

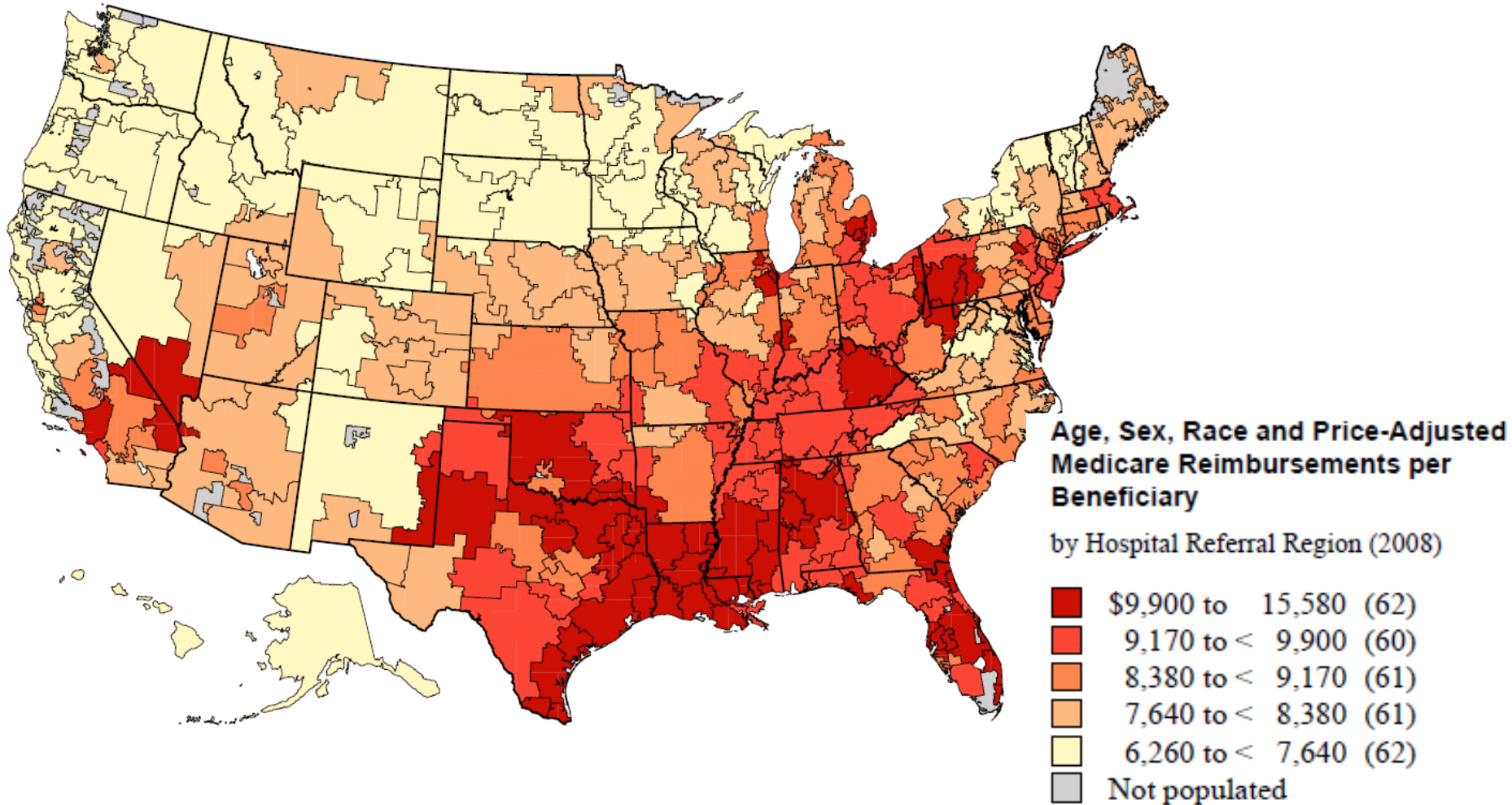
Is More Really Better? The Association Between Healthcare and Health Outcomes in the U.S.

John E. Wennberg
Klim McPherson
Elliott Fisher
Jonathan Skinner

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Price-adjusted per capita Medicare expenditures, 2008



Key question

- Do regions or hospitals that spend more get better health outcomes as a result?

The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care

Elliott S. Fisher, MD, MPH; David E. Wennberg, MD, MPH; Thérèse A. Stukel, PhD; Daniel J. Gottlieb, MS; F.L. Lucas, PhD; and Ételle L. Pinder, MS

Background: The health implications of regional differences in Medicare spending are unknown.

Results: Average baseline health status of cohort members was similar across regions of differing spending levels, but patients in

Objective: To determine whether spending provide better care.

Design: Cohort study.

Setting: National study of Medicare

Patients: Patients hospitalized by fracture (*n* = 614 503), colorectal myocardial infarction (*n* = 159 393) (*n* = 18 190) drawn from the Medi

The Implications of Regional Variations in Medicare Spending. Part 2: Health Outcomes and Satisfaction with Care

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orts), change in functional status (MCBS cohort), and satisfaction (MCBS cohort).

Objective: To determine whether regions with higher Medicare spending achieve better survival, functional status, or satisfaction with care.

Results: Cohort members were similar in baseline health status, but those in regions with higher end-of-life spending received 60% more care. Each 10% increase in regional end-of-life spending was associated with the following relative risks for death: hip fracture cohort, 1.003 (95% CI, 0.999 to 1.006); colorectal cancer cohort, 1.012 (CI, 1.004 to 1.019); acute myocardial infarction cohort, 1.007 (CI, 1.001 to 1.014); and MCBS cohort, 1.01 (CI, 0.99 to 1.03). There were no differences in the rate of decline in functional status across spending levels and no consistent differ-

Design: Cohort study.

Setting: National study of Medicare beneficiaries.

