



How economics understands health care markets.

November 9, 2015

**Research Committee of the Colorado
Commission on Affordable Health Care**

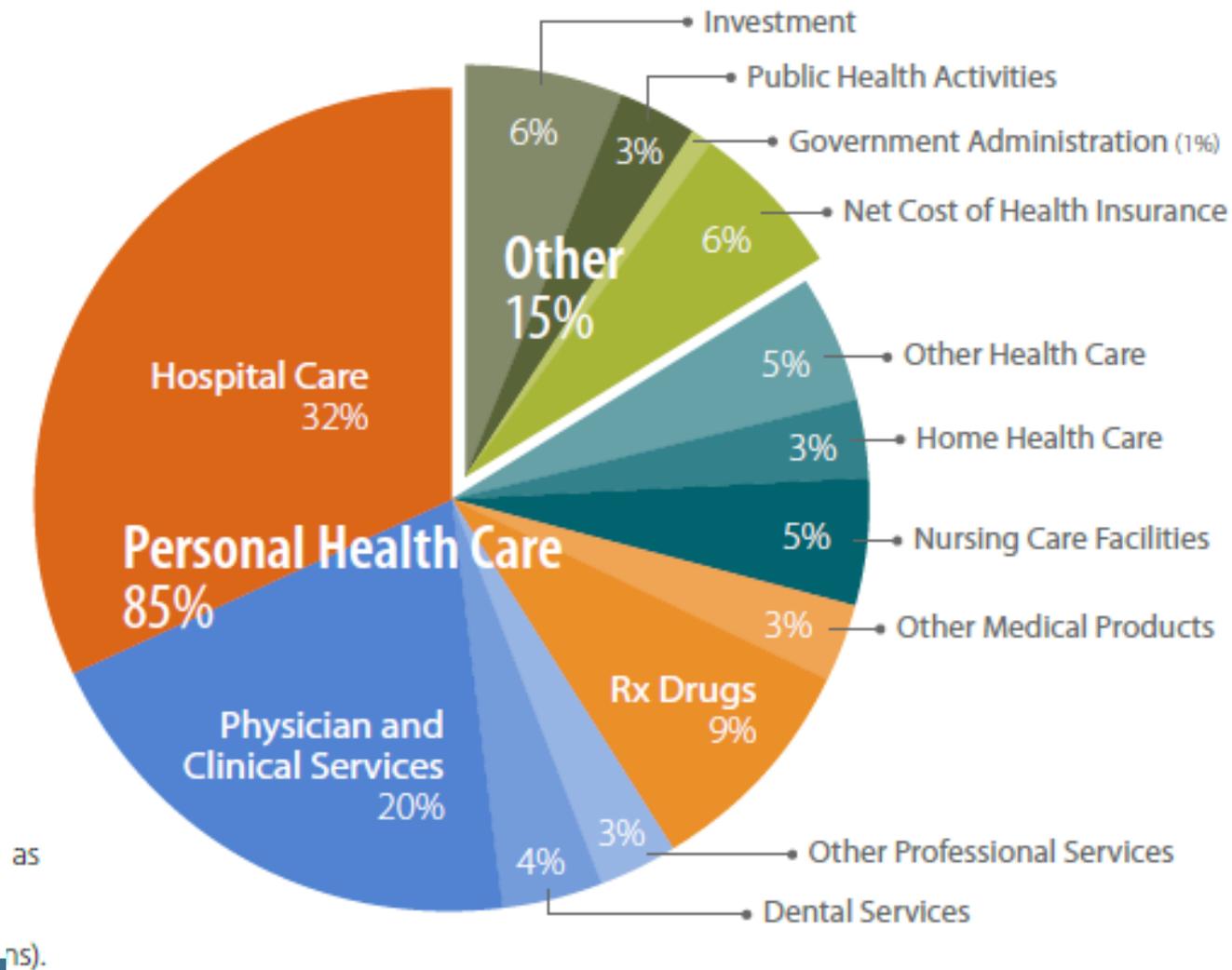
What's the Problem?

- Are the outcomes in competitive health care markets superior to those obtainable in a regulated health care system?
- What is the optimal compensation system?
- Do we know how to design optimal interventions?
 - What is the optimal subsidy provision?
 - What about horizontal and vertical equity?



