



BERKELEY CENTER  
FOR HEALTH TECHNOLOGY

# Reference Pricing Changes the Choice Architecture of Health Care

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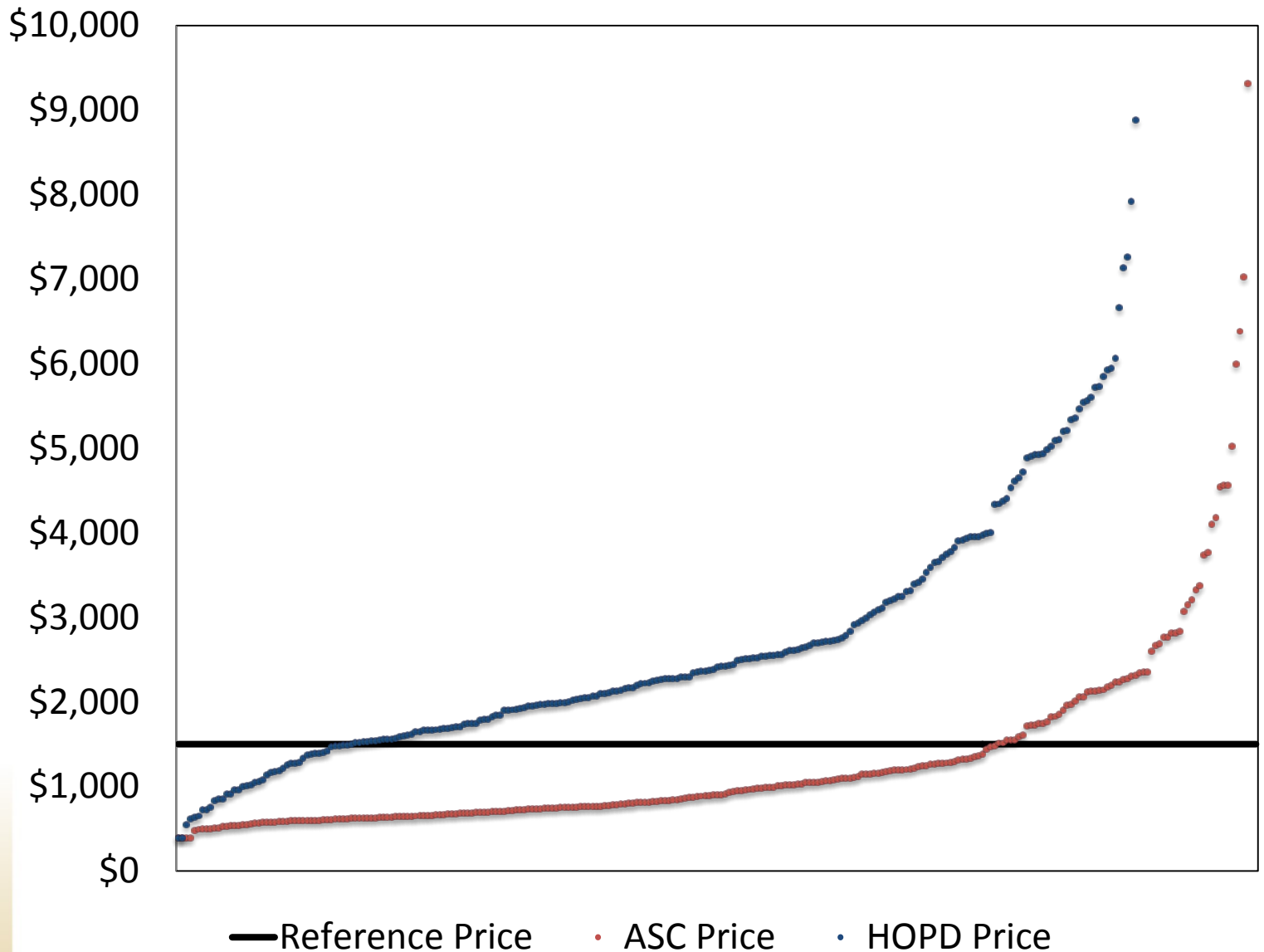