Patients: Patients hospitalized between 1993 and 1995 for hip fracture (*n* = 614 503), colorectal cancer (*n* = 195 429), or acute



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The Implications of Regional Variations in Medicare Spending. Part 2:

Patients: fracture (n = 18 150); acute myocardial infarction (n = 18 150)

Of the 42 separate statistical tests:

23: "More is worse"

14: "Null hypothesis – no effect"

5: "More is better"

MS; F.L. Lucas, PhD;

status (MCBS cohort), and satisfaction

were similar in baseline health status, higher end-of-life spending received increase in regional end-of-life spending following relative risks for death: hip (CI, 0.999 to 1.006); colorectal cancer (CI, 1.007 to 1.014); and MCBS cohort, 1.01 (CI, 0.99 to 1.03). There were no differences in the rate of decline in functional status across spending levels and no consistent differ-

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Subsequent estimates all over the map

- More is not better: Yasaitis et al., 2009; Skinner et al., 2005; Glance et al., 2010; etc.
- More is better: Silber et al., 2010; Doyle, 2011; Doyle et al., 2012; Romley et al., 2011; Barnato et al., 2010

Why can't we all just agree?

- 1. Different approaches to risk-adjustment and unmeasured confounding**
2. We're not estimating what we think we're estimating

Is more better? (Green=yes, Red=no)

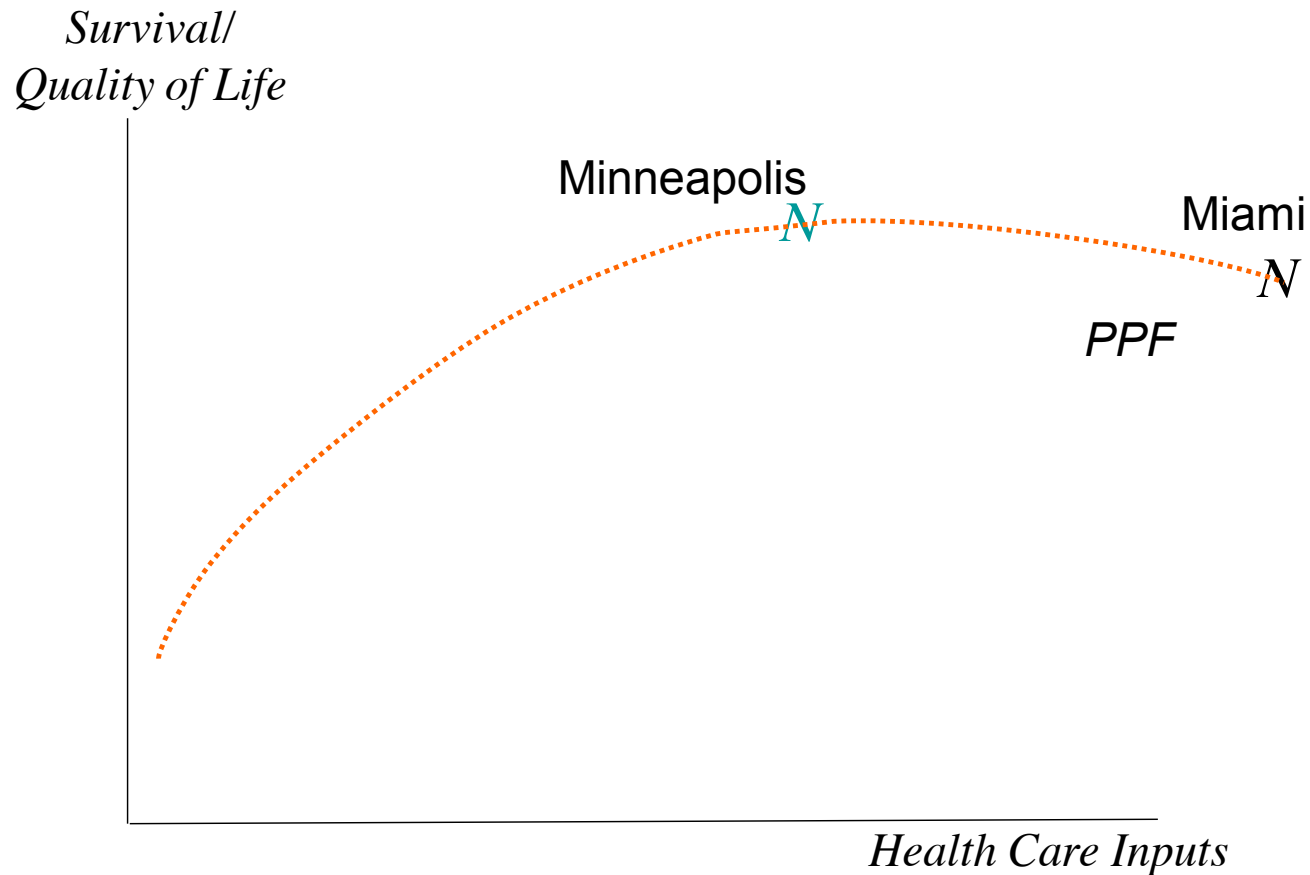
Cohort	Price-adjusted	HCC adjusted	Outcome Measure	Coefficient (p-value)
All Medicare Enrollees	No	Yes	Mortality rate (per 100)	-.03 (p < .01)
All Medicare Enrollees	Yes	Yes	Mortality rate (per 100)	.10 (p < .01)
Heart Attack Patients*	Yes	No	1-Year Mortality	.033 (p < .01)
Tourists with Heart Attacks*	Yes	No	1-Year Mortality	-.020 (p = .07)
Heart Attack Patients*	Yes	Yes	30-Day Mortality	-.044 (p < .01)