The US market, 2012: \$2.8 trillion, 17.2% GDP

SPENDING CATEGORIES, 2012

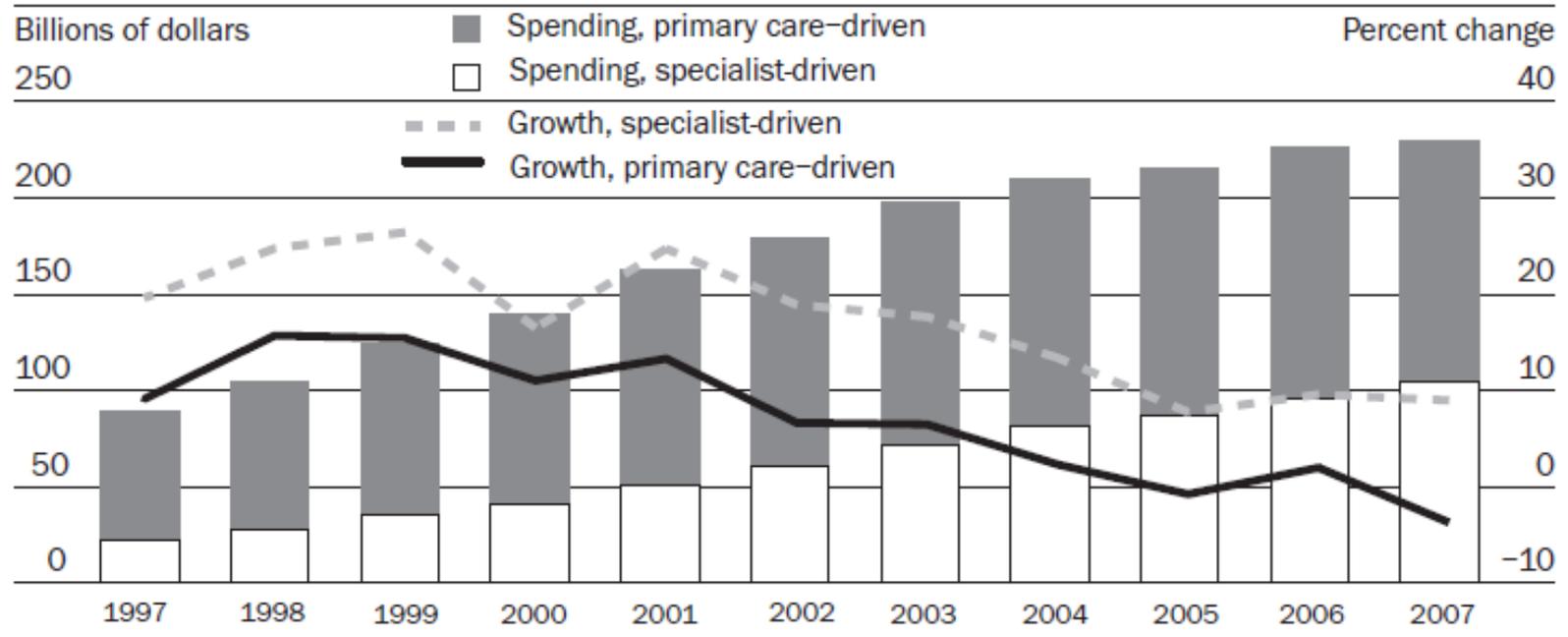


US drug spending, 1997-2007

(Aiken, Berndt, Cutler. 2009. *Health Affairs*)

DRUG SPENDING

EXHIBIT 3
Size And Growth Of The U.S. Primary Care-Driven And Specialist-Driven Prescribing Markets, 1997-2007



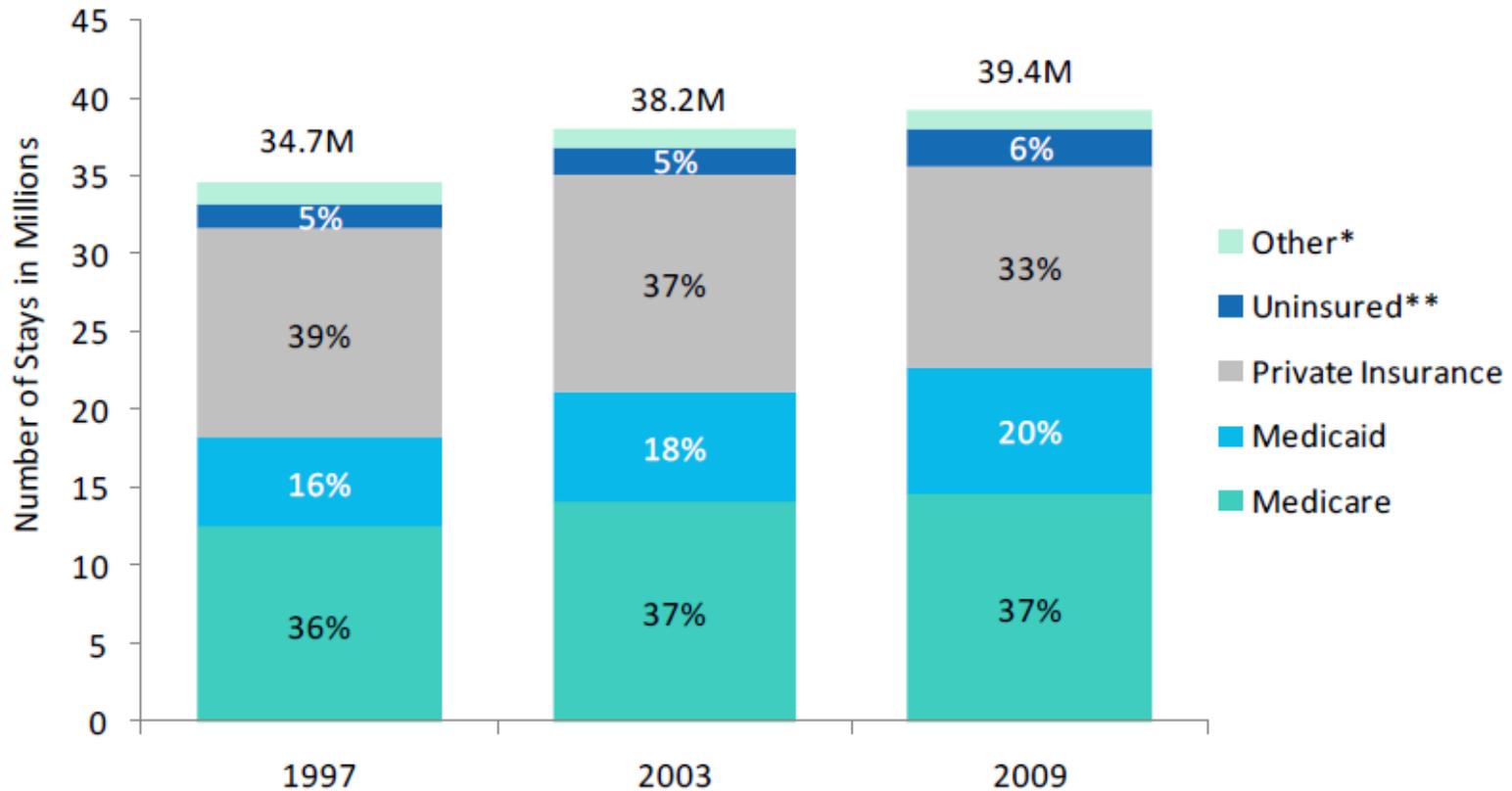
SOURCE: IMS Health, National Sales Perspectives, December 2007 (sales deflated by implicit gross domestic product deflator, \$2000).

NOTES: Dollar figures (bars) relate to the left-hand y axis. Percent change (lines) relates to the right-hand y axis.



