

# Health Care: Problems and Promises.

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# The Rational for Publicly Provided Health Care.

From John Rawls, A Theory of Justice, 1971.

"... although a society is a cooperative venture for mutual advantage, it is typically marked by a conflict as well as an identity of interests. There is an identity of interests since social cooperation makes a better life for all .... There is a conflict of interest since persons are not indifferent as to how the benefits produced by their collaboration are distributed.... A set of principles is required ... to determine this division of advantages. . . . the government guarantees a social minimum . . . The measure of benefits to the least advantaged is in terms of an index of social primary goods"<sup>1</sup>.

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<sup>1</sup>Pages 4 and 275 in the revised edition, 1999, and "A Reply to Alexander and Musgrave" *QJE*, 1974 pp. 643

- One can ground the need for public health care in a concept of social justice, as did Rawls, or from the Utilitarian argument that we can not expect individuals to abide by the rule of law if their child needs a treatment to survive, which cannot be gotten without breaking that law.
- Either way the argument leads to a need institutions which provide a minimal level of health care to the members of our society.
- This is what underlies the public involvement in the health care market in the U.S. (Medicare, Medicaid, and the ACA Exchanges).
- Notice that these arguments do not require a society in which everyone gets the same health care; just that we insure a social minimum.
- Individuals can be free to choose more health care if they so desire, but society is not responsible for providing the additional amount.

## Questions that I consider.

- What problems arise in designing a market that provides a minimum level of health care?
- How do we determine what that social minimum is?
- How do we apportion payments for that minimum between the private and public sectors?
- How have our current institutions done in providing the minimum our society has come up with?
- **Major question raised but not directly analyzed:** How can we overcome the problems and satisfy the promises at a lower cost?

# The Goal In Designing Health Care Markets.

- What are we trying to do and how does it differ from traditional policy analysis?
  - We are not trying to design a market to maximize a weighted average of individual utilities, the criteria most often used in economic analysis of alternative policies.
  - Rather we are trying to design a market which insures a minimal level of goods and services to societies members in as cost-efficient a way as possible.
- Outline of talk. After outlining market institutions
  - overview the "problems", and then go to
  - the "promises" and the extent to which we have fulfilled them.

# Background on Design of Market.

- Payment for providers of services is done through health insurance.
- Insurers' role: intermediary which contracts with providers and provides a bundle of health services (a health care network) to consumers in the form of an insurance plan.
- To insure that individuals have the ability to pay for the insurance required for the minimum level of health care services, we
  - have public insurance plans: medicare (over 65), medicaid (poor under 65): together they cover about 41% of the US population,
  - subsidize insurance programs for those ineligible for the public plans but in need of help (the ACA exchanges; subsidies to another 5%), and
  - place rules on how these programs can price, and the networks and services they must provide.

# Moral Hazard.

Moral Hazard: arises when the costs of an action to an individual is different than the costs to society.

- Consider three contexts in which moral hazard arises.
- **Moral hazard in consuming health care services.**
  - When consumers access health care services they do not pay the full cost of those services.
  - Results in accessing providers more than it is socially optimal to do so.
  - A number of procedures have been instituted to mitigate this problem; co-pays, co-insurance, rules that limit access to expensive providers (e.g. HMO's with gatekeepers), and so on. and
  - They have had some limited success (large economic literature).

## Moral hazard in the provision of health care services.

- Problem: providers do not pay for the services they request.
- The problems this generates are accentuated by;
  - lack of agreement on services patients require (on diagnosis as well as care given diagnosis) makes monitoring difficult, and
  - provider empathy for patients, & medical malpractice suits incentivizes over-provision.
- Hard to evaluate the costs of moral hazard in the provision of services. A minimal treatment level given diagnosis is determined by CMS panels, but
  - the minimal level need not be the level provided, and
  - often there mechanisms are not in place for someone to pay more than the minimum if they so desire.
- Currently the costs of moral hazard in the provision of services are thought to be much higher than from moral hazard in consumer behavior.