* Colla, Chandra, Skinner, 2013 working paper

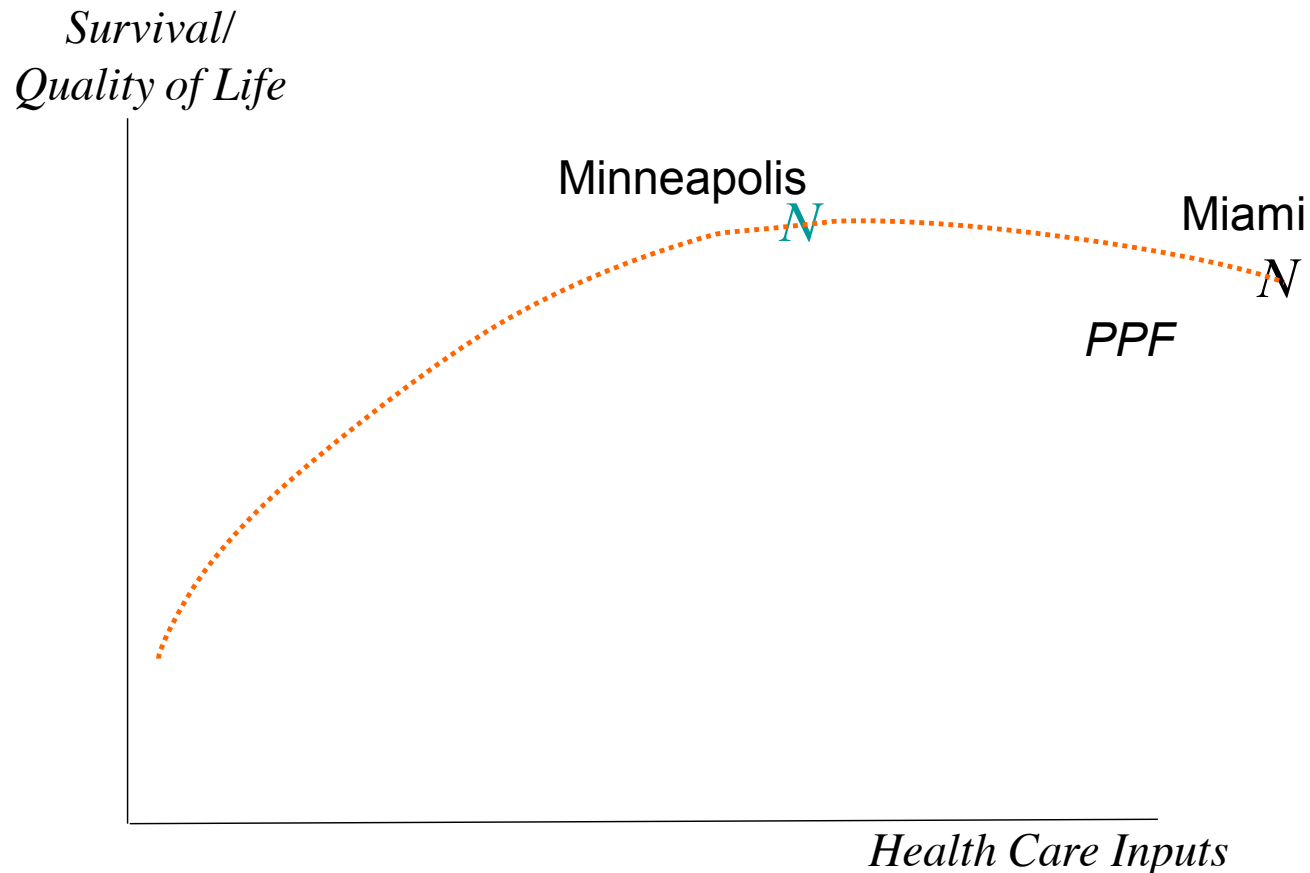
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One way to interpret a negative association between spending and health outcomes

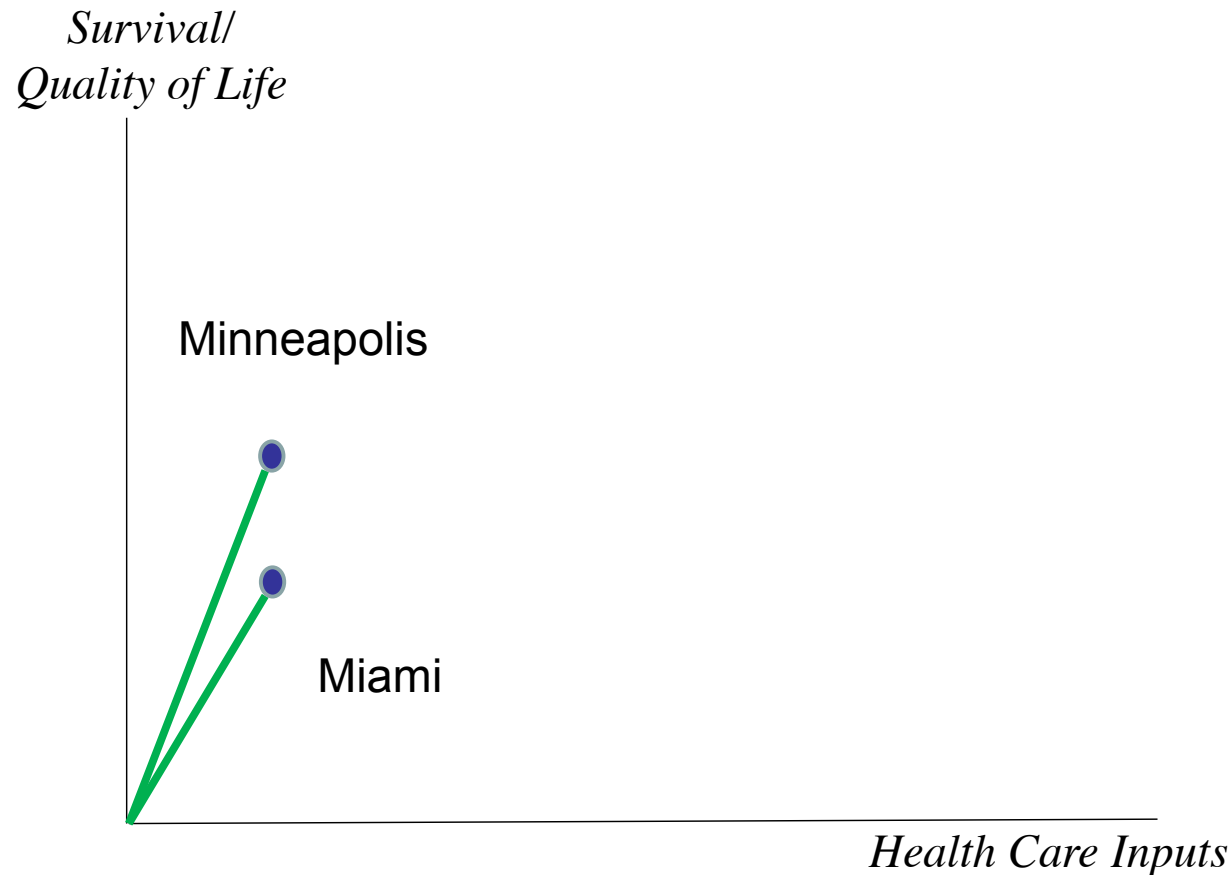


A difference approach: Wennberg et al. (2002) suggested three types of treatments



