization not solely a consequence of insurance*
- having $p \neq c$ may $\rightarrow$ more efficient utilization

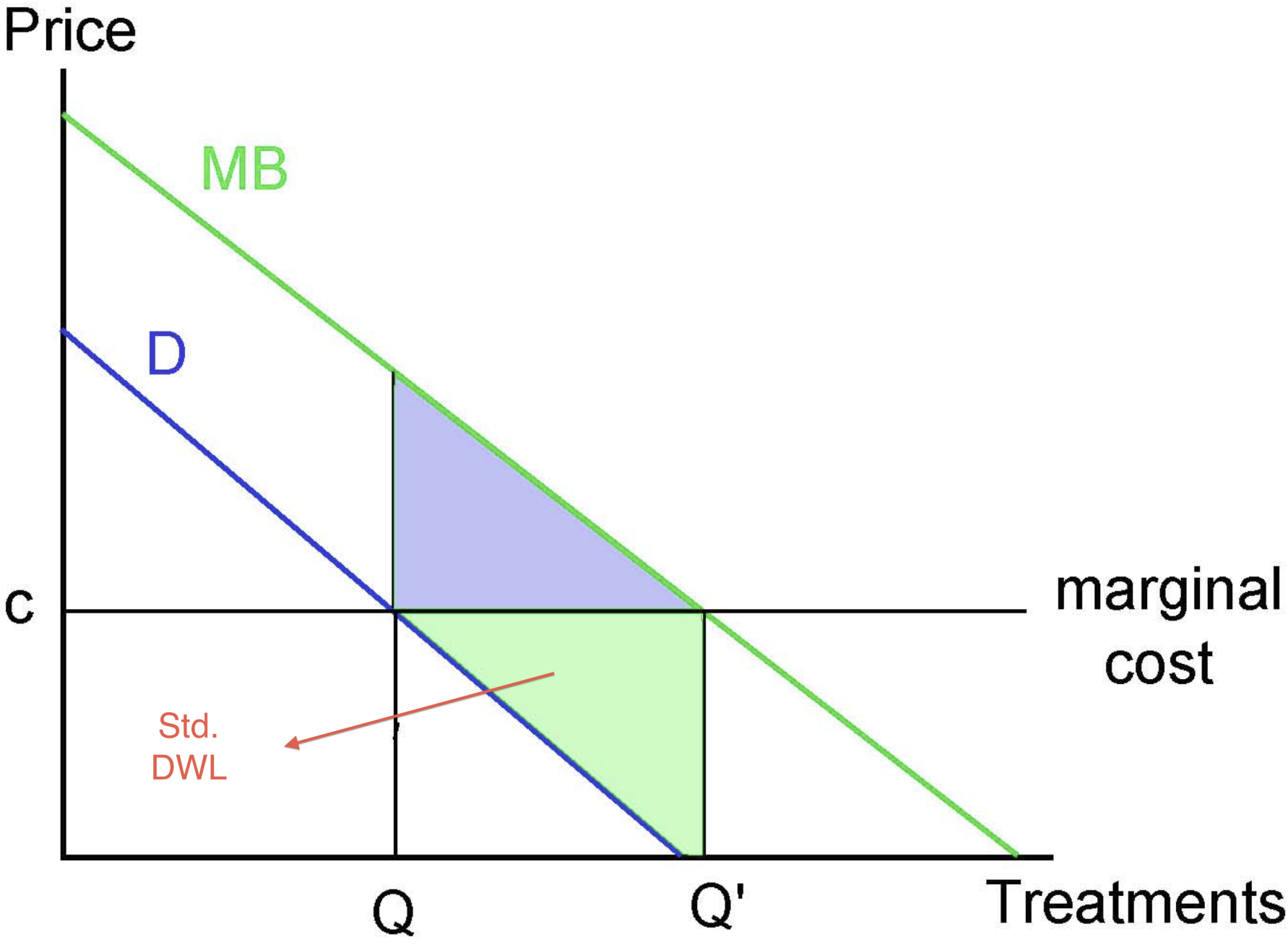
Re-Thinking The Welfare Impact of Co-pay Changes

