

# The Impact of Health Insurance: Evidence from the Introduction of Medicare

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# Four salient developments in the US Health Care Sector (1960 – 2000)

# 1. The spread of health insurance

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- 1960: less than half of medical expenditures covered by insurance.
- 2000: 80 percent of medical expenditures covered by insurance.

## 2. Growth in health spending

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- 1960: Health expenditures are 5% of GDP
- 2004: Health expenditures are 16% of GDP

# 3. Technological Progress

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- Many major new medical innovations
- Progress especially in treating cardiovascular disease (leading cause of death among elderly).

## 4. Improved health

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- Especially among the middle aged and elderly
- Life expectancy at 65 increased by 25 percent (3.5 years) between 1960 and 2000
- Improvements in morbidity as well

# Key question: the role of insurance

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- How has the spread of insurance contributed to:
  - Growth of health spending
  - Technological change in medicine
  - Improved health
  - Improved risk smoothing / financial security
- I examine these questions by studying the impact of the introduction of Medicare in 1965
  - NB: looking at effect of market-wide change in health insurance
  - Prior studies examine effect of individual-level change in health insurance

# Overview of findings: spending

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- Impact of Medicare on health spending over 6 times larger than what evidence from individual-level health insurance changes would have predicted
  - Health insurance also appears to affect incentives to develop and adopt new medical technologies
- Implication: overall spread of health insurance may be able to explain about half of the growth in real per capita health spending 1950 – 1990

# Overview of findings: benefits

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- Medicare has no discernible impact on elderly mortality in its first 10 years (1965 – 1975)
- Medicare associated with a large reduction in elderly risk of large out of pocket medical spending
  - 40 percent decline in out of pocket spending for the top quartile
- Implication: Welfare gains from reduction in out of pocket spending risk alone may be sufficient to cover half to three-quarters of the costs of Medicare

# What's behind the growth in health spending? *Conventional wisdom*

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- Rand Health Insurance Experiment:
  - Randomized controlled experiment
  - Find a modest effect of health insurance on health spending
  - Estimates suggest impact of health insurance too small to be quantitatively important in explaining growth of health spending (Newhouse 1992)
- Large role for technological change
  - Believed to be behind most of the growth in health spending (Newhouse 1992, Fuchs 1996, Cutler 2003)

# *Revisiting the impact of health insurance:* Evidence from Medicare introduction

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- Single largest change in health insurance coverage in U.S. history
  - Provides virtually universal coverage to the elderly
- Prior to Medicare, elderly health insurance coverage very limited
  - Only about 25% of elderly had meaningful private health insurance
  - Public health insurance coverage virtually non-existent

# Empirical design

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- How to isolate the effect of Medicare from other co-incident secular changes in the US health care sector?
- Key insight: elderly in different areas of the country has very different rates of private insurance coverage prior to Medicare
  - Therefore *net* increase in insurance coverage due to Medicare varies widely across regions of US:
    - 49 percent increase in New England
    - 88 percent increase in East South Central United States
  - Compare changes in health care sector after Medicare's introduction in areas where Medicare had more of an impact on insurance coverage to areas where it had less

# The Impact of Medicare

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- Estimates suggest Medicare may account for:
  - 37 percent increase in real hospital expenditures from 1965 to 1970
  - Over half of the growth of health spending over this 5 year period
  - Even larger effects if analysis extended through 1975
- Estimated impact of Medicare over 6 times larger than what Rand results would have predicted for impact of Medicare
  - And this is using only the five-year estimate

# Why is impact of Medicare 6 times larger than what Rand would predict?

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- General vs. partial equilibrium effects of health insurance
  - Market-wide changes in health insurance may have disproportionately larger effects than small-scale changes because they alter the practice of medicine
- I find evidence of impact of Medicare introduction on nature of medical practice
  - Associated with substantial new hospital entry
  - Associated with increased adoption of two then-new expensive cardiac technologies: open heart surgery facility and cardiac intensive care unit
  - May have had spillover effects to increased spending on non-elderly

# Implications for growth in health spending

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- How much of the growth in health spending can the spread of health insurance explain?
  - Compare out of sample extrapolation from Rand estimates vs. Medicare estimates
- **Rand estimates:** overall spread of health insurance explains little of the growth of health spending
- **Medicare estimates:** overall spread of health insurance 1950 – 1990 may be able to explain half of increase in real per capita health spending

# Technology vs. insurance

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- What is behind the growth of health spending:
  - Conventional wisdom: technological change, not insurance
  - My findings suggest much larger role for health insurance
- Views not incompatible: impact of health insurance in part via its effect on technological change
  - I find evidence of an impact of Medicare on technology adoption
  - In other work, I find evidence of effect of insurance coverage on pharmaceutical company decisions to start new clinical trials

# What about benefits of health insurance?

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- Thus far have looked only at the cost side: how health insurance affects health spending
- Now turn to considering the potential benefits from Medicare
  - Based on work with Robin McKnight

# Potential economic benefits of insurance

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- Direct benefits: risk-reduction
  - Reduce risk of large out of pocket medical expenditure
  - Basic risk-spreading property of insurance
- Indirect benefits: Improved health

# Benefits from Medicare introduction

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- Health effects:
  - We find no discernible impact on elderly mortality over Medicare's first 10 years (1965 – 1975)
  - However, we are unable to examine effects on:
    - Morbidity
    - Long run health effects (due e.g. to induced technological change)
- Risk-reducing effects
  - We estimate Medicare's introduction substantially reduces the risk of an elderly individual facing a large out of pocket medical expense
  - 40% decline in out of pocket spending at the top quartile of out of pocket spending distribution

# Cost-benefit analysis

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- Costs of Medicare:
  - Induced spending (large moral hazard estimates)
  - Cost of public funds to pay for Medicare (DWL from distortionary taxation)
- Benefits
  - Reduction in risk of large out of pocket medical expenditures
  - Health benefits: assumed zero (conservative assmpt)
- Finding: risk-reducing benefits alone may be sufficient to cover half to three-quarters of the costs of the Medicare program.

# Summary: Insights from the impact of Medicare's introduction

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- Market-wide changes in health insurance may have disproportionately larger effects on health care sector than evidence from individual-level changes in health insurance would suggest
  - Spending effects imply that spread of health insurance may be able to explain half of the growth in real per capita health spending 1950 – 1990
  - Part of the effects of health insurance likely operate via effects on development and adoption of new technologies
- Risk-reducing benefits of insurance coverage alone may justify a large portion of the costs of health insurance even in apparent absence of (measurable) health benefits
- Important unanswered question: unmeasured health effects of Medicare (morbidity; long run effects via technology?)