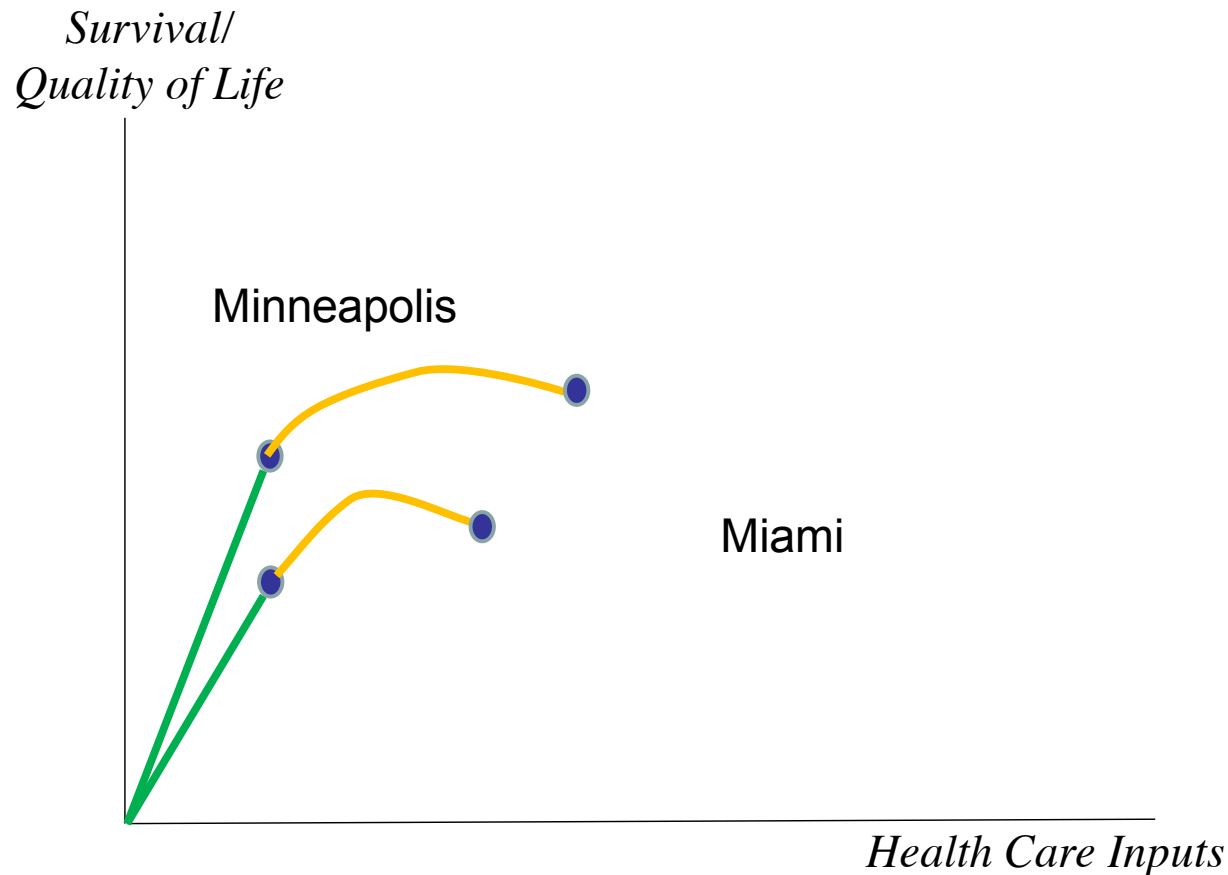
Three types of health care treatments:

1. “effective care”



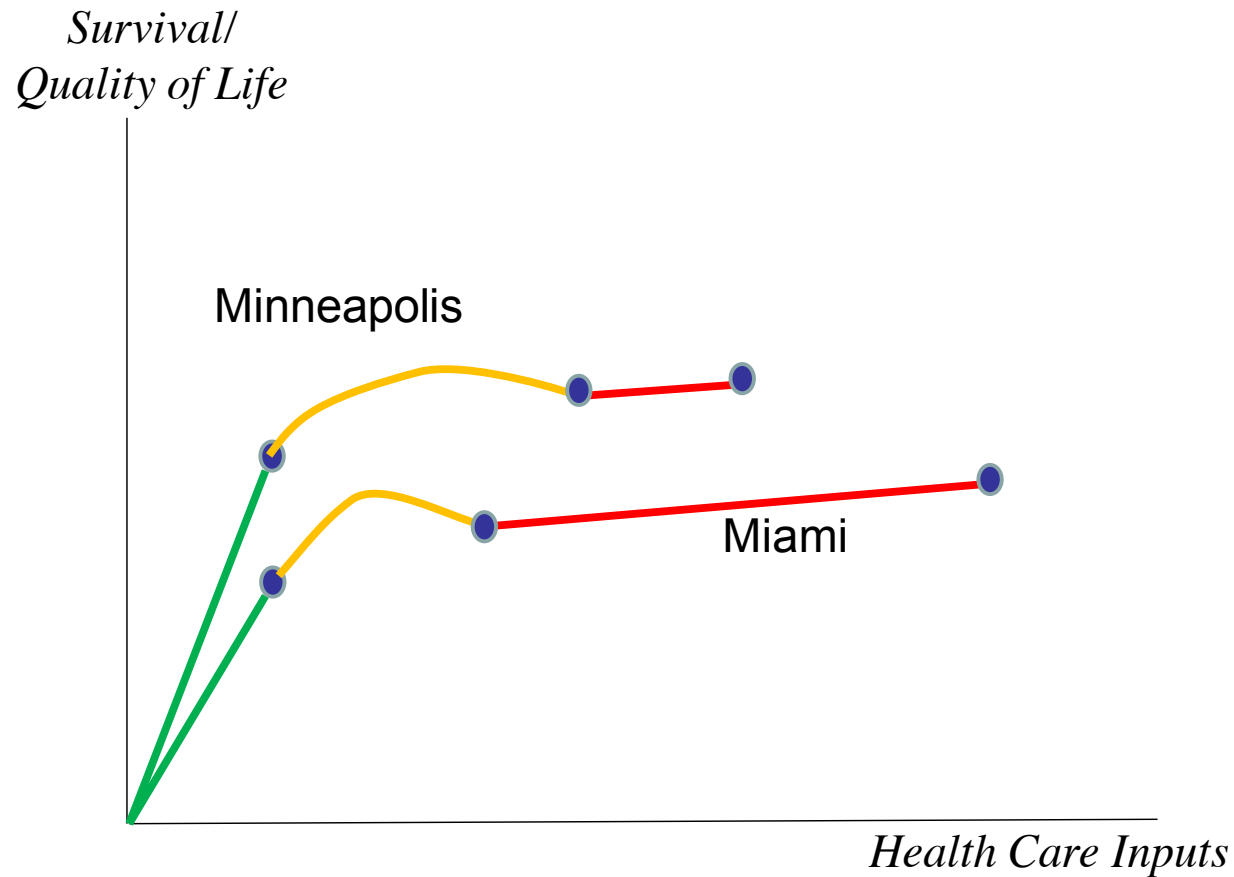
Three types of health care treatments

2. “Preference-sensitive care”