Who Pays for Hospital Care: US 1997-2009 (HCUP, Statistics on Hospital Based Care, 2009)

Number and Distribution of Hospital Stays by Expected Primary Payer, 1997-2009



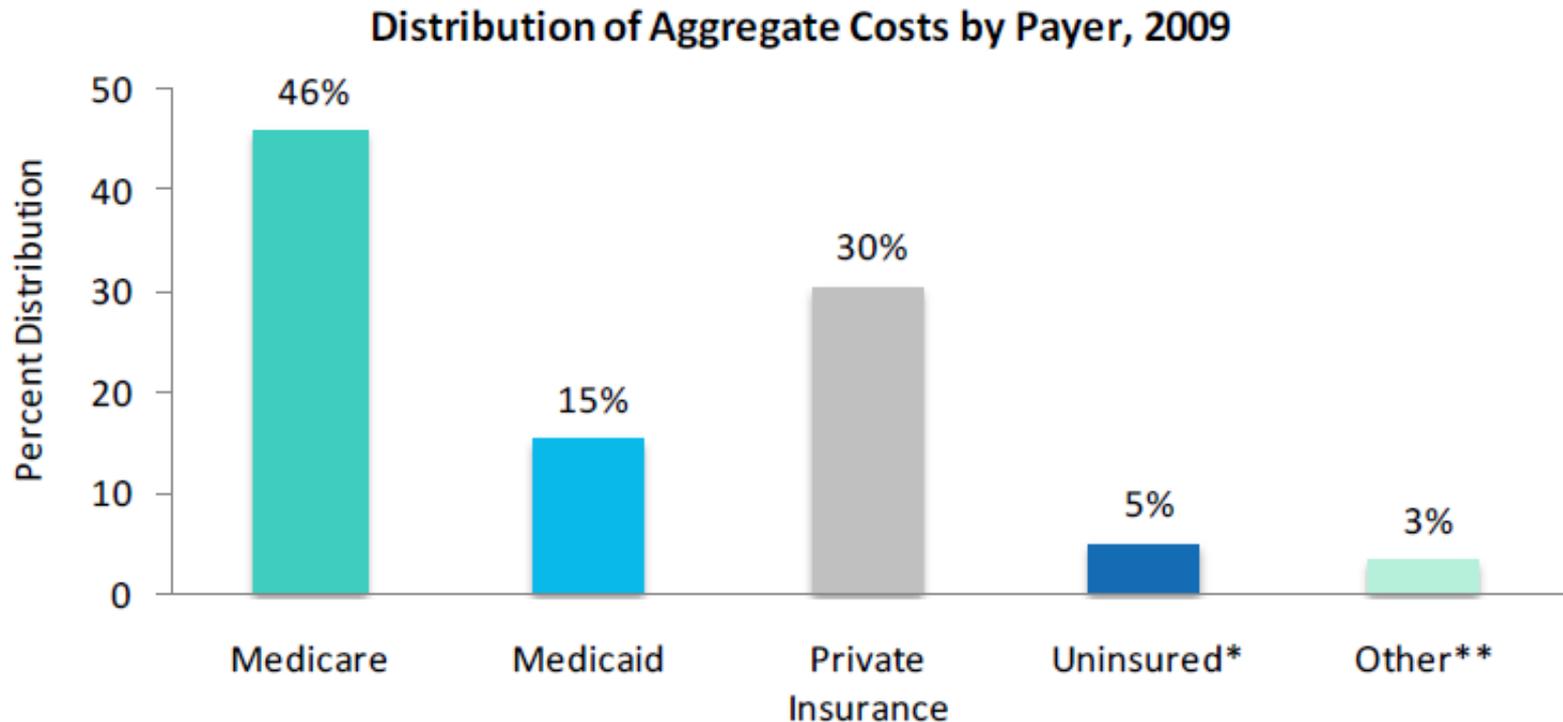
* Includes other payers such as Workers' Compensation, TRICARE, CHAMPUS, CHAMPVA, Title V, and other government programs.

** Includes stays classified as self-pay or no charge.



Fraction of US Aggregate Hospital Costs by Payer, 2009 (HCUP, Statistics on Hospital Based Care, 2009)

EXHIBIT 4.4 Cost by Payer



* Includes stays classified as self-pay or no charge.

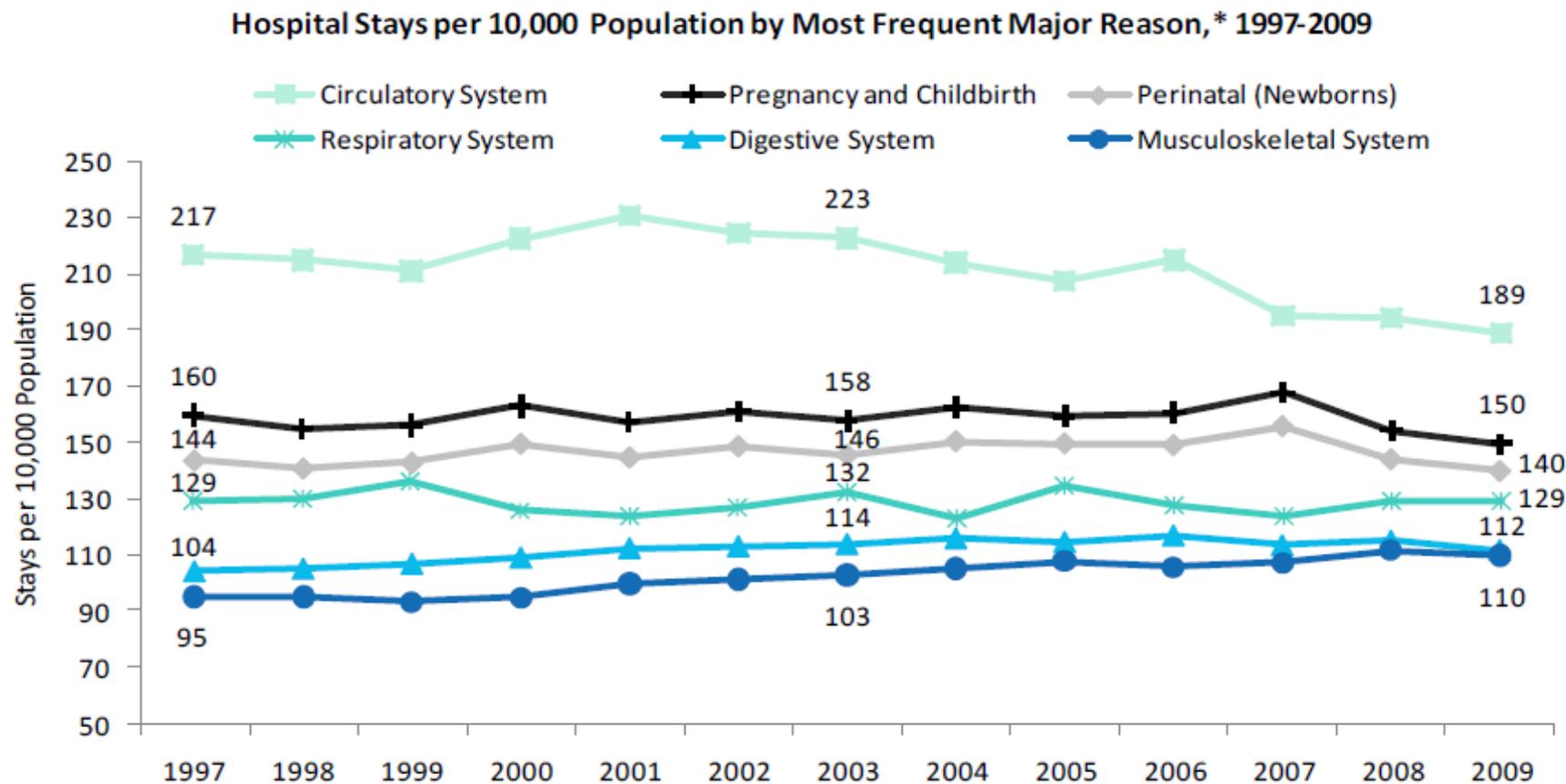
** Includes other payers such as Workers' Compensation, TRICARE, CHAMPUS, CHAMPVA, Title V, and other government programs.