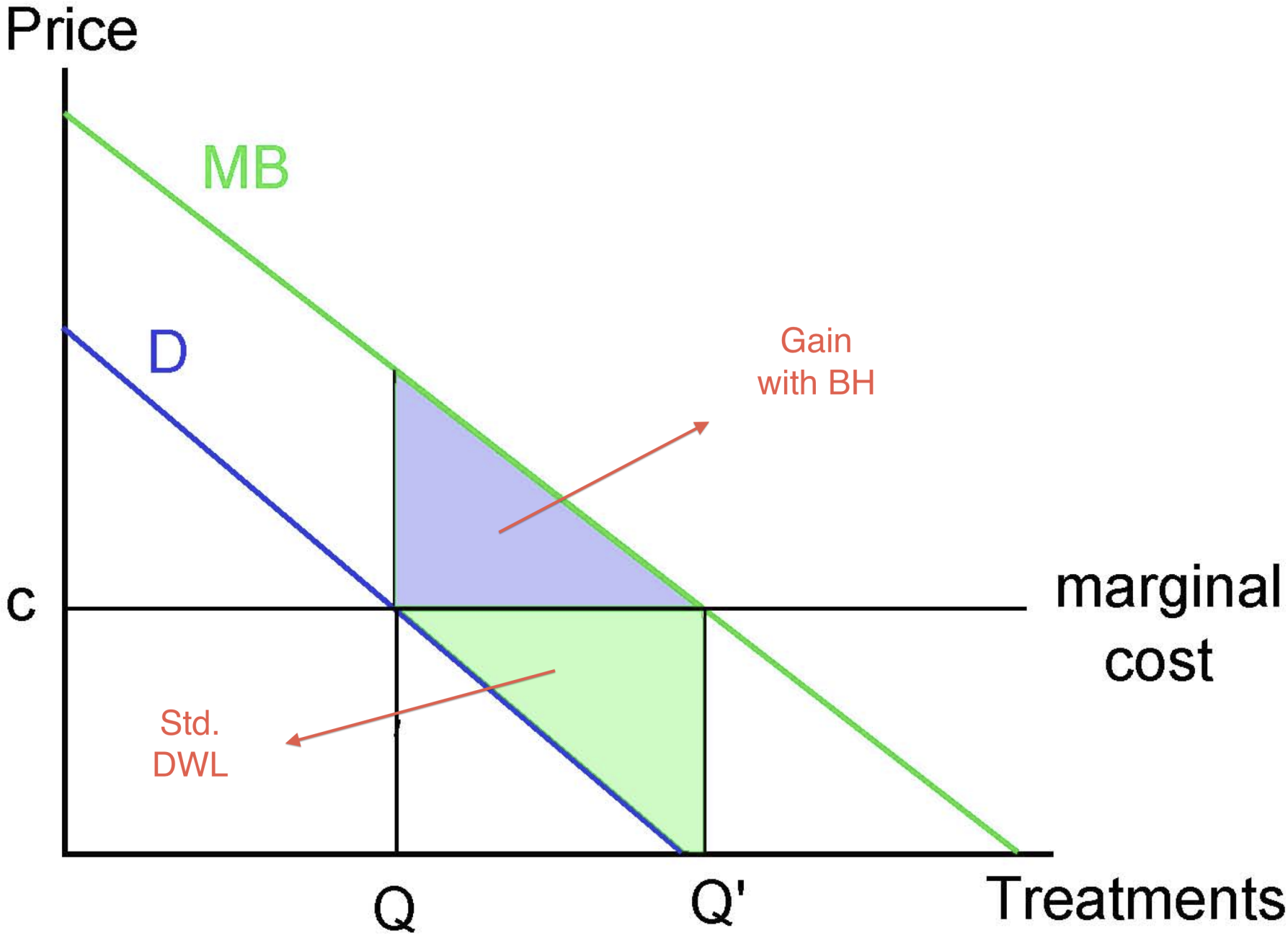
Planner's problem:

$$\max_{p} W = E[U] \text{ subject to } P = \overbrace{\Pr(b(s)+\varepsilon(s)>p)}^{\text{Demand}} \cdot (c - p)$$

Raising the co-pay has two effects:

1. It reduces insurance value
   - doesn't matter whether there is behavioral hazard
2. It affects utilization
   - interpretation of demand response depends on whether there is behavioral hazard


Price
MB
D
c
marginal
cost
Std.
DWL
Q
Q'
Treatments


Price
MB
D
Gain
with BH
c
marginal
cost
Std.
DWL
Q
Q'
Treatments

Welfare Effects of Changing the Co-pay: No BH

Without BH: Differentiate W and normalize:

$$\underbrace{\frac{dW}{dp}/\frac{dW}{dy}}_{\text{Welfare Impact}} = \overbrace{-M'(p)(c-p)}^{\substack{\text{Demand Response} \\ \text{Sufficient Statistic}}} - \underbrace{\overbrace{\left(\frac{E[U'(C)|m=1]-E[U'(C)]}{E[U'(C)]}\right)}^{I} \cdot M(p)}_{\text{Insurance Value}}$$

FOC for optimal co-pay

$$\frac{c-p^S}{p^S} = \underbrace{\frac{I}{\eta}}_{\text{Demand Elasticity}}$$

- More elastic demand implies higher co-pay
- Insurance optimally partial: $p^S \in (0, c)$ if $\eta > 0, I > 0$

Optimal Copay: Behavioral Hazard

Taking BH into Account: Differentiate W and normalize:

$$\underbrace{\frac{dW}{dp}/\frac{dW}{dy}}_{\text{Welfare Impact}} \approx \overbrace{\underbrace{-M'(p)(c-p+\varepsilon)}_{\text{Sign Could Become (-)}}}^{\substack{\text{Demand Response} \\ \textit{Not} \text{ Sufficient Statistic}}} - I \cdot M(p)$$

FOC

$$\frac{c-p^B}{p^B} \approx \frac{I}{\eta} - \frac{\varepsilon}{p^B}$$

- More elastic demand does not necessarily mean higher co-pay

Re-thinking Optimal Co-pays (Continued)

$$\frac{c - p^B}{p^B} \approx \frac{I}{\eta} - \frac{\varepsilon}{p^B}$$

- Optimal co-pays can substantially deviate from cost even when there is no insurance value to coverage: when $I = 0$, $p^B = c + \varepsilon(s(p^B))$
  - optimal co-pays price "internalities"
  - health insurance can actually lead to more efficient utilization

- Optimal co-pays can be extreme
  - When BH is very negative, full coverage (or even negative copays) is optimal
  - When BH is very positive, denying coverage is optimal

Moral Hazard Cannot be Inferred From the Demand Curve Alone

Modal evidence for moral hazard has been the demand response (e.g., Feldstein 1973; Manning et al. 1987; Newhouse 1993; Cutler and Zeckhauser 2000; Finkelstein 2014; Einav and Finkelstein 2017)

This can be misleading

- With BH, the person who responds does not necessarily value treatment at the co-pay

