Moral hazard

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Section 1

The slope of demand

How does health care demand vary in the price the patient has to pay?

a higher price (i.e. less insurance)...

1. ...does not affect the amount of health care a patient consumes
2. ...reduces the amount of health care a patient consumes
3. ...increases the amount of health care a patient consumes

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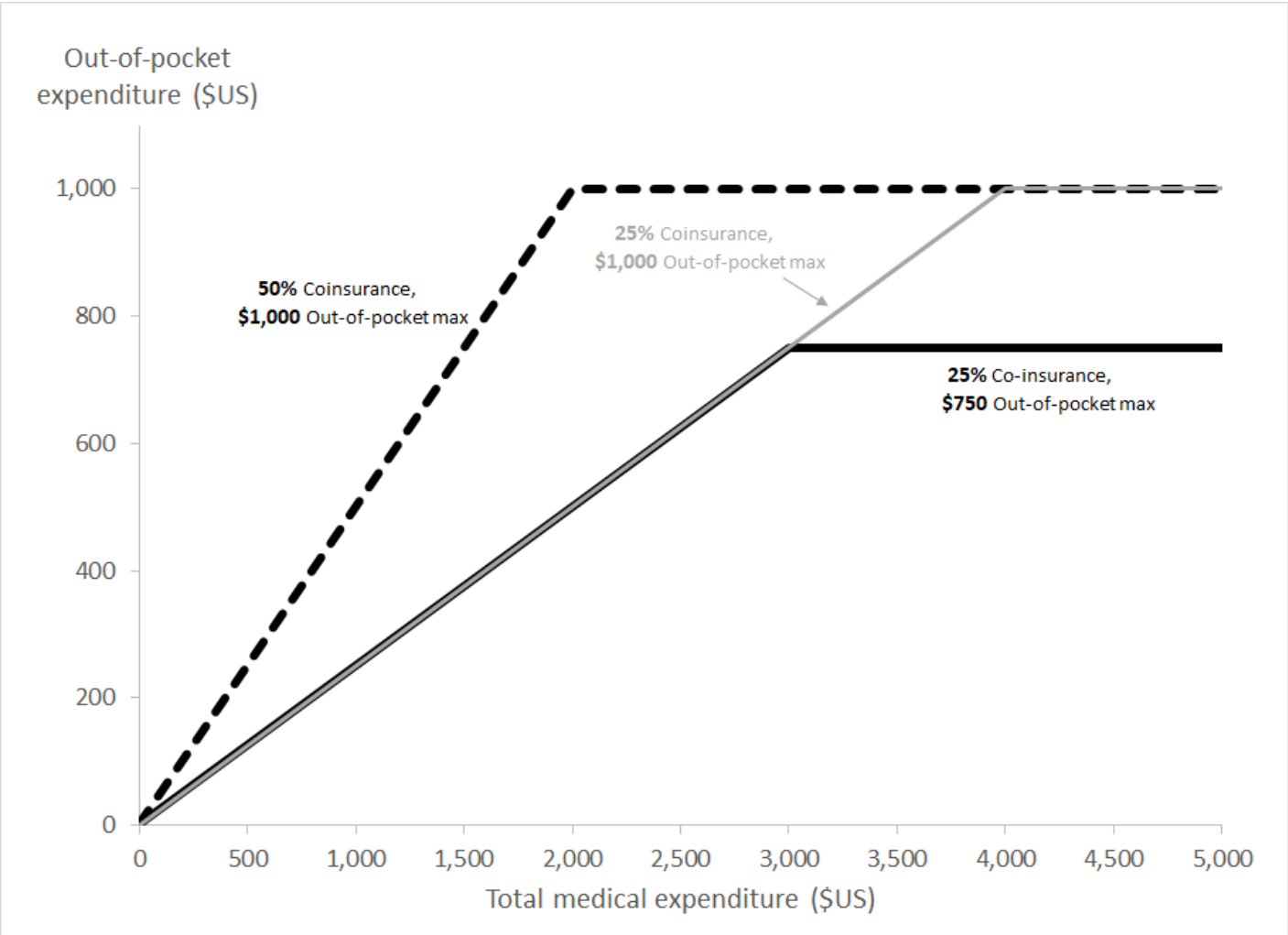
How do you design a study that settles the argument?

