



*Strategies to Achieve Alignment, Collaboration, and Synergy across
Delivery and Financing Systems*

**Optimizing Governmental Health and
Social Spending Interactions**

*Research In Progress Webinar
Wednesday, April 10, 2019
12:00-1:00 pm ET/ 9:00 am-10:00 am PT*

Funded by the Robert Wood Johnson Foundation

Agenda

Welcome:

Shana Moore, PhD

Director of Dissemination and Research Development
RWJF [Systems for Action](#) National Coordinating Center
University of Kentucky College of Public Health

Presenters:

David Bishai, MD, PhD, MPH

Professor
Population, Family and Reproductive Health
Johns Hopkins Bloomberg School of Public Health

Beth Resnick, DrPH, MPH

Assistant Dean for Practice and Training & Senior Scientist
Dept. of Health Management and Policy
Johns Hopkins Bloomberg School of Public Health

Commentary:

Marie Flake, MPH

Special Projects, Systems Transformation
Office of the Secretary
Washington State Department of Health

Q & A:

Moderated by Dr. Shana Moore.



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of PUBLIC HEALTH

Research Team

Johns Hopkins Bloomberg School of Public Health

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Partner

Mac McCullough, PhD, MPH - Arizona State University & Maricopa County Department of Public Health



Agenda

- 1. Background on the project**
- 2. Findings**
- 3. Practice & Policy Implications**



Research Aims:

1. Produce a database of state and local spending allocations relevant to health
2. Understand how state and local governmental spending impact public health
 - a. Does spending respond to public health crises?
 - b. What types of spending affect population health measures?
3. Better inform resource allocation practices and policies

*our prior work to develop free publically available data on state public health spending is available at:

<https://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/36741>



State and Local Government Spending:

Fundamental questions:

- How much are state and local governments spending on public health and social services?
- What is the impact of this spending?

Part 1 Methods



Data Source: Census of Governments

A U.S. Census Bureau program that collects financial data from state/local governments

- State data available annually
- Local data available every 5 years
- Multiple categories, sub-categories of spending

Examples: Police, Sewerage, Solid Waste Management, Environmental, Education, Housing, Hospital Health, Other health

Source: U.S. Census of Governments <http://www.census.gov/govs/cog/>



Census State Finance Division Data

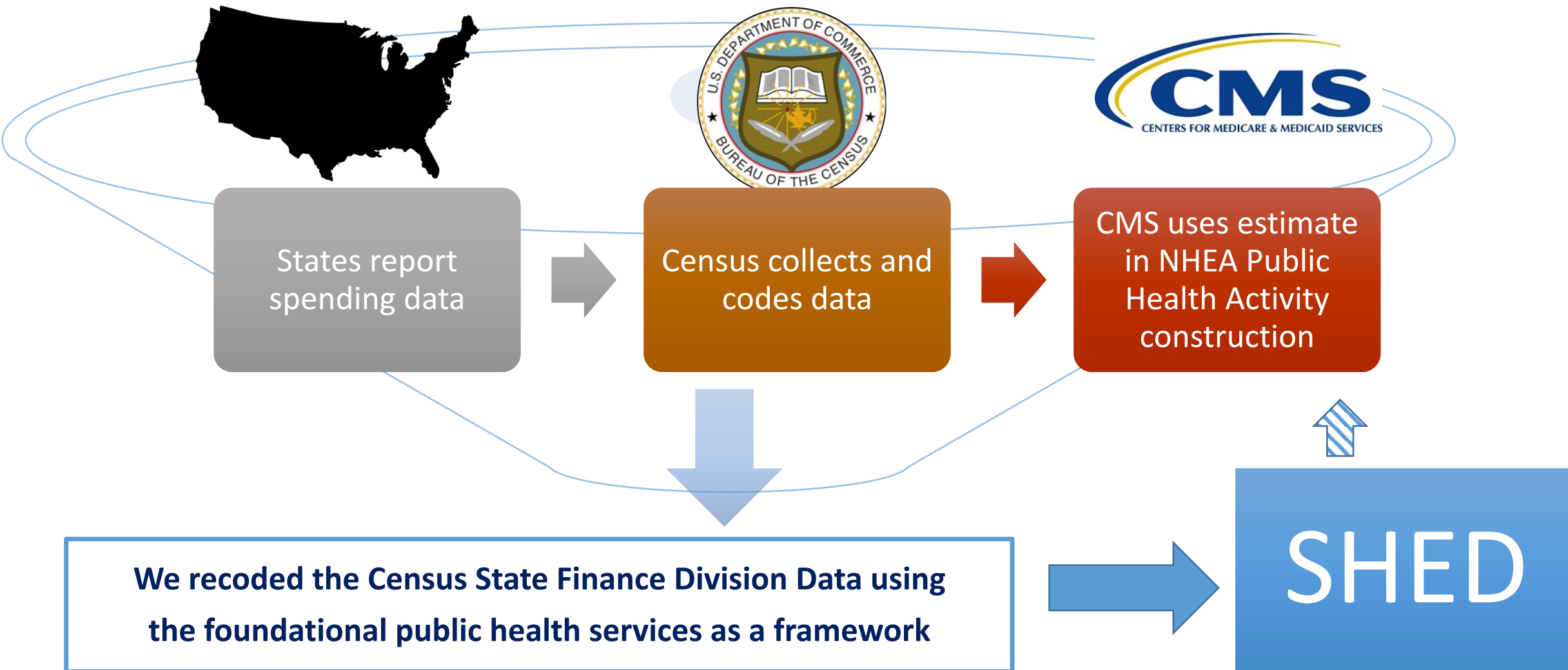
Census Data

- **Basis of Public Health Activity estimate in National Health Expenditure Accounts**
- **Reported by every state (except CA)**
- **Includes spending by all state agencies (not just health departments)**
- **Highly detailed line item expenditures that allow parsing by activity**

Limitations

- **Inconsistencies across states in accounting for local public health spending and intergovernmental state to local transfers**
- **Incomplete data prior to 2008**
- **Census coding inconsistencies**
- **Lack of awareness of Census data by state and local practitioners**
- **Uncertain alignment with state and other spending reports**

