" The tests show that you've developed an ulcer from trying to figure out your health insurance coverage. "

The Impact of the Affordable Care Act's Medicaid Expansion on Medicaid Spending by Health Care Service Category

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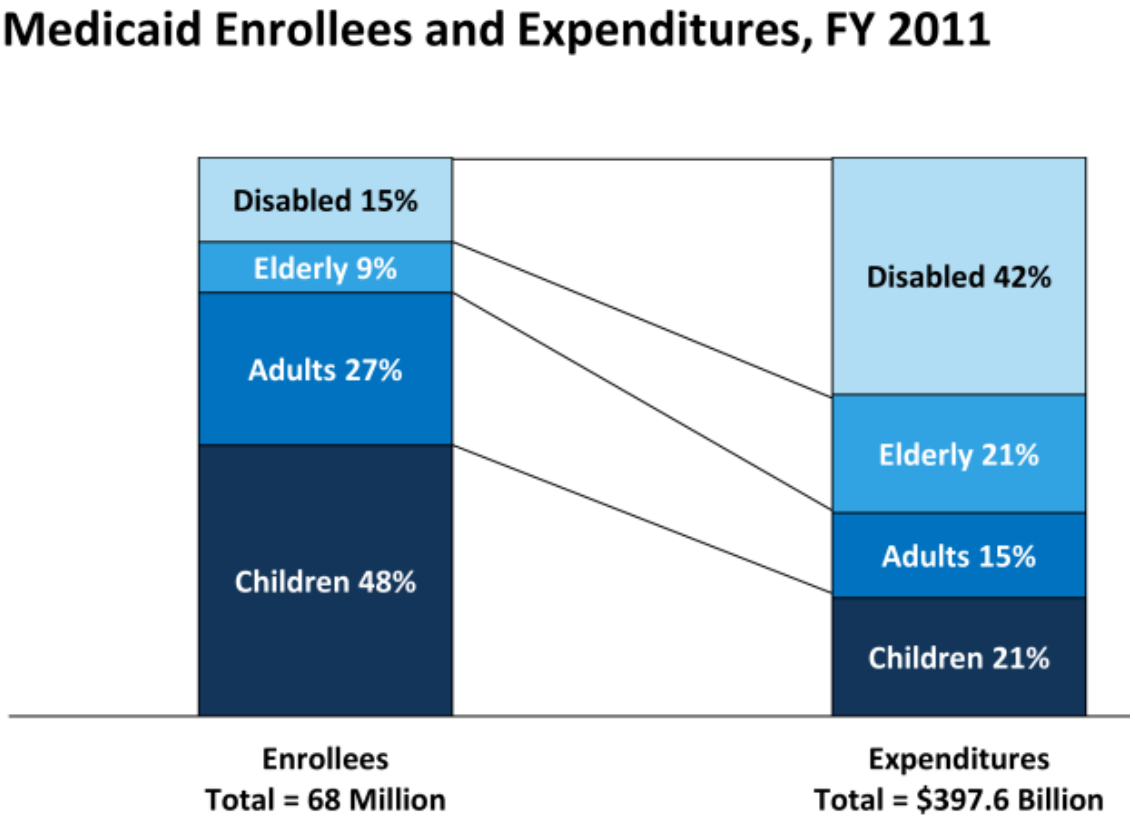
Research question

What was the short-term effect the 2014 Medicaid expansion had on Medicaid spending?

What is known?

- Historical share of expenditures



Source: Kaiser Family Foundation

- FY 2015: 14.4% of expenditures incurred by the new adult group
- FY 2016: 14.9% of expenditures incurred by the new adult group