More than an abstract concern

Demand Responses Often Not Related to Value of Care

Study	**Price Change**	**Change in Use**	
		Higher Value	*Lower Value*
Lohr et al. (1986)	Cost-sharing vs. none in RAND	21% reduction in use of highly effective care; 40% reduction in beta blockers, 44% reduction in insulin	26% reduction in less effective care; 6% reduction in hayfever treatment, 40% reduction in cold remedies, 31% reduction in antacids
Goldman et al. (2006)	$10 increase in copay (from $10 to $20)	Compliance with cholestorol meds among high risk drops from 62% to 53%	Compliance with cholestorol meds among low risk drops from 52% to 46%; medium drops from 59% to 49%
Chandra et al. (2010)	Increase in copayments from $1 to $8	Elasticity of around .15 for acute care and chronic care Rx	Elasticity of around .15 for "lifestyle" Rx

Source: Baicker, Mullainathan, and Schwartzstein

Example

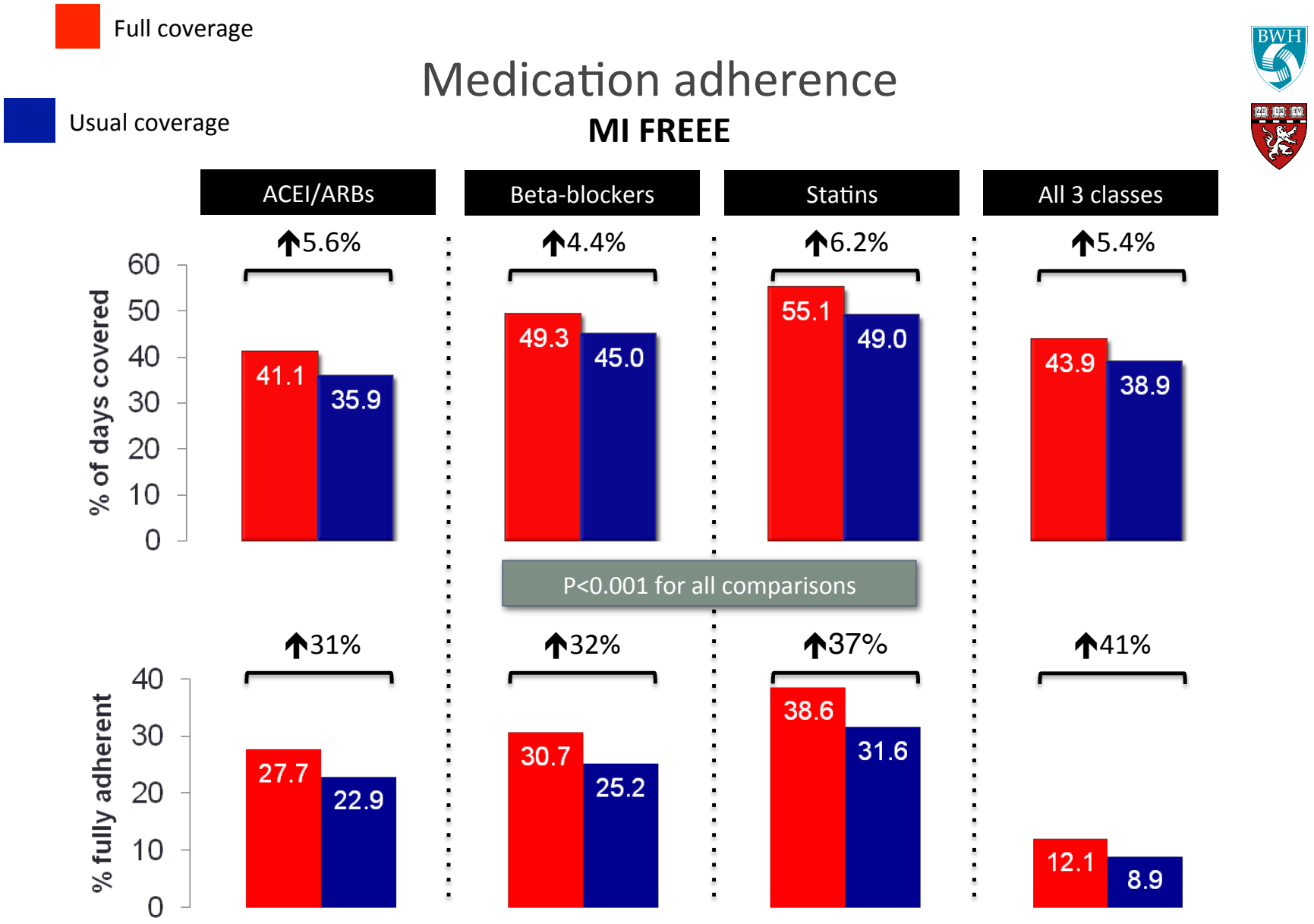
Example: Choudhry et al. (NEJM, 2011)

- Study impact of eliminating copays for recent heart attack victims
- Randomly assigned patients discharged after heart attacks to a control group with usual coverage
  - copayments in $12 to $20 range
- Or a treatment group with no co-payments
  - For statins, beta blockers and ACE inhibitors

(Slides with Brigham and Harvard seals below were made by Choudhry et al.)

Medication adherence

MI FREEE



Moral Hazard Cannot be Inferred From the Demand Curve Alone

Modal evidence for moral hazard has been the demand response (e.g., Feldstein 1973; Manning et al. 1987; Newhouse 1993; Cutler and Zeckhauser 2000; Finkelstein 2014; Einav and Finkelstein 2017)

This can be misleading

- Being marginal does not necessarily imply indifference

Implications can even be the wrong sign!

More than an abstract concern

How can we tell?