State Health Expenditure Data Set Derivation

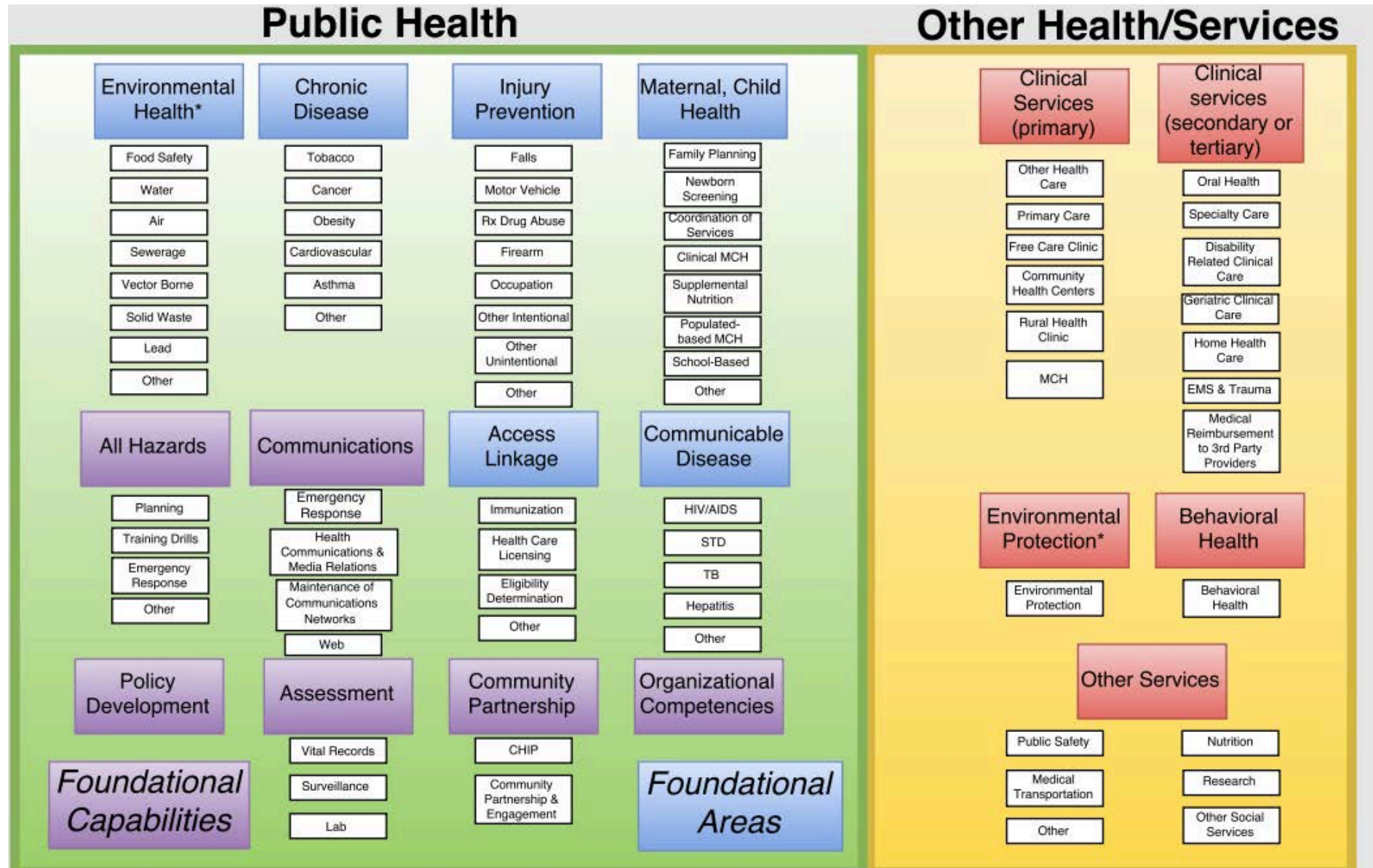


Adding More Detail to Current Public Health Spending Estimates

- Current estimates mix clinical services carried out in public sector (e.g. behavioral health care with population level activities).
 - This may obscure attempts to connect population health spending and population health outcomes
- Systematically disaggregated Census estimates to categorize public health spending estimates according to Foundational Public Health Services CMS's Public Health Activity Estimate frameworks



Census Data Coding Framework Built on Foundational Public Health Services

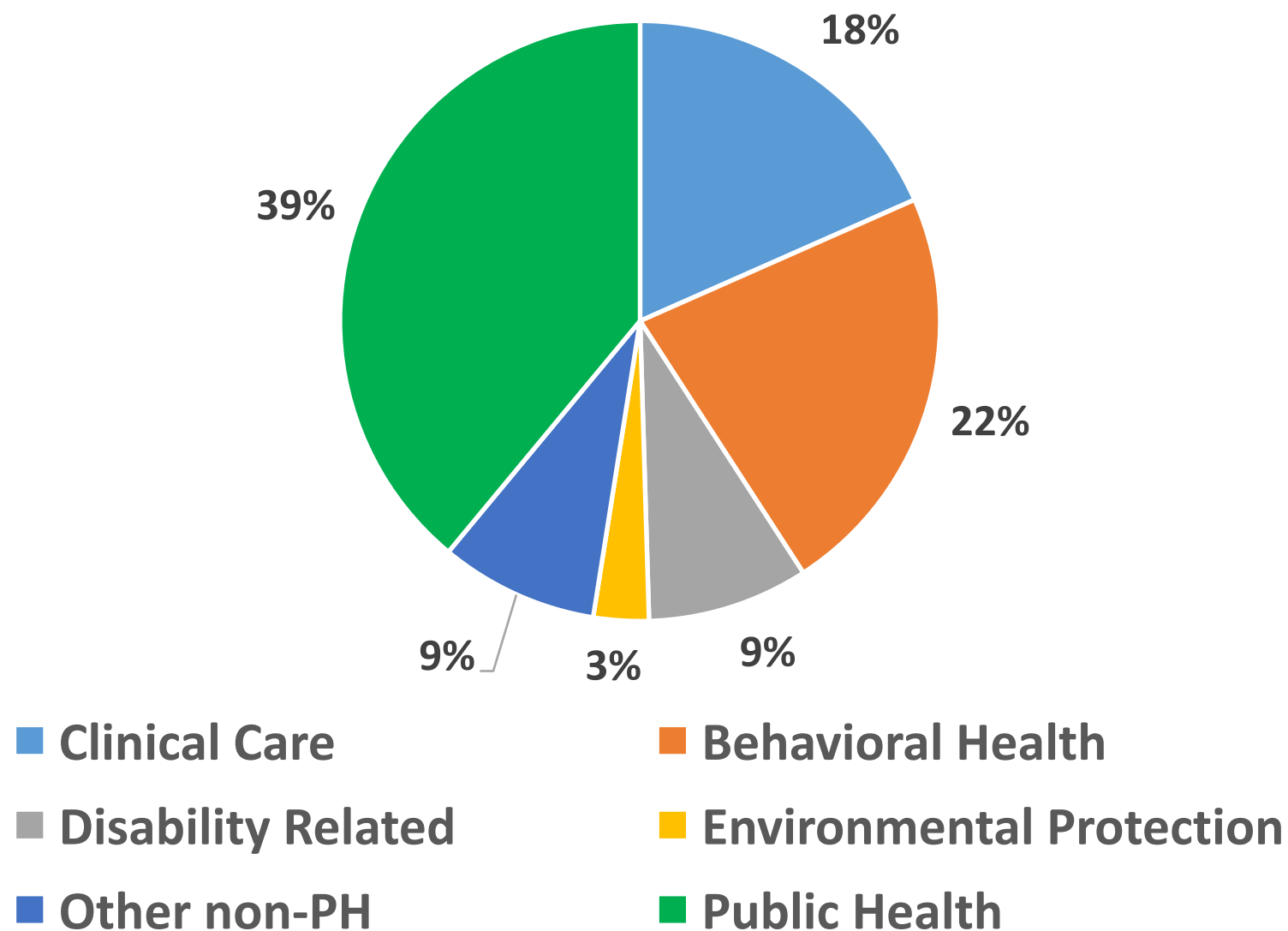


*"Environmental Health" refers to prevention (permitting, education, regulation) activities, "Environmental Protection" refers to remediation and environmental quality