Reasons for hospital stays, US 1997-2009

(HCUP, Statistics on Hospital Based Care, 2009)

EXHIBIT 2.1 Reasons for Hospital Stays

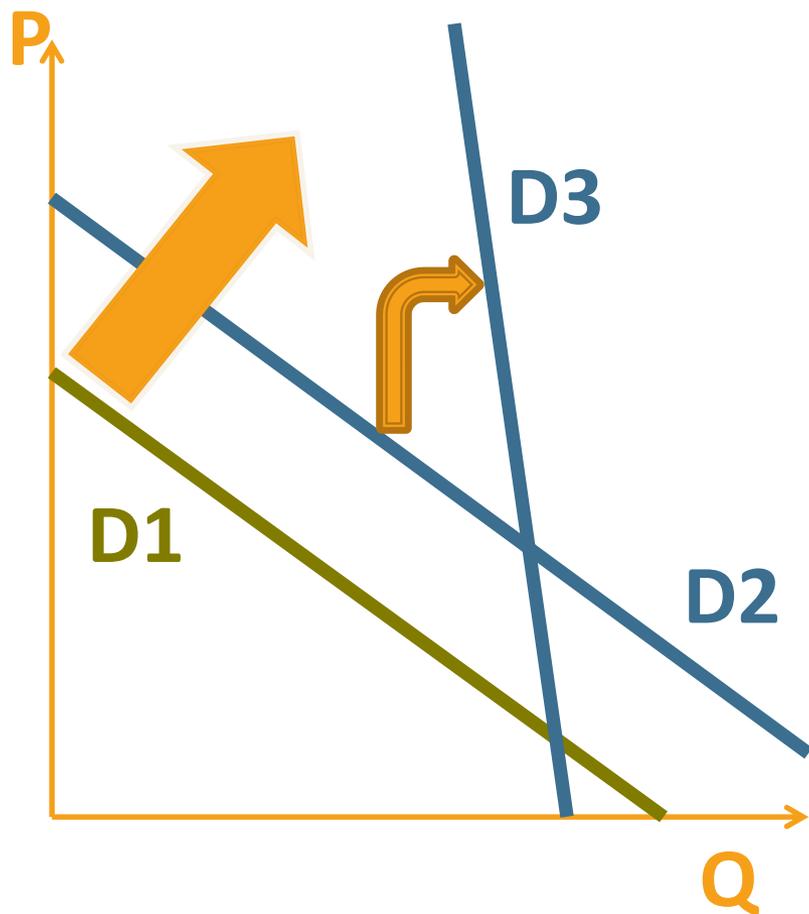


* Based on principal diagnosis defined by Major Diagnostic Category (MDC).

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1997-2009.

Individuals: What Does Theory Say?

They purchase when $MB \geq$ (their) MC



- As income rises, people purchase more. $D1 \rightarrow D2$
- Fewer substitutes, or more benefit, willing to pay higher price for same amount. More vertical curve. D3, not D2
- Individual demand curve, and therefore the marginal benefit, changes with situation—state dependent.



Individuals: What Does the research say?

US health spending and life expectancy have both gone up.

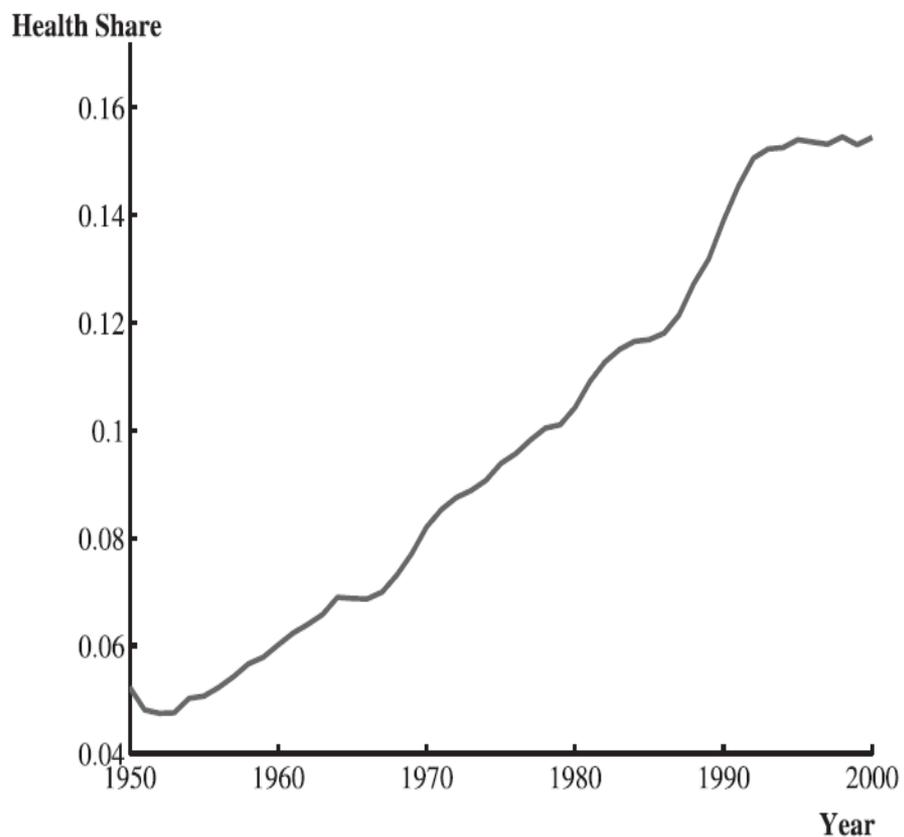


FIGURE I

The Health Share in the United States

Note: The numerator of the health share is consumption of health services plus government purchases of health services and the denominator is consumption plus total government purchases of goods and services. For further information on sources, see Section V.