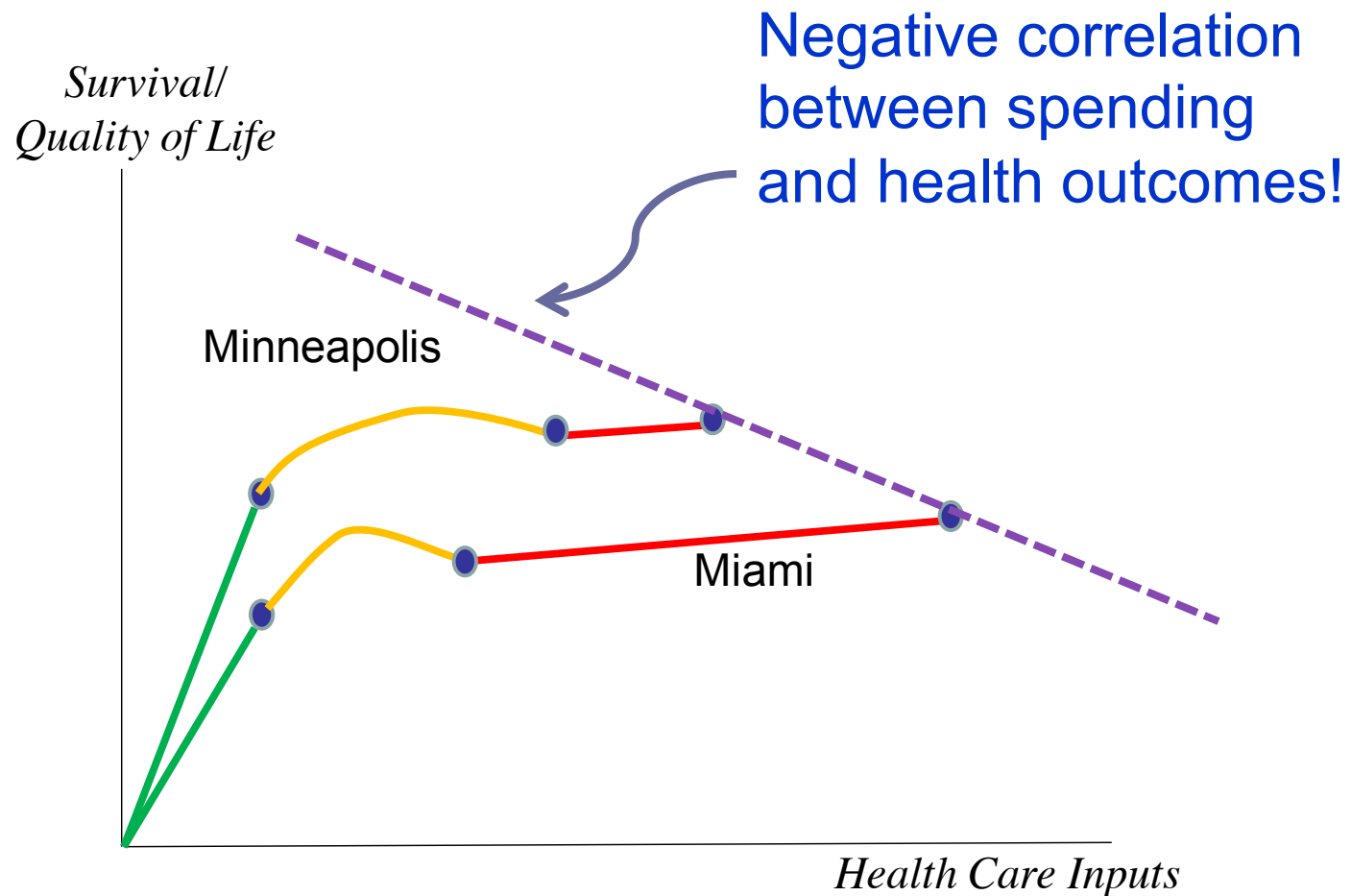


Three types of health care treatments:

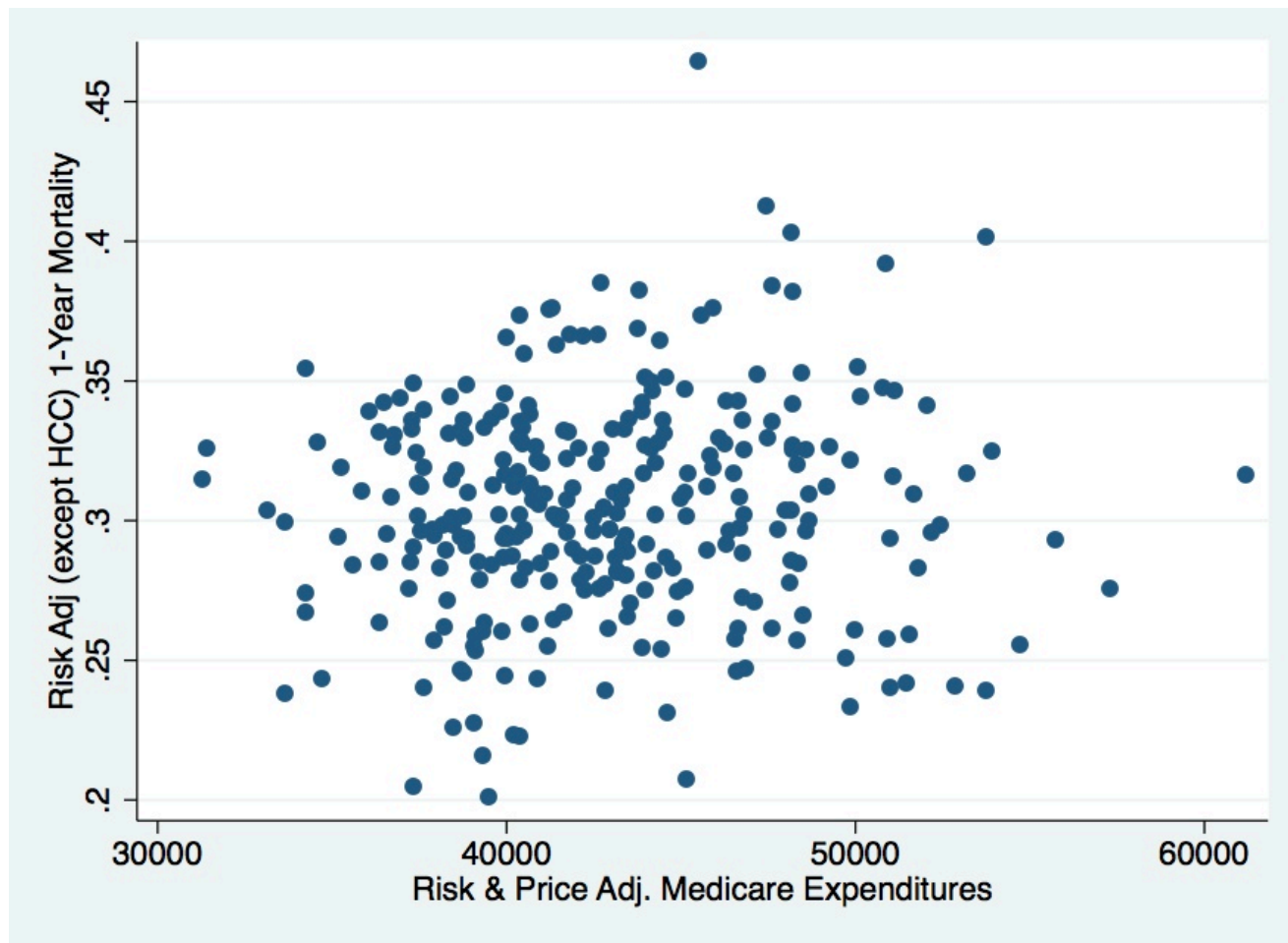
3. “Supply-sensitive care”



In this case, a negative correlation -- even though health care doesn't harm anyone

