

# The Value of Administrative Data for Randomized Evaluations

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MIT AND J-PAL NORTH AMERICA

# The Value of Randomization

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- Randomized evaluations can provide clear answers
  - Randomly assign individuals to different treatments (programs) or control (status quo continues)
- *By construction*, the treatment group and the control group will have the same characteristics, on average
  - Observable: age, income, measured health, etc.
  - Unobservable: motivation, social networks, unmeasured health etc.
- The ability to surprise us
  - Concurrent palliative care can improve quality of life and *length* of life
  - Covering the uninsured with Medicaid *increases* their use of the emergency room



# Helpful or Harmful: The Debate Over Medicaid

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**The Washington Post** [Print](#)

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**How the Medicaid expansion  
could actually save states money**



**Expanding Medicaid Would Save New  
Jersey Billions of Dollars**

**THE WALL STREET JOURNAL.**

OPINION

**Medicaid Is Worse Than No Coverage at All**

*New research shows that patients on this government plan fare poorly. So why does the president want to shove one in four Americans into it?*

By SCOTT GOTTLIEB

**Why Medicaid is a  
Humanitarian Catastrophe**

# Oregon Health Insurance Experiment

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- In 2008, Oregon had money to cover some but not all of those eligible for a previously-closed Medicaid expansion program
  - Covers low-income, uninsured adults not categorically eligible for Medicaid (not on welfare, disability, etc.)
- Chose lottery for fairness reasons
  - Asked interested individuals to sign up on a list
  - Randomly selected about 30,000 of 75,000
- Study impact of Medicaid to low-income, uninsured adults
  - Via random assignment

# Unprecedented opportunity

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- To bring rigors of randomized trials to pressing domestic social policy question
  - First RCT to study the impact of covering the uninsured
- Assembled a large research team
  - Co-PI: Katherine Baicker
  - Collaborators in academia, government, health care system...

# Left No Data Stone Unturned...

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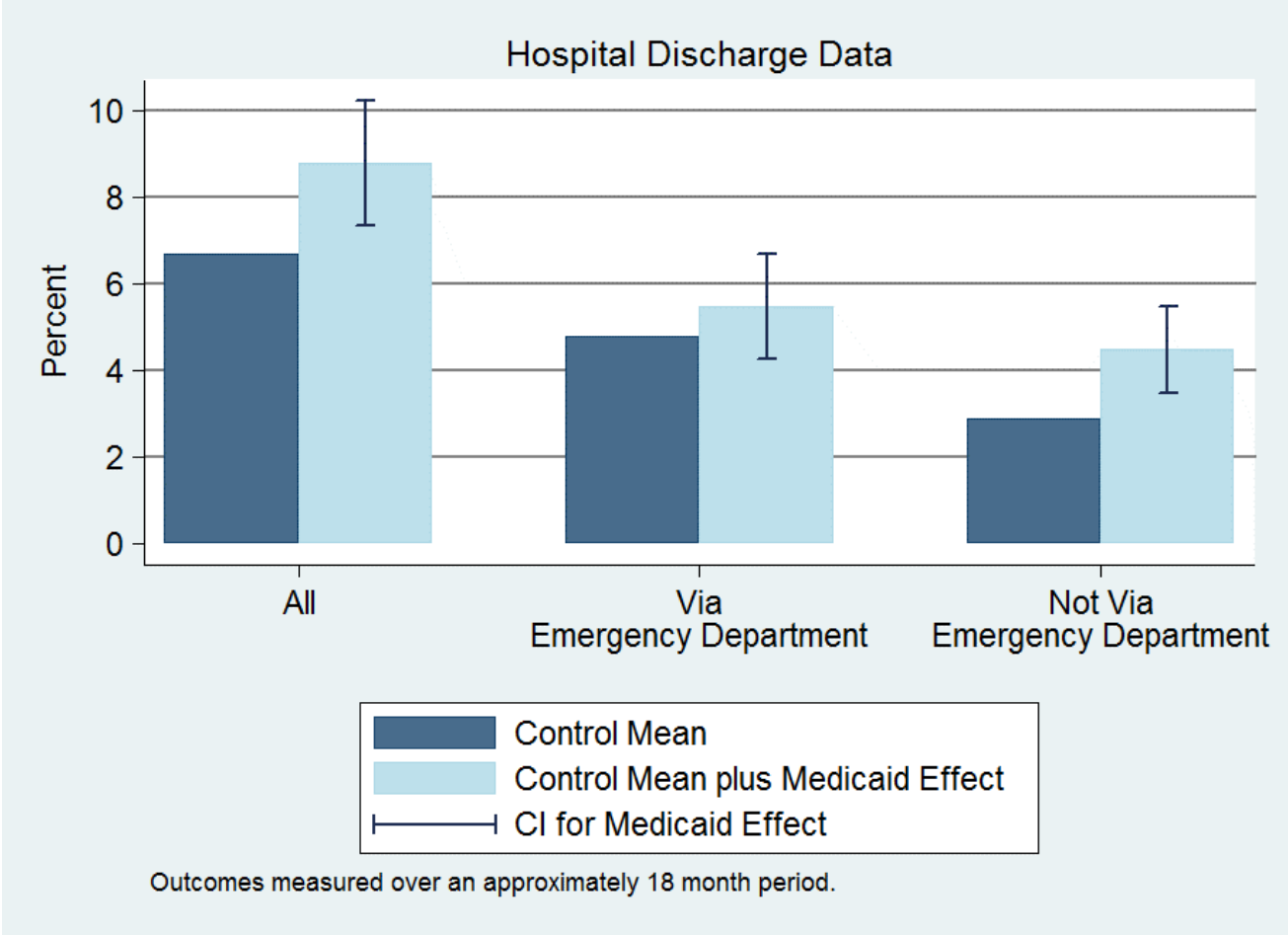
- Mail surveys (sent to ~55,000 people)
  - Questions on health care use, financial strain, self-reported health and well-being
- In person interviews and physical health exams (~12,000)
  - Clinical measures: blood pressure, cholesterol, blood sugar, etc.
  - Detailed medication catalog
  - Medical history (e.g. dates of diagnoses)
- Administrative data (~75,000)
  - Hospital discharge records
  - Emergency room visits
  - Credit reports
  - Earnings
  - Others in progress: Voting, criminal activity