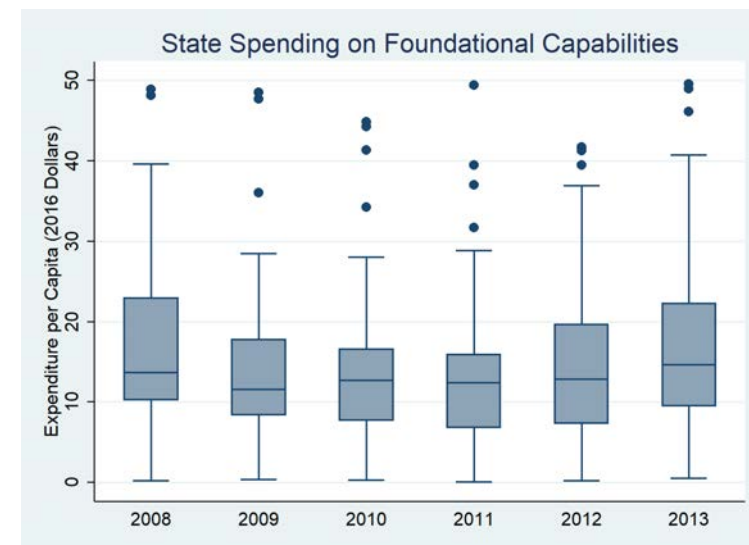
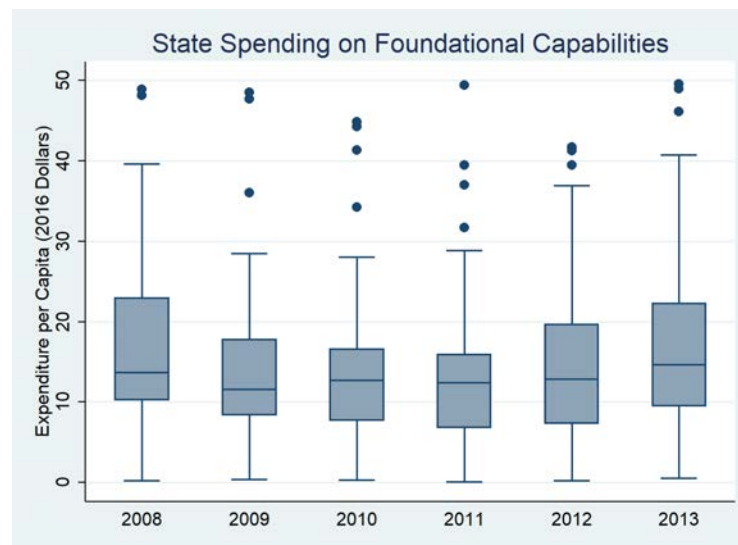
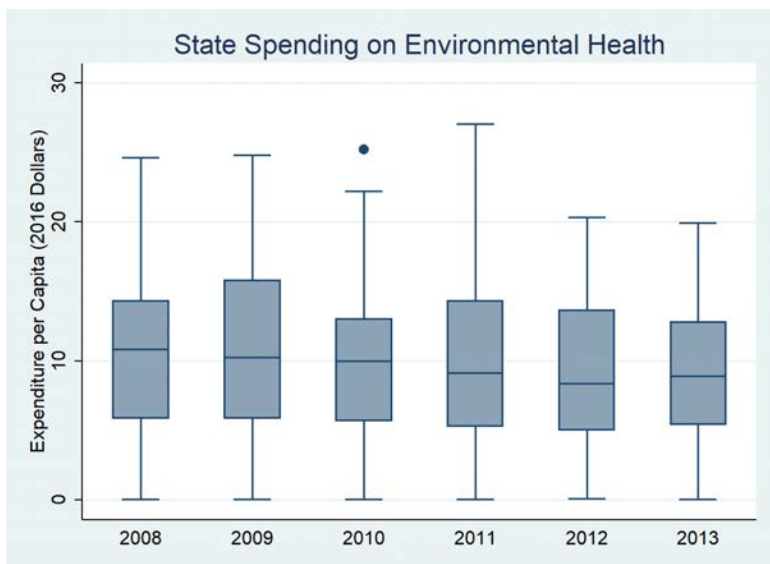
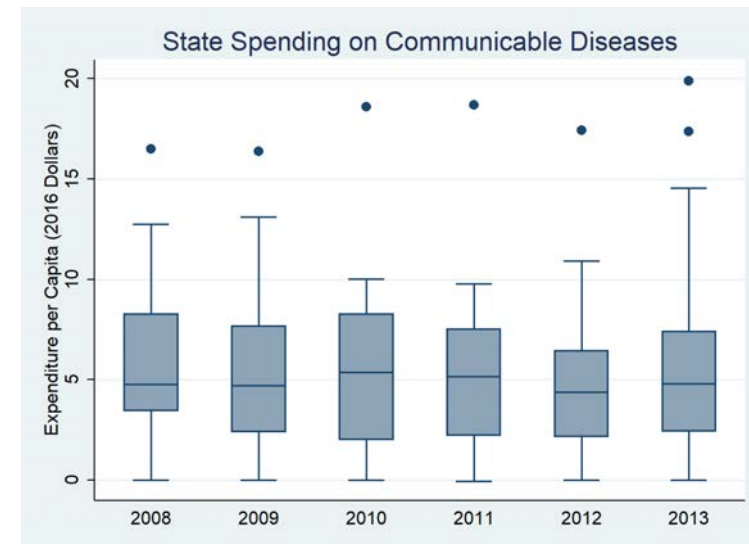
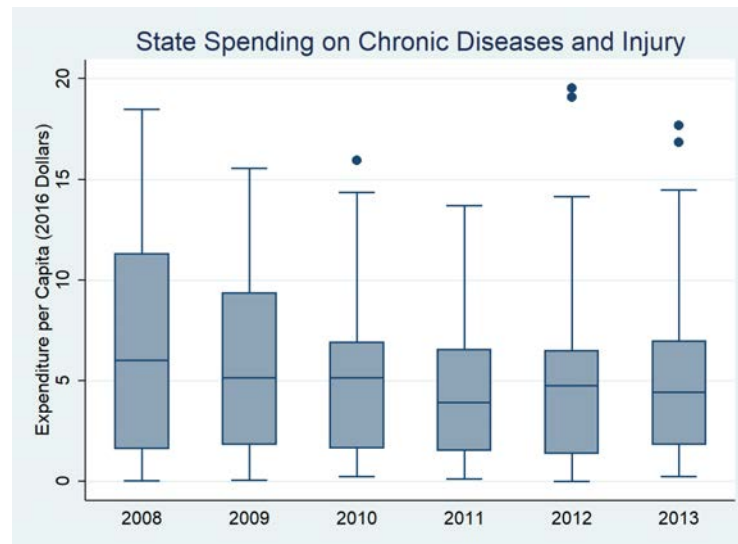
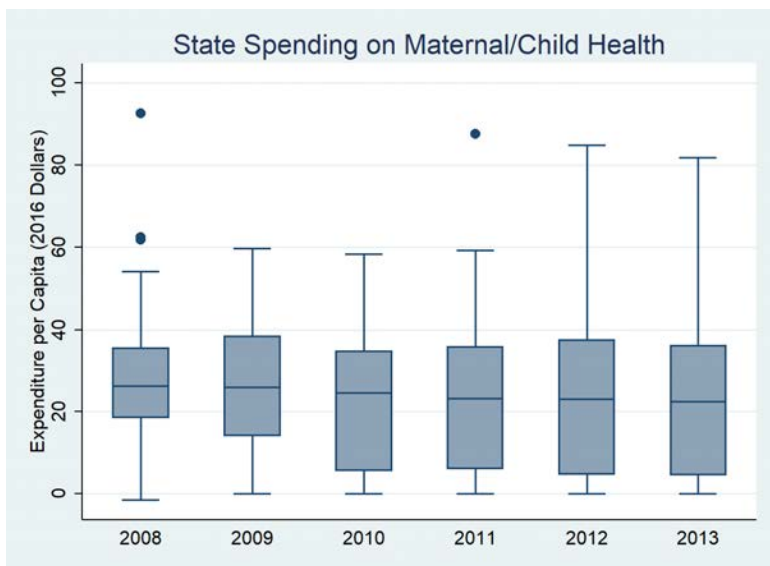
Part 2 Descriptive Analysis