FIGURE II

Life Expectancy in the United States

Note: Life expectancy at birth data are from Table 12 of National Vital Statistics Report Volume 51, Number 3 "United States Life Tables, 2000," December 19, 2002. Center for Disease Control.

Source: Hall and Jones, *Quarterly Journal of Economics*, 2007.

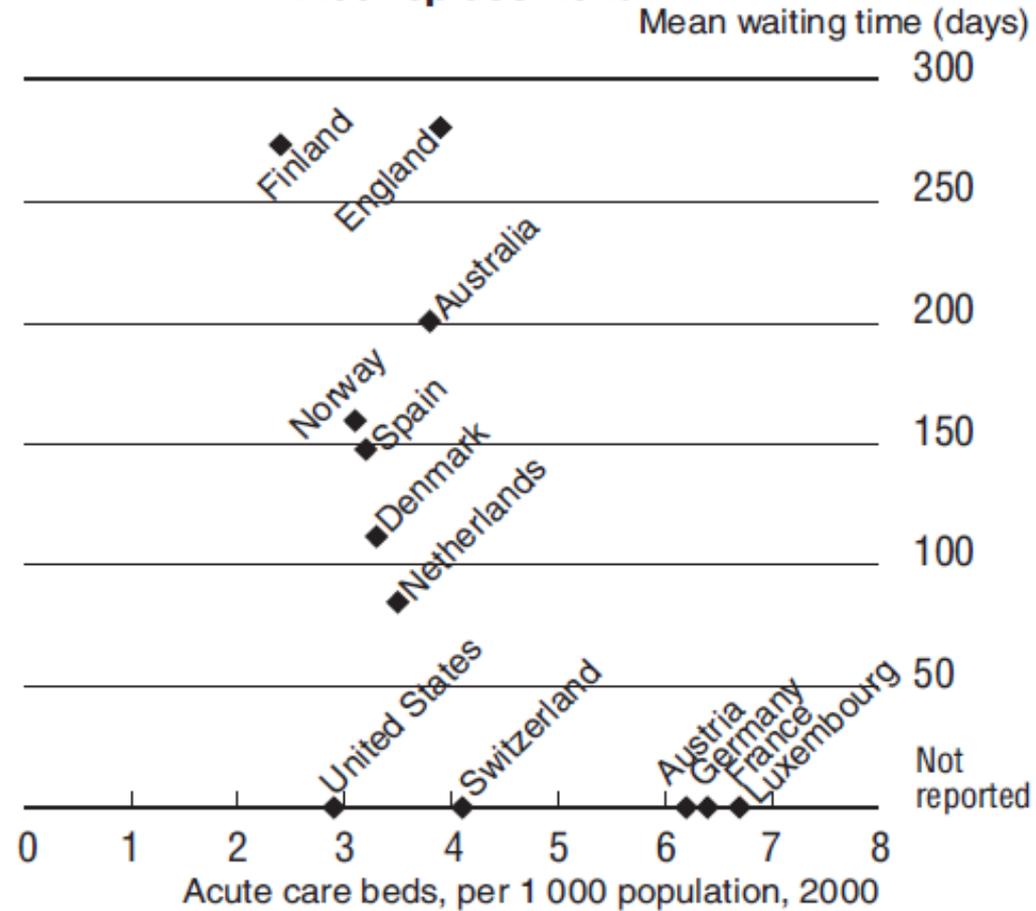


People in other countries also increased health spending and incomes.

Real Per Capita Growth Rate, Health Care Spending, 1970-2008
(Chernew and Newhouse, 2012)

Sweden	2.6%
Canada	3.0%
Germany	3.0%
France	3.8%
Japan	3.8%
United Kingdom	3.8%
United States	4.1%
Norway	4.5%
Spain	4.8%
Portugal	6.4%

Waiting times after approval, 2000
Knee replacement



Source: Siciliani and Hurst. 2004. *Explaining Waiting Time Variations For Elective Surgery Across OECD Countries.*

Individual Behavior: What Does the Research Say?

- Exposing people to the true cost of their medical choices tends to reduce utilization without observable effects on health in short term.
- Expanding third party coverage expands utilization as long as budget shares of premiums and out-of-pocket payments are small.
- Technological growth drives significant fraction of growth in expenditures. It may be cost increasing or cost decreasing—transplants vs. vaccines.



RAND Health Insurance Experiment

Annual ED Visits per 10,000 persons

	Cost Sharing	Free	Cost/Free
Surgical abdominal disease	42	38	1.11
Head injury	36	33	1.09
Chest pain/acute heart disease	59	57	1.04
Acute eye injury	34	31	1.01
Asthma	30	83	0.36
Ear infection	40	78	0.51
Abrasion/contusion	228	403	0.54
Sprain	164	249	0.63
Headache	8	59	0.11



Medicaid Effect on Hospitalization: TennCare, post 2005 (Ghosh and Simon, HCUP data 2001-2009, adults 19-64)

Annual hospital admissions per 1,000 people

Health Insurance	Tennessee Before	Tennessee After	Control States Before	Control States After
Medicaid	5.6	2.5	1.8	1.6
Uninsured	1.3	2.0	1.5	1.5
Private	10.7	6.6	6.6	4.6
Medicare	4.8	3.8	2.2	2.0
Other	0.5	0.4	0.9	0.8
Total	22.9	15.3	13.1	10.3



People change health spending when spending their own money.

- ***Consumer Directed Health Plans Reduce Spending.***
(Haviland *et al.* March 2015. NBER WP 21031.) 13 million people, 54 large firms, 3 years post. HSAs more effective than HRAs. 6.6, 4.3, 3.4 percent lower annual spending due to reduction outpatient, pharmaceuticals.
- ***Medicaid Cash & Counseling type experiments improve quality in budget neutral experiments.*** In some cases spending increased due to better service access.



What Does Theory Say About Firms?

Product differentiation is normal



- Customers value products on many dimensions. Firms must discover those dimensions are and what customers will pay for them.
- In short run, firms will sell product as long as $MC \leq MR$.
- In long run, MC must also include fixed costs. Someone has to pay for overhead.
- Customers value different combinations of similar product characteristics differently.



More on Product differentiation (market power)

Market power exists when a firm can raise the price of its product above its marginal cost. Most firms have some market power.