Section 2

Field experimental evidence

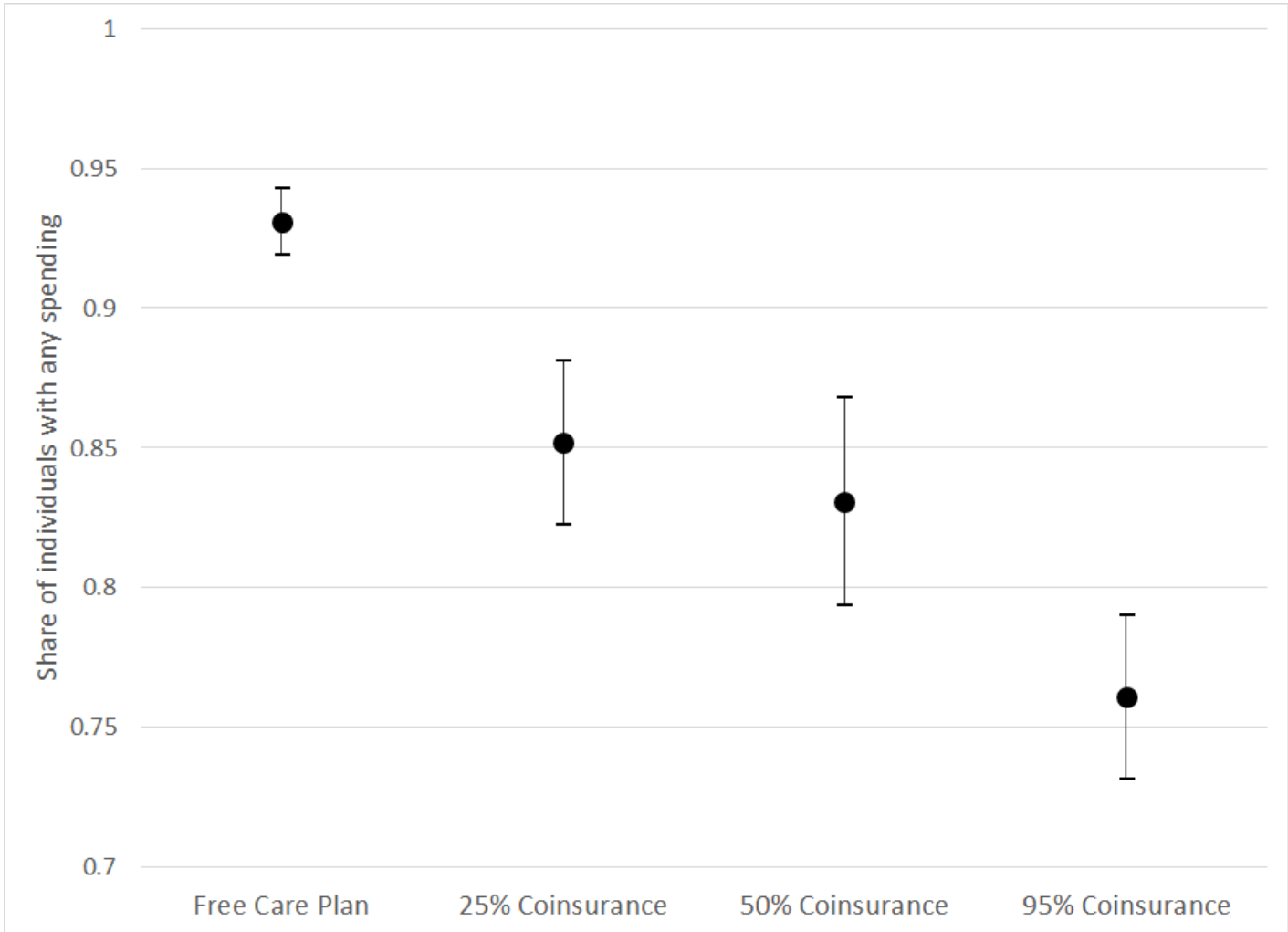
RAND health insurance experiment I

- 70s in the US
- 2000 families
- randomly assigned plans differing in copay and stop-loss