- Frequently cited examples of over provision: excess imaging (MRI, catscans...). However not all cited examples are properly analyzed: E.g. data on "excessive" expenditures in the last two months of life typically does not account for critically ill patients who survive.
- Cost containment options for moral hazard in provision of care: capitation contracts?
  - Tradeoff: Don't want to economize on needed care, but do want to avoid excessive testing, over-reporting of sickness level . . . .
  - Compromise: do not directly capitate doctors, rather capitate the physician group for the costs of the entirety of its patients.
  - Incentive effects depend on how group compensates its doctors (i.e. compensation's relationship to the expenses and quality of care).
  - Seems to have positive effect on some allocations (doctors' allocations to hospitals) but not others (hospitals' allocations to nursing homes).

- **Moral hazard &/or asymmetric information in consumption.**
- Problem: Consumption of some goods leads to health problems that generate costs part of which are not born by the consumer (either directly or through their payments to insurers).
- Example: Overeating and obesity (CDC claims  $\approx 37\%$  of US population Obese). Leads to heart disease, cancer, diabetes....
- Causes; moral hazard and/or lack of information. Policies include
  - Compulsory provision of information: health scores posted in restaurants, required labels on products, . . .
  - Penalties for not publicizing producer information (Masters Settlement Agreement, Asbestos liabilities, . . . ). Incentive to minimize moral hazard (for firms), and information problems (for consumers).
  - Taxes increase costs to consumers: Liquor, cigarettes, proposed soda and sugar taxes, . . .

## A Questionable Policy Option: Pharma Advertising.

- Only two developed countries allow DTC of prescription drugs (U.S. since 1985 in print and 1997 on TV, & New Zealand).
- U.S. is the largest pharmaceutical market in the world in terms of both revenue ( $\approx$  \$600 billion per annum) and promotional spending;  $\approx$  \$7B on DTC ( $\approx$  3/4 on TV) and  $\approx$  \$20B of detailing (over \$13B on free samples).
- The argument for and against advertising.
  - *Against*; Returns largely a result of business stealing and so do not generate benefits to society & incentives for miss-information.
  - *For*; make consumers aware that they can treat a condition before it becomes serious (particularly those that do not regularly see doctors), and providers aware of treatment alternatives.
- *Open Questions*. How useful is DTC & detailing, and is there a more socially efficient way to organize it?

# Promises: What Has Society Set As The Social Minimum?

- **Use the implications of government policy.**<sup>2</sup>
  - Assumes health care policy is directed by a desire to provide the social minimum – perhaps wishful thinking but you have to start somewhere.
  - There are no documented rules for what health care services society should insure access to for every diagnosis in every year.
  - However the government does insure health care services through public insurance plans, and these plans cover different treatments for different diagnosis in different years.
  - Assume that the treatments covered by the public insurance plans in a given year are the treatments that society has decided to insure in those years.

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<sup>2</sup>This part of the talk is taken from Rebecca Diamond and Ariel Pakes, "A Contractarian Price Index" (in process).

- In particular we
  - use the rules governing Medicaid disbursements as a basis for the minimal level of health care to be provided to those under 65,
  - and those governing Medicare disbursements as the basis for the minimal level for those over 65.
- This procedure has the advantage of incorporating technological change in the ability to treat: society changes the minimum when new treatments become available (CMA makes the choices). The changes can increase or decrease costs. Examples
  - Introduction of Beta Blockers in the 1990's generated a low cost method of treating heart disease.
  - Immunotherapy changed the prognosis for Metastatic Melanoma (skin cancer) from almost certain death to "treatable" and often curable, but probably increased costs.

## Apportioning Costs of the Minimum.

- The contractarian literature has not directly addressed this question.
- We assume the allocation is similar to what it is in the status quo.
- The private sector covers
  - costs of treatments that would be supplied by Medicare (if  $\geq 65$ ) and/or Medicaid (if  $\leq 65$ ) for those *not enrolled* in one of these plans,
  - plus any out of pocket costs for those enrolled in these programs.
- This allocates the social minimum to the private sector for those who are currently paying for private insurance.
- The public sector pays for what it is currently paying for.
- No clear justification for this, but different allocations would likely require a change in program content & rules for new content would need to be provided.