# Results after 1-2 years

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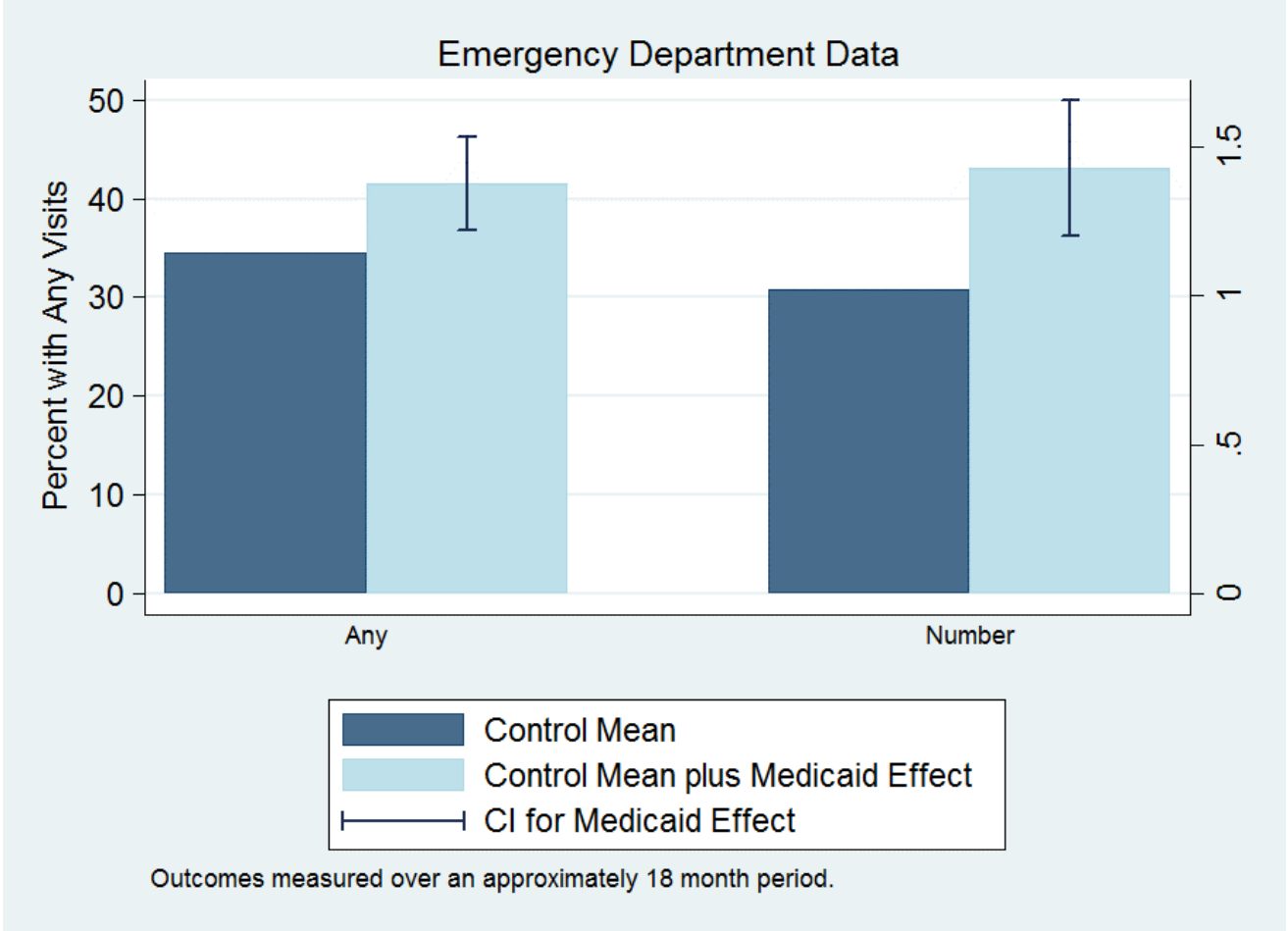
- Healthcare use
  - Medicaid increases use of healthcare across the board
  - Hospital, emergency room, outpatient visits, prescription drugs, preventive care
- Financial well-being and security
  - Medicaid reduces out-of-pocket costs and financial strain
  - Medicaid did not affect employment and earnings
- Health
  - Medicaid improved self-reported health
  - Medicaid reduced depression
  - No statistically significant effects on measured physical health
- More details at [www.nber.org/oregon](http://www.nber.org/oregon)