source: Einav and Finkelstein 2017

RAND health insurance experiment II



source: Einav and Finkelstein 2017

- rough price elasticity estimate: -0.2

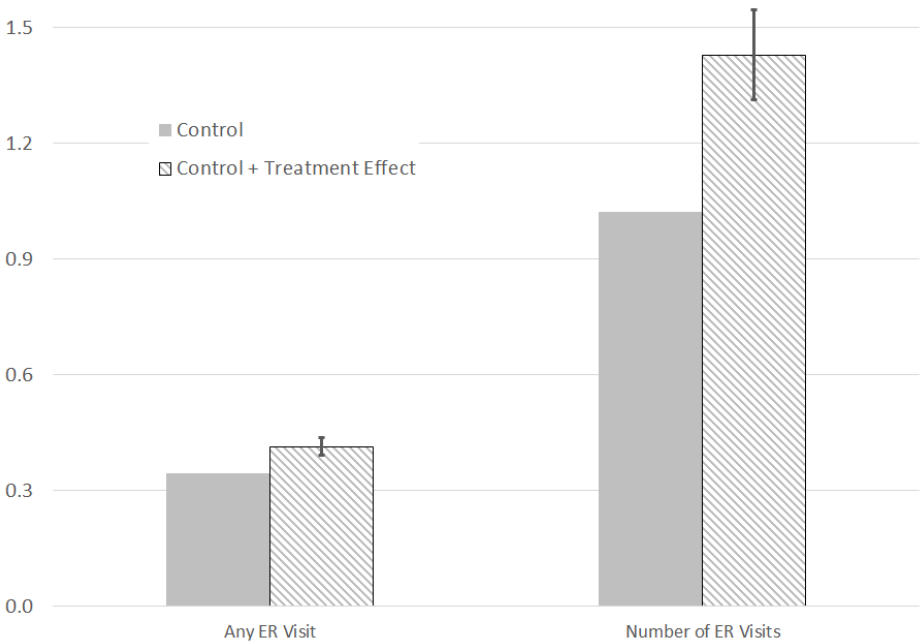
RAND health insurance experiment III

plan	likelihood of any use	physician visits	hospital admission %	expenditure (in 2006$)
free	86.7	4.55	10.37	3,164
25 %	78.8	3.33	8.83	2,565
50 %	74.3	3.03	8.31	2,374
95%	68.0	2.73	7.74	2,174