Understanding the Marginal Internality

Measuring health responses helps identify who is at the margin

- Define $H(p) = E[m(p; s)b(s) - s]$ to equal the aggregate level of health
- Standard model: $H'(p) = M'(p)p$
  - Can *infer* the health response directly from the demand response and the co-pay
- With behavioral hazard:

$$-\frac{\varepsilon}{p} = \frac{H'(p)}{pM'(p)} - 1$$

- Can infer the degree of behavioral hazard from the return to the last private dollar spent on treatment
  - Can only equate $H'(p) = M'(p) \cdot p$ when we are confident there is no marginal behavioral hazard

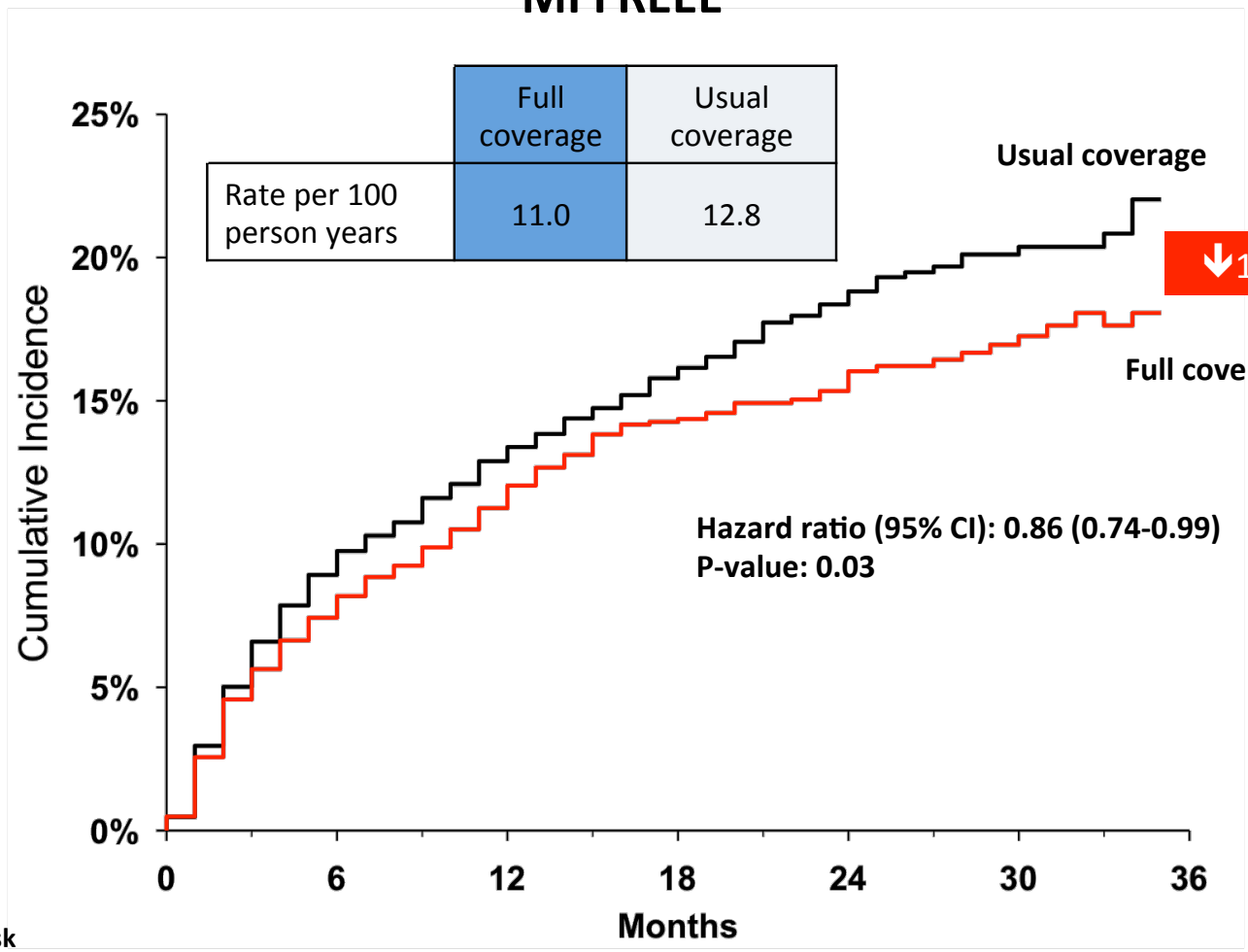
Re-Thinking Optimal Co-pays

Optimal co-pays depend on health value, not just demand elasticities

$$\frac{c - p^B}{p^B} \approx \frac{I}{\eta} + \left(\frac{\left| H'(p^B) \right|}{p^B \left| M'(p^B) \right|} - 1 \right)$$

- Helps rationalize VBID (Chernew et al. 2007): lower cost-sharing for treatments with greater health benefits
- Fixing the demand response, co-pays should be lower when this response translates into relatively worse health

Major vascular events (Fatal or nonfatal MI, unstable angina, CHF, stroke)



No. at Risk							
Usual coverage	3010	2361	1652	1099	662	379	131
Full coverage	2845	2295	1572	1013	625	340	135

Using Choudhry Data

If we assume moral hazard (don't look at health outcomes)

- Full coverage $\Rightarrow$ \$106 increase in spending (per patient)
- Average patient share 25% $\Rightarrow$ extra care consumed has monetized health value of at most \$.25 on the dollar, or \$26.50 overall
- Marginal (social) dollar has -\$.75 net return
- Eliminating copayments bad policy (abstracting from insurance value)

Taking behavioral hazard into account

- Take a small part of the health impact: mortality reduction
- .3 percentage point reduction $\Rightarrow$ \$3000 value using common value of statistical life (\$1 million of death averted)
- Marginal (social) dollar has \$27 net return
- Eliminating copayments *very* good policy

Challenges of Using Data on Health Responses?