State spending in the Census Public Health Activity estimate (2000-2013)



Trends in State Spending



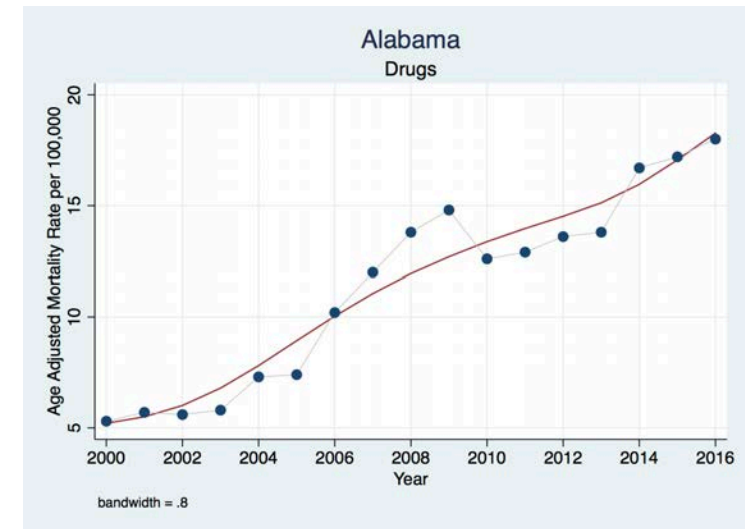
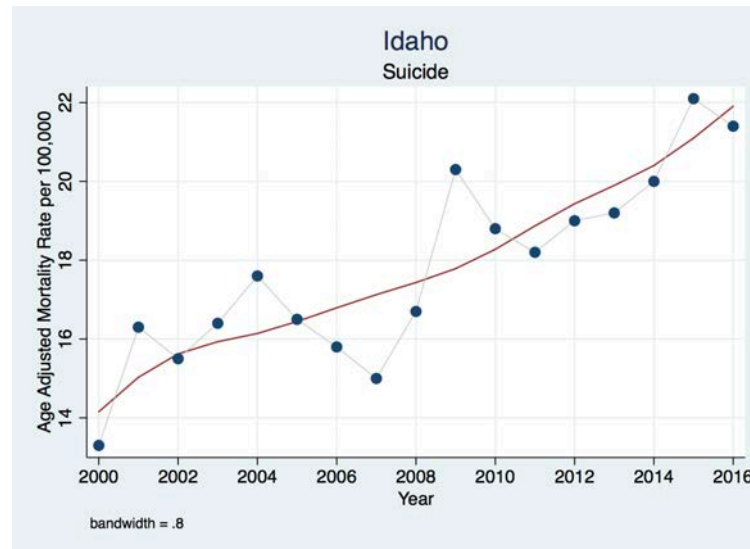
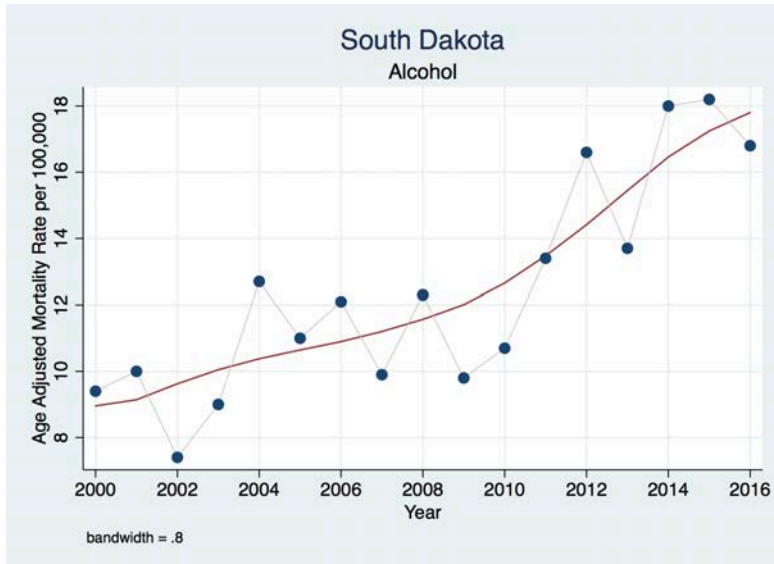
Part 3: Analytical Results

Does spending respond to health problems?

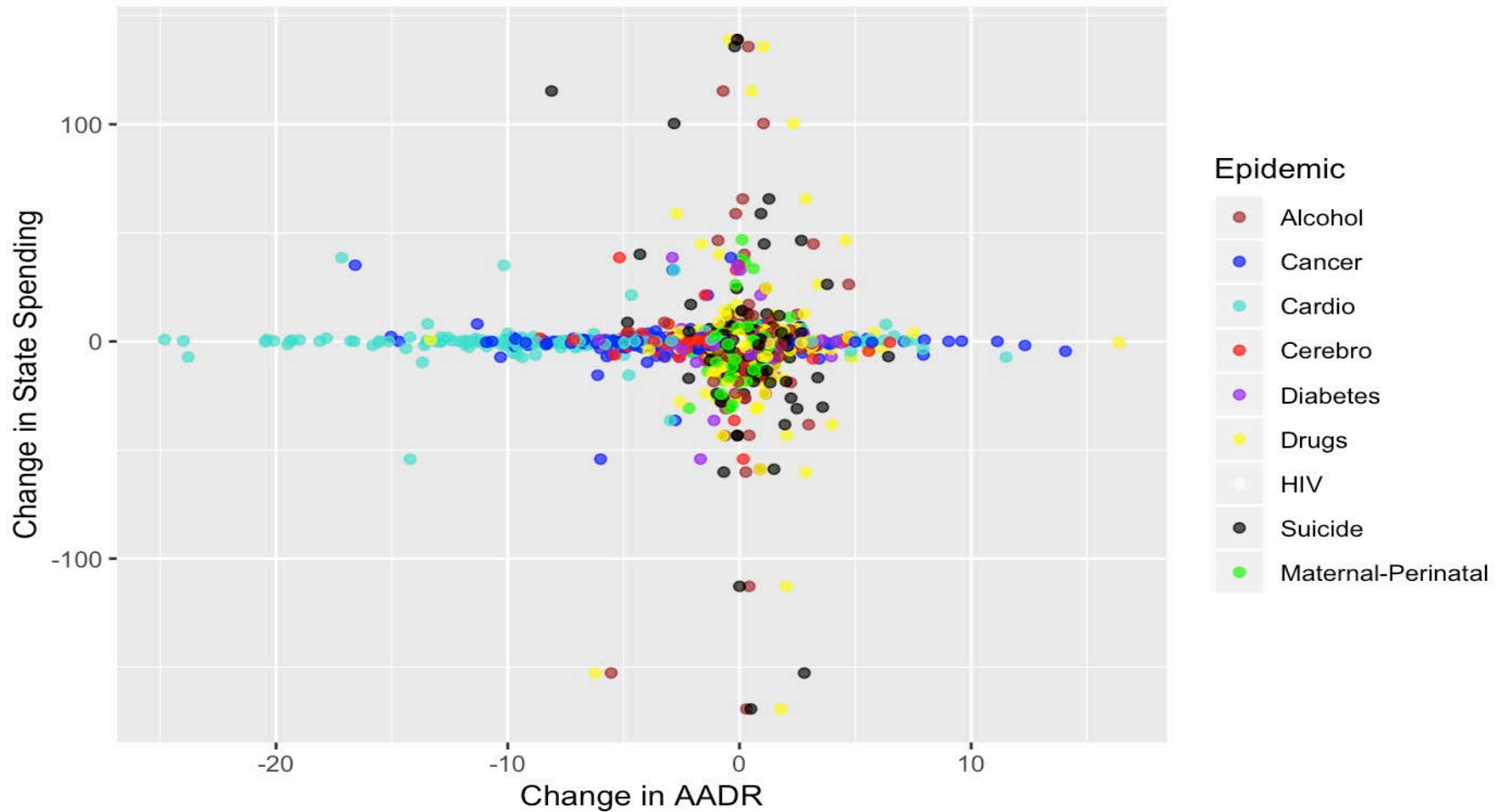
Does spending improve population health?