- Physical differentiation—location, features
- Durability, longevity, stability
- Style and design
- Service bundles—ease of ordering, delivery options, installation, maintenance and repair.
- Image differentiation.



Returns and dynamic competition

- Dynamic competition is non-price competition that improves products, and creates new ones, over time.
- It involves incremental as well as drastic changes.
- Innovation costs in markets with scale economies or intellectual property protection may mean that firms compete for the entire market.
- Expected return must compensate innovator for perceived risk, *ex ante*, not *ex post*.
- The threat of entry moderates market power even if only one firm is in a market.



Change is Generally Bad. Most Entrepreneurial Efforts Fail

VOL. 100 NO. 3

HALL AND WOODWARD: RISK OF ENTREPRENEURSHIP

1171

American Economic Review, 2010

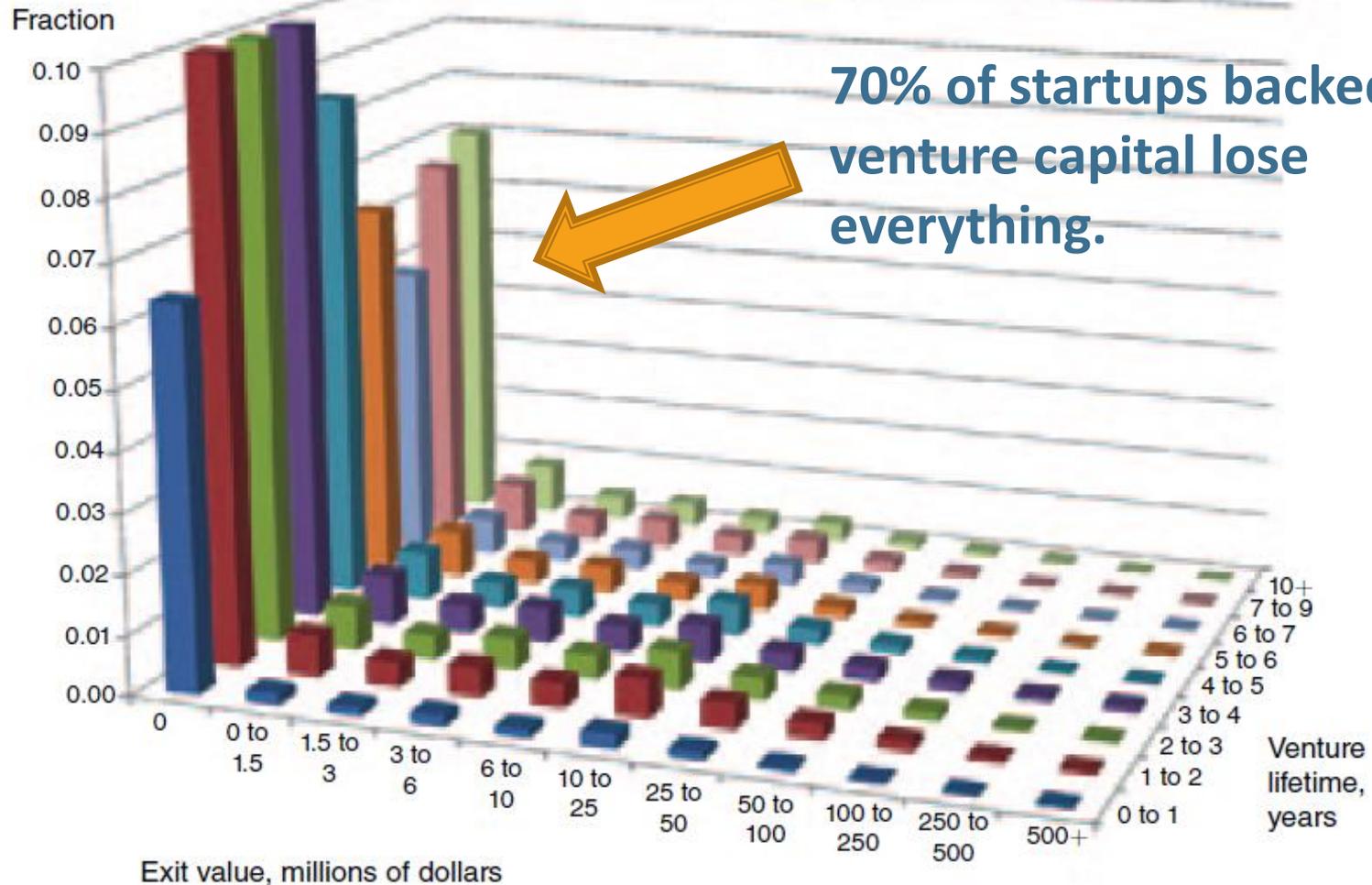
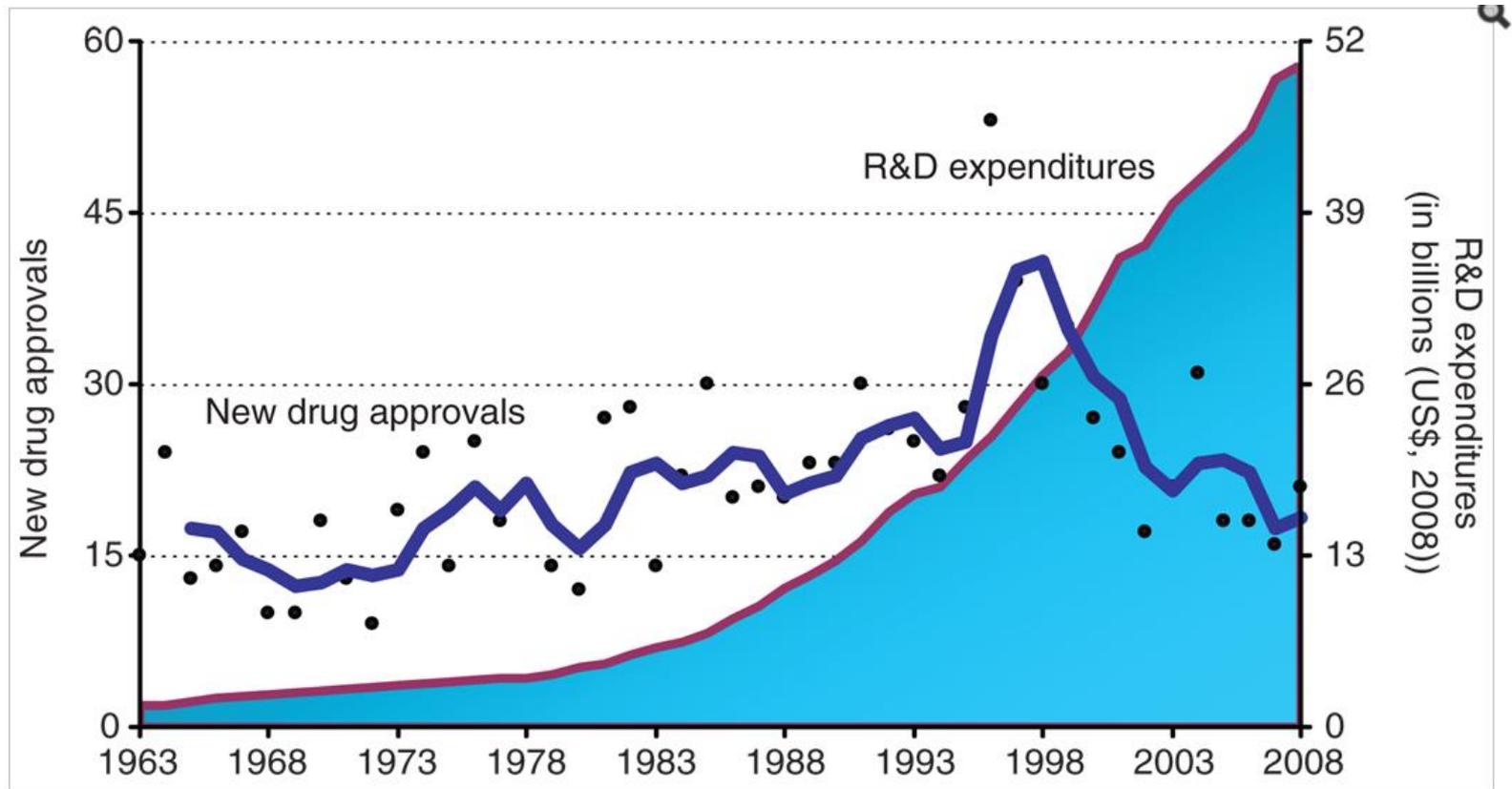