## Analytic Procedure

- To develop our health index we use the Relative Risk Scores developed for the Agency for Healthcare Research and Quality Center (AHRQ);
- They predict spending for each individual in each year were they in each of four payment types of insurance (Medicaid, Medicare, Privately Insured, Uninsured).
- The predictions are trained on a large claims data base, and are conditioned on diagnoses, age, and sex in the prior year.
- The data come from the Household Component of the Medical Expenditure Survey ("MEPS"). A survey covering all medical expenses from 1996-2018.
- As they note "costs refer to the kinds of costs covered within an insurance system", which accords with our notion of the costs that would be covered by Medicare and Medicaid.

## Issues with analytic framework.

- The risk scores developed by AHRQ are outputted from their DxCG model (similar to the model used in Handel, 2013).
- This side-steps the problem of determining what is covered by the public programs. Since what Medicaid covers varies by state, it implies our coverage is not uniform over states.
- Also:
  - The model assumes "selection on observables".
  - The DxCG model is only available from 1997-2010. We mimic it for 2011-2018. Present overall index for both 1997-2010, and 1997-2018, but details only for longer period.
  - Medicare part D is not included in DxCG model's predictions. Use part D enrollees to predict part D expenditures for those not in part D.
- Alongside each prediction, we provide the analogous actual expenditures.



# Index Generosity vs Index Growth.

- The index (and its private and public components) can grow because of
  - increases in per person generosity or
  - increases in the share of high expenditure types.
- To separate these two causes of growth we need an informative classification of types. We
  - First provide the indices for the entire population.
  - Then we look separately at the under 65 and over 65 population.
  - Then within each age group we provide our indices for each of three income groups separately; below 125% of the poverty line, between 125-400% of the poverty line, and over 400%

## Generosity Measures.

- Our indices weight the average expenditures on the different types of consumers by the share of the types in the population.
- I.e. if  $\tau$  index types,  $w_{t,\tau}$  is the share of individuals of type  $\tau$  in the index, &  $l_{t,\tau}$  represents the average expenditure among people of type  $\tau$ ,

$$l_t \equiv \sum_{\tau} w_{t,\tau} l_{\tau,t}.$$

- $s_{t,\tau} \equiv w_{t,\tau} l_{t,\tau} / \sum_{\tau} w_{t,\tau} l_{t,\tau}$ , the expenditure share of type  $\tau$  individuals,
- $g(l_{t,\tau}) \equiv (l_{t+1,\tau} - l_{t,\tau}) / l_{t,\tau}$  is the growth in the index for individual of type  $\tau$ , and
- $g(w_{t,\tau}) \equiv (w_{t+1,\tau} - w_{t,\tau}) / w_{t,\tau}$  is the growth in the share of individuals of type  $\tau$

Then

$$g(l_t) \equiv \frac{l_{t+1} - l_t}{l_t} = \sum_{\tau} s_{t,\tau} g(l_{t,\tau}) + \sum_{\tau} s_{t,\tau} g(w_{t,\tau}) + \sum_{\tau} s_{t,\tau} g(w_{t,\tau}) g(l_{t,\tau})$$

$$\approx \sum_{\tau} s_{t,\tau} g(l_{t,\tau}) + \sum_{\tau} s_{t,\tau} g(w_{t,\tau})$$