# Price Variation in Health Care

- In most non-health sectors, variation in price is due to variation in quality, convenience, and performance
- In health care, variation in price is often based on factors on the supply side of each market:
  - Manufacturers: patent protection
  - Providers: market consolidation
- The variation in price is permitted by factors on the demand side
  - Consumers lack incentive to shop, as someone else is paying (insurer, employer)
  - Consumers lack information on prices and quality at the time of making choices



# Example: Colonoscopy (CaIPERS)



# Example: Lab Tests (Safeway)

Lab Test	5th percentile	25th percentile	50th percentile	75th percentile	95th percentile
Basic metabolic panel	\$5.75	\$6.15	\$17.15	\$44.00	\$126.44
General health panel	\$20.58	\$21.88	\$23.88	\$53.66	\$121.86
Comprehensive metabolic panel	\$7.18	\$7.68	\$15.98	\$33.37	\$132.48
Lipid panel	\$8.85	\$9.46	\$11.73	\$30.03	\$74.92
Hepatic function panel	\$5.56	\$5.94	\$11.32	\$24.51	\$85.14
Iron test	\$4.40	\$4.71	\$4.71	\$13.62	\$58.47
Total PSA	\$12.50	\$13.36	\$13.36	\$37.27	\$88.75
Thyroxin free test	\$6.13	\$6.55	\$8.19	\$20.50	\$64.00
TSH	\$11.42	\$12.20	\$28.53	\$55.87	\$101.70
Uric acid test	\$3.07	\$3.28	\$3.47	\$9.63	\$30.60



# Example: Drugs (RETA Trust)

Drug Class	Number of Fills	Price of Lowest-Priced Drug in Class	Price of Highest Priced-Drug in Class	Difference Between Highest and Lowest Price Drug (\$)	Share of Lowest Price Drug in Class (%)	Share of Highest Price Drug in Class (%)
HMG CoA Reductase Inhibitors	11,701	\$12.3	\$447.2	\$434.9	0.3%	0.0%
Thyroid Hormones	8,386	\$5.3	\$33.4	\$28.1	0.3%	0.1%
Selective Serotonin Reuptake Inhibitors (SSRIs)	7,287	\$10.3	\$201.0	\$190.7	10.2%	0.1%
ACE Inhibitors	6,601	\$5.9	\$50.4	\$44.5	2.0%	0.1%
Beta Blockers Cardio-Selective	5,490	\$6.1	\$78.0	\$71.9	6.1%	3.9%
Proton Pump Inhibitors	5,345	\$25.7	\$296.1	\$270.4	28.7%	0.5%
Biguanides	4,185	\$11.8	\$525.2	\$513.4	41.0%	0.8%
Hydrocodone Combinations	4,073	\$27.8	\$297.4	\$269.6	7.7%	1.4%
Nonsteroidal Anti-inflammatory Agents (NSAIDs)	4,021	\$9.9	\$521.0	\$511.1	12.3%	0.1%
Calcium Channel Blockers	3,864	\$14.6	\$221.8	\$207.2	3.2%	0.4%
Angiotensin II Receptor Antagonists	3,497	\$11.5	\$166.6	\$155.1	8.6%	0.4%
Benzodiazepines	3,286	\$3.0	\$15.1	\$12.1	0.1%	7.8%
Anticonvulsants - Misc.	3,224	\$17.9	\$292.2	\$274.3	0.2%	0.5%
Nasal Steroids	2,952	\$34.0	\$422.1	\$388.1	60.8%	0.3%
Thiazides and Thiazide-Like Diuretics	2,647	\$4.1	\$69.4	\$65.3	0.3%	0.2%
Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs)	2,644	\$41.5	\$299.7	\$258.2	17.7%	2.6%
Beta Adrenergics	2,379	\$8.0	\$489.4	\$481.3	0.2%	0.0%
Non-Benzodiazepine - GABA-Receptor Modulators	2,233	\$34.3	\$221.4	\$187.1	12.6%	0.1%
Human Insulin	2,070	\$108.9	\$323.2	\$214.3	2.8%	16.0%
Angiotensin II Receptor Antag & Thiazide/Thiazide-Like	1,987	\$16.0	\$139.5	\$123.5	14.0%	6.2%
Antidepressants - Misc.	1,896	\$28.0	\$97.4	\$69.4	2.5%	37.1%