source: adapted from Manning et al. 1987 by Morrissey 2008

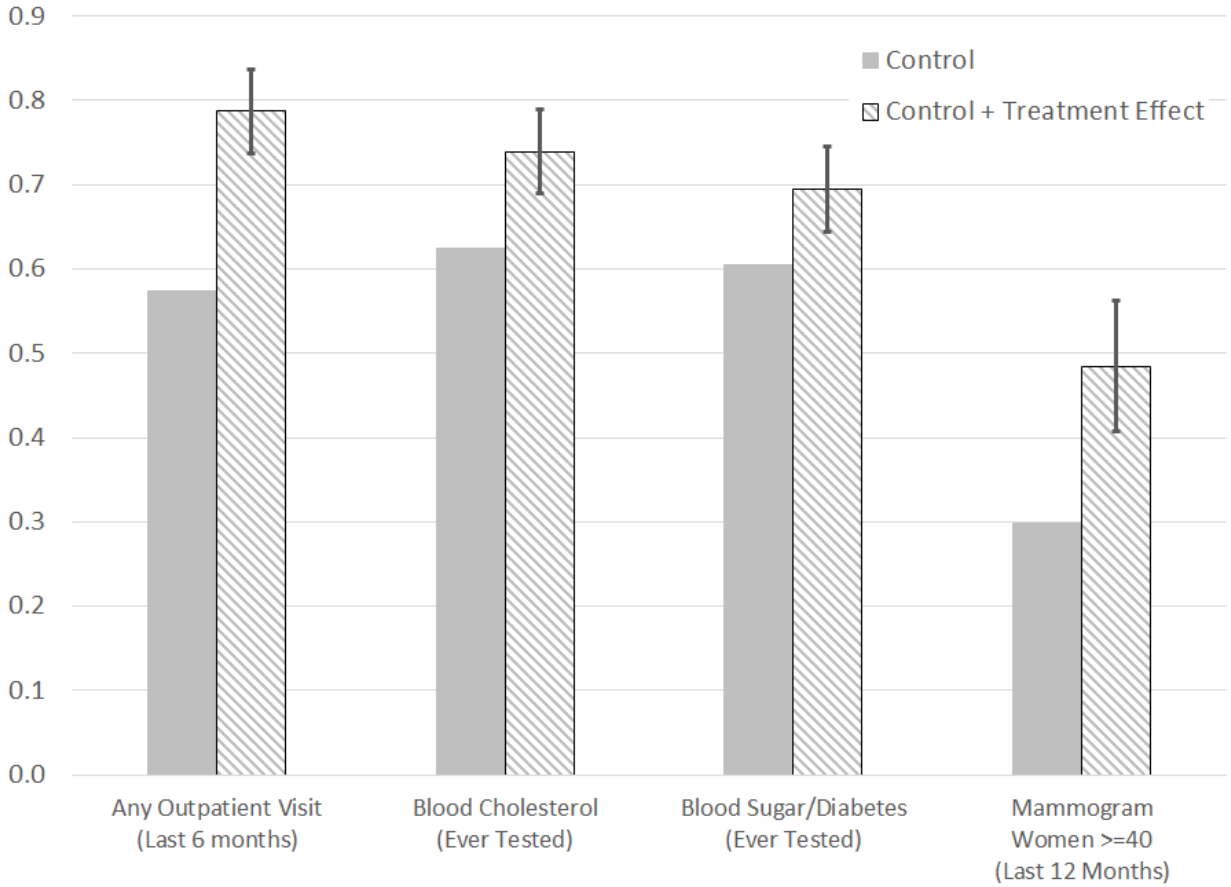
Oregon I

- Medicaid expansion in Oregon (2008)
- medium-low income
- due to limited budget, lottery for eligibility
- no copayment, no premium
- use lottery success as instrument for health insurance
- roughly: compare lottery winners to losers



source: Einav and Finkelstein 2017

Oregon II



source: Einav and Finkelstein 2017

- increase in health care spending due to Medicaid roughly 775$ per year (approx. 25%)

Section 3

Welfare and moral hazard

Welfare

- why is ”moral hazard” actually a problem?

Section 4

Ex ante moral hazard

Ex ante moral hazard

- what is the impact of insurance on preventive behavior, life style etc.?
- uninsured in the US who become eligible for Medicare when turning 65

Results: after turning 65...

- number of physician visits increases for low-educated by 35 (41)% for men (women)
- probability of engaging in vigorous physical activity falls by 21 (13)%

(source: Dave and Kaestner, International Journal of Health Care Finance and Economics, 2009)