Challenges of Using Data on Health Responses

1. Portions of this response may be unobservable
   - Estimate reduction in mortality risk $\rightarrow$ money-metric utility benefit
   - Estimating and monetizing side effects more difficult
   - May plausibly *bound* degree of BH in some cases

2. Health responses not currently available for many services, in part b/c of difficulty linking clinical and administrative data
   - While daunting to perform an exhaustive list of experiments and calculations, a small number of conditions account for a large share of health spending

3. What matters is the *marginal*, not *average* health-value of care
   - But when demand is driven by behavioral hazard, knowledge of the average value can provide a useful signal about the marginal value
   - E.g., suppose demand slopes down only because of behavioral hazard: $\text{Var}(\varepsilon) > 0$, but $\text{Var}(b) = 0 \Rightarrow$
   - Marginal value equals average value

Summary of Behavioral Hazard in Health Insurance

- Health insurance can provide more than just financial protection: it can increase the efficiency of health care utilization
- While the effect of prices on the quantity of care consumed captures MH in the traditional model, it captures some combination of MH and BH in this model
  - Neglecting BH can lead to very mistaken policy inferences from demand data
  - Knowledge of the effect of prices on the health benefit of care can differentiate between MH and BH
- Optimal co-pays vary across treatments not just based on associated demand elasticities but also on marginal health values
- See Chandra, Handel, and Schwartzstein (2018) for preliminary work on when behavioral hazard enables/creates market failures and potential policy responses

Mistakes in Insurance-Plan Choice

Behavioral Health Economics Applications

Topics Covered	Sample References
Consumer insurance choices	Handel (2013) Bhargava, Loewenstein and Sydnor (2017)
Insurance impact on consumer health-care utilization	Brot-Goldberg et al. (2017) Baicker, Mullainathan and Schwartzstein (2015)
Provider-consumer joint treatment choices	
Consumer adherence to medications / treatments	Sokol et al. (2005)

Mistakes in Insurance-Plan Choice

Lots of research that consumers leave $ on the table in their plan choices, sometimes thousands of dollars

- In active choices – e.g., no default plan
- In passive choices – e.g., with default plan

Matters for thinking about welfare and inferring preferences from choices

Matters for thinking about policy

- E.g., Should we promote large menus of plans?

Will focus on Bhargava, Loewenstein, and Sydnor (2017)

Bhargava, Loewenstein, and Sydnor (2017)

Objective: Explore the quality of individuals' health insurance decisions and reasons for apparent mistakes

Strategy: Analyze data from a specific employer where employees choose from large menus of insurance plan options, as well as data from follow-up experiments.

Findings/Conclusions: People choose financially dominated options to an extent that is (very) hard to rationalize in the standard model.

This is true even when menus are simplified and to a much lesser extent when insurees are educated or outcomes of choices are made more transparent.

Important and Surprising Findings

Table 1

PLAN MENU DETAILS & PRICE DOMINATION

Plan Name	Deductible	Coinsurance	Out-of-Pocket Max	Office Copayment	Choice Share	Premium	Cost Difference Relative to $1K Deductible Plan	Tax Adjusted Cost Difference Relative to $1K Deductible Plan
Plan 1	$350	90%	$1,500	$15/$40	5.3%	$2,134	$1,204	$975
Plan 2	$350	90%	$2,500	$15/$40	0.3%	$1,983	$1,235	$1,000
Plan 3	$350	90%	$3,000	$15/$40	0.2%	$1,912	$1,255	$1,017
Plan 4	$350	90%	$1,500	$25/$35	4.9%	$2,047	$1,286	$1,042
Plan 5	$350	90%	$2,500	$25/$35	0.4%	$1,862	$1,206	$977
Plan 6	$350	90%	$3,000	$25/$35	0.2%	$1,778	$1,124	$910
Plan 7	$350	80%	$1,500	$15/$40	0.3%	$2,037	$1,160	$940
Plan 8	$350	80%	$2,500	$15/$40	0.1%	$1,889	$1,176	$952
Plan 9	$350	80%	$3,000	$15/$40	0.1%	$1,608	$967	$783
Plan 10	$350	80%	$1,500	$25/$35	1.0%	$1,957	$1,140	$924
Plan 11	$350	80%	$2,500	$25/$35	1.0%	$1,808	$1,146	$928
Plan 12	$350	80%	$3,000	$25/$35	0.4%	$1,605	$971	$786
Plan 13	$500	90%	$1,500	$15/$40	2.9%	$1,568	$638	$517
Plan 14	$500	90%	$2,500	$15/$40	3.0%	$1,455	$707	$572
Plan 15	$500	90%	$3,000	$15/$40	0.7%	$1,378	$722	$585
Plan 16	$500	90%	$1,500	$25/$35	5.9%	$1,474	$713	$577
Plan 17	$500	90%	$2,500	$25/$35	3.8%	$1,372	$716	$580
Plan 18	$500	90%	$3,000	$25/$35	0.8%	$1,252	$598	$484
Plan 19	$500	80%	$1,500	$15/$40	2.6%	$1,497	$620	$502
Plan 20	$500	80%	$2,500	$15/$40	0.7%	$1,315	$602	$487
Plan 21	$500	80%	$3,000	$15/$40	0.2%	$1,152	$511	$414
Plan 22	$500	80%	$1,500	$25/$35	3.9%	$1,419	$602	$488
Plan 23	$500	80%	$2,500	$25/$35	9.5%	$1,252	$590	$478
Plan 24	$500	80%	$3,000	$25/$35	1.5%	$1,114	$480	$389
Plan 25	$750	90%	$1,500	$15/$40	0.4%	$1,463	$533	$432
Plan 26	$750	90%	$2,500	$15/$40	0.5%	$1,333	$585	$474
Plan 27	$750	90%	$3,000	$15/$40	0.1%	$1,260	$603	$489
Plan 28	$750	90%	$1,500	$25/$35	1.0%	$1,377	$616	$499
Plan 29	$750	90%	$2,500	$25/$35	1.2%	$1,235	$579	$469
Plan 30	$750	90%	$3,000	$25/$35	3.2%	$1,173	$519	$421
Plan 31	$750	80%	$1,500	$15/$40	0.2%	$1,408	$531	$430
Plan 32	$750	80%	$2,500	$15/$40	1.1%	$1,217	$505	$409
Plan 33	$750	80%	$3,000	$15/$40	0.2%	$1,089	$448	$363
Plan 34	$750	80%	$1,500	$25/$35	0.9%	$1,321	$504	$408
Plan 35	$750	80%	$2,500	$25/$35	2.5%	$1,168	$506	$410
Plan 36	$750	80%	$3,000	$25/$35	1.6%	$1,038	$404	$327
Plan 37	$1,000	90%	$1,500	$15/$40	4.5%	$930	--	--
Plan 38	$1,000	90%	$2,500	$15/$40	1.5%	$748	--	--
Plan 39	$1,000	90%	$3,000	$15/$40	1.0%	$657	--	--
Plan 40	$1,000	90%	$1,500	$25/$35	2.7%	$761	--	--
Plan 41	$1,000	90%	$2,500	$25/$35	1.0%	$656	--	--
Plan 42	$1,000	90%	$3,000	$25/$35	1.5%	$654	--	--
Plan 43	$1,000	80%	$1,500	$15/$40	2.4%	$877	--	--
Plan 44	$1,000	80%	$2,500	$15/$40	0.5%	$713	--	--
Plan 45	$1,000	80%	$3,000	$15/$40	0.9%	$641	--	--
Plan 46	$1,000	80%	$1,500	$25/$35	4.2%	$817	--	--
Plan 47	$1,000	80%	$2,500	$25/$35	2.5%	$662	--	--
Plan 48	$1,000	80%	$3,000	$25/$35	14.6%	$634	--	--