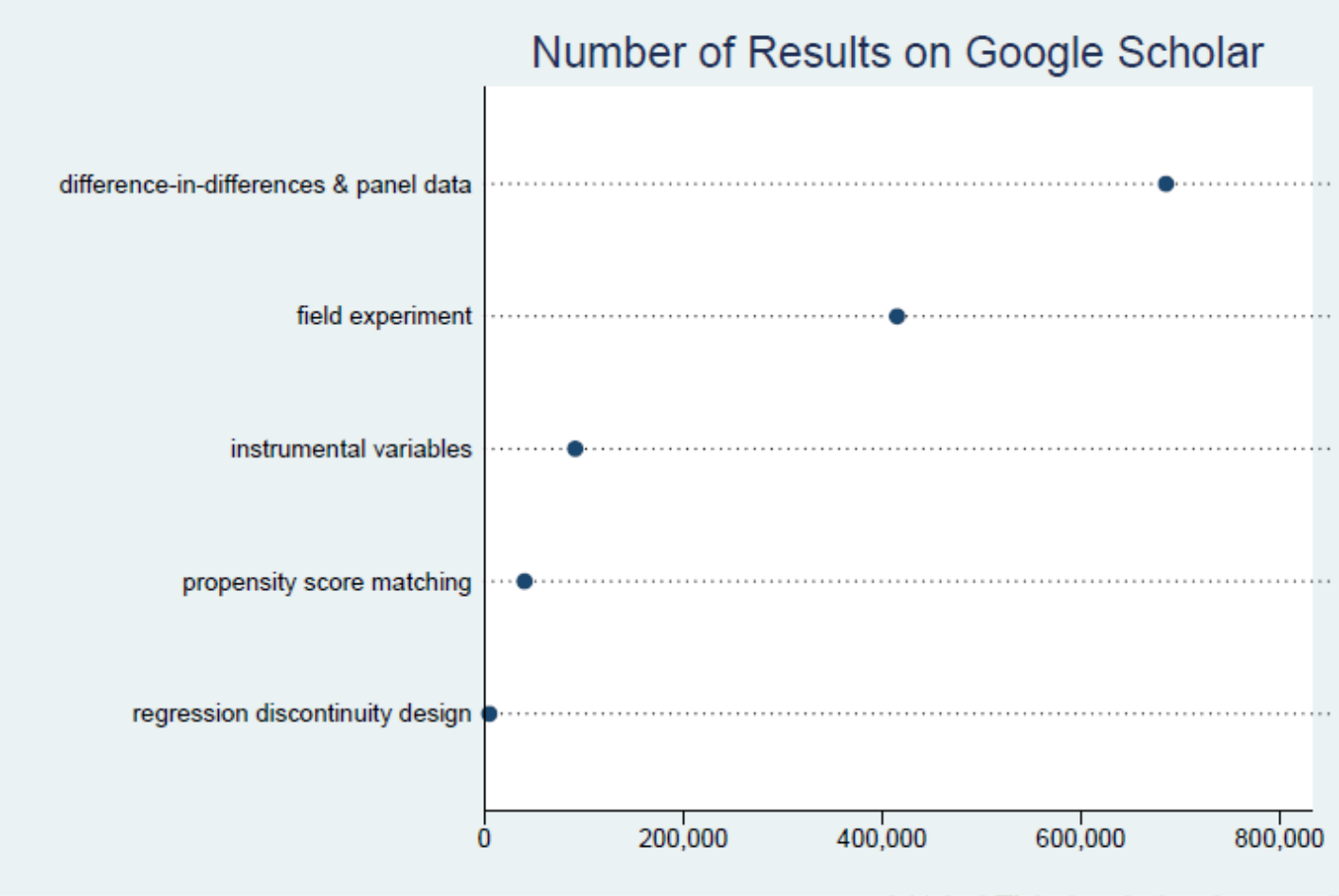
What is unknown?

- Which health care services will have the greatest $\uparrow$ in expenditures?
- How does the new adult group's expenditures compare to that of the traditional Medicaid population?
- What are the implications for states adopting the expansion?

