Summer July 14, 2015

Medicaid Crowd-out of Other Public Health Spending: Modeling Economic and Health Effects

Glen P. Mays, *University of Kentucky*

Medicaid Crowd-out of Other Public Health Spending: Modeling Economic & Health Effects

Glen Mays, PhD, MPH
University of Kentucky
glen.mays@uky.edu

International Health Economics Association Meeting | Milan, Italy
14 July 2015

UNIVERSITY OF KENTUCKY
Center for Public Health Systems and Services Research

PUBLIC HEALTH | SERVICES & SYSTEMS RESEARCH PRACTICE-BASED RESEARCH NETWORKS
National Coordinating Center

Health spending and preventable disease burden

>75% of US health spending is attributable to conditions that are largely preventable

- Cardiovascular disease
- Diabetes
- Lung diseases
- Cancer
- Injuries
- Vaccine-preventable diseases and sexually transmitted infections

<5% of US health spending is allocated to "public health" activities

CDC 2008 and CMS 2011

Non-clinical public health activities

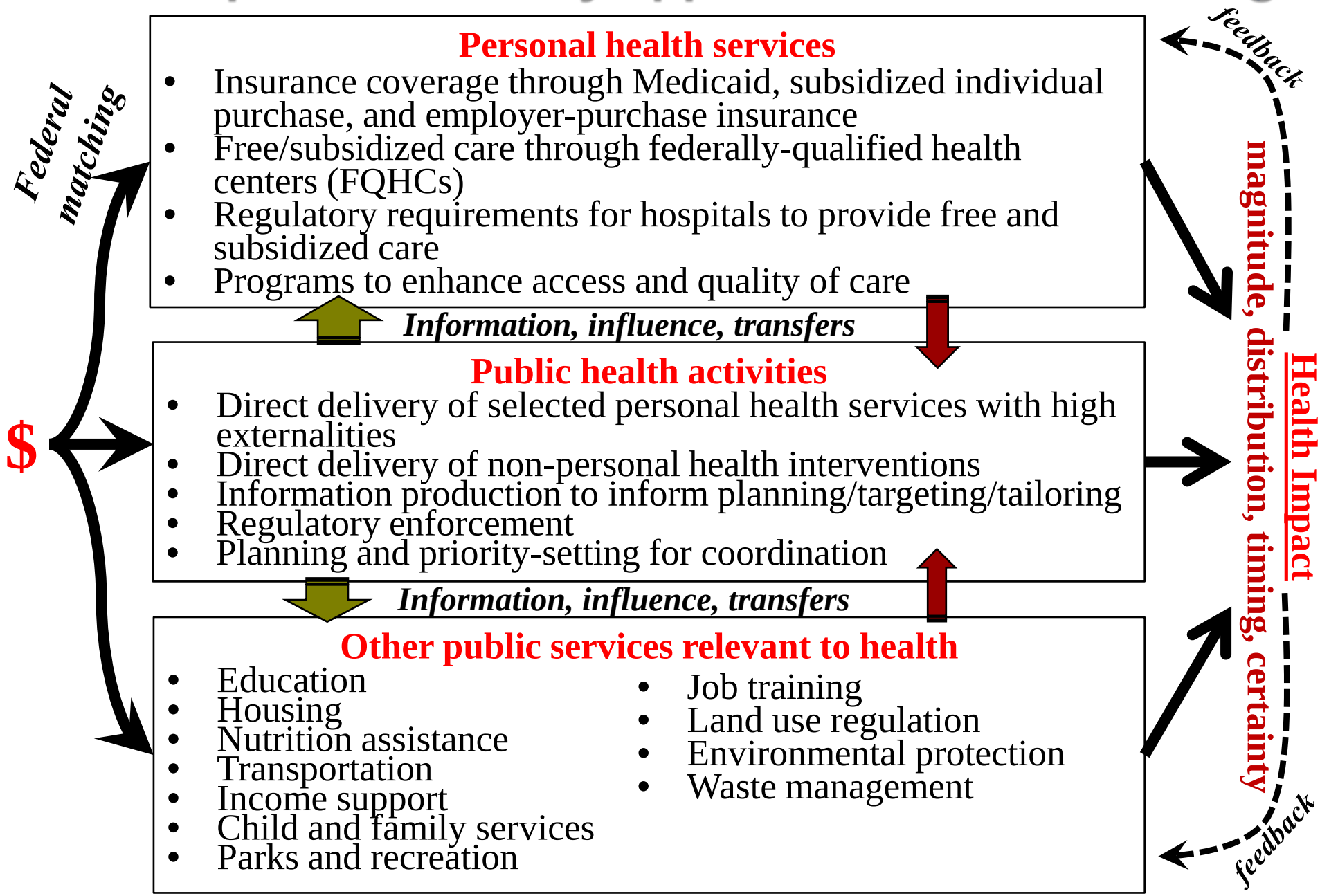
US federal, state and local government public health agencies assume responsibility for:

- **Epidemiologic surveillance & investigation**
- **Community health assessment & planning**
- **Communicable disease control**
- **Chronic disease and injury prevention**
- **Health education and communication**
- **Environmental health monitoring and assessment**
- **Enforcement of health laws and regulations**
- **Health inspection and licensing: food, water, facilities**
- **Inform, advise, and assist school-based, worksite-based, and community-based health programming**
- **Assist individuals in obtaining access to medical care**

Public Health
Prevent. Promote. Protect.

Institute of Medicine. For the Public's Health: Investing in a Healthier Future. Washington, DC: National Academies Press; 2012.

Public portfolio theory applied to health financing

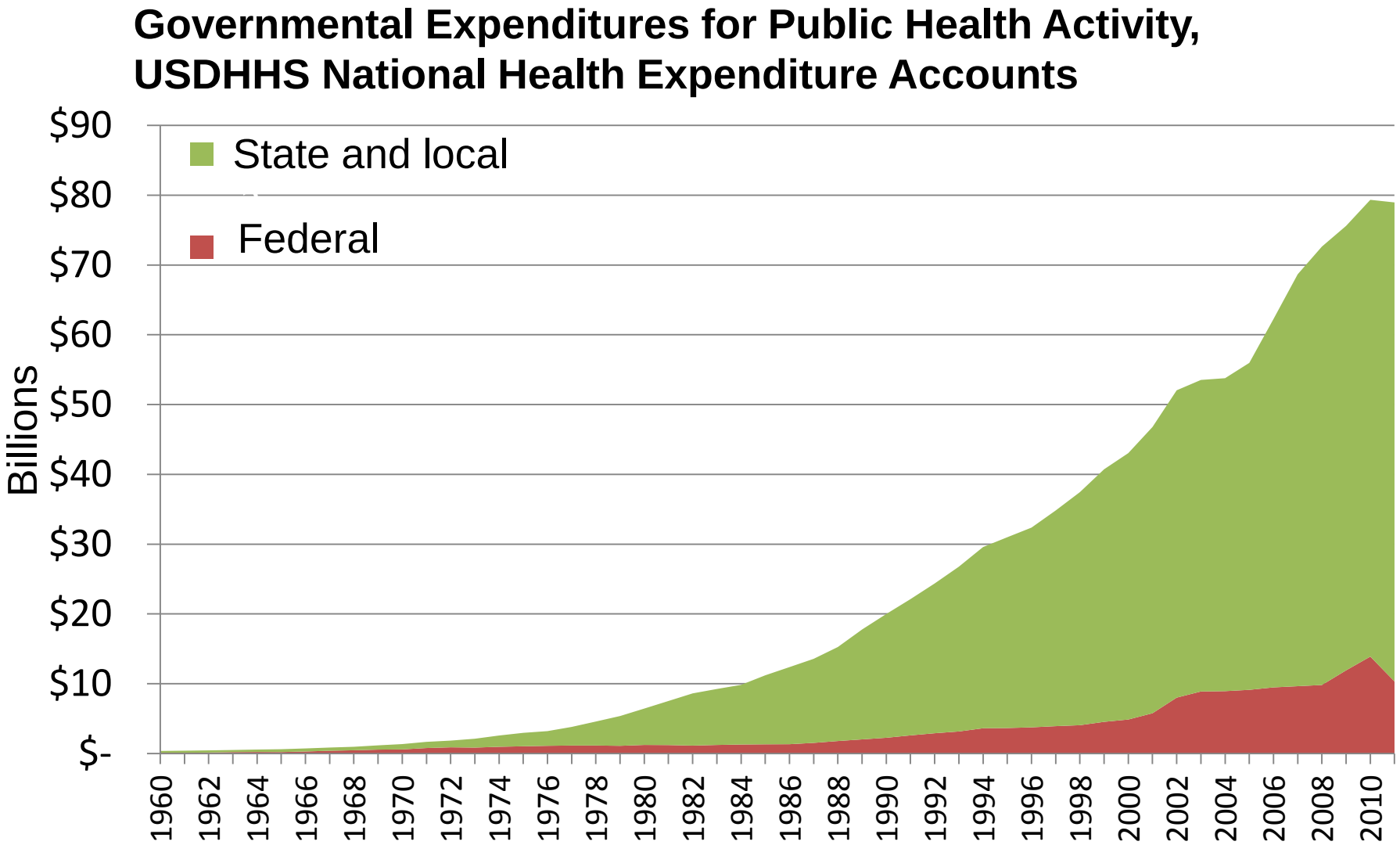


Prior studies of Medicaid crowd-out

- State higher education spending:
  Kane and Orszag (Brookings 2003)
  - Does not address endogeneity in Medicaid spending

- State low income assistance spending:
  Craig and Howard (2013)
  - Addresses Medicaid endogeneity using IVs

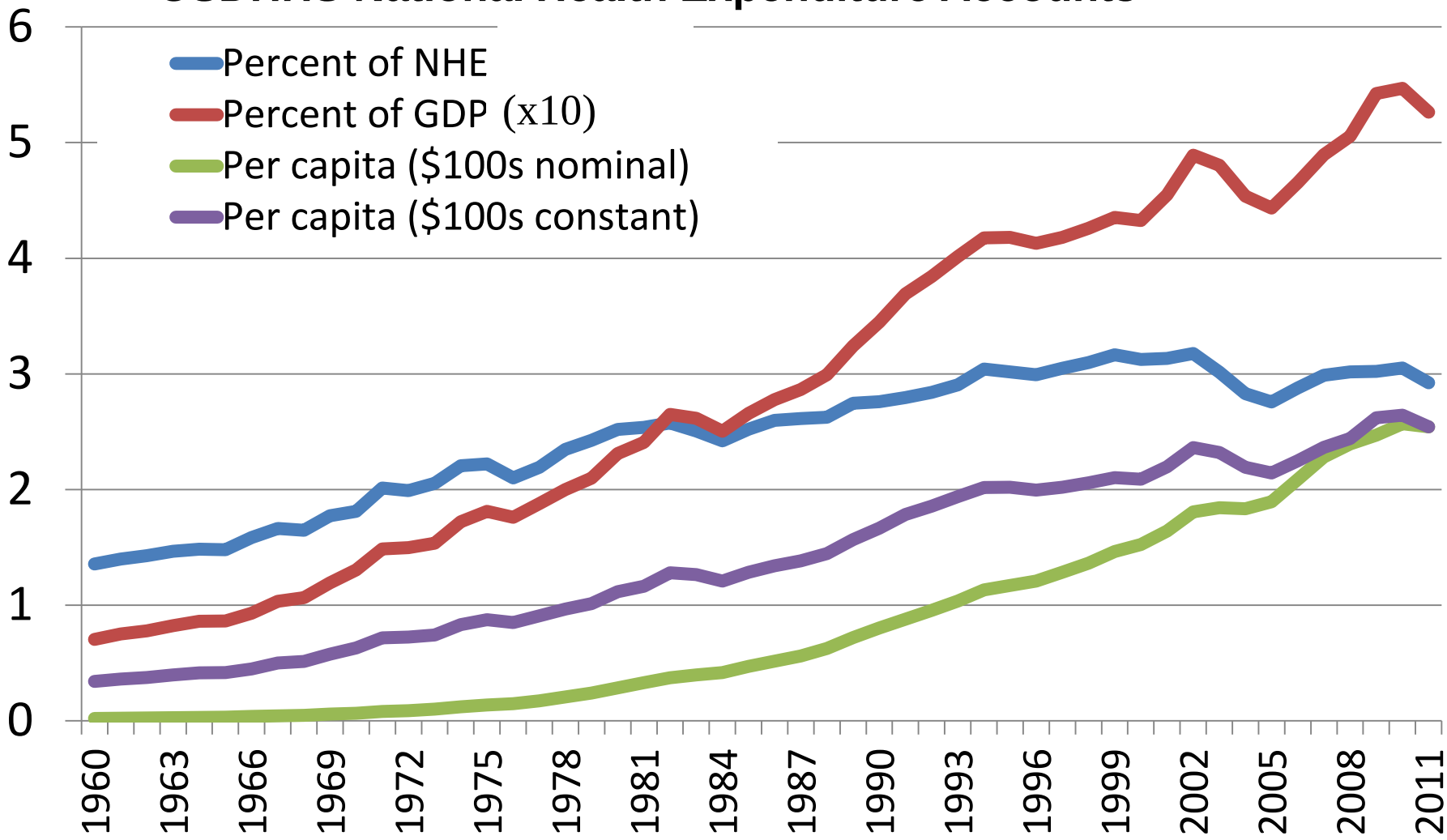
Governmental financing for public health