# What is Reference Pricing?

- Sponsor (employer, insurer) establishes a *maximum contribution* (reference price) it will make towards paying for a particular service or product
  - This limit is set at some point along the observed price range (e.g., minimum, median)
  - Patient must *pay the full difference* between this limit and the actual price charged
  - Patient may reduce cost sharing by switching to low-priced product or provider
- Patient chooses his/her cost sharing by choosing his/her product or provider
  - Patient has good coverage for low priced options but ***full responsibility for choice***



# Data and Methods

- Our studies of reference pricing use claims data from self-insured employers, with comparison group data from insurers (Anthem) and PBMs (Envision)
- Data cover 2 years prior to and 2 years post implementation of reference pricing
- Difference-in-difference multivariate regressions compare rates of change for employers implementing reference pricing with rates of change for comparison organizations not using reference pricing
- Endpoints include:
  - Probability that the patient selects the low-price provider or product
  - Average price paid for the test or treatment
  - Consumer cost sharing for test or treatment



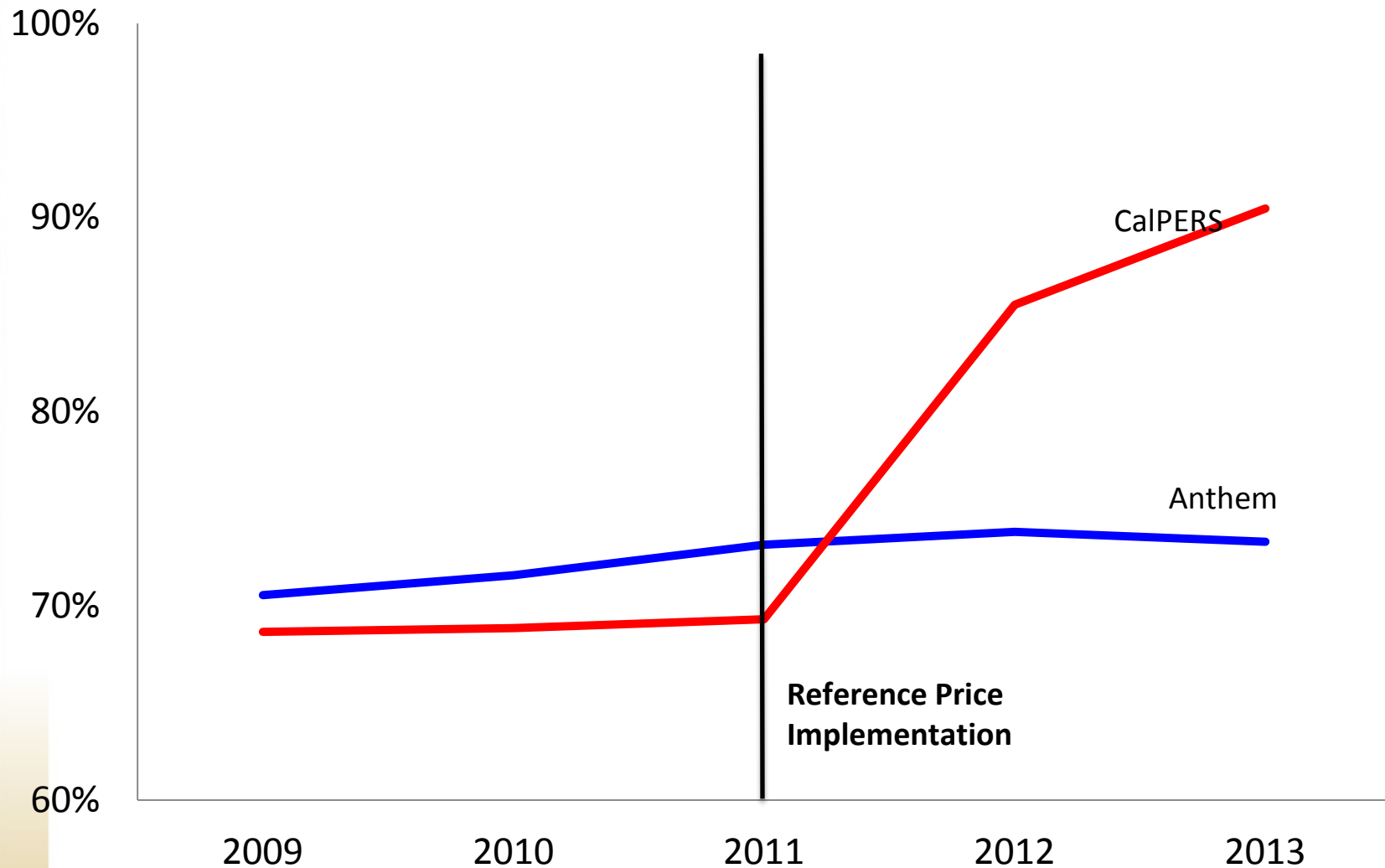
# Question

Does implementation of reference pricing induce consumers to change their choice of provider or product in favor of the cheaper alternative?