# Health Care Use: Probability of Hospitalization

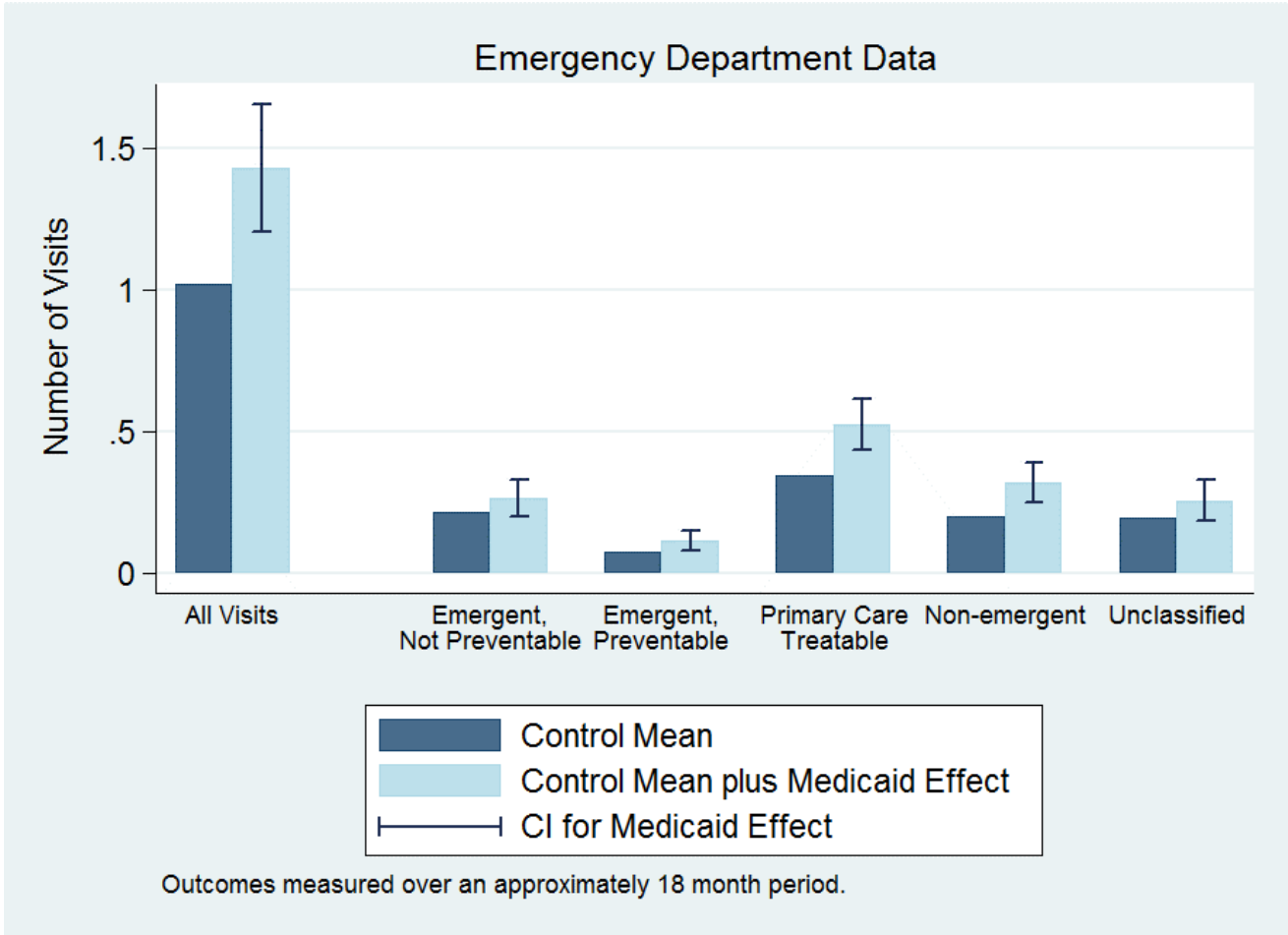




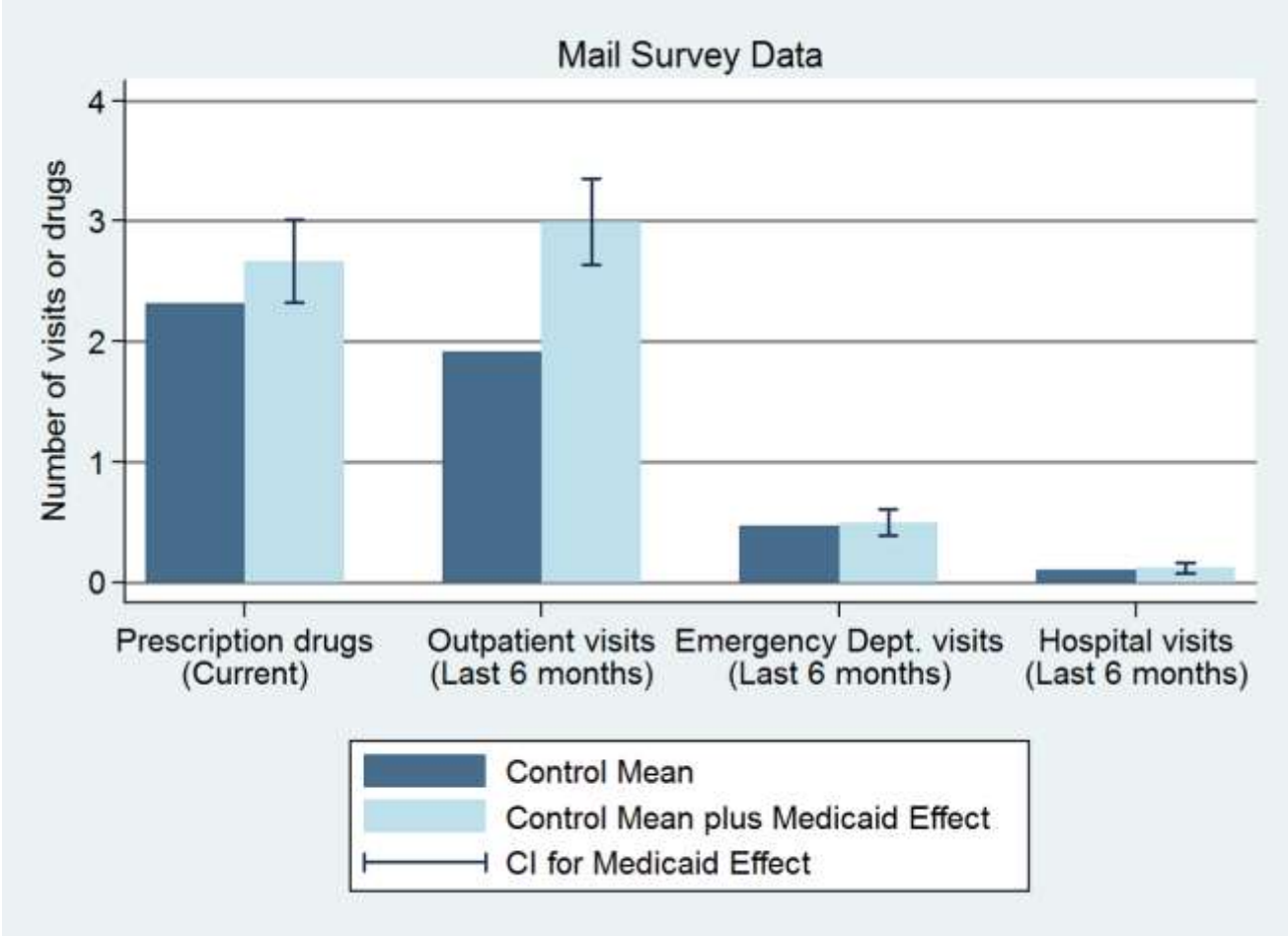