Preview of results

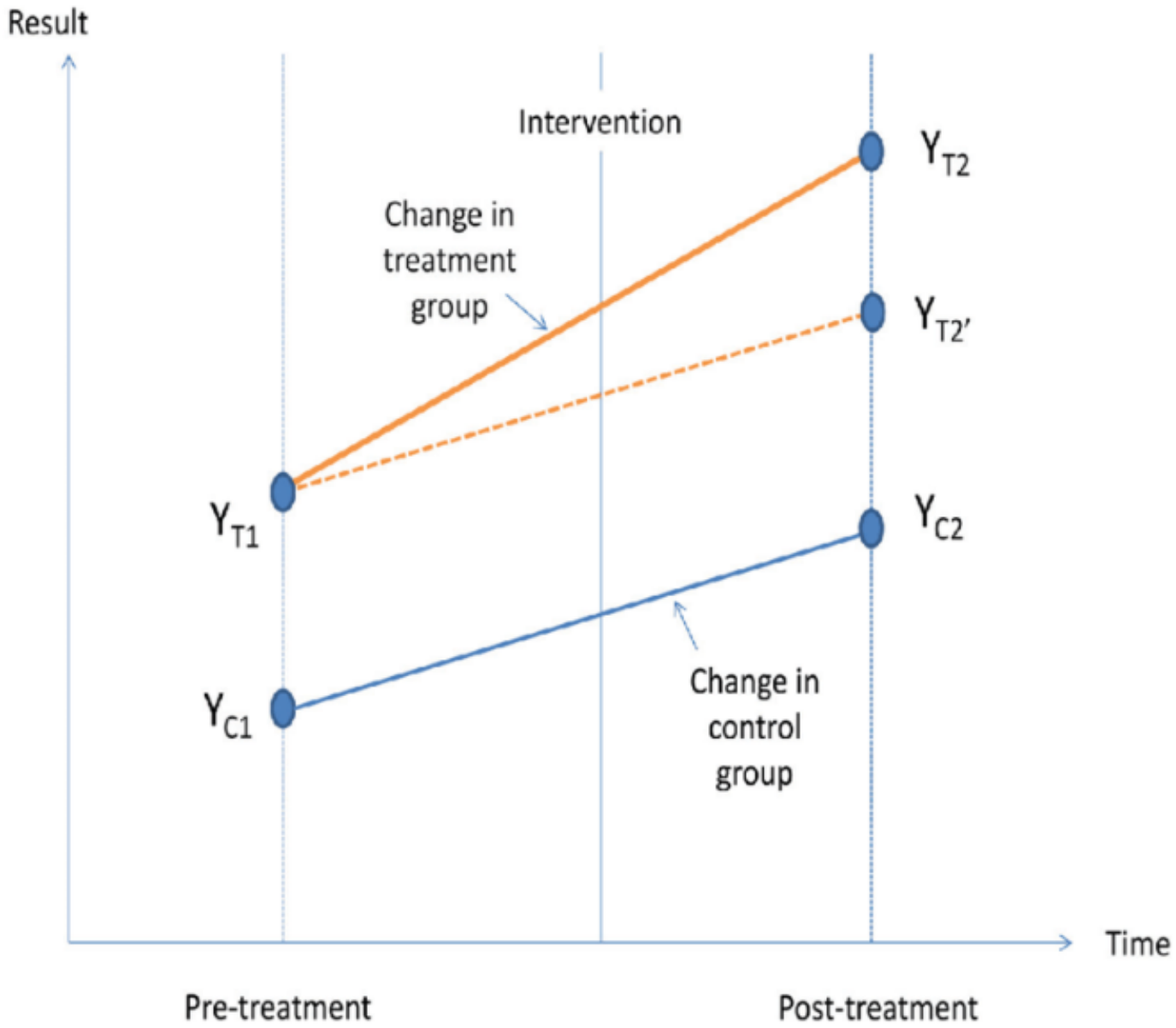
- Expansion $\uparrow$ total Medicaid spending by 14% in participating states
- Dental and rural health clinic services $\uparrow$ by 201% and 99%, respectively