Source: Bhargava et al.

Important and Surprising Findings

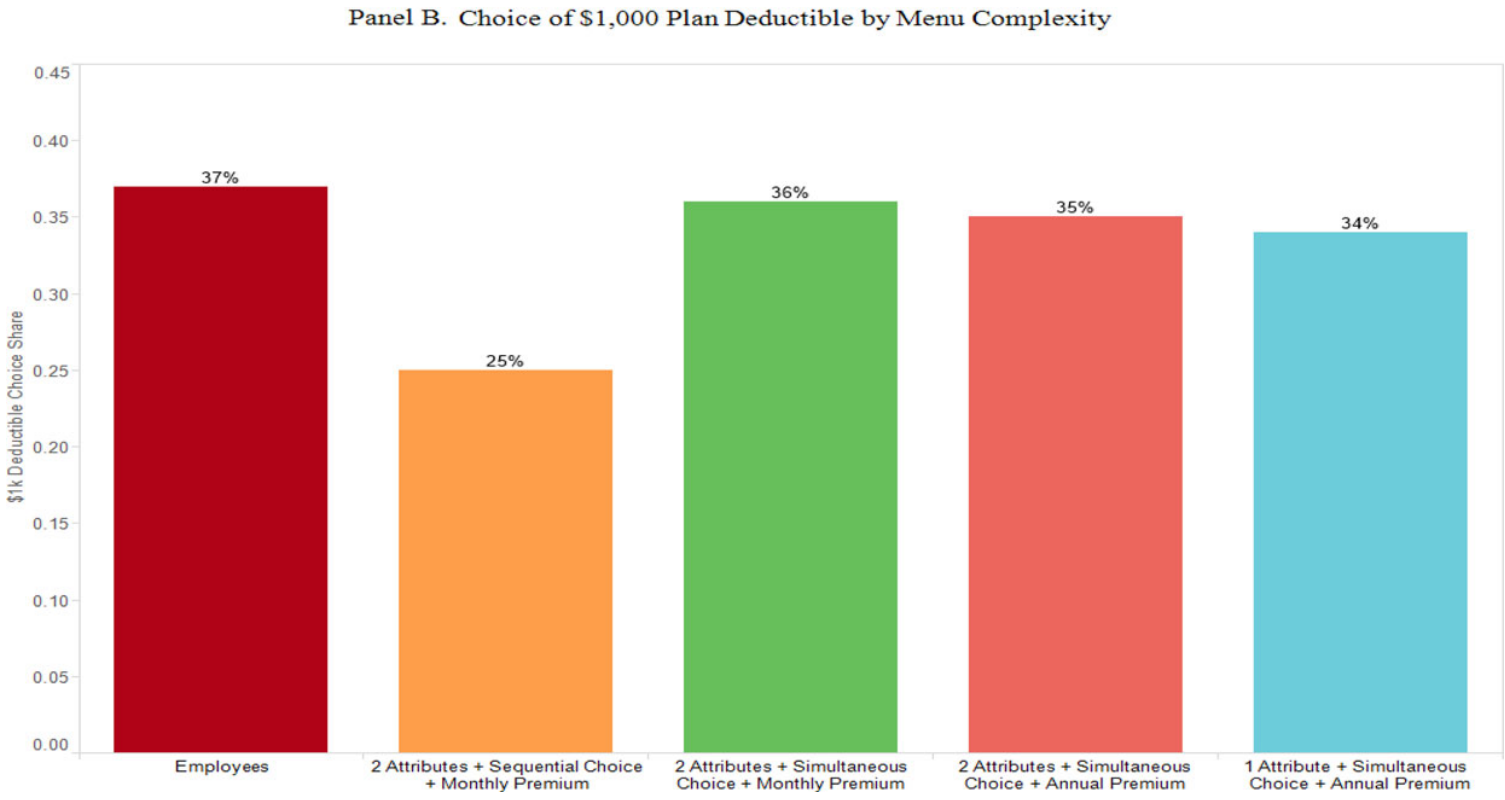


FIGURE IV

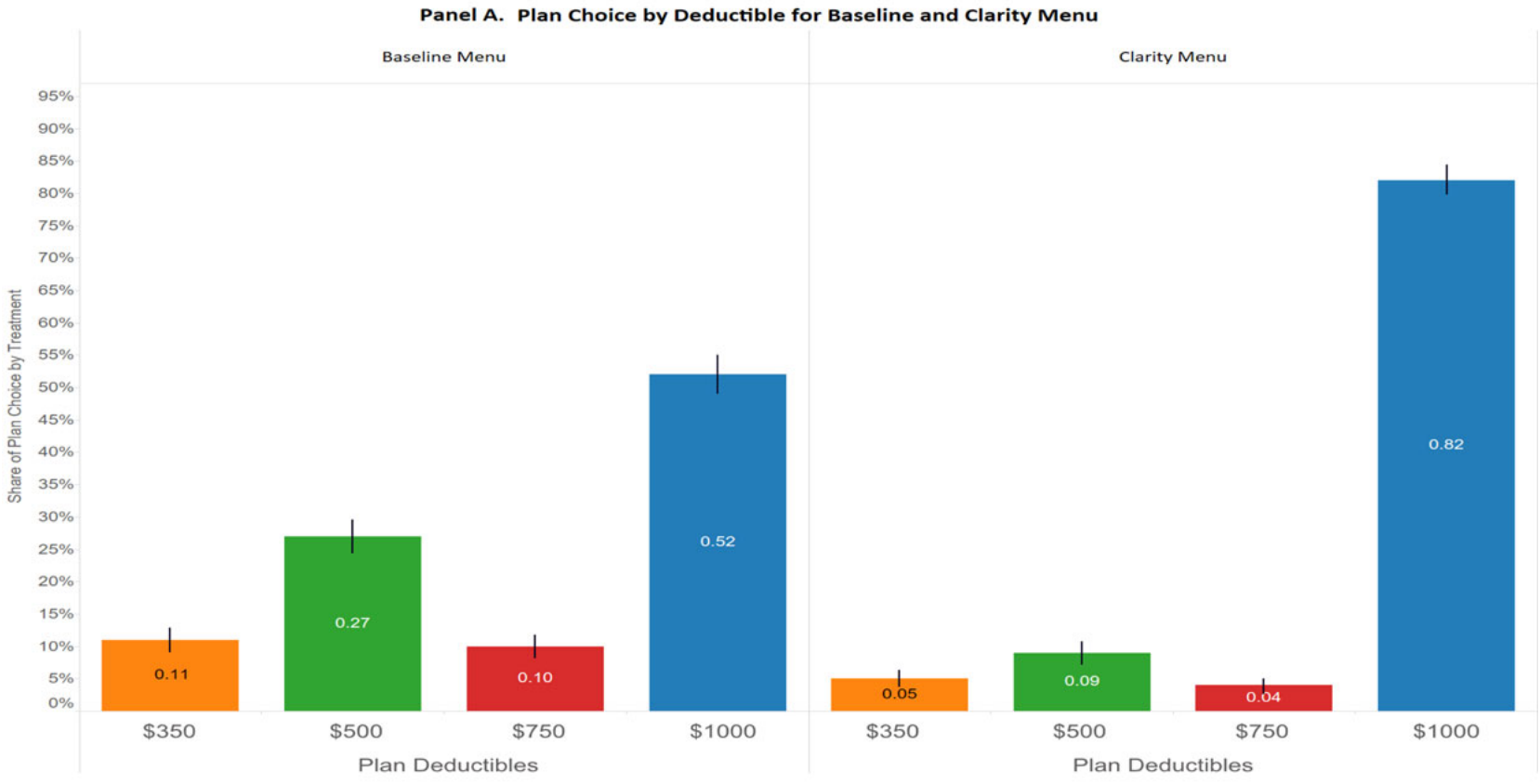
Source: Bhargava et al.

Policy Implications?

Policy implications may not be so straightforward:

- Pricing would change with standardized plans with unclear welfare implications
- What's driving the choice of financially dominated options?
  - paper does great job trying to dive into this

What's Driving the Choice of Financially Dominated Options?



Source: Bhargava et al.

What's Driving the Choice of Financially Dominated Options?