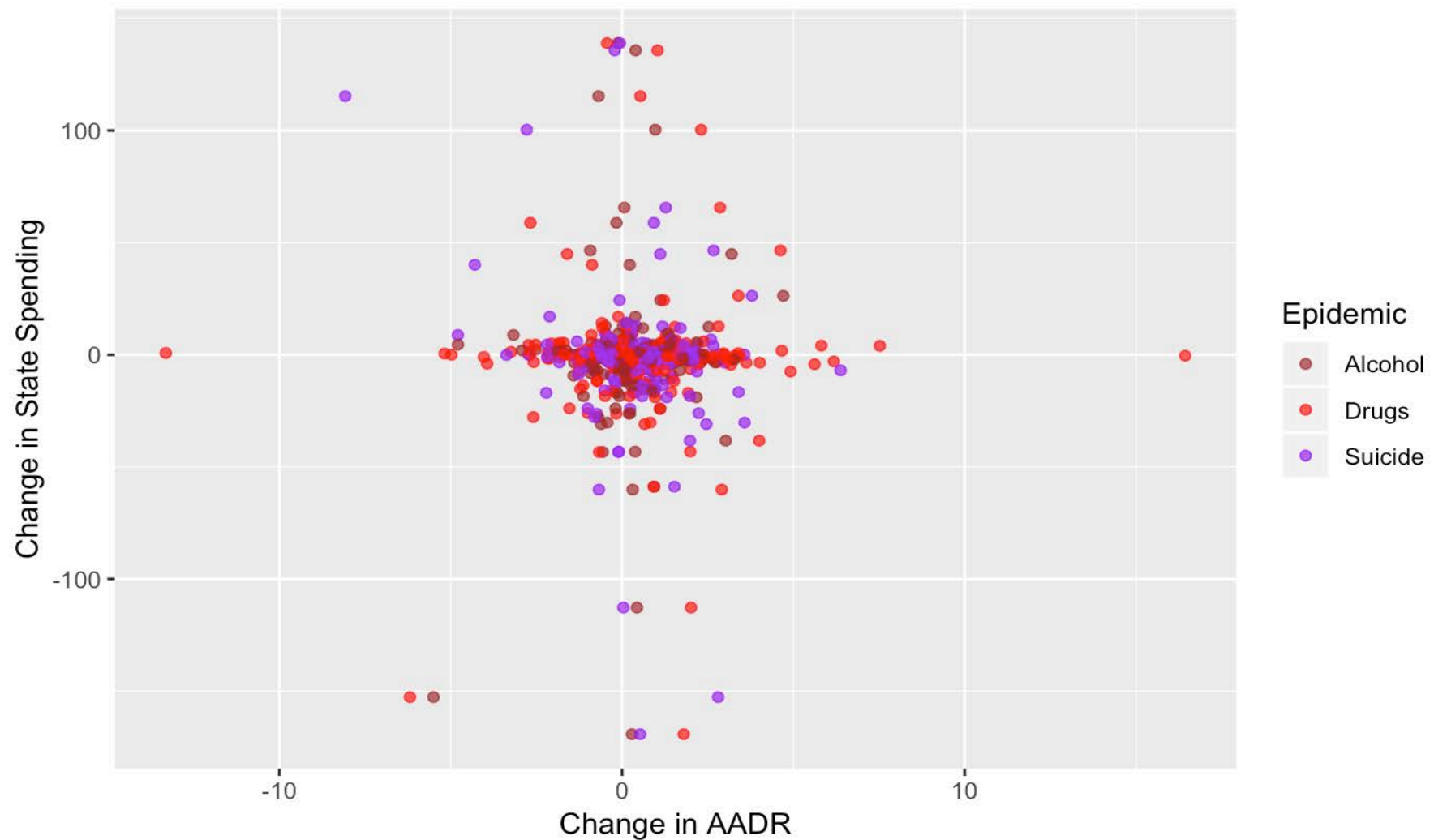
America's Epidemics-Did states respond?



If age-adjusted death rates go up, does spending go up one year later?



Scatter plots of change in spending vs. change



Regress State Behavioral Health Spending vs Last Year's Deaths from Alcohol, Suicide, Drugs

	Spending	Spending	Spending
Age Adjusted Death Rate	-0.077	-0.269	-0.844*
High school completion	680.7	702	--143545***
State Median Income	0.0054***	0.0089***	0.3602***
Proportion Black	432.7	479.2	46436.8
Proportion Hispanic	47.05	75.7	-25014.3***
Proportion Urban	718.6***	493.4	-3773.3***
Constant	-13.8	-17.7	-3.63***
Variables Differenced	No	Yes	Yes
Variables w Moving Average	Yes	No	Yes



Multi-sectoral spending and health



Classifying Unobserved Variables

Social Spending Index

- Non-Hospital Health
- Public Welfare
- Education
- Libraries
- Parks & Recreation
- Natural Resources