Methods for Causal Inference



Source: Workshop on Research Design for Causal Inference

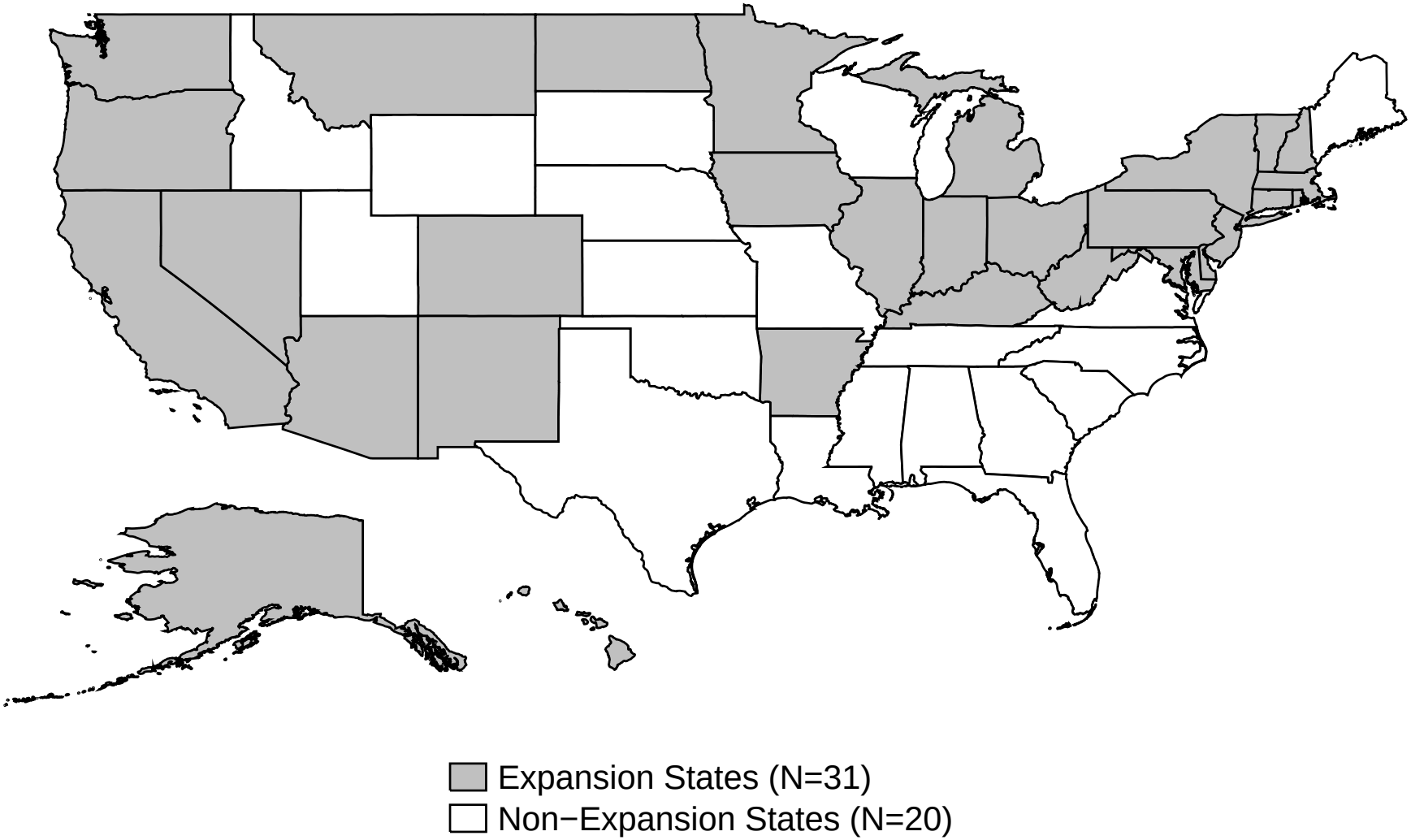
Difference-in-Differences



Synopsis

- **Setting:** U.S. between 1999 and 2016; 918 state-year observations
- **Study design:** Difference-in-differences
- **Treatment:** State participation in the 2014 Medicaid expansion
- **Outcome:** Log of Medicaid spending by service category

State participation in the Medicaid expansion



Previous literature: Health care utilization

- – Dental visits, overall (Nasseh & Vujicic 2016, Simon et al. 2017)
- ↑ Dental visits, childless adults (Simon et al. 2017, Singhal 2017)
- – ER visits (Pines et al. 2016, Wherry & Miller 2016)
- ↑ ER visits (Nikpay et al. 2017)
- – Inpatient hospitalizations (Freedman et al. 2017)
- ↑ Inpatient hospitalizations (Wherry & Miller 2016)
- – Physician visits (Courtemanche et al. 2017)
- ↑ Physician visits (Wherry & Miller 2016)
- ↑ Prescriptions (Ghosh et al. 2017, Wen et al. 2016)