FIGURE 1. JOINT DISTRIBUTION OF VENTURE LIFETIME AND EXIT VALUE

Most drug discovery efforts fail, too

(Kaitin, 2010. Tufts Center for the Study of Drug Development)

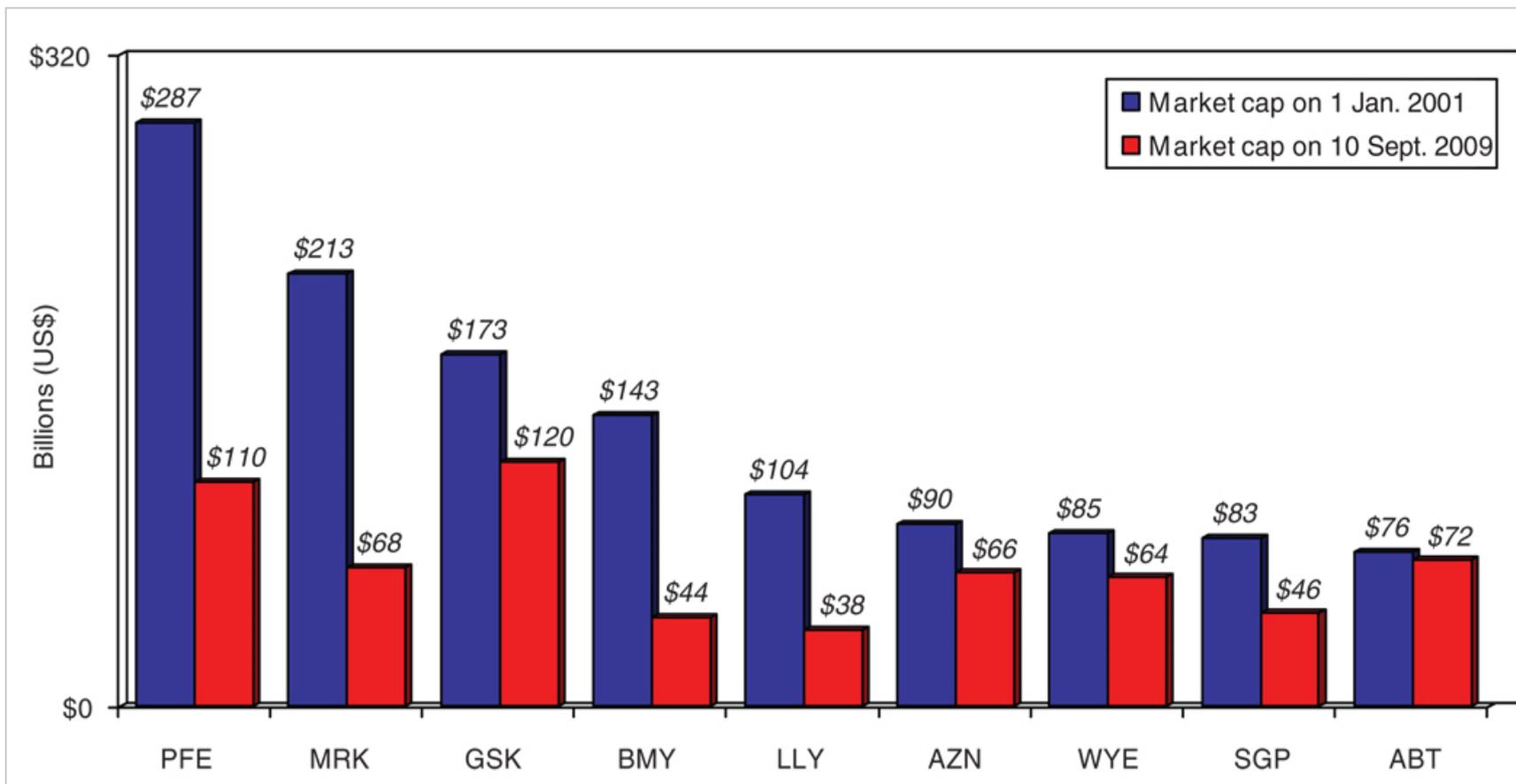


New drug approvals (dots), represented on the left vertical axis, and pharmaceutical R&D expenditures (shaded area), represented on the right vertical axis, in the United States from 1963 to 2008. R&D expenditures are presented in terms of constant 2008 dollar value. The trend line is a 3-year moving average. The source of drug approval data is the Tufts Center for the Study of Drug Development (CSDD). The source of R&D expenditure data is the Pharmaceutical Research and Manufacturers of America; Industry Profile 2009; conversion of actual expenses to constant dollars was performed by Tufts CSDD.