So  $g(l_t)$  is approximately the sum of share weighted averages of

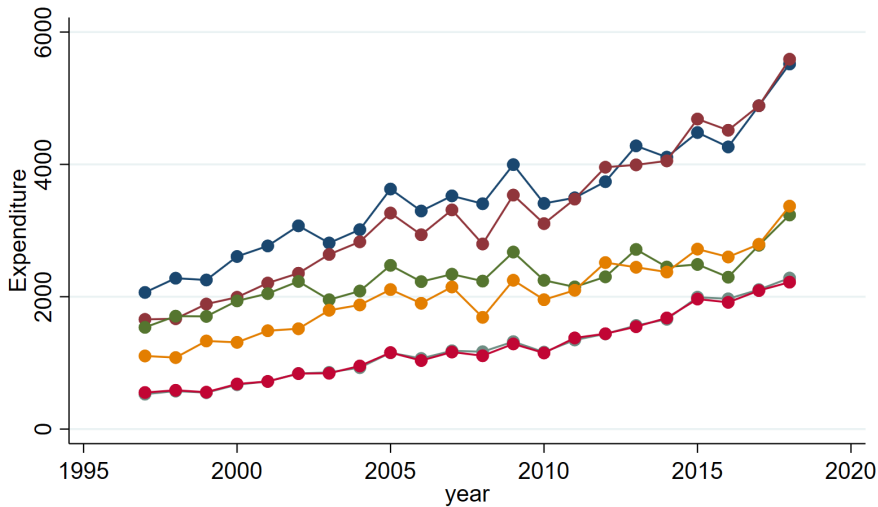
- generosity growth
- growth in fractions of different types weighted by expenditure shares.
- This implies that the difference between the growth in the overall index and the growth in generosity is positive when the types that have a growing fraction of the individuals have larger expenditure shares.

## Facts to Keep In Mind.

- Types for:
  - under 65 population: in or out of Medicaid,
  - over 65 population are age groups (65-70, 71-79, 80+).
- The share of the population over 65 has increased by 4-5% over this period (from 12-16.2%). 94% of them are currently in Medicare.
- When  $I_t$  is an index of government expenditures the difference between total index growth and index generosity growth is largely due to new entrants into government programs as those not in the programs have zero expenditures.
- So the difference between index growth and generosity growth in the under 65 population is largely expenditures on new entrants into Medicaid.

## Results: Total Index.

- Figures (expenditure levels), Tables (growth rates).  $I$  is our index,  $E$  is actual expenditure,  $g(I)$ ,  $g(E)$  represent their growth rates.
- $I(1997) \approx \$2750$  and  $I(2017) \approx \$5,800$  (both in 2017 dollars).
- $\Rightarrow g(I) = 4.1 - 4.5\%$ , which is  $\approx 2\%$  higher than CPI growth.
- $g(E) = 4.9 - 6.0\%$  which is  $\approx 2\%$  higher than GDP growth
- $E$  starts out  $\approx 2/3$  of the index but grows faster.  $I(2017) \approx E(2017)$ .
- $\frac{(2017 \text{ Index}/2017 \text{ CPI})}{(1997 \text{ Index}/1997 \text{ CPI})} \approx 1.5$ ,  $\frac{(2017 E /2017 \text{ CPI})}{(1997 E/1997 \text{ CPI})} \approx 2.2$
- The cost of both the minimal amount of health, and of actual health expenditure, are going up much faster than the "Cost of Living".



## Average Growth Rates

Index Expenditures				
	2010		2018.	
	Total	Per Person	Total	Per Person
All	.041	.043	.045	.040
Gov	.058	.049	.068	.045
Private	.033	.040	.032	.038

Actual Expenditures				
	2010		2018.	
	Total	Per Person	Total	Per Person
All	.049	.050	.060	.055
Gov	.058	.049	.068	.045
Private	.045	.051	.055	.061

- CPI Avg Growth Rates: 1997-2010: 0.024 , 1997-2018: 0.021

## Results: Government and Private Portions.

- Portion of index,  $I^G, I^P$ , of Expenditure  $E^G, E^P$ .
- Since  $E^G \equiv I^G$ , the fact that the growth in  $E$  was faster than the growth in  $I$ , is because the growth in private expenditures exceeded the growth in the privately paid for component of the index.
- $g(I^G) > g(I^P)$ : growth in the government's portion of basic health care services exceeds growth in their private components.
- $g(I^G) - g(I^P)$  is primarily due to the fraction of the population covered by government programs (grows at  $\approx 2\%$ ). The growth in government per person index (i.e. our "generosity") is close to private per person index.