# Health Care Use: Emergency Room



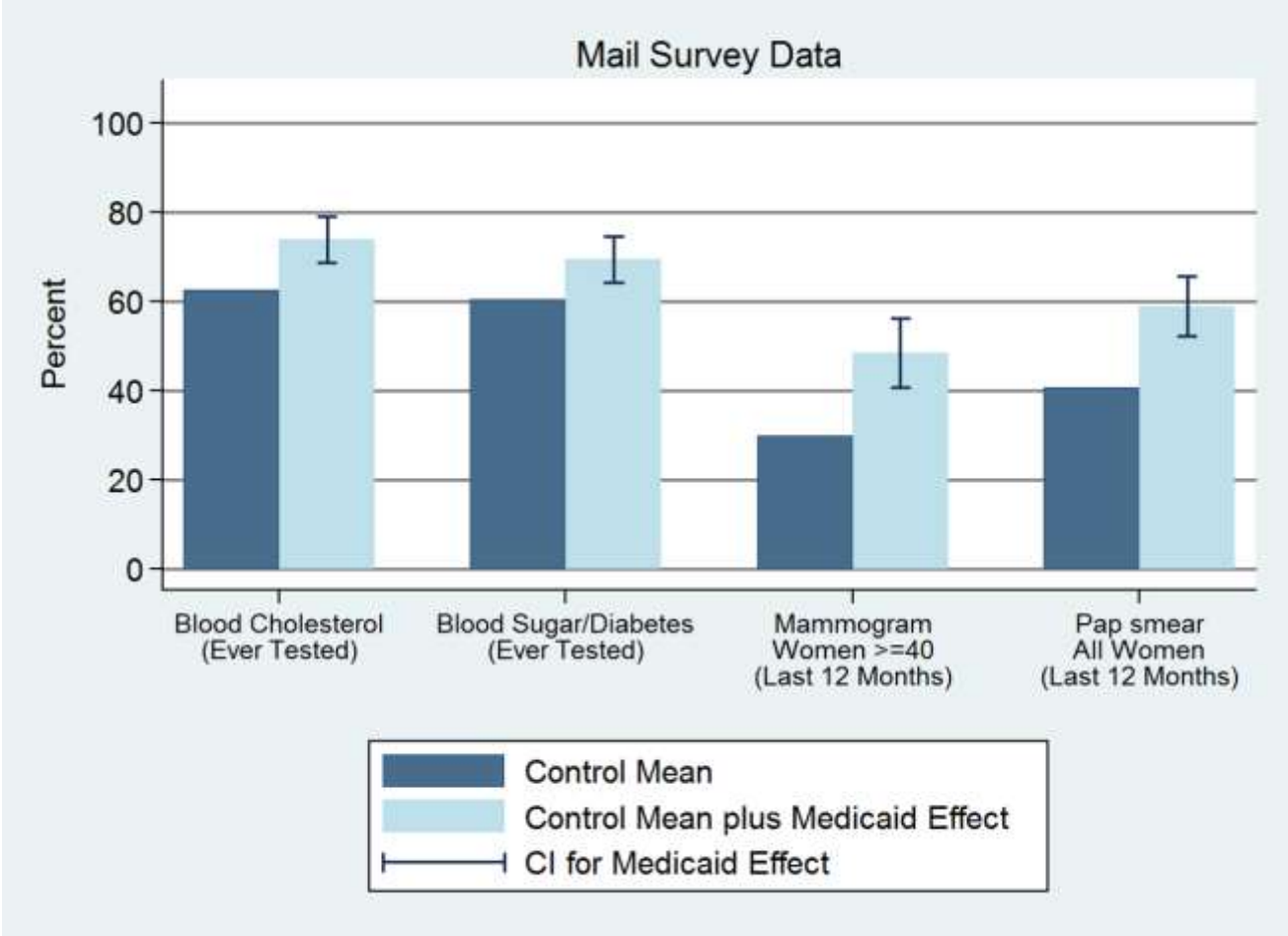
# Health Care Use: Types of ER Visits



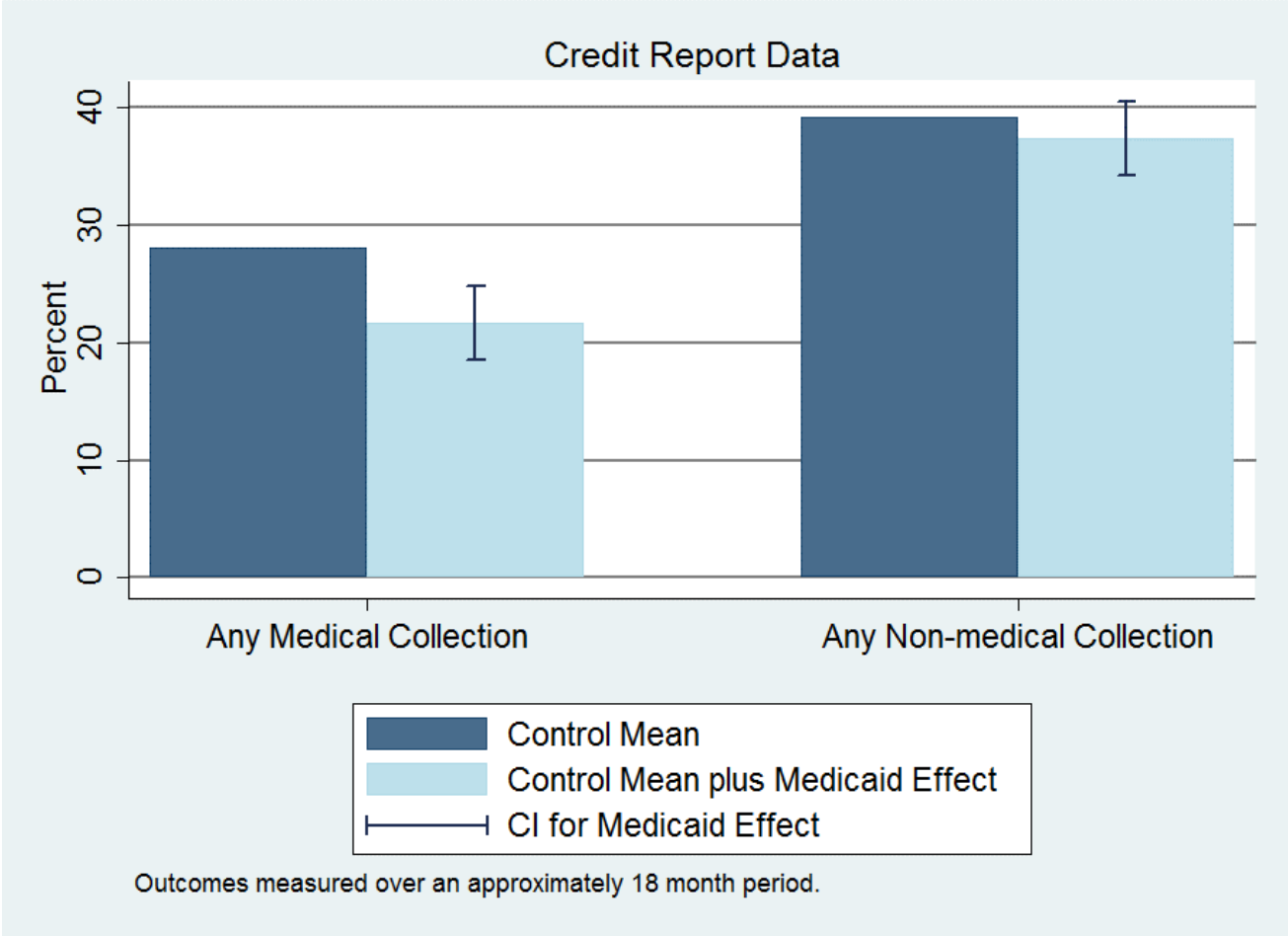