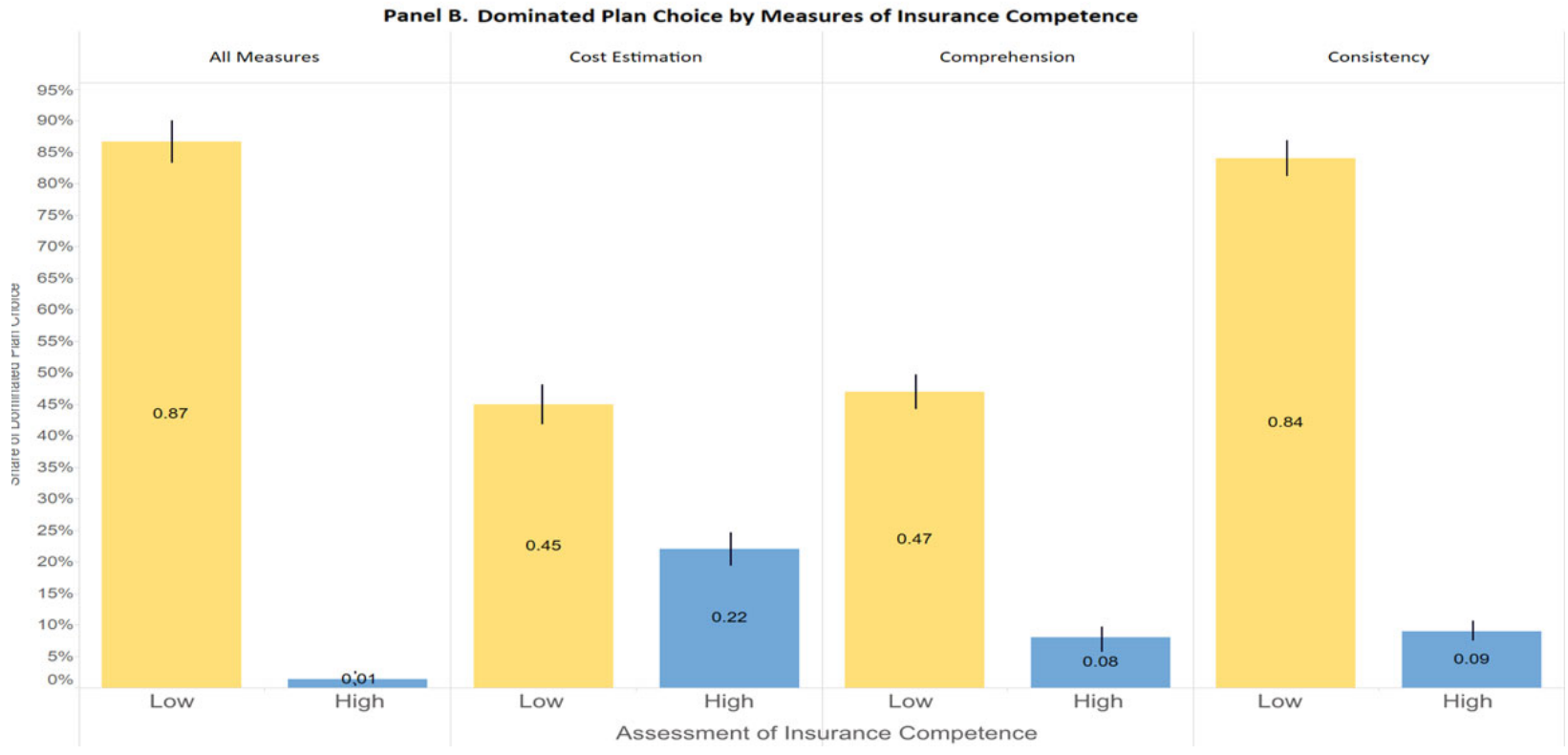


FIGURE V

Source: Bhargava et al.

Potential Benefits of Financially Dominated Options?

Potential Benefits of Financially Dominated Options

Whether or not consumers recognize them

Lower deductibles mean that people can face lower cost-sharing on the margin

- For example, with zero deductible people will face less for first-dollar coverage than people with $1000 deductible
- People respond to spot prices, not just expected final prices (e.g., Aron-Dine et al. 2014; Brot-Goldberg et al. 2017)

As we just saw: according to moral-hazard models this is costly

But with behavioral hazard this can be beneficial

Demand Responses Often Not Related to Value of Care

Brot-Goldberg, Chandra, Handel, and Kolstad (2017)

- Study a natural experiment where employees were forced to switch from a plan with free health care to one with a high deductible
- They find that even the sickest consumers reduce spending across a range of services, including potentially valuable care
  - E.g., colonoscopies

Policy Implications?

Observation: *Financially* dominated does not necessarily mean *economically* dominated

May influence how we think about the policy implications of these findings

Broader point: Should study interaction between mistakes at insurance-plan-choice stage and mistakes at treatment stage

Glass Half Full Takeaway

Behavioral policy work often seems messy

- Many different biases
- Lessons seem context specific

Significant progress can be made without relying on specific psychological assumptions about *why* behavior may deviate from the optimum

- What matters for much of the analysis is the wedge between the marginal private benefit and demand curves

Behavioral policy is not as messy as it seems

- Also see Mullainathan, Schwartzstein and Congdon (2012); Handel and Schwartzstein (2018)

Glass Half Empty Takeaway

Tempting insight about behavior: When consumers making health-care or health-insurance choices have the opportunity to make (big) mistakes, they make (big) mistakes

- They choose financially-dominated plans!
- Choudhry evidence!
- Broader evidence on behavioral hazard!
- Etc. etc.

Reaction?

Portable Lessons About Behavior or Inferring Preferences?

Tempting insight about behavior: When consumers making health-care or health-insurance choices have the opportunity to make (big) mistakes, they make (big) mistakes!

Potential take-away about inferring preferences: standard approaches are wrong!

Using Psychological Nuance

We have mostly drawn out implications of mistakes generally, without distinguishing between underlying psychologies

Making such distinctions can clearly be useful

1. Can allow us, e.g., to predict the degree of behavioral hazard in situations where measuring health responses is infeasible (also see Handel and Schwartzstein 2018)
2. Can suggest new policy instruments (e.g., nudges) that would usefully target specific psychologies
   - Uncertain (for now) how effective most nudges are at counteracting mistakes (e.g., Chandra, Handel, and Schwartzstein 2018)

How to Fill the Glass

Perhaps more portable/useful insight about behavior: People make systematic error(s) **X** in choosing between health plans and making health-care choices

Perhaps more portable/useful take-away about inferring preferences: Traditional approaches to inferring preferences are biased because they neglect error(s) **X**, but we can use knowledge about these errors to improve these approaches

Researchers can and should make progress identifying **X**

Summary

Theme: We're often more confident that people are making *some* mistake in health-insurance or health-treatment choices than *why* they are making a mistake

I believe research convincingly

- points to pitfalls in analyzing demand curves for insurance or medical care while maintaining assumption that choices perfectly reveal preferences
- shows that researchers are able to make progress without understanding precise mechanisms behind mistakes

But huge gains going forward to understanding this better, as well as the "whys" behind poor insurance and treatment choices