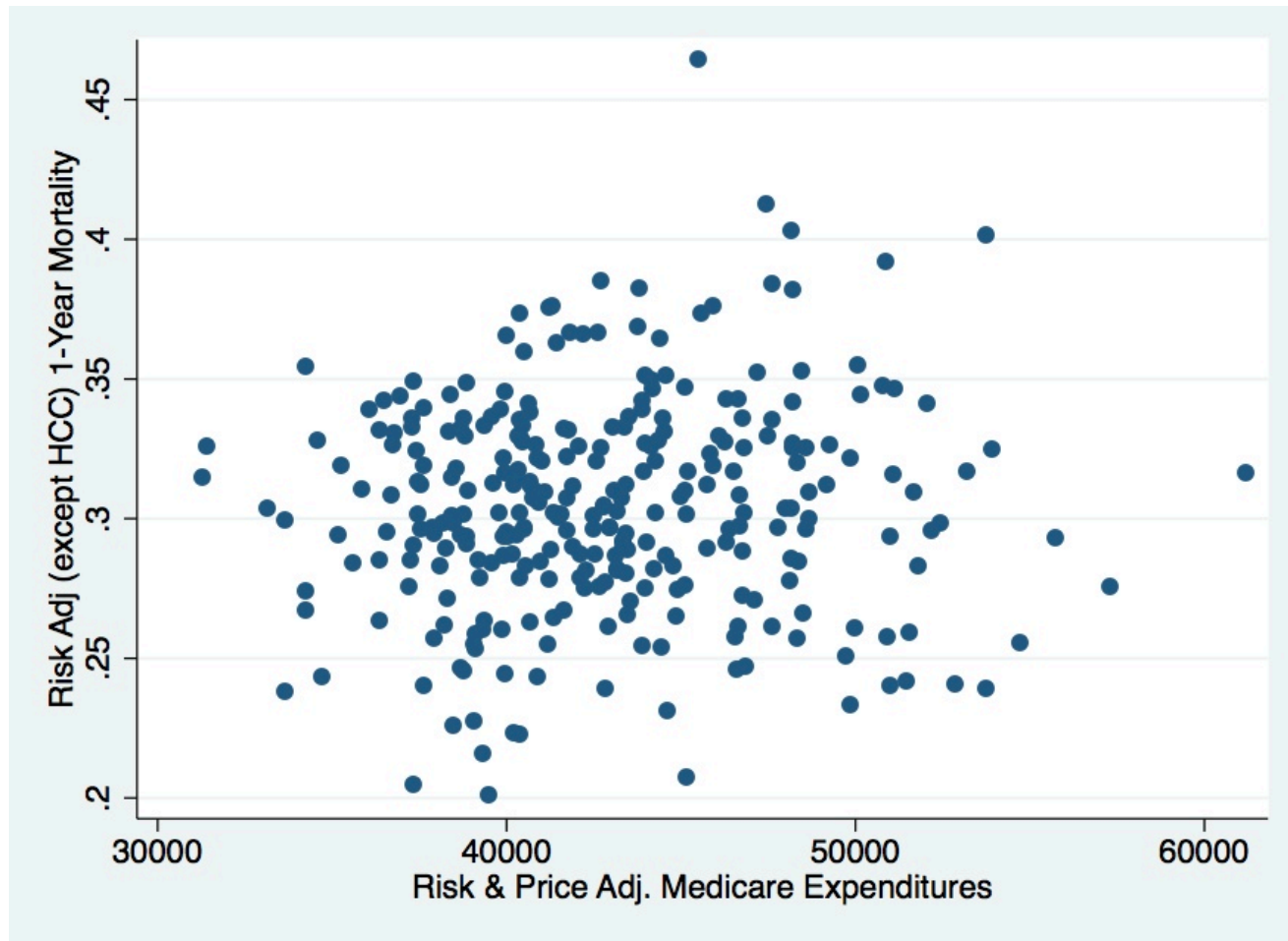


Risk-Adjusted 1-Year Expenditures and Mortality post AMI: by Hospital



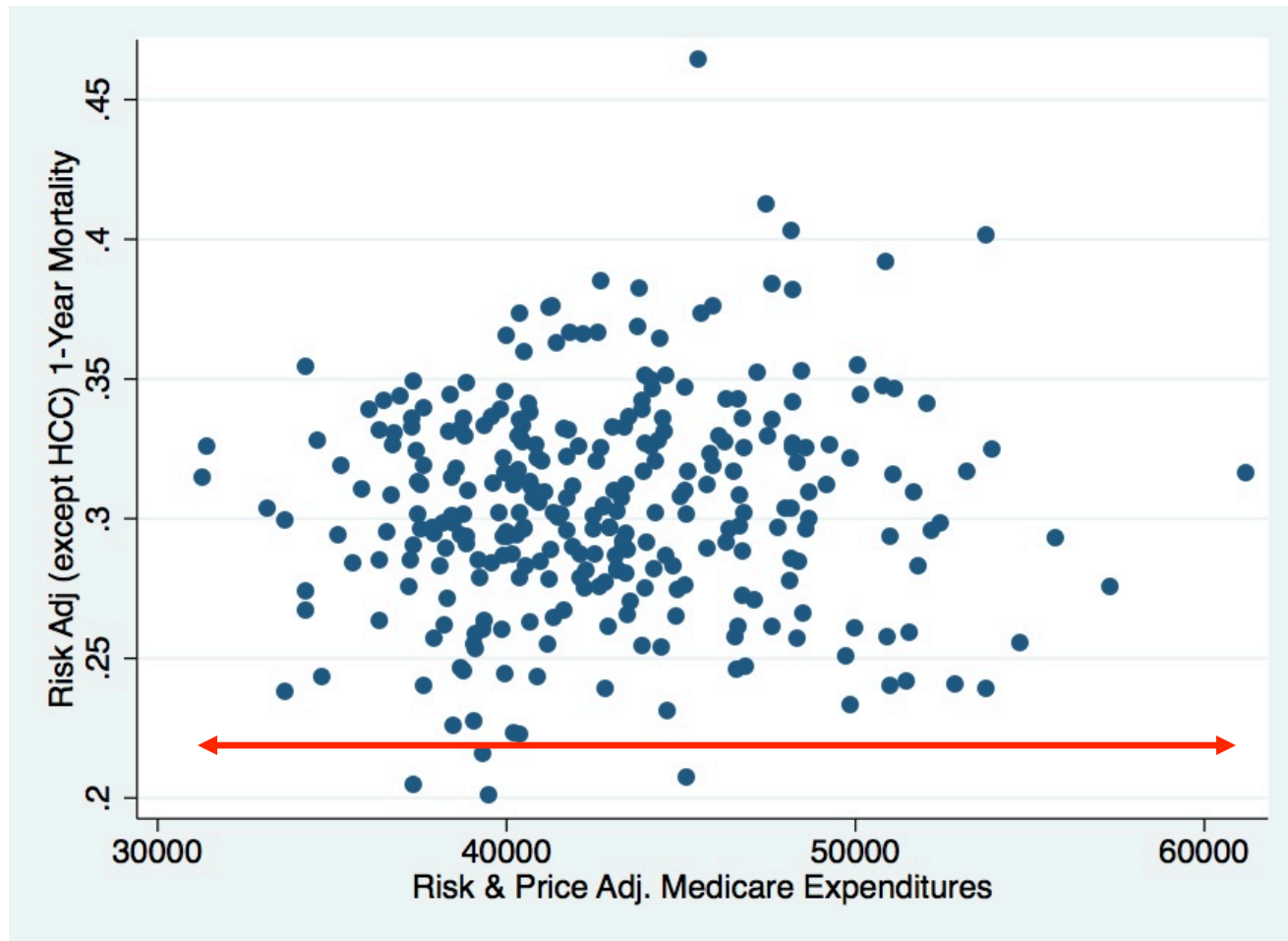
Note: Sample limited to hospitals with at least 200 AMI patients age 65+; 2007-09.

The key features of these (and any) outcome/spending data



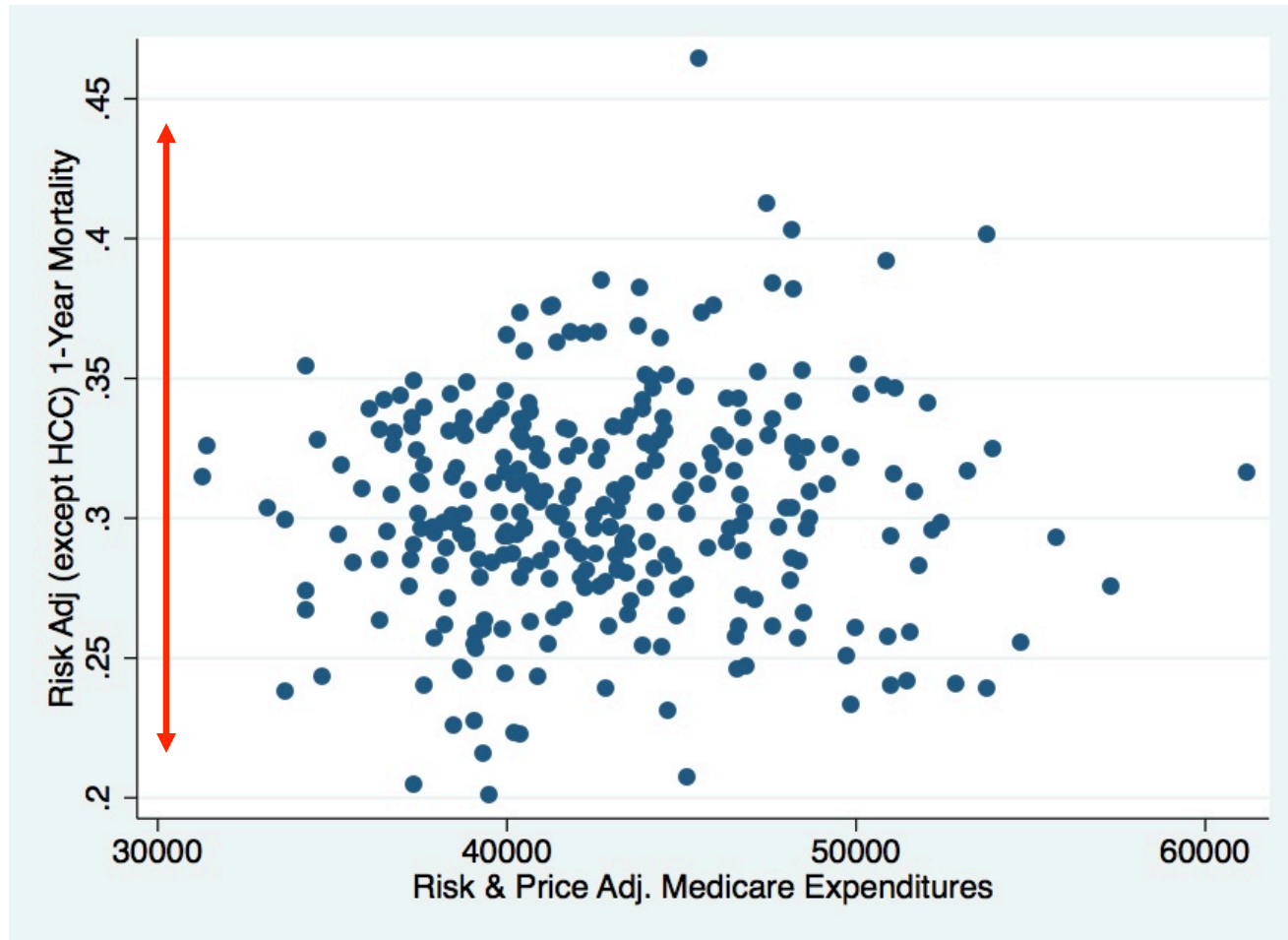
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1. Large variation in risk-adjusted expenditures