Section 5

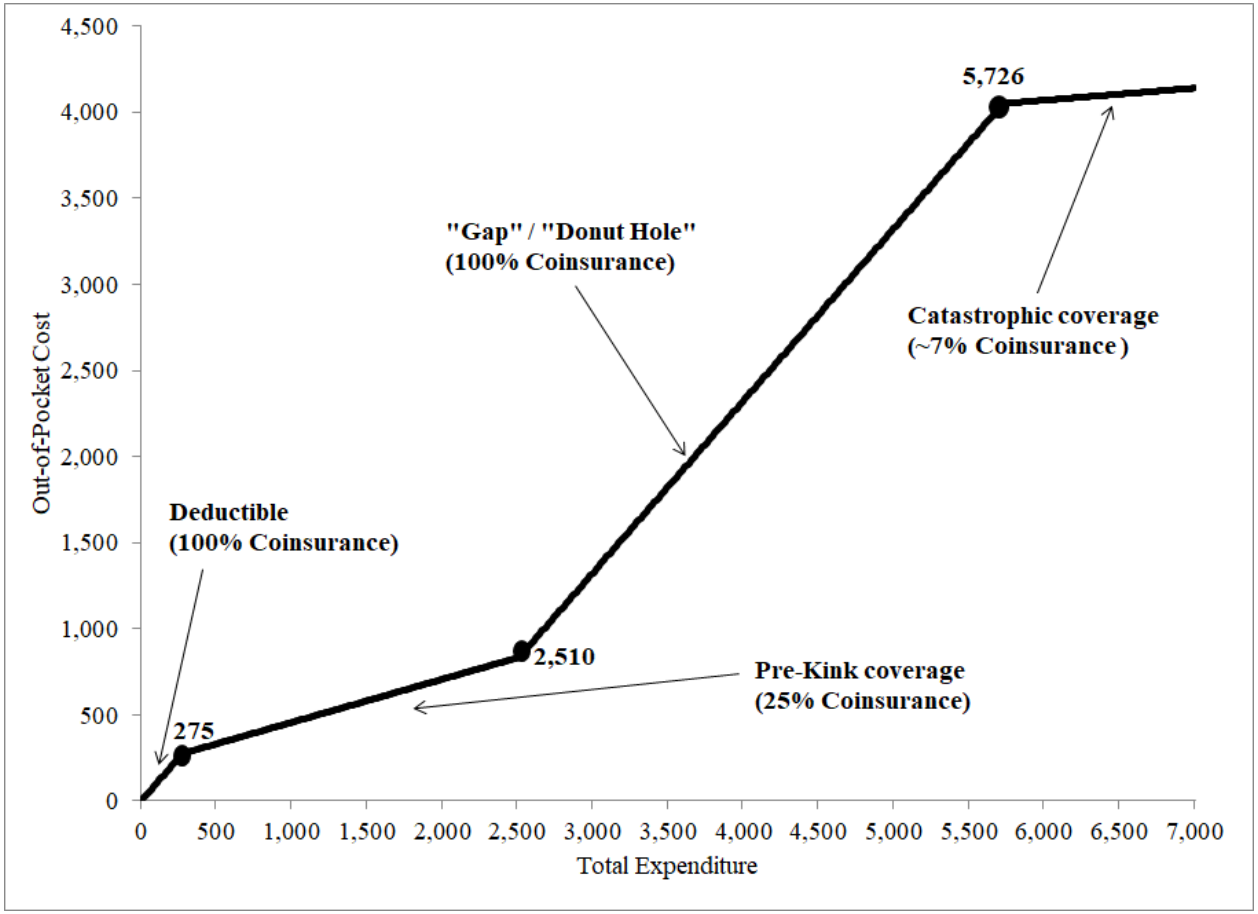
The donut hole

A simplistic model

- patient chooses amount x to spend on medication/treatment
- utility is separable: $u(x) = h(x) - c(x)$ where
  - health benefit h is increasing and strictly concave
  - copayment $c(x)$ depends on insurance contract
- maximization problem $\max_x h(x) - c(x)$
  - foc: $h'(x^*) = c'(x^*)$
- graphical example
  - suppose the copayment is 10%, i.e. $c(x) = 0.1x$ and therefore $c'(x) = 0.1$ is constant
  - h' is decreasing as h is strictly concave