U.S. Centers for Medicare and Medicaid Services, Office of the Chief Actuary

Trends in public health spending

Governmental Expenditures for Public Health Activity, USDHHS National Health Expenditure Accounts

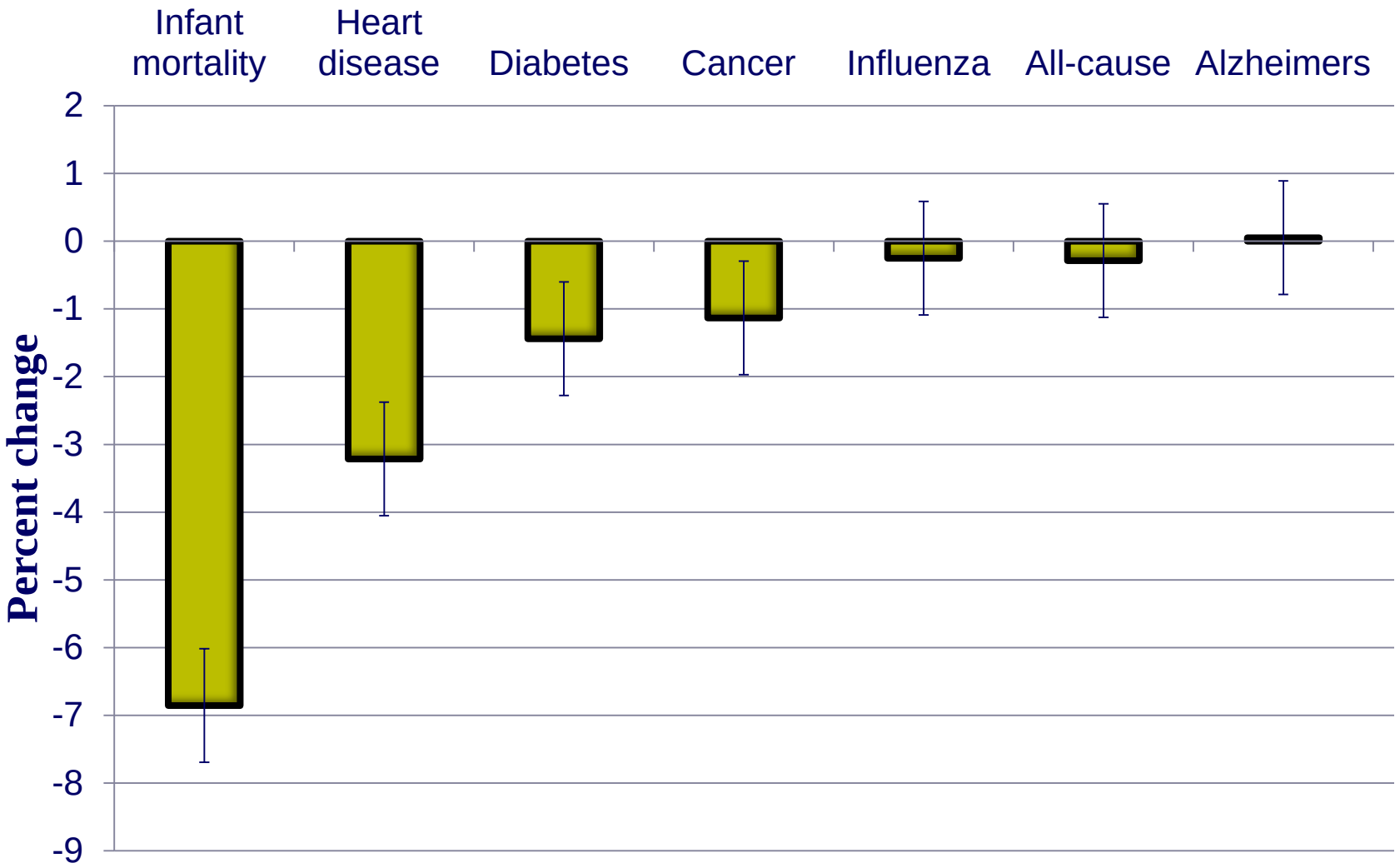


U.S. Centers for Medicare and Medicaid Services, Office of the Chief Actuary

The US Affordable Care Act: public financing implications

- 30 US states have expanded Medicaid under ACA
- But all states face higher Medicaid spending
  - Expiration of federal stimulus funding: higher match
  - Previously-eligible but newly-enrolled beneficiaries
  - Enhanced Medicaid benefits and payments (e.g. PCPs)
  - Reduction in 100% FMAP for expansion after 2016
- Federal matching policies encourage states to channel health expenditures to Medicaid vs. other portfolio choices
- New Medicaid expenditures ***may crowd out*** state and local public health spending
- Crowd out could be offset by enhanced federal public health funding in Prevention & Public Health Fund

Prior Research: Mortality reductions attributable to local public health spending, 1993-2008

