Systems for Action
National Coordinating Center
Systems and Services Research to Build a Culture of Health

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

Rural-Urban Differences in Delivery Systems for Population Health Activities

Research-in-Progress Webinar
Wednesday, September 19, 2018
12:00-1:00 pm ET/ 9:00 am-10:00 am PT

College of Public Health
Center for Public Health Systems and Services Research

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: **John Poe, PhD**
Postdoctoral Scholar and Research Methodologist
RWJF Systems for Action National Coordinating Center
University of Kentucky College of Public Health

Commentary: **Ty Borders, PhD**
Professor, Healthy Kentucky Endowed Chair in Rural Health Policy
Department of Health Management and Policy
Director
Rural and Underserved Health Research Center
University of Kentucky College of Public Health

Q & A: Moderated by **Shana Moore, PhD**

Presenter

John Poe, PhD

Postdoctoral Scholar and Research Methodologist

RWJF Systems for Action National Program Office

University of Kentucky College of Public Health

Commentary Speaker

Ty Borders, PhD

Professor & Healthy Kentucky Endowed Chair in Rural Health Policy

Department of Health Management & Policy

Director

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John Poe, Ph.D.
Systems for Action National Program Office
University of Kentucky College of Public Health

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Acknowledgements

- Robert Wood Johnson Foundation
- S4A Intramural Research Team

  Glen P. Mays

  Nurlan Kussainov

  C.B. Mamaril

  Dominique Zephyr

  Shana Moore

  Other contributors to NLSPHS related research:
  Rachel Hogg-Graham, Rick Ingram

Background

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Primary Research Questions:

- What differences exist between urban and rural community health systems?
- What are the drivers of those differences?

Background

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- Communities vary widely in their ability and inclination to provide public health services because they have different resource bases, different healthcare needs, and different institutional structures to support those needs
- The provision of comprehensive public health activities requires a heterogeneous set of actions to
  - assess population health status and needs
  - educate the public about health risks and prevention strategies
  - engage community stakeholders in planning and implementing health improvement strategies
  - and link individuals to available health and social services based on their needs
- Rural communities—as compared to urban ones—tend to have fewer available resources for public health, weaker political institutions, and different public health challenges.

NALSYS

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- This study examines local health systems in rural, micropolitan, and metropolitan communities from the 2016 National Longitudinal Survey of Public Health Systems
- The NALSYS offers a longitudinal cohort of large communities dating back to 1998 and a cohort of small ones from 2014
- Over 100k: 1998, 2006, 2012, 2014, 2016, 2018*
- Under 100k: 2014, 2016, 2018*
- Full State snapshots: 2016, 2018*

NALSYS

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Local public health officials report:

- ***Scope***: availability of recommended population health activities based on Institute of Medicine's core functions of assessment, policy development, and assurance.
- ***Network***: organizations contributing to each activity
- ***Centrality of effort***: contributed by governmental public health agency
- ***Quality***: perceived effectiveness of each activity

We use this information to build a measure of the comprehensiveness of the public health system in a given community

- ***Comprehensive*****:** communities that have the most well integrated public health provider networks and offer the highest proportion of public health activities
- ***Conventional*****:** communities with less integration and fewer activities
- ***Limited:*** communities with the lowest levels of program activity and intergroup coordination

Comprehensive Public Health Systems

One of RWJF's Culture of Health National Metrics

- ***Broad scope*** of population health activities
- ***Dense network*** of multi-sector relationships of contributing organizations
- ***Central actors*** to coordinate actions

Access to public health

Overall, 47.2 percent of the population is covered by a comprehensive public health system. Individuals are more likely to have access if they are non-White (51.5 percent vs. 45.5 percent White) or live in a metropolitan area (48.7 percent vs. 34.1 percent in nonmetropolitan areas).

47.2%

of population served by a comprehensive public health system

http://www.cultureofhealth.org/en/integrated-systems/access.html

Analytic Strategy

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Note that this is a correlational analysis

- We believe we understand the general mechanisms at work
  - Variation in available resources and health system partners between larger and smaller communities drive differences
- We don't have the ability to test a specific causal mechanism in this design
- In future research we hope to use the longitudinal aspect of the nalsys to build a more causally focused design