# Health Care Use: Different Types



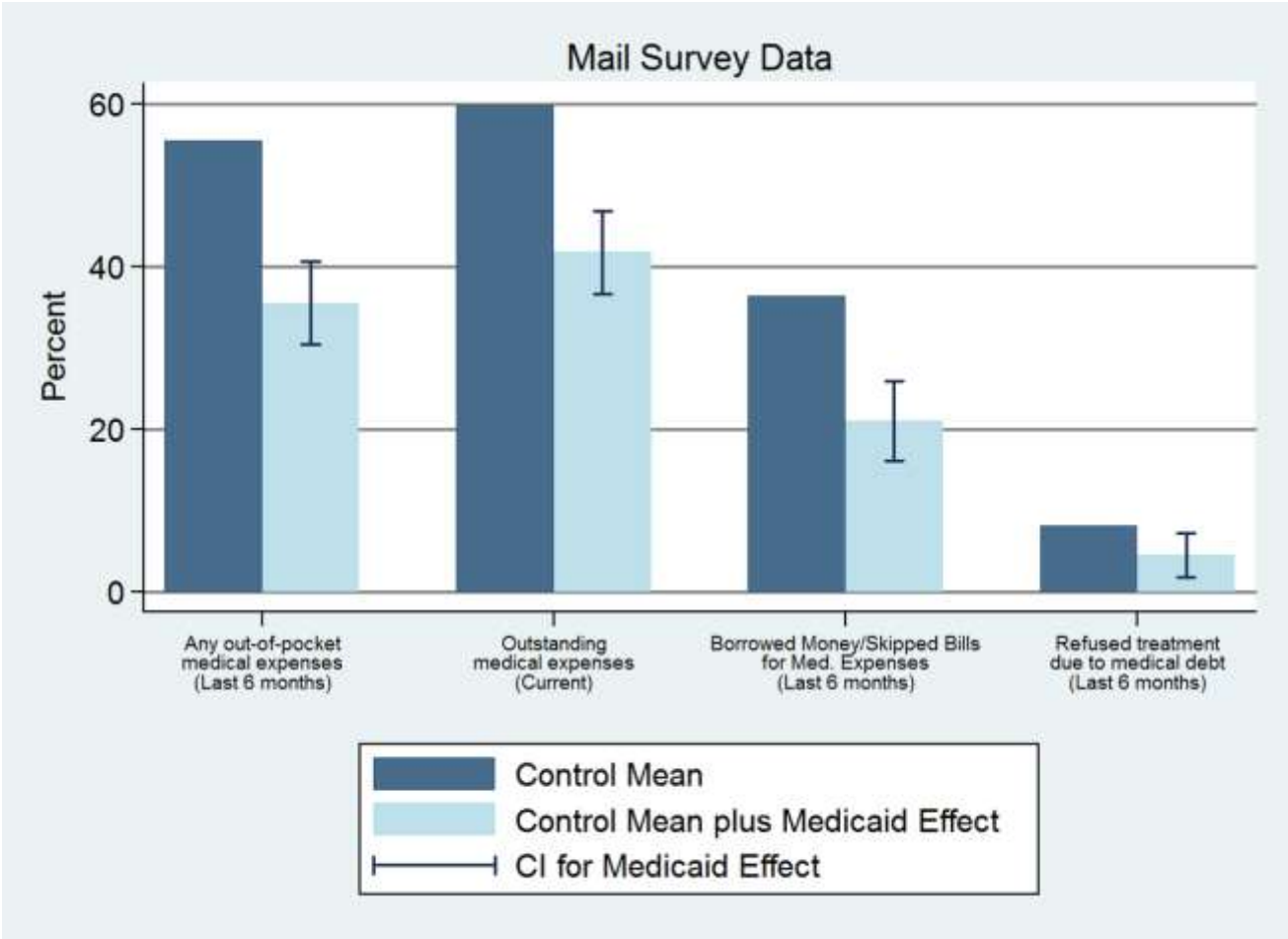
# Health Care Use: Preventive Care