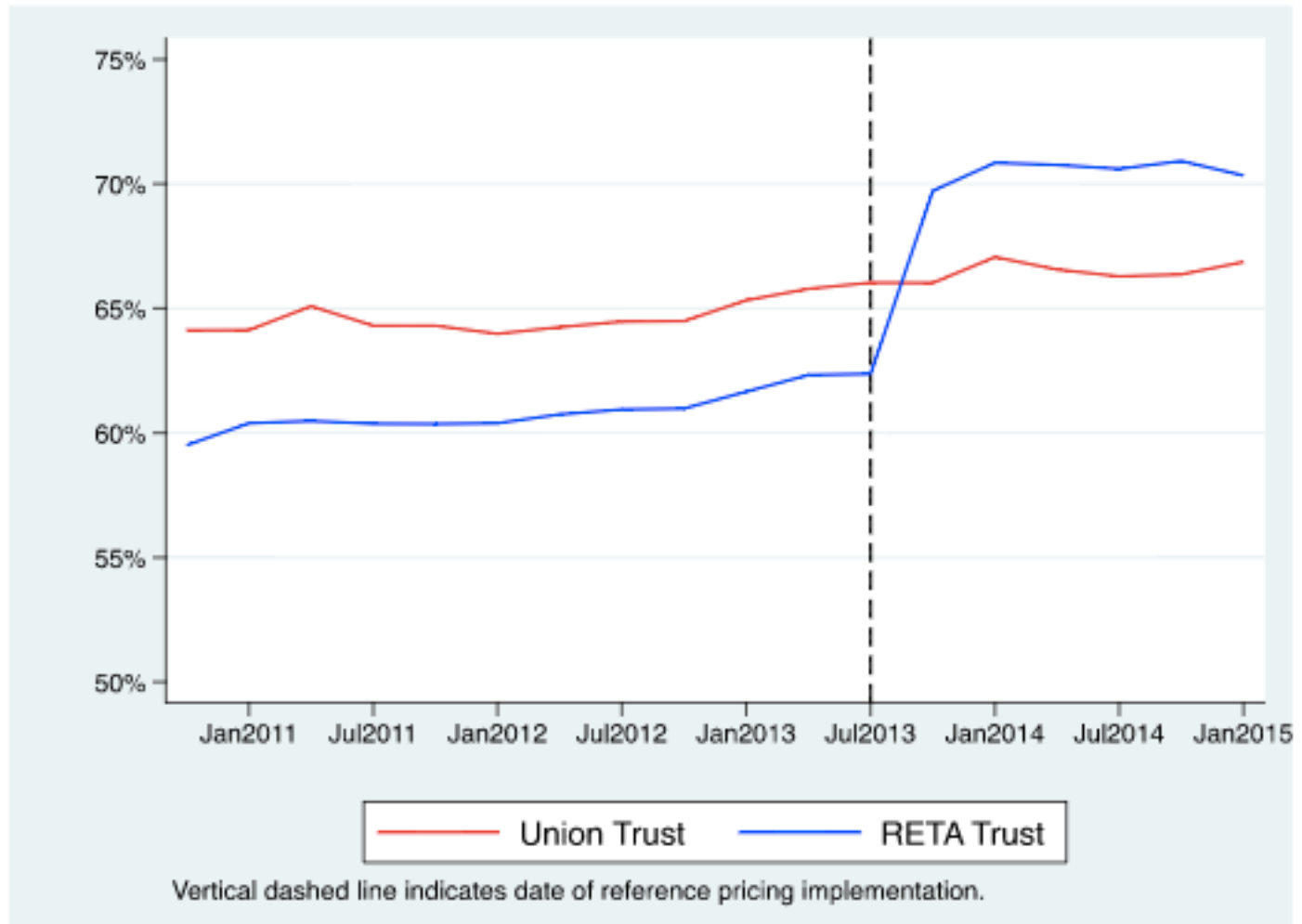




## Percentage of Patients Selecting Ambulatory Surgery Centers (ASC) over Hospital Outpatient Departments (HOPD) for Colonoscopy Before and After Implementation of Reference-Based Benefits