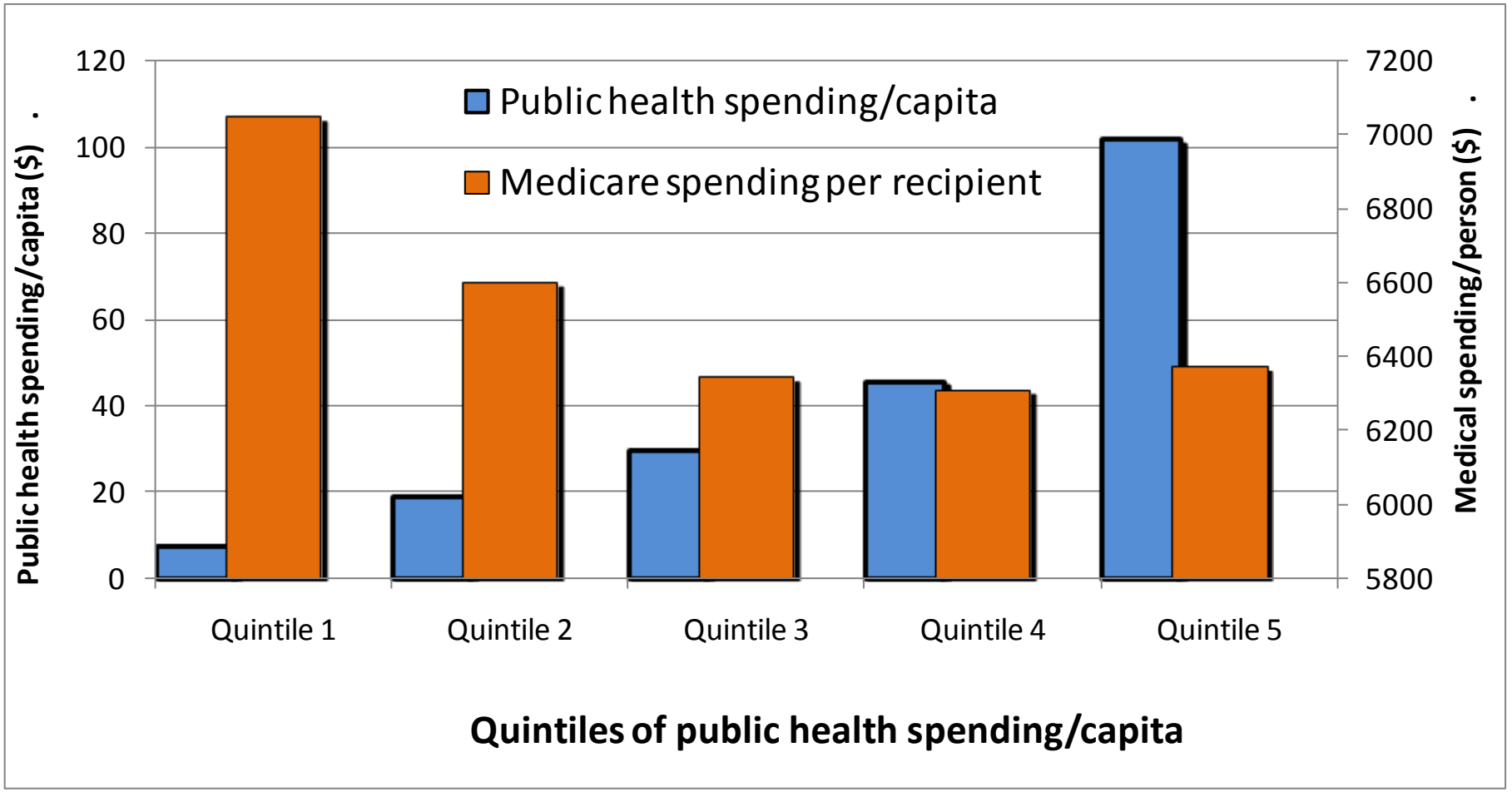


Hierarchical regression estimates with instrumental variables to correct for selection and unmeasured confounding

Mays et al. 2011

Prior Research: Medical cost offsets attributable to local public health spending 1993-2008

Offset elasticity = −0.088



Mays et al. 2009, 2013

Research Design & Data

- Longitudinal cohort of the 51 states and their local governments during 1993-2014
- Census Bureau's Annual Survey of Government Finances and Census of Governments
- CMS Annual state Medicaid program expenditure data
- UK Poverty Research Center file on state economic and transfer program measures
- NACCHO Profile Survey of Local Health Departments: 1993, 1997, 2005, 2008, 2010, 2013

Analytic Approach

- Spending Share Equation models (Craig and Howard 2013)

$$(\text{Medicaid\$/Total\$})_{it} = \beta X_{it} + \delta Z_{it} + \mu_i + \varphi_t + \varepsilon_{ijt}$$

$$(\text{Other\$/Total\$})_{it} = \alpha(\text{Medicaid\$/Total\$})_{it} + \beta X_{it} + \lambda Z_{it} + \mu_i + \varphi_t + \varepsilon_{ijt}$$

$$(\text{PublicHealth\$/Total\$})_{it} = \alpha(\text{Medicaid\$/Total\$})_{it} + \pi(\text{Other\$/Total\$})_{it} + \beta X_{it} + \mu_i + \varphi_t + \varepsilon_{ijt}$$

- Separate state-level (n=833) and local-level (n=9231) models
- State and year fixed-effects
- Instrumental variables (Z) to control for endogeneity of Medicaid spending
- Exclude Medicaid revenues from Public Health expenditure measures in order to distinguish transfers from crowd-out

Analytic Approach

Demand & Supply Factors (X_{it})

- Population size
- Income per capita
- Poverty rate
- Uninsured rate
- Smoking & obesity prevalence
- Tax burden
- Political party of Governor
- Political split of legislature
- Hospital supply
- Physician supply
- Community health centers

Instrumental Variables (Z_{it})