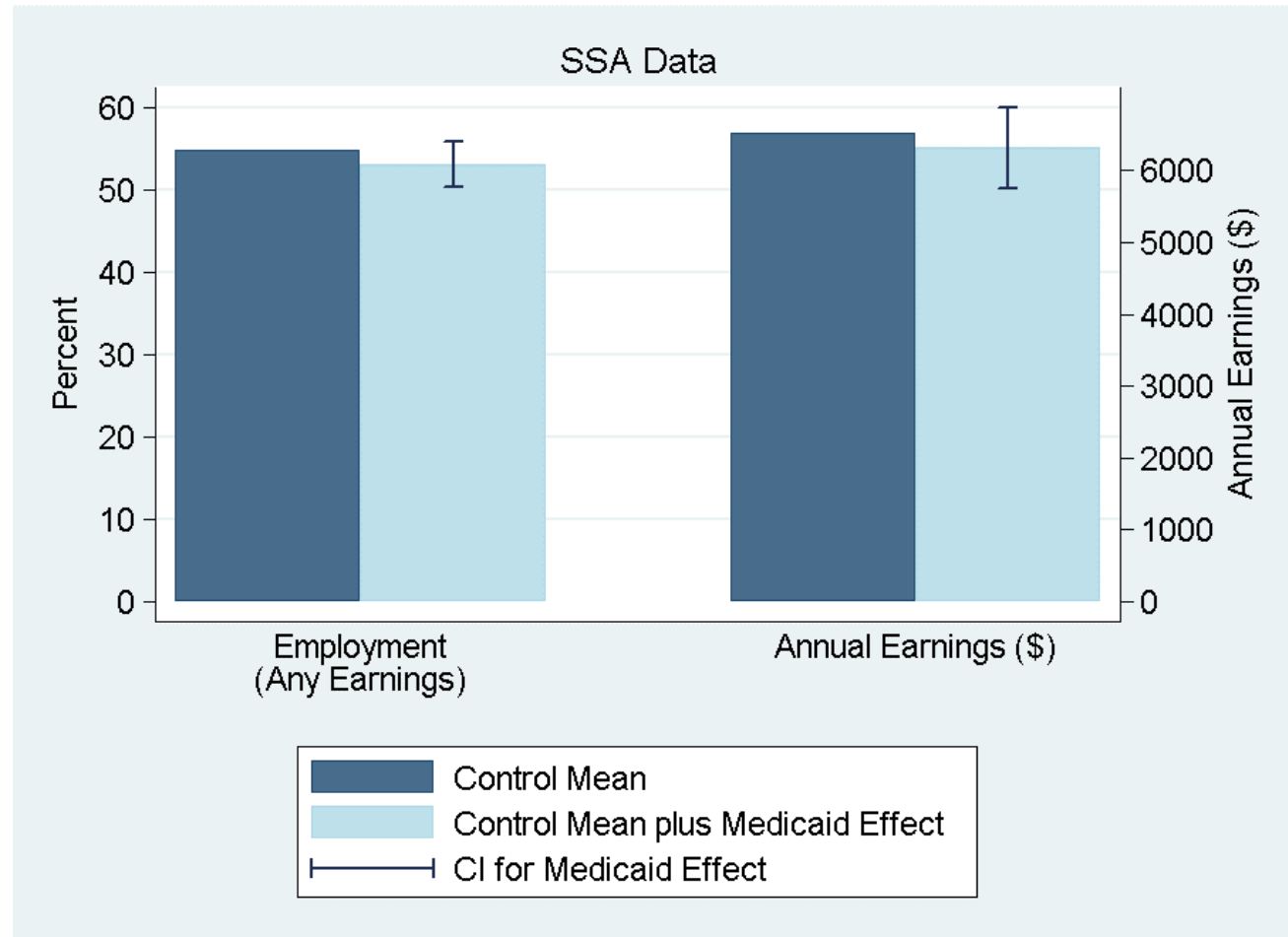
# Probability of Collection



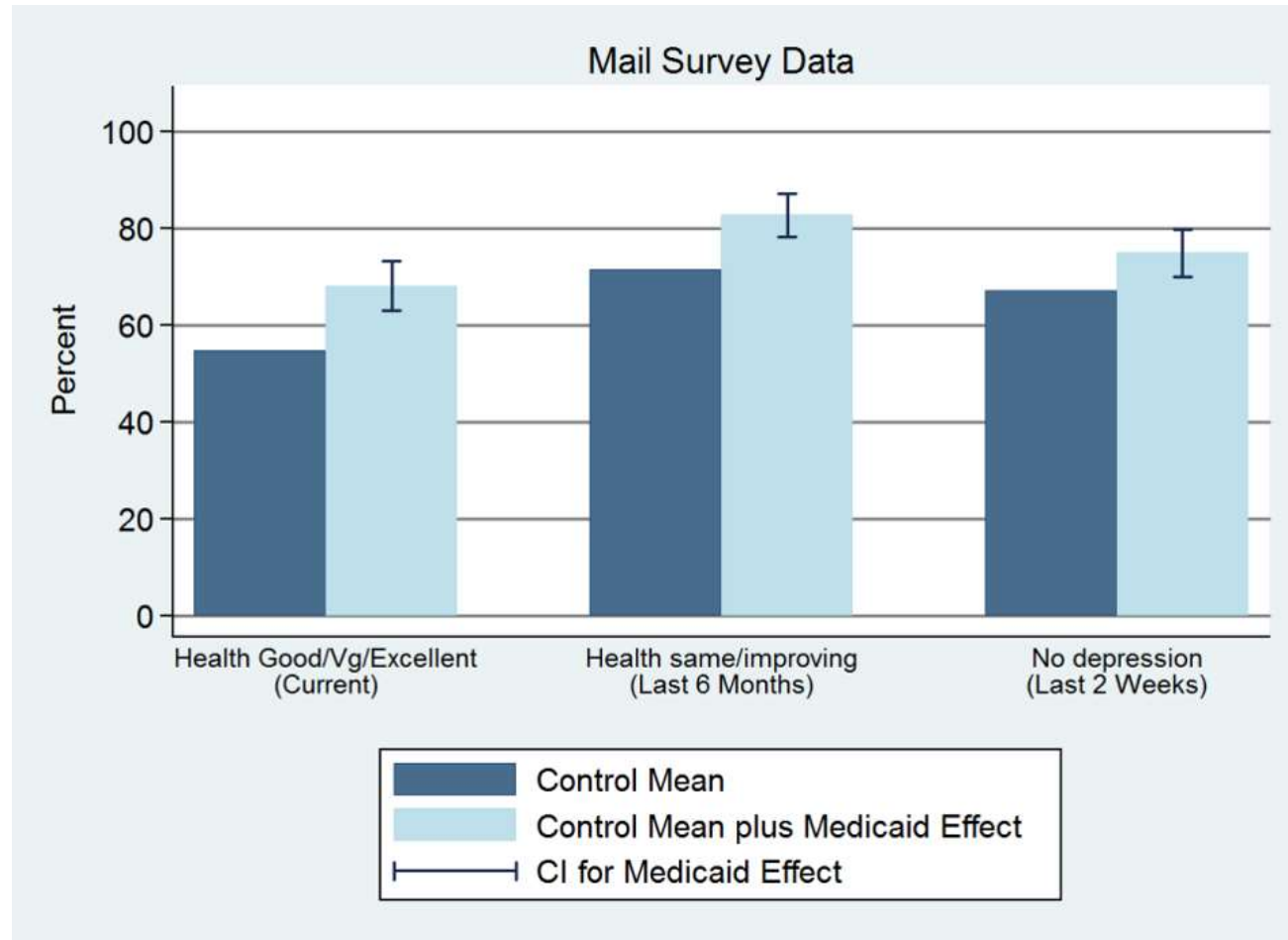
# Probability of Adverse Financial Event