Infrastructure Spending Index

- Highways
- Fire Protection
- Sewerage
- Solid Waste Management

Law and Order Spending Index

- Police Protection
- Judicial

Economics Stress (control variable): poverty, unemployment, county total revenue



Structural Equation Modeling

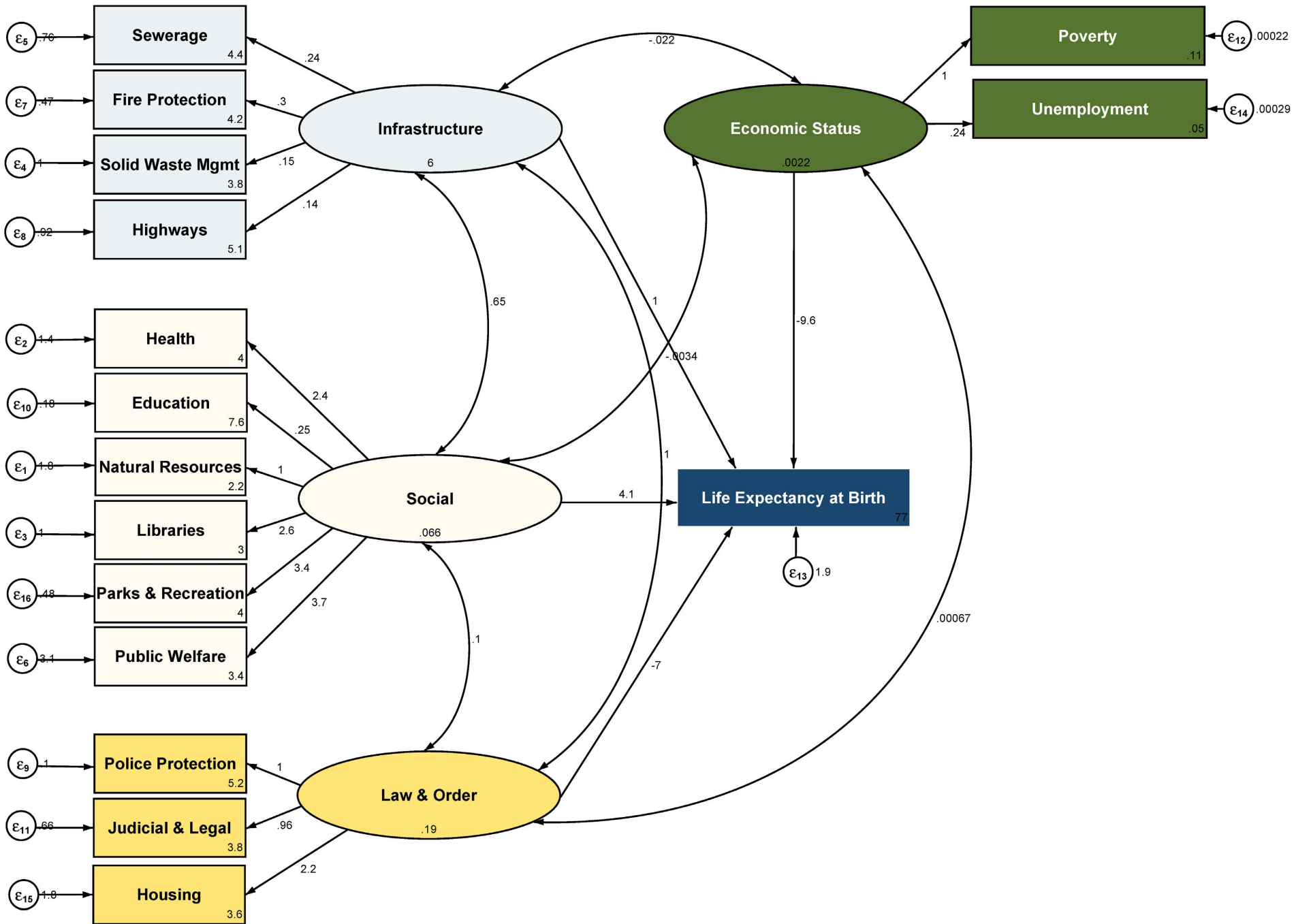
Assess relationships between observed measurements and latent, or unobserved variables

- **Exogenous variables - measured**
 - County spending in 12 sectors
 - Life expectancy at birth
 - Poverty, unemployment, total government revenue
- **Endogenous variables - unobserved**
 - County spending index type (social, infrastructure, law & order)
 - Economic Stress