Previous literature: Payer-mix

- $\uparrow$ Medicaid-paid health center visits (Cole et al. 2017, Shin et al. 2015)
- $\uparrow$ Medicaid-paid inpatient hospitalizations (Nikpay et al. 2016)
- $\downarrow$ Uncompensated care inpatient hospitalizations (Dranove et al. 2016)
- $\uparrow$ Medicaid-paid ER visits (Pines et al. 2016, Nikpay et al. 2016)

My contribution

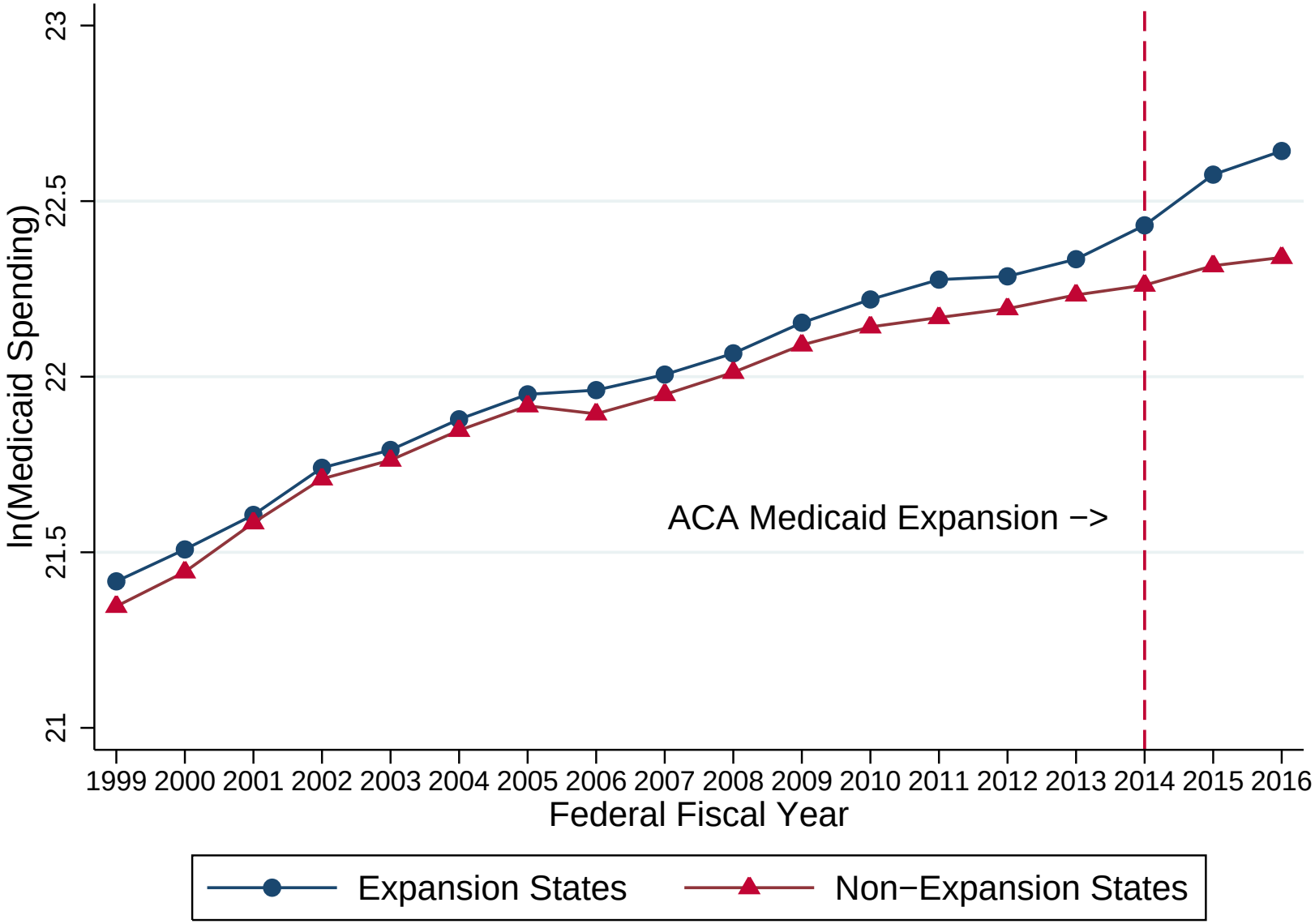
1. New outcome: Medicaid spending by the government
2. Comprehensive data on expenditures for all health care services
3. Independent evaluation using administrative data from CMS