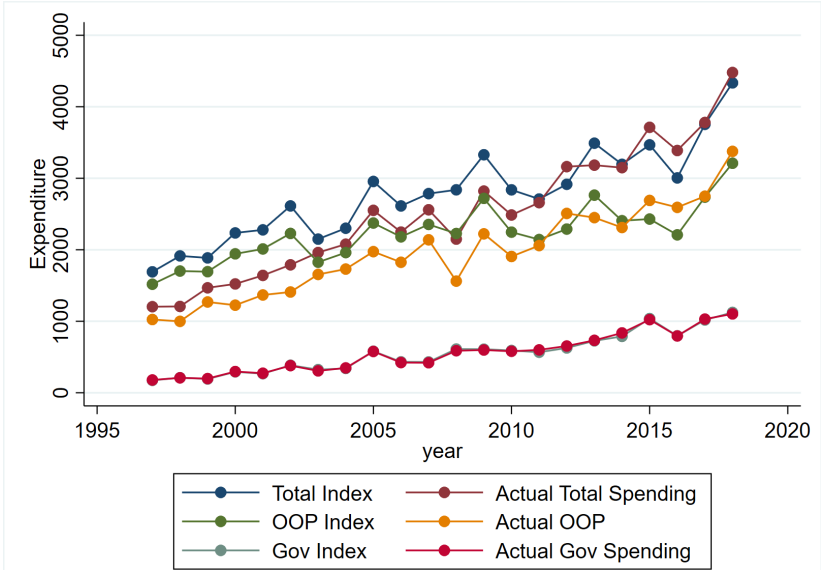
## Background Facts: The Under and Over 65 Decomposition.

- Index expenditures are much higher for seniors
  - In 1997;  $I(\text{seniors}) \approx \$5000$ ,  $I(\text{under } 65) \approx \$1700$ .
  - In 2017;  $I(\text{seniors}) \approx \$11500$ ,  $I(\text{under } 65) \approx \$4500$ .
- The portion covered by government is also much higher for seniors
  - In 1997  $\approx 50\%$  for senior vs  $6\%$  for under 65, and
  - In 2017,  $\approx 66\%$  for seniors vs  $18\%$  for under 65.

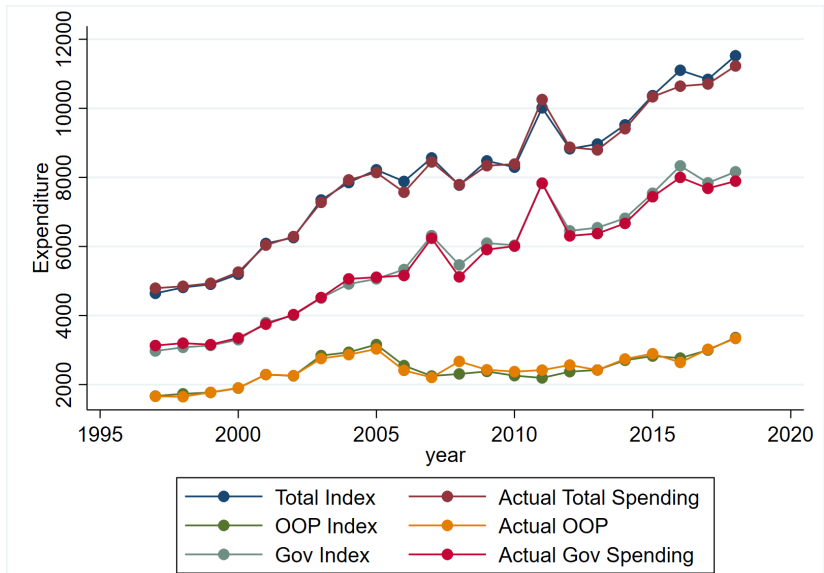
## Results: Under and Over 65 Decomposition

- The overall growth in "generosity" the index is similar for both age groups (4%), as is the portion of generosity covered by government (5%)
- Growth in the fraction of the population in government programs is entirely a result in the growth in eligibility of the *under 65* population.
- This starts before the ACA (2010). Percent of under 65 population without health insurance;
  - 16.1% in 1997 ,
  - 11.7% in 2010, and
  - 8.5% in 2018.
- Growth in actual expenditures is much larger in the under 65 population & accounts for all the difference between actual expenditure growth and index expenditure growth found above.