Drug Company Owners Pay for Failure

(Kaitin, 2010. Tufts Center for the Study of Drug Development)



Market capitalization of top-tier pharmaceutical companies in January 2001 and September 2009. Cumulative loss in market capitalization for these companies over the period is \$626 billion. Ticker symbols are as follows: ABT, Abbott; AZN, AstraZeneca; BMY, Bristol-Myers Squibb; GSK, GlaxoSmithKline; LLY, Lilly; MRK, Merck; PFE, Pfizer; SGP, Schering-Plough; WYE, Wyeth. Data from <http://www.valueline.com>; Tufts Center for the Study of Drug Development analysis.



Hospital Quality: What Does the Research Say?

- Low-risk patients in competitive markets receive less intensive treatment than in uncompetitive markets. No difference observed mortality. [Kessler Geppert, Medicare AMI 1985-1996, Cooper et al. NHS 2011, Gaynor NHS, 2013]
- High-risk patients in competitive markets receive more intensive treatment, better health outcomes.



Effect of Competition: What Does the Research Say?

- Hospitals “choose” a quality level by choosing a “level of effort” for the services they offer.
- Hospitals in more competitive markets apparently try harder.
- The more intense level of effort produces better results across the board, even in services that patients do not choose, such as emergency treatment for heart attack.



Hospital Market: What Does the Research Say?

- Competition appears to improve quality in concentrated markets with regulated prices.
- For profit and not-for-profit hospitals behave in a similar fashion in competitive markets.
- Mergers between rival hospitals in concentrated markets increase the price of inpatient care. The magnitude of the increase varies across markets, hospitals, and insurers.
- Effect of competition on quality uncertain in areas with market determined prices. Results possibly complicated by mix administrative, market, pricing.



Hospital Markets:

What Does the Research Say?

- Quality improves when reimbursements are improved.
- Competition under administered prices could produce “excessive” quality if increase in consumer benefit is outweighed by the increase in expenditure. Patients no worse off.
- If administered prices are too low, services will not be provided or quality will be lower, especially on unmeasured dimensions.



Hospital Quality: What Does the Research Say?

- Lower quality is associated with higher proportion Medicaid, uninsured patients in non-teaching hospitals. [Goldman et al. Medical Care, 2007]
- Quality may improve as reimbursement improves, but level of effort may also be a problem. [Ashish et al, Annal Int Med, 2010, Wakeam, JAMASurgery 2014]
- Not seeing market entry in high Medicare Medicaid markets.



Physicians: What Does the Research Say?

Produce where $MC=MR$

- Adjust intensity of care to payment. Upward sloping supply curve. Case mix manipulation to increase payment. Little evidence of volume offset. (*Brunt, 2014, Health Economics. Medicare Part B fee cuts. Hadley et al. 2009 Inquiry. Survey linked to Medicare claims. Behavior in Canada. Clemens and Gottlieb, 2014, Amer Econ Rev. Staiger et al. 2010. JAMA. Physician fees down, work hours down.)*
- Primary care physicians under FFS prescribed more visits to specialists and diagnostic and curative services, fewer hospital referrals and repeat prescriptions. (*Gosden et al. 2000. Cochrane Review.*)
- Increase number of MDs, physicians more likely to locate in small communities. (*Gaynor, Table 15.*)



Research Results

- Elimination of competition among insurers imposes substantial efficiency costs, creates economic distortions. *(Breyer, Bundorf, Pauly, 2012)*
- At best, restrictions in insurer rating practices generate a transfer between low and high risks. If consumers are price responsive, this generate significant welfare loss due to adverse selection. *(Breyer, Bundorf, Pauly, 2012)*
- Risk adjustment can be manipulated by treatment decisions, coding practices, plan design. Responses to Medicare risk adjustment increased cost to government. *(Brown et al. 2011. NBER WP 16977)*



Government Behavior: What does Theory say?

- Government decisions more error prone than private decisions. Government officials have weaker incentives to learn and to acquire accurate information because they have lower losses from an incorrect decisions than private sector actors. This extends to risk perception and the response to it. (Viscusi and Gayer, 2015, *Harvard Journal of Law and Public Policy*.)
- Strong preferences of a few more likely to influence decision making than weaker incentives of many leading to manipulation of choice architecture. (*Ibid.*)
- Welfare loss from ignoring heterogeneous preferences.
- Short run focus.



Government Behavior: What does Research Say?

Behavior in accord with theory.

- Asymmetric losses from wrong decisions bias FDA drug approvals towards excessive caution, higher regulatory costs. Delays estimated to amount to 5-10% tax on drug companies (Winston, AEI-Brookings, 2006)
- Little change after VA scandal due to small losses experienced by officials. Contrast this with losses of \$8.1 million in 20 days experienced after Ebola infection demonstrated that Texas Health Presbyterian Hospital in Dallas has inadequate infection controls. (On annual revenues of \$600 million.)
- Government reimbursement policies may not cover capital costs drugs possibly leading to drug shortages (Yurukoglu, 2012; Carradinha, 2009; Markowski, 2012)



What Information Gaps Exist?

- Little is known about welfare losses from government control of health care choice.
- Academic research will always lag behind the market participants learn by doing.
- It is impossible to determine optimal policy.
- Optimal subsidy policy needs to be explored.



Opportunities for Cost Savings in Colorado

- Reduce cost market entry where possible.
- Encourage competition.
- Encourage diverse product offerings.
- Make subsidies independent grants rather than forcing cross price subsidies.
- Consider cost, benefit, of increasing physician supply to help rural areas.
- Avoid interest group manipulation.



What are the Opposing Viewpoints?

- People should be limited in the fraction of income they can spend on health care.
- Optimal firm size and structure is determinate.
- Literature has been misunderstood, misrepresented. People are not price sensitive.
- Cross price subsidies are to be preferred to direct individual subsidies.
- Market risk pricing is inferior to administered risk pricing. Central planning works.
- Profits have no place in medicine.



Recommendations

- State policy needs better understanding of how markets work in health care.
- State pricing should copy market pricing, not seek to drive it.
- State policy should pay attention to entry and exit in various markets as a guide to prices that it does set.
- One size does not fit all.