# Reference Pricing Increases Share of the Low-Price Drug with Each Class

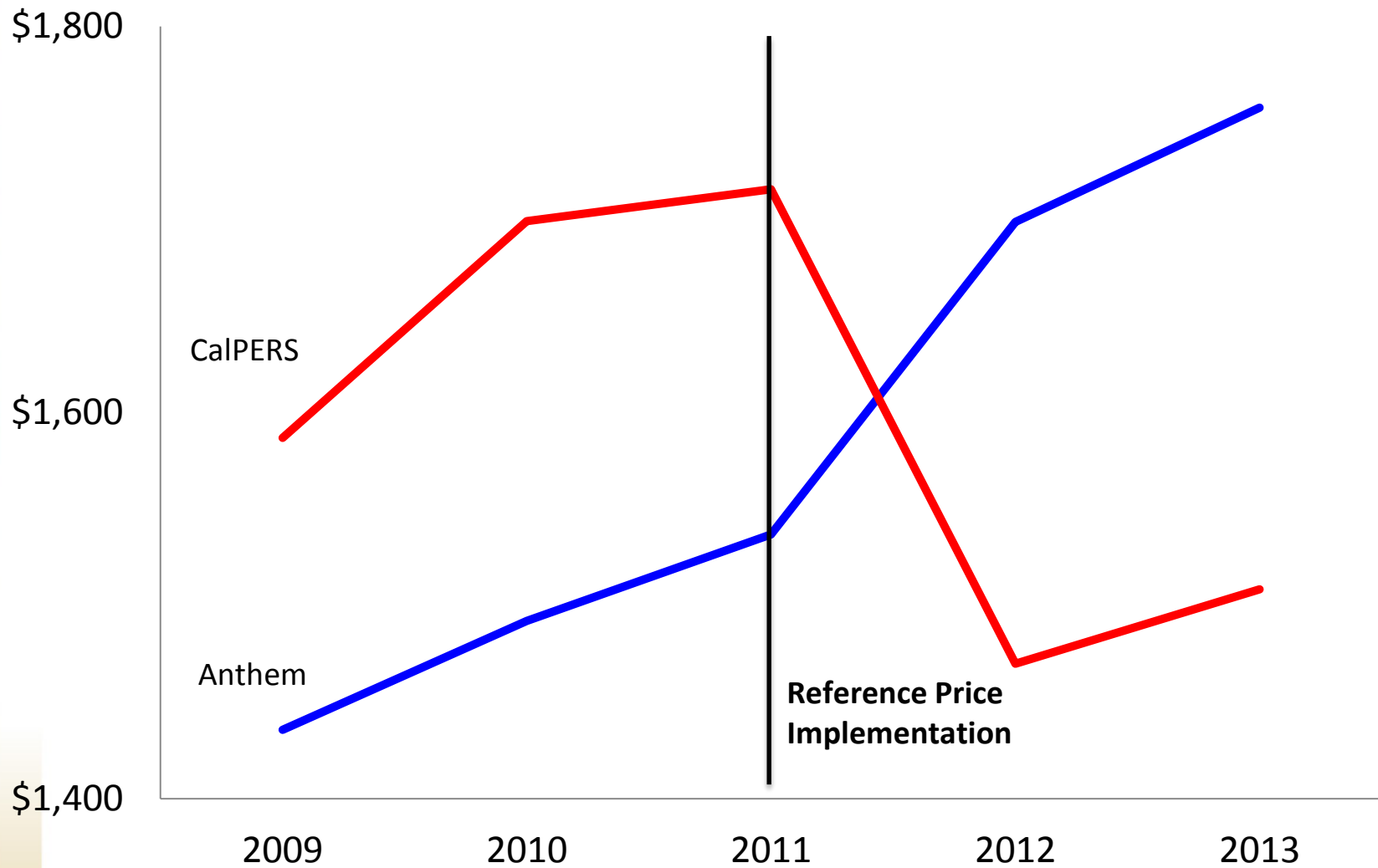


# Question