# Under Age 65



# Age 65+



## Average Annual Growth Rates

Expenditures: Under 65				
	Actual: 2018		Index: 2018.	
	Total	Per Person	Total	Per Person
All	.065	.063	.042	.040
Gov	.090	.049	.090	.049
Private	.058	.062	.032	.038

Expenditures: Over 65				
	Actual: 2018		Index: 2018.	
	Total	Per Person	Total	Per Person
All	.041	.042	.044	.04e
Gov	.050	.050	.050	.050
Private	.034	.028	.034	.033

# The Under 65 Population by Income Group

- Income groups:
  - $\leq 125\%$  of poverty line,
  - 125-400% of poverty line
  - $\geq 400\%$  of poverty line.

## Background

- The fraction in the low income group in the entire population fell from 18 to 15.1% over this period, and almost all of the fall was in this age group.
- Government's portion of actual expenditures is
  - $\approx 0$  for the top,
  - $\approx 1/4$  for the middle, and
  - $\approx 3/4$  for the lowest income group.

## Results: Income Groups in the Under 65 Population.

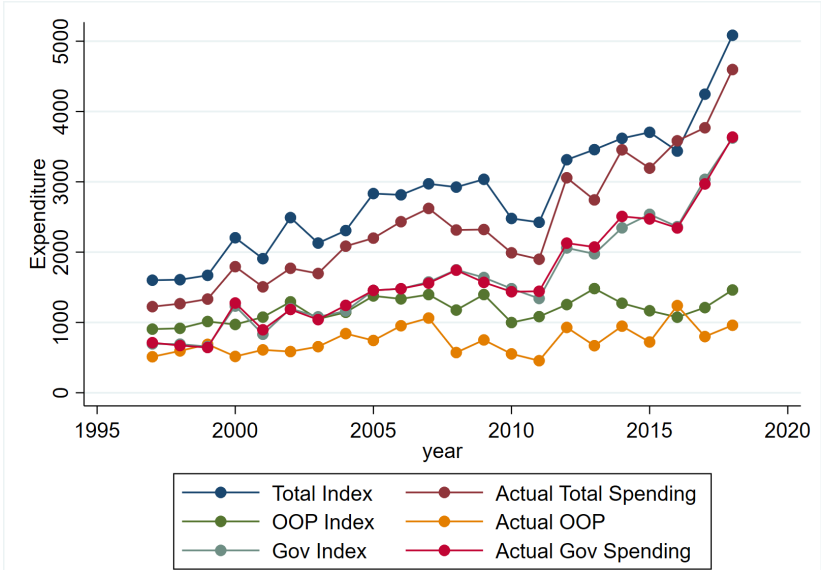
- Less than 125% of poverty.
  - Index is always higher than actual, though the proportional difference declines pretty steadily.
  - Highest growth in per person index needs (about 5% vs 4% for other two groups).
  - Highest level of needs in 2017: Over \$5000 per person vs just over \$4000 for other two groups.
- 125 – 400% poverty.
  - Index starts higher than actual, but actual catches up to index.
  - This group had notably higher growth in eligibility and in per person government expenditures than the other groups.
- More than 400% poverty.
  - Actual starts lower than the index but because of exceptional growth in private expenditures (6.4%) surpasses index by 15 – 20% by 2017.