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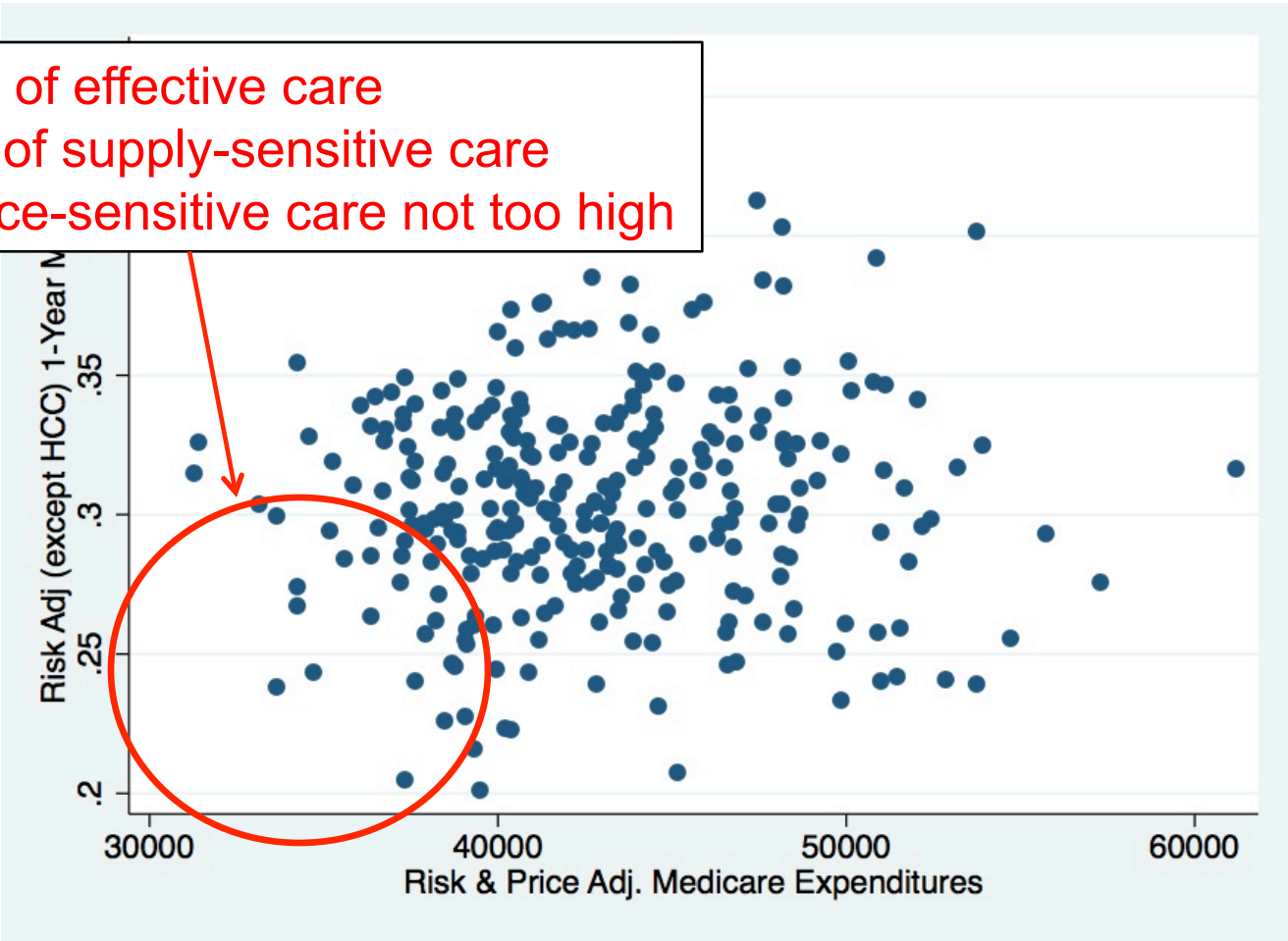
2. Large variation in risk-adjusted outcomes



Note: Sample limited to hospitals with at least 200 AMI patients age 65+; 2007-09.

3. This means: We should learn from low-cost high-quality providers

High use of effective care
Low use of supply-sensitive care
Preference-sensitive care not too high



Note: Sample limited to hospitals with at least 200 AMI patients age 65+; 2007-09.

Conclusions

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- ✓ No stable association between spending and outcomes – outcomes depend on *how* the money is spent
- ✓ Should identify effective systems (e.g., Salt Lake City, Seattle) & figure out how they do it
- ✓ Scale up