The donut hole I

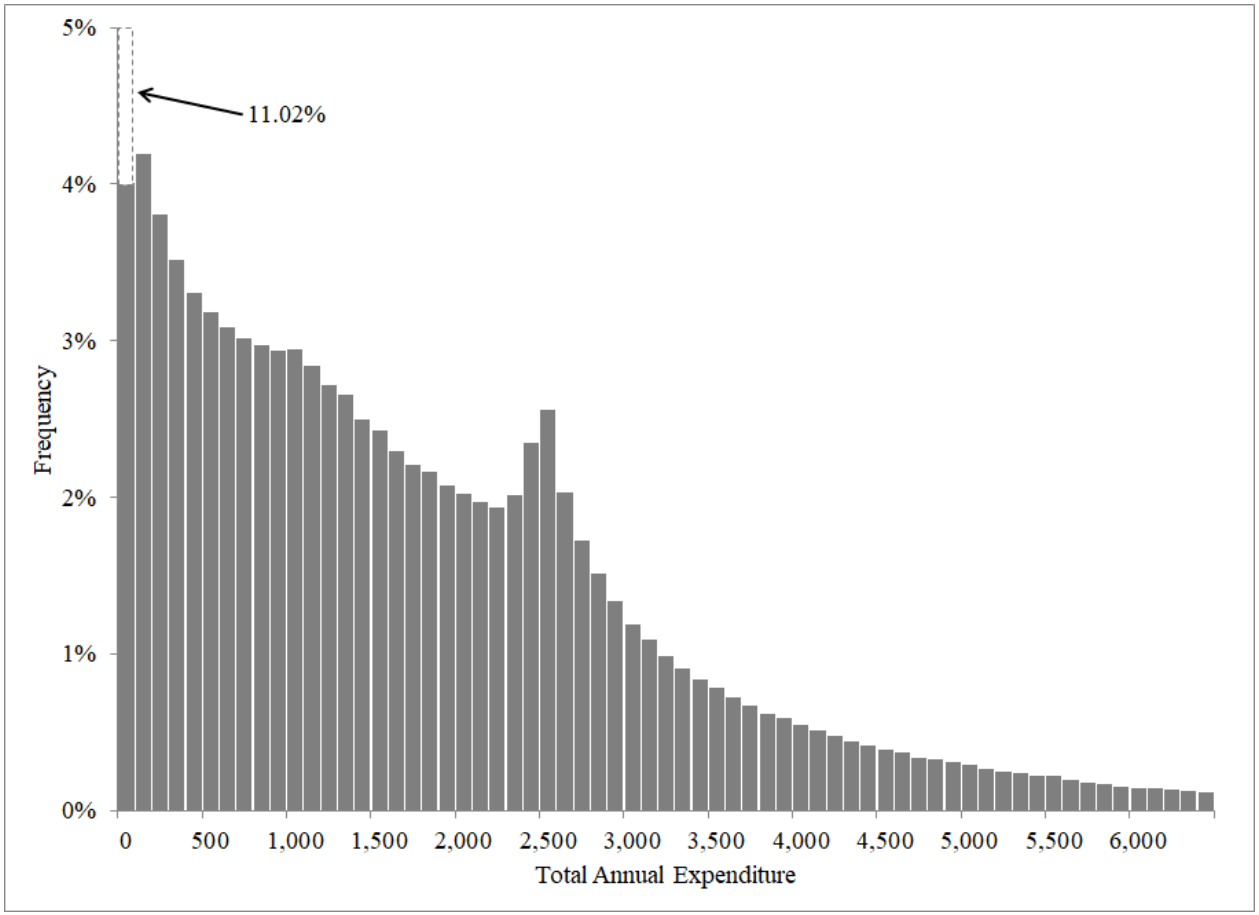
- Medicare Part D provides coverage for elderly for medication