# Earnings and Employment

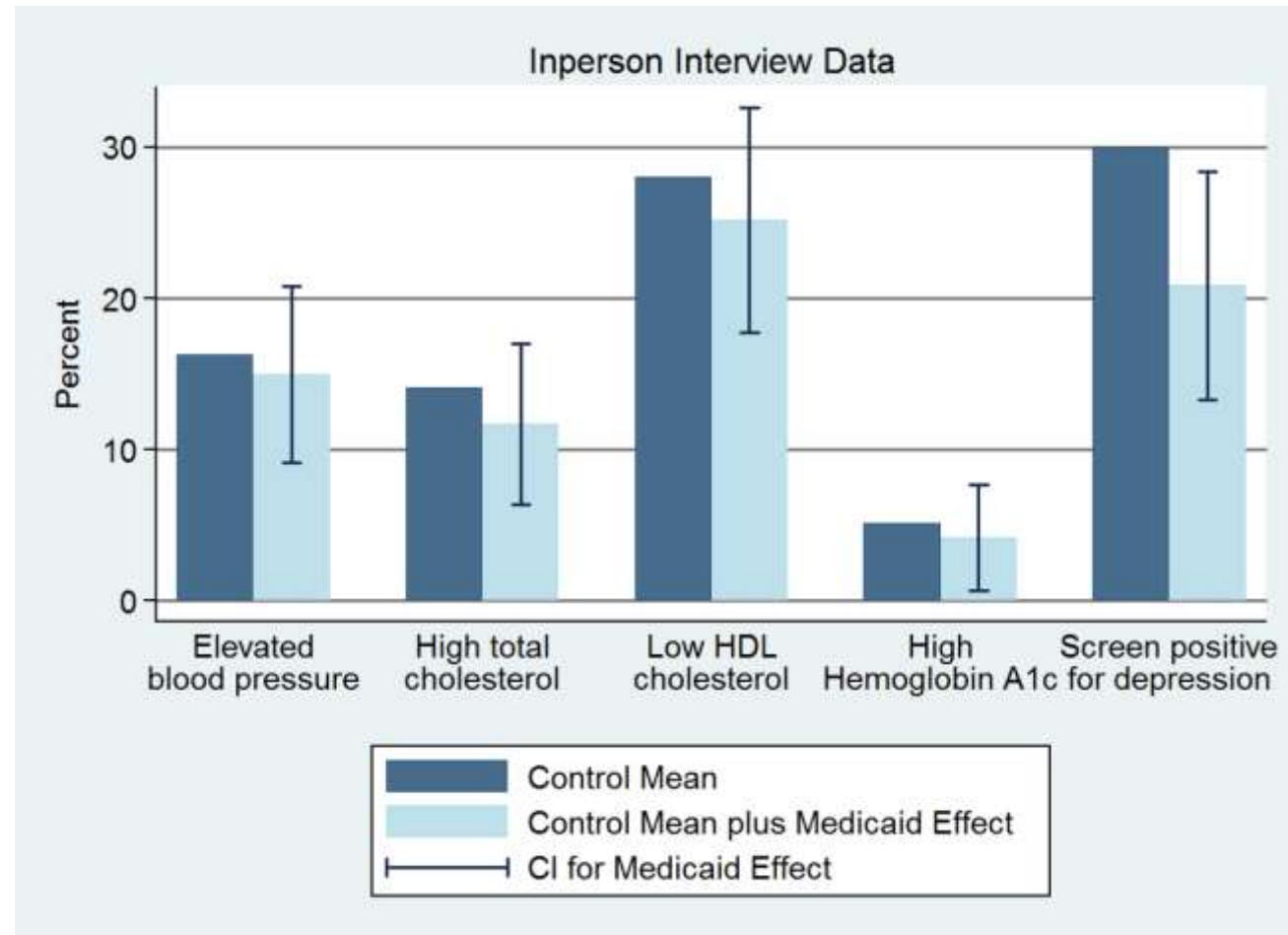


# Self-reported health





# Clinical health



# Updating Based on Our Findings

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- “Medicaid is worthless or worse than no insurance”
  - Not true: Increases in utilization, perceived access and quality, reductions in financial strain, and improvement in self-reported health
- “Covering the uninsured will get them out of the Emergency Room”
  - Not true: Medicaid increases use of ER (overall and for a broad range of visit types)
- “Health insurance expansion saves money”
  - Not true in short run: increases in health care use
  - In long run, remains to be seen: increases in preventive care and improvements in self-reported health

# Tremendous Media Response

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## **5 Things the Oregon Medicaid Study Tells Us About American Health Care**

A landmark new study of Oregon's Medicaid program reveals what's wrong with American health care

**Four Reasons Why The Oregon Medicaid Results Are Even Worse Than They Look**

**Does The Oregon Health Study Show That People Are Better Off With Only Catastrophic Coverage?**

**Here's what the Oregon Medicaid study really said**

**Oregon's Lesson to the Nation: Medicaid Works**

## **Is health insurance an antidepressant?**

New findings show that wider coverage has one clear effect on the population, and it's not one that anyone is talking about.

Spending on Medicaid doesn't actually help the poor

**Medicaid Access Increases Use of Care, Study Finds**

# Reframing the Debate

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The New York Times  
The Opinion Pages

## Why Expand Care With No Proven Benefits?

The New York Times

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May 4, 2013

## What Health Insurance Doesn't Do

By ROSS DOUTHAT

First, if the benefit of health insurance is mostly or exclusively financial, then shouldn't health insurance policies work more like normal insurance? Fire, flood and car insurance exist to protect people against actual disasters, after all, not to pay for ordinary repairs. If the best evidence suggests that health insurance is most helpful in protecting people's

The New York Times

## The Conscience of a Liberal

PAUL KRUGMAN

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MAY 2, 2013, 6:39 PM

### Fire Insurance Is Worthless!

After all, there's no evidence that it prevents fires.

But strange to say (as Mark Thoma points out in correspondence), people seem to think it's a good idea anyway.

I leave the relevance of this thought to the Medicaid discussion as an exercise for readers.

# Use of RCTs in US Healthcare Delivery

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- Limited use to date
  - Search of top medical, economics, and health services journals
  - **18 percent of US healthcare delivery interventions randomized**
- Greater use of RCTs for US medical interventions
  - 80 percent of US-based medical treatment studies randomized
  - True of both drug (86 percent) and non-drug (66 percent) interventions
- Greater use of RCTs for other social policy
  - 36 percent of US education studies
  - 46 percent of international development studies

# Possibility of a New Era

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- Increasing demand for credible evidence
  - Increasing public sector budgets (e.g. Medicaid expansion under ACA)
- Increasing “skin in the game” for private sector (in part due to ACA)
  - Reductions in Medicare payments to hospitals for excess readmission rates
  - Accountable Care Organizations (ACOs) with shared savings if meet quality targets for Medicare patients but reduce costs
  - Private sector analogs (e.g. Alternative Quality Contract in MA BCBS)

# Helping Make that Possibility a Reality: Take Advantage of Administrative Data

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- Historical challenge with large trials has been cost and logistical challenges of collecting follow-up data
  - Rely heavily on primary data collection (and relatively short (<1 year) follow ups)
- Many outcomes can be measured in existing administrative data
  - Electronic medical records
  - Insurance claims
  - State-level hospital and emergency room discharge data
  - National Death Index
  - State-level data on earnings and employment and receipt of transfer programs