## Growth Rates by SES

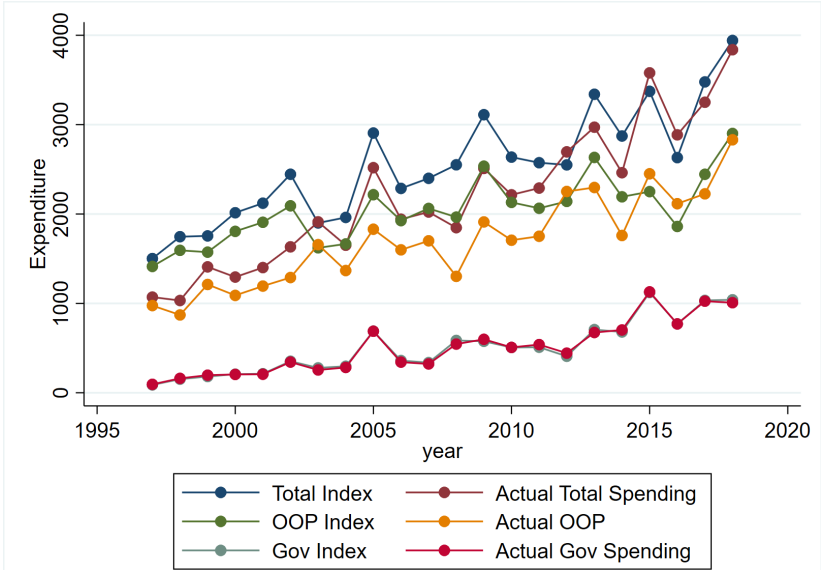
Expenditures: Under 65 1997-2018								
	G1: Actual		G1:Index.		G2: Actual		G2: Index	
	Total	PP	Total	PP	Total	PP	Total	PP
All	.065	.054	.055	.049	.063	.060	.040	.038
Gov	.059	.030	.059	.030	.119	.046	.119	.046
Private	.030	.048	.021	.039	.052	.062	.035	.004
	G3: Actual		G3:Index.					
	Total	PP	Total	PP				
All	.065	.064	.037	.036				
Gov	.083	.033	.083	.033				
Private	.064	.065	.036	.036				



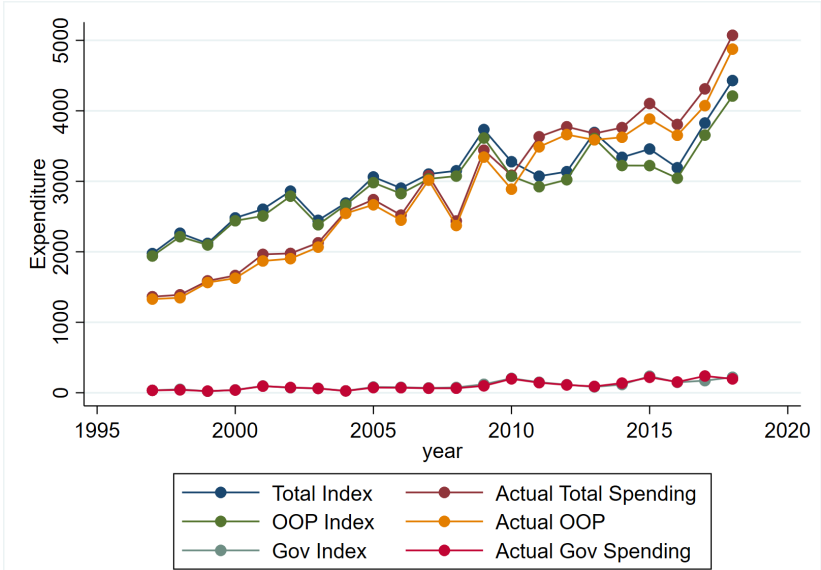
# Under 65, $\leq 125\%$ poverty



# Under 65, poverty $\in$ 125-400%



# Under 65, poverty $\geq 400\%$



## Summary of Empirical Results.

- Our commitments to basic health care are growing at about 4.3% a year ( $\approx 2\%$  higher than CPI & GDP growth).
- Our expenditures on health care were below our commitments in 1997, but have grown to equal it by 2017, for all but the lowest income group among the under 65 population (and even their gap is proportionately significantly smaller.)
- The growth in government programs exceeded the growth in private expenditures in both the index and in actual expenditures.
- Most of the difference is due to expansion of eligibility; particularly in the population with income between 125-400% of the poverty line.

## The Important Question We Have Avoided.

- We have not asked the question of whether we are delivering the mandated health care services in an efficient way.
- That is, it is likely we could achieve our goal at less cost.
- How to do this is the "mechanism design" question that underlies pretty much all of what our colleagues who study health care are investigating.
- In my view they are focusing on the right question.