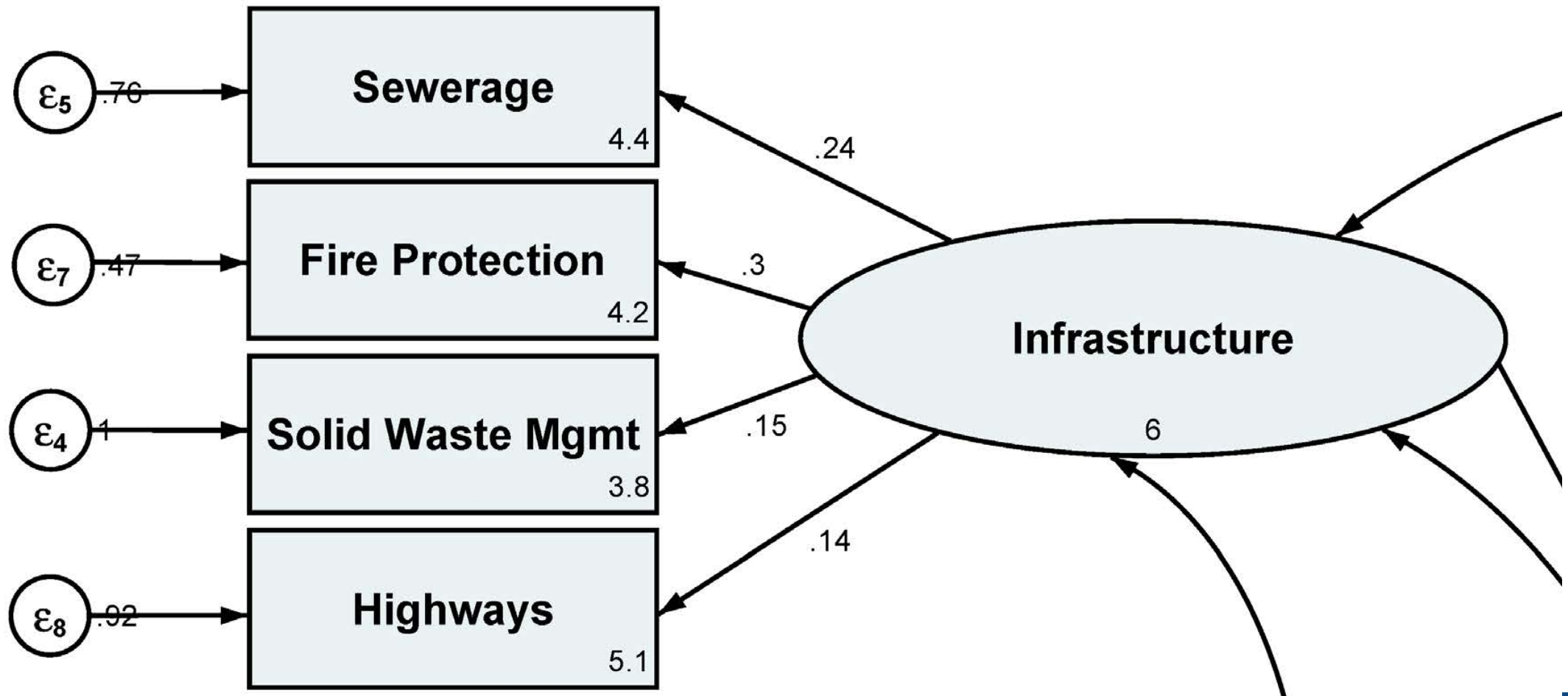
EXOGENOUS

ENDOGENOUS

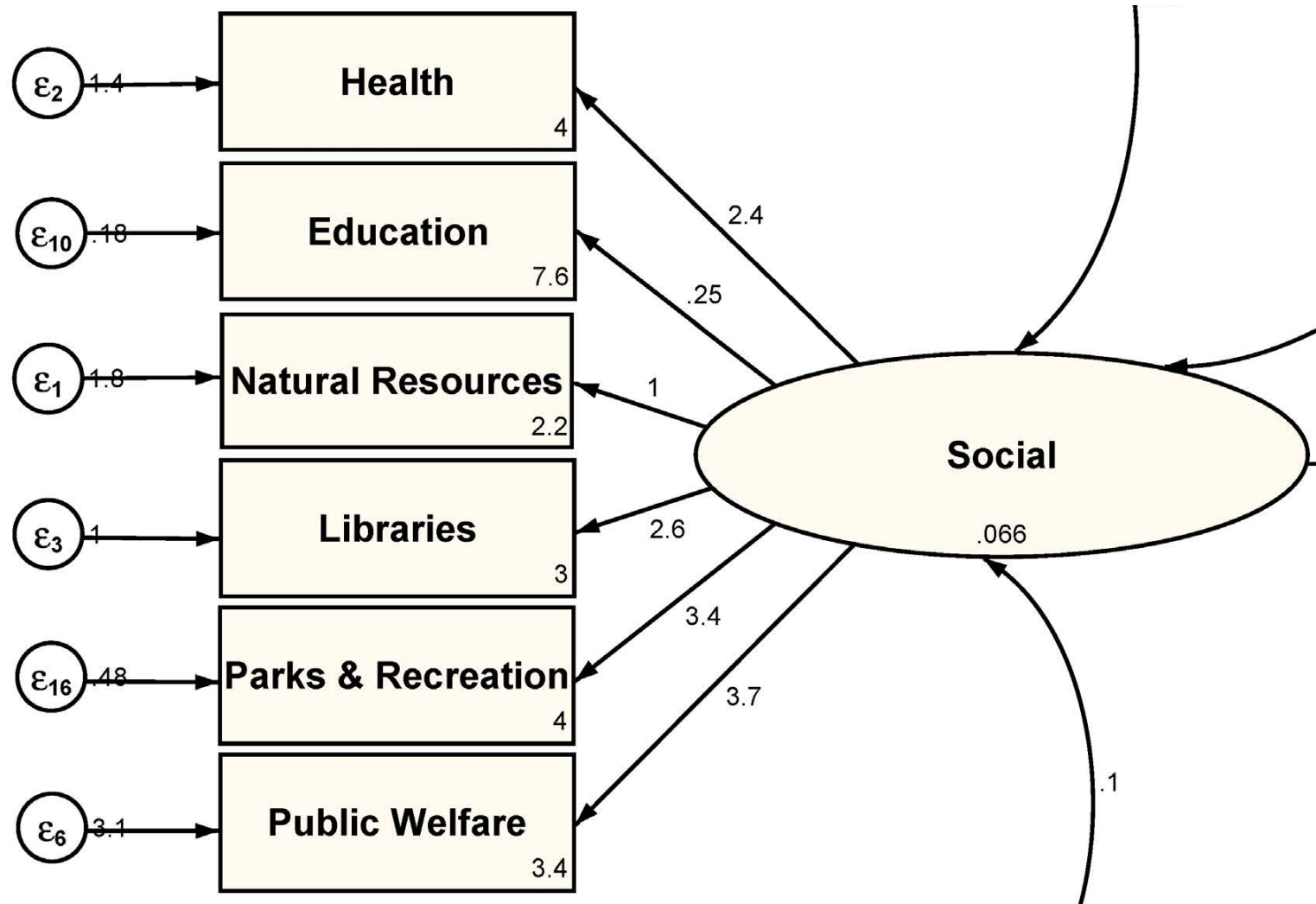




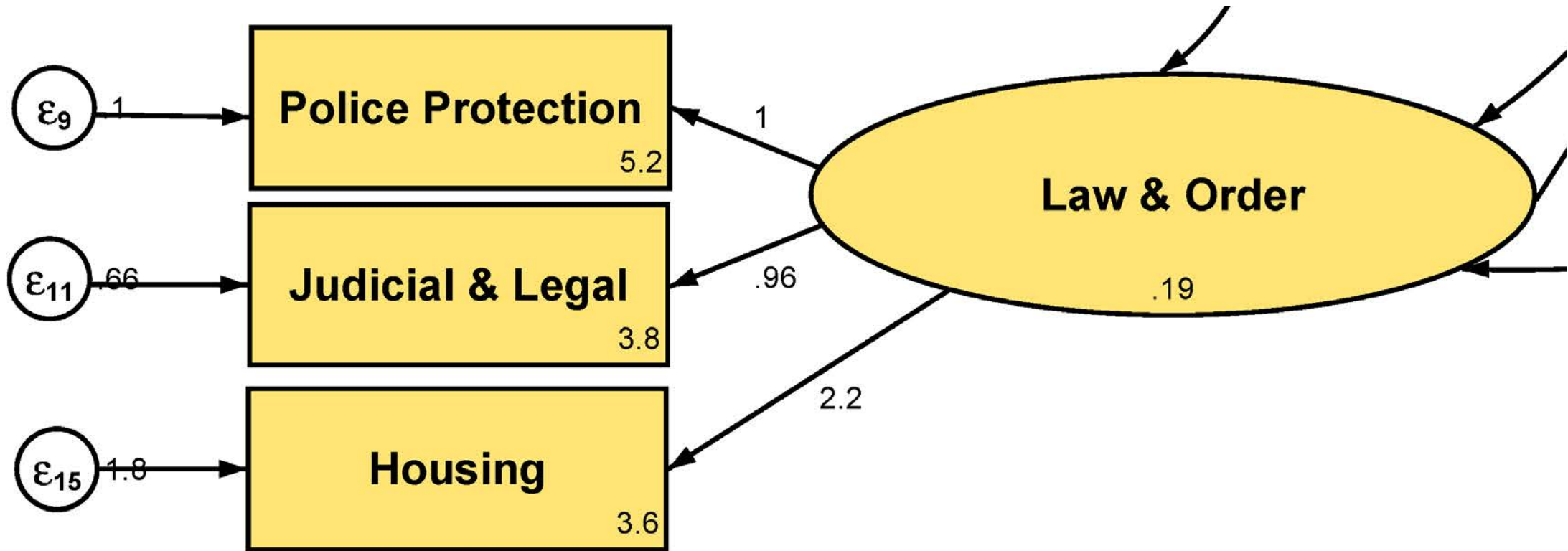
Infrastructure

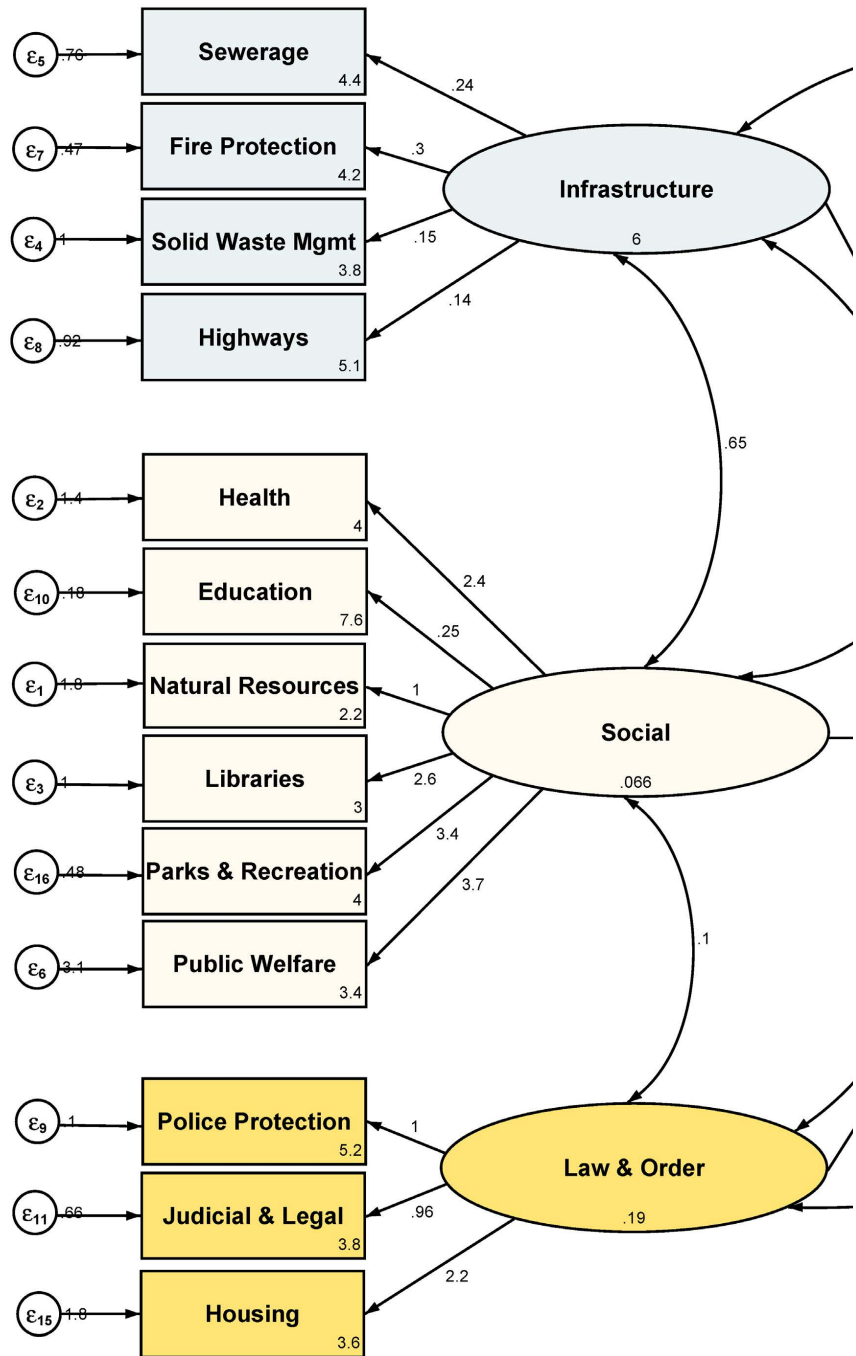


Social investment



Law and order

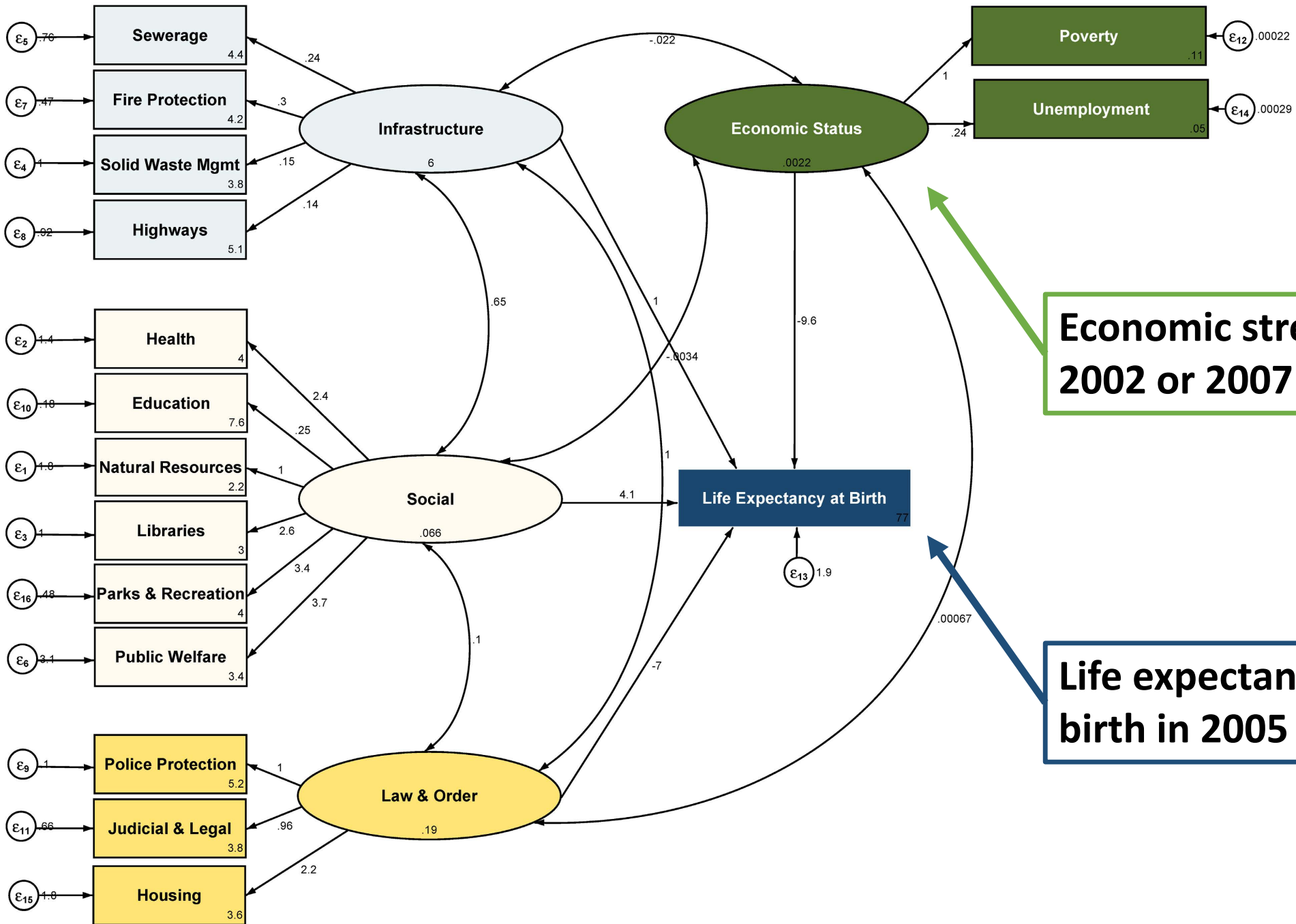




**Propensity for
Infrastructure spending**

**Propensity for Social
spending**

**Propensity for Law & Order
spending**



Economic stress in 2002 or 2007

Life expectancy at birth in 2005 or 2010

Key Spending Analysis Findings

- 49% of state public health spending goes to clinical care, behavioral health, and services for the disabled
- Large variations across states and counties
- Trends from 2008 to 2013 were flat despite epidemics of alcohol, suicide, and drugs
 - No apparent spending response to recent epidemics
- County spending on social services more beneficial to life expectancy than spending on infrastructure
- County spending on law and order less beneficial to life expectancy

Leider J, Alfonso N, Resnick B, Brady E, McCullough JM, Bishai D. Assessing The Value Of 40 Years Of Local Public Expenditures On Health. Health Affairs Vol. 37, No 4 (2018): 560-569.



Public Health Practice & Policy Implications