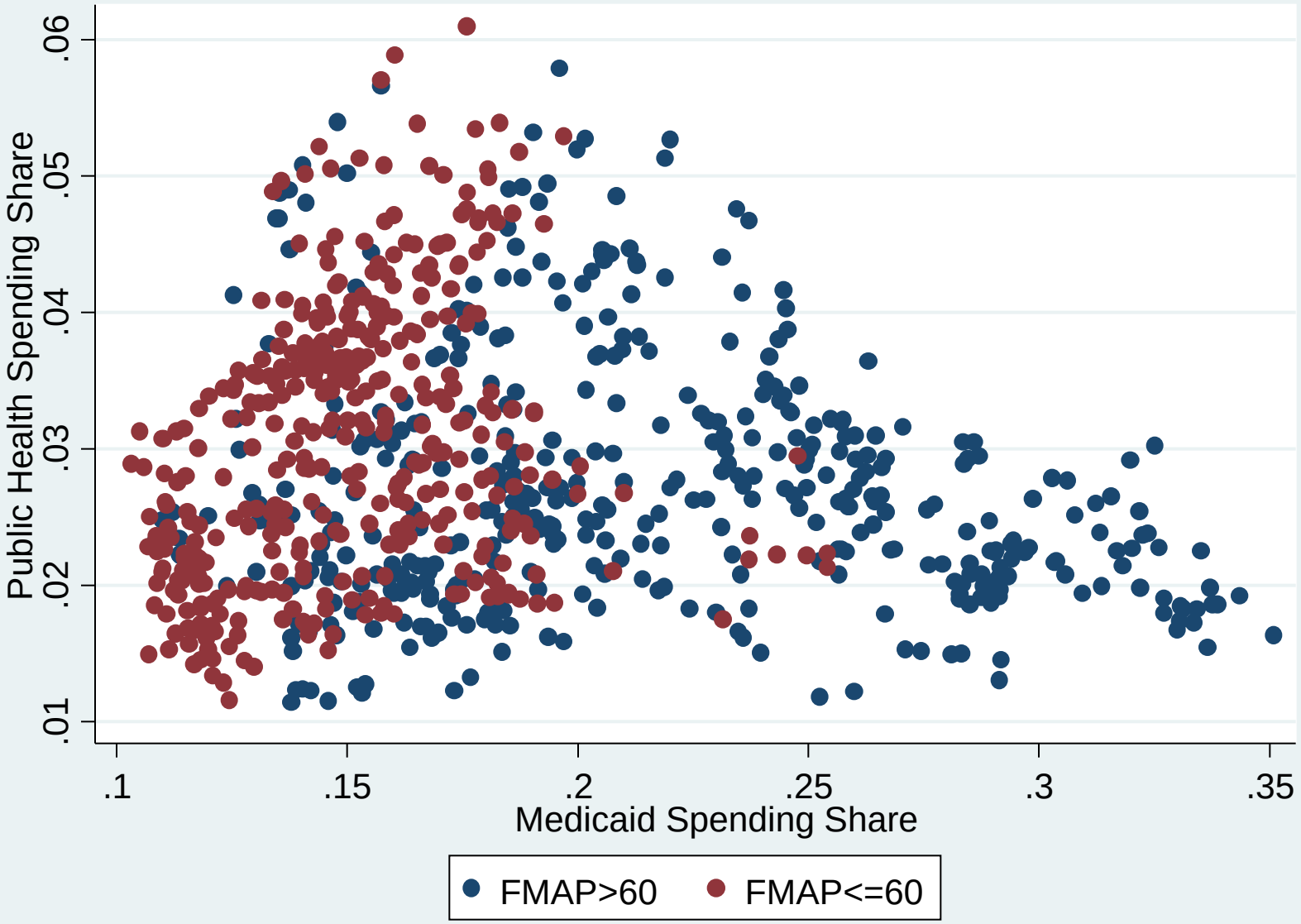
- Federal matching: FMAP, $FMAP^2$
- Share of population in TANF
- Share of population in SSI
- Share of population in SNAP
- Share of population in FSB
- Federal intergovernmental transfers/capita

Federally directed policies
(exogenous to state/local decisions)