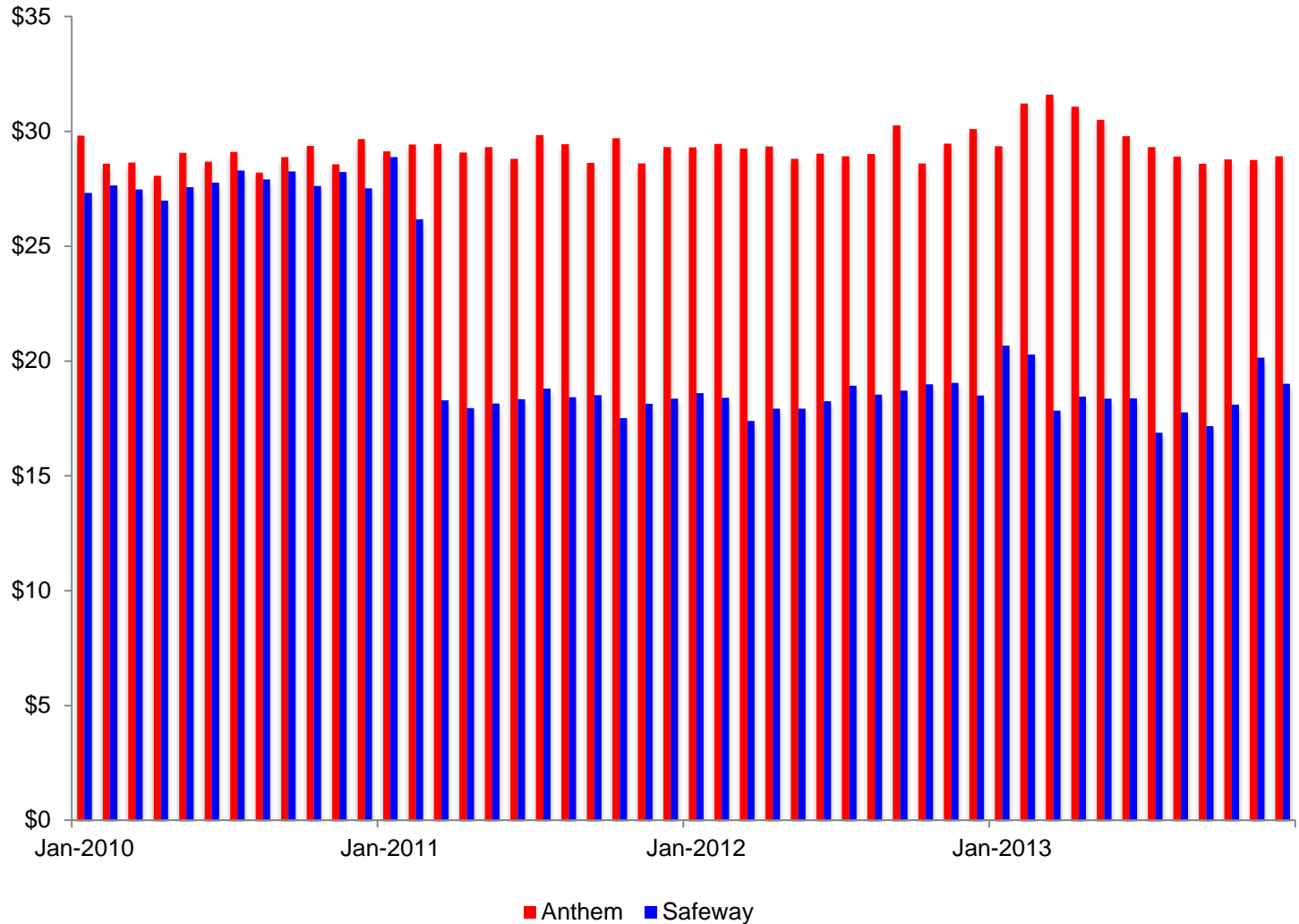
Does implementation of reference pricing reduce the average prices paid for procedures, tests, and drugs?