source: Einav and Finkelstein 2017

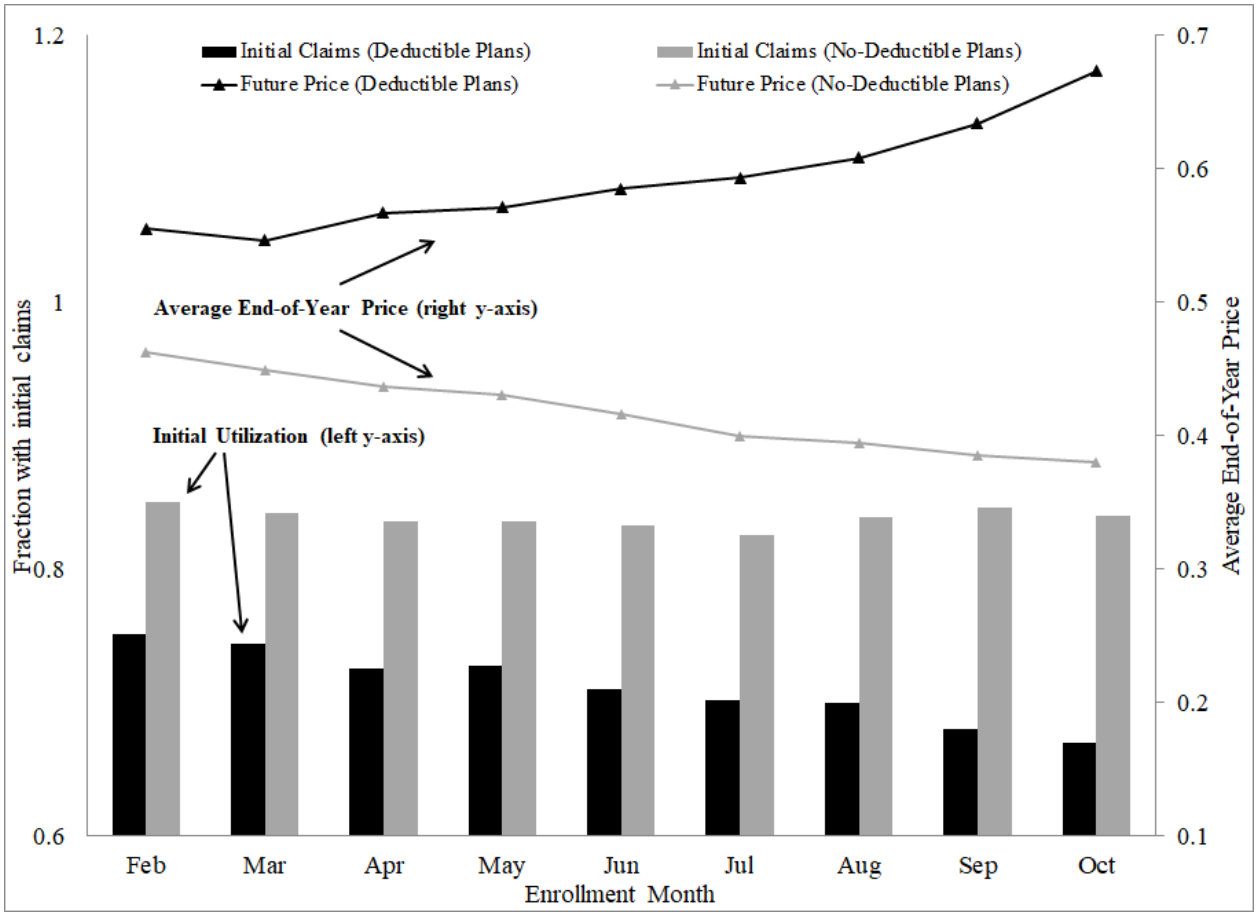
How will the distribution of medication expenditure for Medicare recipients look like?