Preview of findings

- Increases in state Medicaid spending leads to reduced state and local public health spending
- Crowd-out persists after accounting for Medicaid transfers to public health agencies – not an artifact of financing public health activities using Medicaid dollars
- Estimated crowd-out is larger when controlling for endogeneity (unobserved state generosity in health)
- Crowd-out is larger among states with higher federal matching rates: lower-income states
- Crowd-out is predicted to produce sizable negative health consequences over time

Results: Medicaid and Public Health Shares of State Spending



Results: Determinants of Medicaid Spending

Effects of IVs on Medicaid Spending Share

Instruments	Coeff.	S.E.	
FMAP	0.890	0.436	**
$FMAP^2$	-0.008	0.004	*
TANF recipients	-0.251	0.139	*
SSI recipients	2.873	0.641	***
SNAP recipients	0.118	0.132	
School Breakfast recipients	2.715	0.319	***
Federal transfers/capita	-0.023	0.009	**

Partial F (17,767) = 21.11***

Excludability J test = 1.64

***p<0.01 **p<0.05 *p<0.10

Results: Estimated Crowd Out Effects

Effects of Medicaid Spending Share on State Public Health Spending Share

Model	Coeff.	S.E.	
Reduced form (FMAP)	-0.006	0.002	***
Fixed-effects	-0.112	0.012	***
IV fixed effects	-0.082	0.031	***

21.9% decline for the median state in 2013

***p<0.01

Results: Estimated Crowd Out Effects

Effects of Medicaid Spending Share on Local Public Health Spending Share

Model	Coeff.	S.E.	
Reduced form (FMAP)	-0.004	0.001	**
Fixed-effects	-0.089	0.019	***
IV fixed effects	-0.077	0.038	***

29.2% decline for the median local govt in 2013

***p<0.01 **p<0.05

Projected Health Effects of Crowd Out

- At median levels of crowd-out over 10 years:
  - 12.3% increase in infant mortality rate
  - 5.5% increase in cardiovascular mortality rate
  - 2.7% increase in diabetes mortality rate
  - 1.9% increase in cancer mortality rate
- Reduce or fully offset the direct mortality gains from increases in health insurance coverage (e.g. Sommers et al 2014)

Using 10-year mortality effect estimates from Mays and Smith, *Health Affairs* 2011

Conclusions

- Substantial crowd-out in public health spending results from Medicaid spending growth
- The magnitude of crowd-out is sufficient to produce sizeable health effects over time
- Crowd-out may be larger for lower-resource states and communities

Implications for Policy & Practice

- Roles for federal spending, e.g. Prevention & Public Health Fund
- Maintenance of effort requirements/incentives
- Nongovernmental contributions to public health
- Alignment between primary care & public health

Limitations

- Aggregate and imprecise spending measures
- Public health and Medicaid services as complements vs. substitutes
- Lagged effects
- ACA experience may differ from past Medicaid expansions
- Accounting for mortality effects of Medicaid and public health simultaneously

Acknowledgements

- Funded by the **Robert Wood Johnson Foundation** through the National Coordinating Center for Public Health Services & Systems Research
- Supported by the **NIH National Center for Advancing Translational Science** through the Kentucky Center for Clinical and Translational Science
- Data provided by the **University of Kentucky Center for Poverty Research**, supported by USDHHS/ASPE
- Additional data provided by the **National Association of County and City Health Officials**, National Profile of Local Health Departments

PUBLIC HEALTH | SERVICES & SYSTEMS RESEARCH
PRACTICE-BASED RESEARCH NETWORKS
National Coordinating Center

For More Information

PUBLIC HEALTH | SERVICES & SYSTEMS RESEARCH
PRACTICE-BASED RESEARCH NETWORKS
National Coordinating Center

Supported by The Robert Wood Johnson Foundation

Glen P. Mays, Ph.D., M.P.H.
glen.mays@uky.edu

Email: publichealthPBRN@uky.edu
Web: www.publichealthsystems.org
Journal: www.FrontiersinPHSSR.org
Archive: works.bepress.com/glen_mays
Blog: publichealtheconomics.org

UK UNIVERSITY OF KENTUCKY