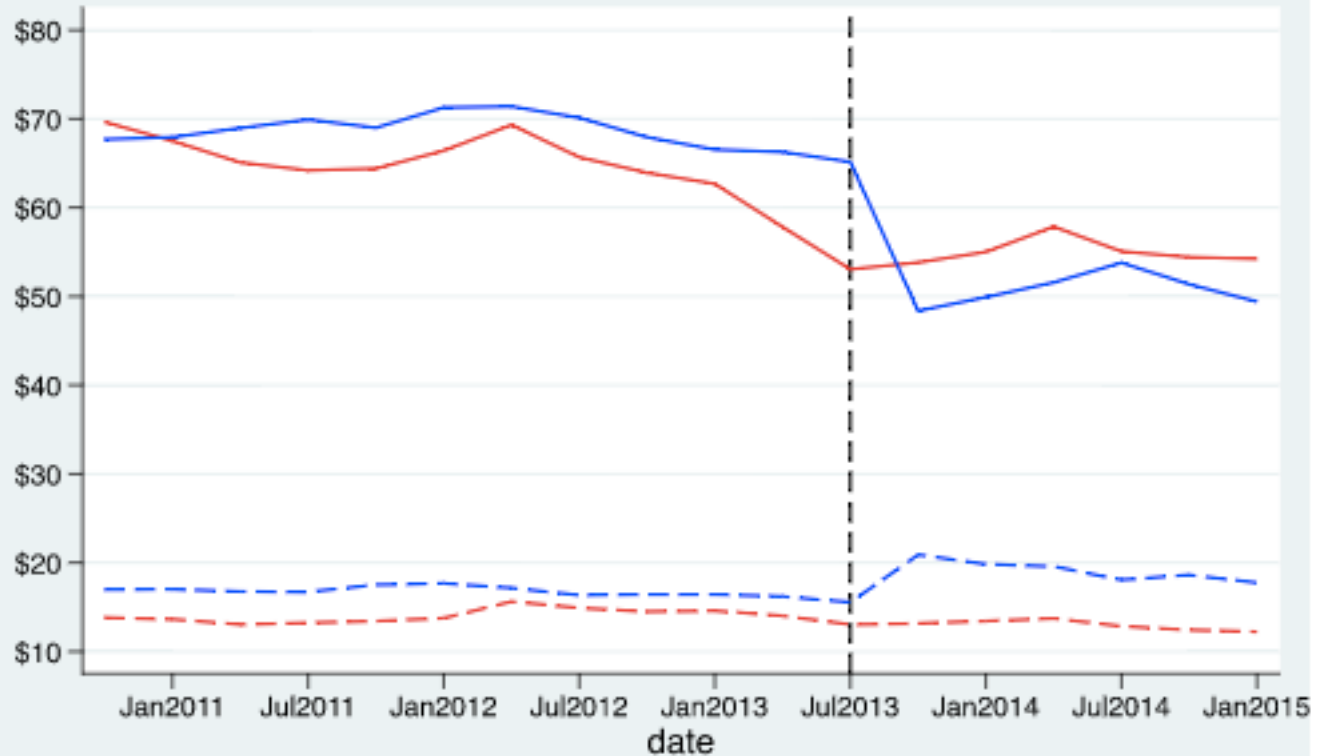
## Average Price (Allowed Charge) for Colonoscopy Before and After Implementation of Reference Pricing



# Average Prices Paid for 285 Types of Diagnostic Tests, Before and After Implementation of Reference Pricing



# Reference Pricing Reduces Prices Paid and Increases Consumer Cost Sharing



— Average Price: Union Trust      — Average Price: RETA Trust  
- - - Patient Copayment: Union Trust      - - - Patient Copayment: RETA Trust

Vertical dashed line indicates date of reference pricing implementation.

# Question

What is the range of impacts exerted by reference pricing on the prices paid, across all the tests and treatments studied?



## Impact of Reference Pricing on Consumer Choices, Prices Paid, and Potential Spending Reductions for Commercially Insured Individuals

	Percentage point increase in use of low-price facilities	Percent reduction in price paid per procedure or test	Total spending by commercially insured individuals in the US (\$Billion)	Potential spending reduction from reference pricing (\$Billion)
Joint replacement	14.2	19.8	17.09	3.38
Arthroscopy of the knee	14.3	17.6	5.70	1.00
Arthroscopy of the shoulder	9.9	17.0	3.80	0.65
Cataract removal	8.6	17.9	1.90	0.34
Colonoscopy	17.6	21.0	11.39	2.39
Laboratory tests	18.6	32.0	23.73	7.59
Imaging: CT scans	9.0	12.5	17.09	2.14
Imaging: MRI procedures	16.0	10.5	19.93	2.09
Total	NA	NA	100.62	19.59