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For more information on Washington State Efforts:

Foundational Public Health Services – www.doh.wa.gov/fphs

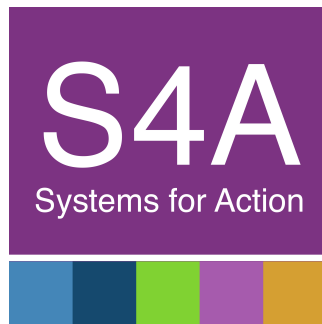
[Budgeting, Accounting and Reporting System](#) (BARS) – COA for LHJs in Washington State



Thank you!



Questions?



www.systemsforaction.org

Upcoming Webinars

Archives

<http://systemsforaction.org/research-progress-webinars>

Upcoming

April 24, 2019, 12 p.m., ET

Systems for Action Individual Research Project

[Strengthening the Carrying Capacity of Local Health and Social Service Agencies to Absorb Increased Hospital/Clinical Referrals](#)

Danielle Varda, PhD, University of Colorado Denver, and Katie Edwards, MPA, The Nonprofit Centers Network

May 8, 2019, 12 p.m., ET

Systems for Action Individual Research Project

[Linking Medical Homes to Social Service Systems for Medicaid Populations](#)

Sarah Hudson Scholle, DrPH, MPH, and Keri Christensen, MS, National Committee on Quality Assurance

May 22, 2019, 12 p.m., ET

Systems for Action Collaborating Research Center

[The Comprehensive Care, Community, and Culture Program](#)

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and



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