The donut hole II



source: Einav and Finkelstein 2017

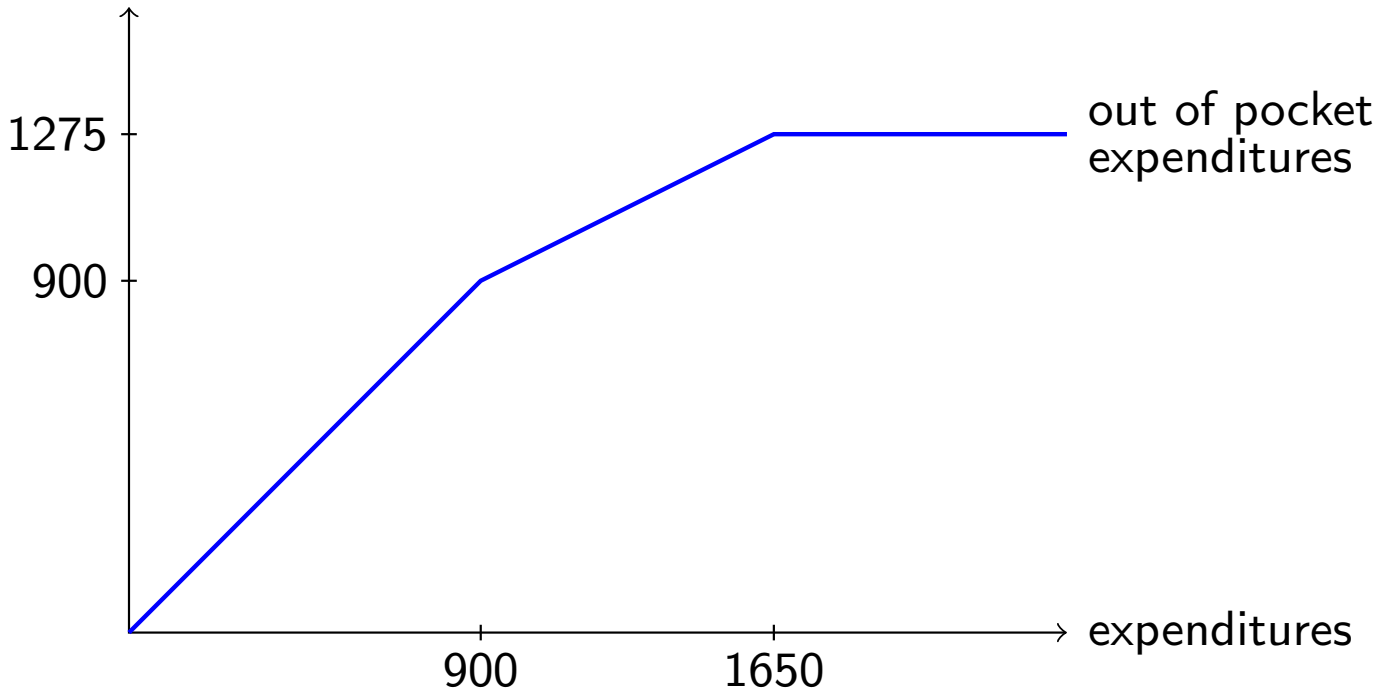
Forward looking behavior



source: Einav and Finkelstein 2017

Out of pocket expenditures: German example

- single civil servant in NRW in tarif group W3
  - health insurance for 50% of health care expenditures: 275 EUR per month, repays 3 months of contributions if no use (effective deductible of 825 EUR)
  - state subsidy for 50% of health care expenditures ("Beihilfe"): deductible ("Kostendämpfungspauschale") of 450 EUR



- What are the implications for the expenditure profile?

Section 6

Out of sample predictions

Out of sample predictions

- A health insurer considers to introduce a copayment of 10% up to 5000€ and asks you how this will affect expenditures. What do you do?

Section 7

Utilization management

Utilization management (UM)

- insurance causes over consumption of care
  - copayments are an imperfect way to fight this problem
  - what else can insurer do to fight over consumption of care?

Empirical evidence on utilization management I

- Wickizer, Wheeler and Feldstein (1989) and Wheeler and Wickizer (1990)
  - data from one US insurer
  - 41% of groups buy plan with preadmission certification and concurrent review
  - results:
    - 3.7% less hospital admissions but no effect on length of stay
    - UM more effective if in community admission rates are high or hospital capacity is idle
- Scheffler, Sullivan and Ko (1991)
  - Blue Cross/Blue shield plans

	admissions	hospital days	length of stay	inpatient expenditures
preadmission+concurrent review	-5.3%***	-4.9%***	+0.4	-2.6%***
mandatory 2nd surgical opinion	+0.8%	+0.9%	+0.0	-2.6%
retrospective review	+0.5	+0.8	+0.4	+2.1
denial of payment	-2.3*	-4.5***	-2.1***	-2.0*
discharge planning	+0.7	+1,2	+0.0	-0.8

Empirical evidence on utilization management II

- Lessler and Wickizer (2000)
  - one US health insurer with different groups (some with preadmission certification + concurrent review)
  - only cardiovascular disease patients
  - results
    - almost no requests for admission rejected
    - 17.5% of cases length of stay was reduced (19% for surgical procedures)
    - readmission rates: 12.4% no reduction, 9.4% if 1 day reduction, 14.6% if 2+ days reduction

Gatekeeping

- gatekeeping: specialty care requires referral by general practicioner
  - what are the advantages?

Gatekeeping

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  - what are the advantages?
- Ferris er al. (2001)
  - Harvards Vanguard eliminated gatekeeping after 25 years in 1998
  - compare utilization before and after elimination

physician visits	gatekeeping	no gatekeeping
number specialty visits / 6 months	.78	.78
number first visit specialist /6m	.19	.22
number primary care visits /6m	1.21	1.19