# Reference Pricing in Context

- Reference pricing exerts large and rapid impacts on consumer choices, favoring providers and products charging low prices
- The consistency of the impacts exceed those reported in studies of high deductible health plans
  - RP influence on price, not utilization
  - HDHP influence on adherence, not price
- The size of the impacts exceeds those reported in studies of new physician payment methods



# The American Question

- Reference pricing seems to offer substantial benefits to purchasers. Why has it not be adopted more broadly?
- Perhaps purchasers (employers, insurers) are preoccupied with HDHP and narrow networks, and will consider reference pricing as the limitations of those strategies become evident
- Perhaps purchasers simply have not heard about reference pricing
- Perhaps reference pricing has real limitations...



# Challenge: Breadth of Applicability

- **Problem**
- Reference pricing is only applicable to ‘shoppable’ tests and treatments, where consumers have the time and the information to compare price with performance
- **Answer**
- These acute, non-emergency services account for a very large share of health spending
- Comparison information on price and quality is improving, supplemented with decision supports
- Provider organizations (e.g., ACO) paid on per-capita basis need consumer cost sharing incentives to help them steer their patients to low-price and cooperative referral specialists, facilities, and drugs



# Challenge: Administrative Burden

- **Problem**
- Reference pricing requires that a payment limit be identified for each procedure in each market and for each drug within each therapeutic class
- **Answer**
- A consumer-driven health system must help the consumer make intelligent choices. Sponsors (insurers, employers, advocates) cannot avoid the task of identifying opportunities for saving money by moving to cheaper but high-quality options
- Reference creates the incentive for consumers to consider price, but needs to be supplemented by information on options and the creation of new options



# Challenge: Insufficient Competition

- **Problem**

- Reference pricing requires there be multiple providers in each market, but many geographic markets have been consolidated

- **Answer**

- Reference pricing may offer the best response to consolidation, driving patient volume from hospital-based for free-standing ASCs, from ASC to physician offices, from physician offices to the home
- It is compatible with Center of Excellence (COE) contracting, which expand the geographic scope, and hence competitiveness, of markets for high-cost surgical and diagnostic procedures



# Challenge: Managing Innovation

- **Problem**

- Reference pricing for drugs requires there be multiple therapeutically-equivalent products in each class. It does not offer solutions for classes benefitting from innovative drugs without substitutes

- **Answer**

- Health technology assessment (HTA) methods are used by ex-US payers to compare relative clinical benefits for drugs within therapeutic classes. These benefit comparisons serve as the basis for negotiations over price
- The reference price serves as the default price for new drugs that cannot prove superiority to existing drugs



# Can Reference Pricing Be Applied to Specialty Drugs?

- Much of the increases and variability in drug prices have been for specialty products, which are more complex and expensive than traditional medications
- The innovation pipeline is producing large numbers of therapeutic equivalents in specialty drug classes, including equivalent brands, generic specialty drugs, and biosimilars
- Examples: Rheumatoid arthritis, multiple sclerosis, Hepatitis C, lung and breast cancer
- This is the frontier for all forms of drug assessment, purchasing, and appropriate use
- When combined with HTA, patient support programs, and exceptions policies for patients with unique needs, reference pricing could increase price competition within these classes



# Is Reference Pricing Compatible with Innovation?

- The focus of reference pricing to date has been on moving market shares, reducing spending, and increasing competition
- This reduces provider and manufacturer revenues, which in principle could be used for R&D
- However, if properly applied, reference pricing supports innovation by offering higher prices for products and services offering higher performance
- It creates a business case for the creation of new evidence
- Currently, non-innovative products can charge high prices if they benefit from regulatory protection (e.g., Part D mandates) or price-unconscious demand
- Health insurers should pay more for better products and services, passing to consumers the higher prices for expensive but non-innovative alternatives







***“Geez Louise—I left the price tag on.”***

## **PURCHASING MEDICAL INNOVATION**



**THE RIGHT TECHNOLOGY, FOR THE  
RIGHT PATIENT, AT THE RIGHT PRICE**

**JAMES C. ROBINSON**