Identification strategy

$$\mathbf{Y}_{cst} = \alpha + \beta ME_{cs} * Post_{cst} + \eta \mathbf{X}_{cst} + \delta_{cs} t + \lambda_{cs} + \mu_{ct} + \epsilon_{cst} \quad (1)$$

- $\mathbf{Y}_{cst} \equiv$ log of Medicaid spending
- $\text{ME}_{cs} = 1$ if state s elected to participate in the Medicaid expansion;
  $= 0$ otherwise
- $\text{Post}_{cst} = 1$ if year $t >=$ expansion effective date for state s;
  $= 0$ otherwise
- $\mathbf{X}_{cst} \equiv$ vector of covariates
- δ_{cs}t $\equiv$ state-specific linear trend
- λ_{cs} & $\mu_{ct} \equiv$ state and year fixed effects

Key identifying assumption



Administrative data

- Outcome: CMS-64 Financial Management Report
- Covariates:
  - Census Bureau's Monthly Current Population Survey
  - Bureau of Labor Statistics State-Level Unemployment Data
  - Medicaid State Plan Amendments, Form CMS-179

Theory

- Impact of cost-sharing on health care utilization and spending comes from the RAND Health Insurance Experiment:
  - More generous health insurance coverage increases health care utilization (Newhouse et al. 1993)
  - Elasticities by health care services differ (Aron-Dine et al. 2013)
- Medicaid spending could partially be substituting for previous private insurance spending, self-pay spending, and charity care

Results: Impact of the expansion on Medicaid spending

	ln(Medicaid Spending)				
		Top Service Categories Impacted			
	Total Net Expenditures	Dental Services	Case Management Services	Rural Health Clinic Services	Outpatient Hospital Services
ME*Post	0.127	1.101	0.871	0.686	0.490
	(0.027)***	(0.414)*	(0.422)*	(0.232)**	(0.191)*
Observations	918	909	836	736	914
States	51	51	48	47	51

* .05 ** .01 *** .001 significance levels

Falsification test: Placebo expansion

	ln(Medicaid Spending)		
	Total Net Expenditures		
	(1)	(2)	(3)
ME*FalsePost2011	0.014		
	(0.025)		
ME*FalsePost2009		0.037	
		(0.026)	
ME*FalsePost2007			0.017
			(0.018)
Observations	765	765	765
States	51	51	51

* .05 ** .01 *** .001 significance levels

Falsification test: Services utilized by elderly adults

	ln(Medicaid Spending)		
	Elderly Adult Service Categories		
	Hospice Benefits	Medicare	Nursing Facility
ME*Post	0.138	0.027	0.100
	(0.295)	(0.042)	(0.237)
Observations	861	917	916
States	51	51	51

* .05 ** .01 *** .001 significance levels

Sensitivity analysis

1. Exclude early adopters (N=6) of the expansion
2. Exclude states (N=5) that had the strongest expansion prior to 2014
3. Exclude late implementers (N=4) of the expansion
4. Restrict the data to a balanced panel for years 1999-2016
5. Restrict the data to years 2002-2016

Limitations

- "Woodwork" or "welcome mat" effects
- Medicaid spending *per enrollee*
- ER vs. outpatient and inpatient hospitalization expenditures

Next steps

- Generosity of dental coverage
- Fee for service vs. managed care

Future research

- Randomized experiment: response to different modes communication
- Assess if the Medicaid expansion leads to better health outcomes

Conclusion

- Post-expansion spending increase compared to the share of total costs
  - Dental: $\uparrow$ 201%; 0.75% share of total
  - Case management services: $\uparrow$ 139%; 0.58% share of total
  - Rural health clinic: $\uparrow$ 99%; 0.19% share of total
  - Outpatient hospital: $\uparrow$ 63%; 2.93% share of total
- On average, how much states would have to spend if they elect to adopt the expansion?
  - Minimal cost to the state during 2014-2016
  - \$81M in 2017
  - \$97M in 2018
  - \$114M in 2019
  - \$162M in 2020 and beyond
- My results may influence future debates on health reform

Thank you

Questions