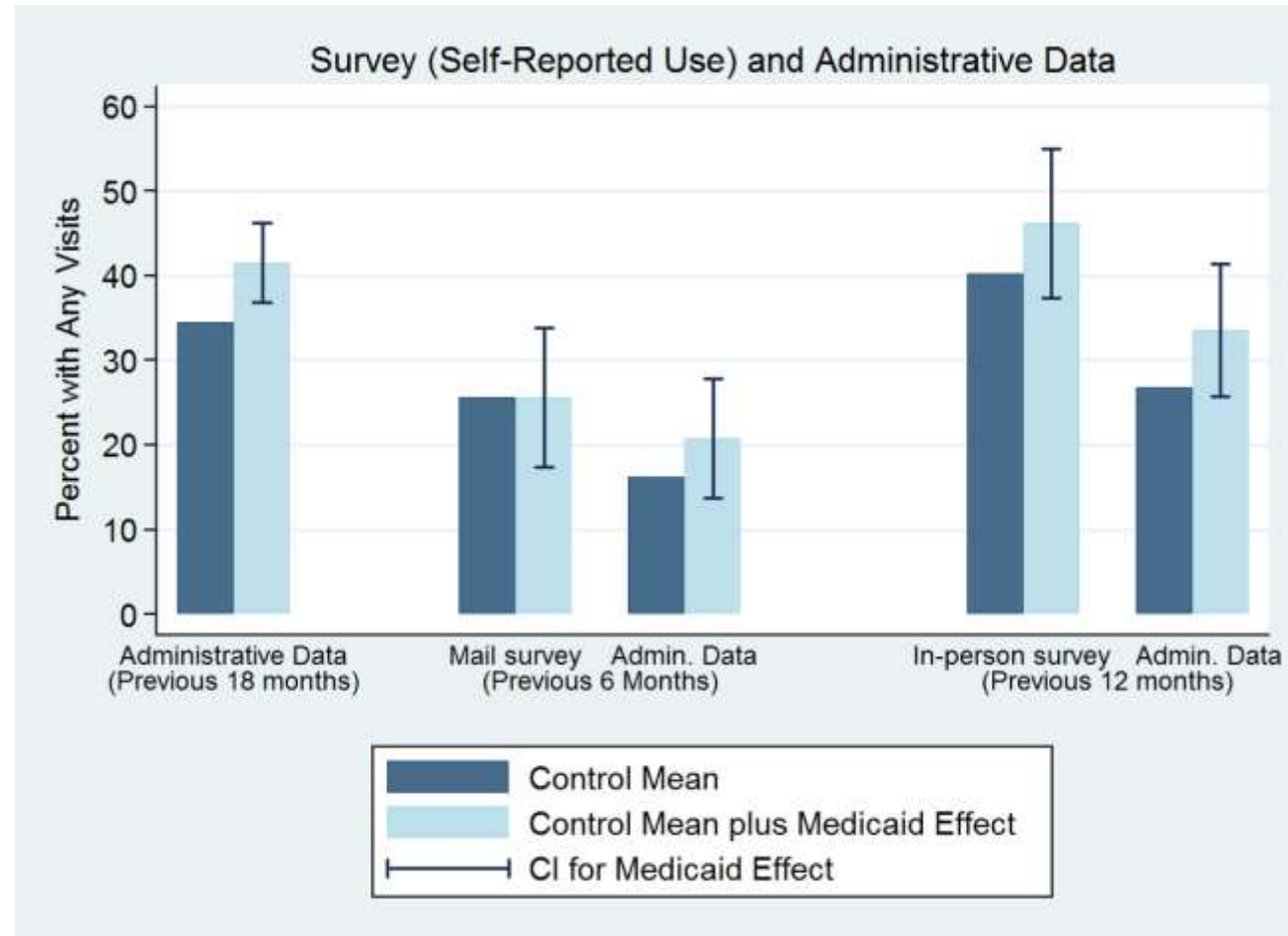
# Value of Administrative Data

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- Far cheaper and easier to track study participants
- Near census, guarding against potential response bias (treatment vs. control)
- Objective data also reduces risk of bias from
  - Self-reporting (e.g. income in NIT)
  - Non-reporting (e.g. child abuse in NFP)
- May be available in real time
  - Example: Healthcare Hotspotting RCT with Dr. Brenner and Camden Coalition
- Useful in following up on long-term outcomes
  - Example: Project STAR
- More accurate and richer data
  - Example: Emergency room use in Oregon HIE



# Key Role of Administrative Data in Oregon Experiment



# Value of Administrative Data for ER use

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- Able to detect effects in administrative data but not survey data due to:
  - Longer look-back period
  - Less misclassification / greater accuracy
- Additional advantages:
  - Census (vs. concerns about response rate bias)
  - Able to analyze more detailed outcomes (e.g. reason for visit / was it an “emergency”)
  - Inexpensive

# Long-term follow-up: Project STAR

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- Randomized students and teachers in K-3<sup>rd</sup> grade to different classrooms
  - Tennessee, mid-1980s
- Original analyses found
  - Assignment to smaller or higher-quality class improved test scores
  - But gains faded out by 8<sup>th</sup> grade
- Longer-term analysis
  - Linked students to tax returns to study outcomes at ages 25-27 (eventually longer)
  - Found improvements in markers of adult success
    - Earnings, college attendance, quality of college, home ownership
    - Potential explanation / reconciliation: improvement in non-cognitive skills

# Potential challenges to Healthcare RCTs

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- Ethics of rationing
  - Programs often oversubscribed, rolled out gradually, or initially tested with a pilot program
- Time and cost considerations
  - RCTs need not, and often do not, add to costs of prospective research
  - Randomizing who is offered program can reduce recruitment and follow up costs
    - Yields causal estimates even without full take-up (adherence)
  - Can deliver both “real-time” results for practitioners and long-term impacts
- Ability to study reforms to entire system or area of care
  - Randomize across providers, care-setting etc. (about one-fifth of existing RCTs)
  - Some system-wide interventions can be studied via patient-level randomization (e.g. shared savings contracts)

# Key Takeaways

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1. Too few RCTs in US healthcare delivery
2. Poised for change Part I: Increasing incentives for multiple stakeholders to understand what is most effective in improving care delivery
3. Poised for change Part II: Administrative data can help
  - Reduce costs
  - Improve accuracy
  - Allow real-time results + long term follow up
4. Poised for change Part III: J-PAL NA is here to help
  - Research center at MIT
  - Scientific directors: Amy Finkelstein (MIT) and Lawrence Katz (Harvard)

# J-PAL North America is here to help

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- Network of academic researchers eager to collaborate (for free) with implementing partners to design and execute high-quality, high-impact trials
  - Can be low-cost and rapid-turnaround to give practitioners timely and needed evidence for their decision-making
  - Can also study more nuanced and longer-term outcomes to inform broader public policy decisions or choices for other practitioners
- J-PAL Staff
  - Eases logistical burden of RCTs for researchers and practitioners
  - Disseminates the results to decision makers in accessible way
- For more information visit <http://www.povertyactionlab.org/north-america> or contact Deputy Director Mary Ann Bates ([mbates@mit.edu](mailto:mbates@mit.edu))