Analytic Strategy

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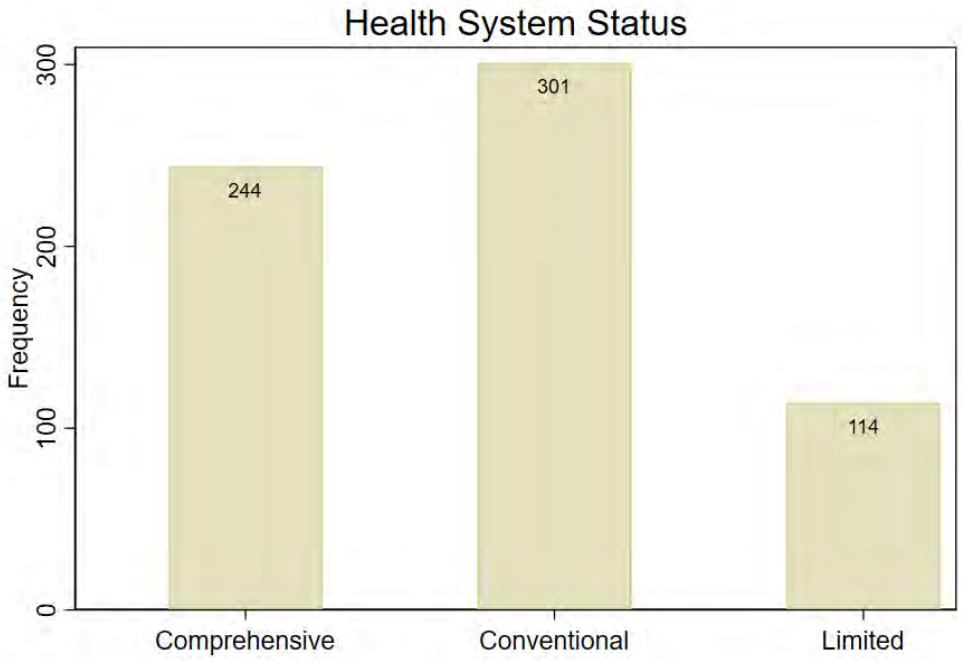
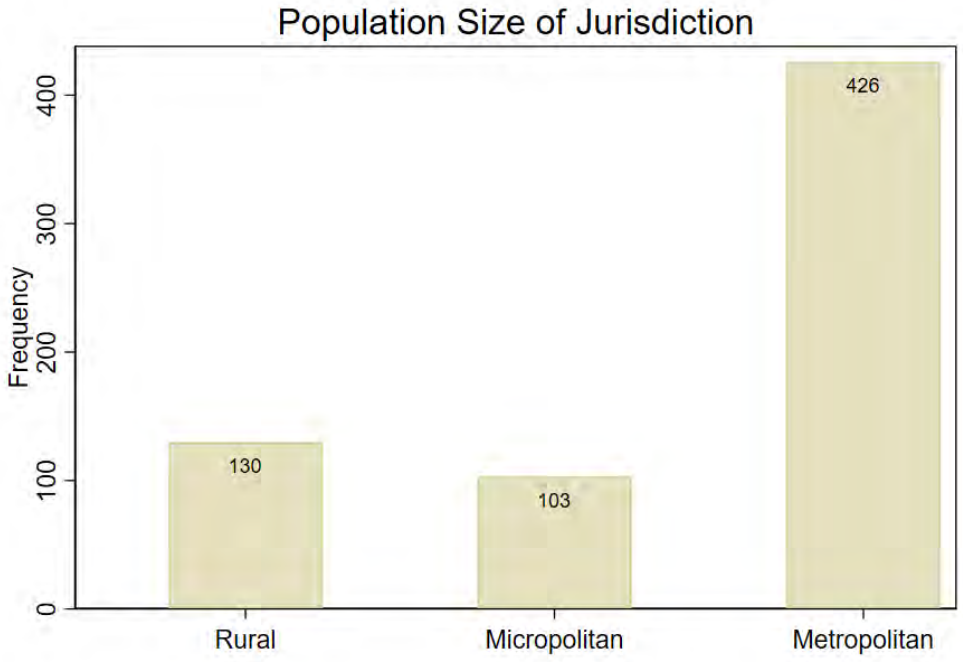
- 2016 wave of NALSYS Survey Combined with variables from ARF and NACCHO
  - Statistical Model: Multinomial Probit
  - Dependent variable: Comprehensive Health System Status
    - Systems are either comprehensive, conventional, or limited
  - Main independent variable: Community Size
    - Measured as rural/micro/metro, log population, and population

- Stage 1: Bivariate Comparisons across size specifications
- Stage 2: Full model specifications including controls
  - % nonwhite, % over 65, % in poverty, unemployment rate, local board of health, hospital beds per capita, primary care physicians per 100k, federally qualified health centers
  - The goal is to break the relationship between community size and system status

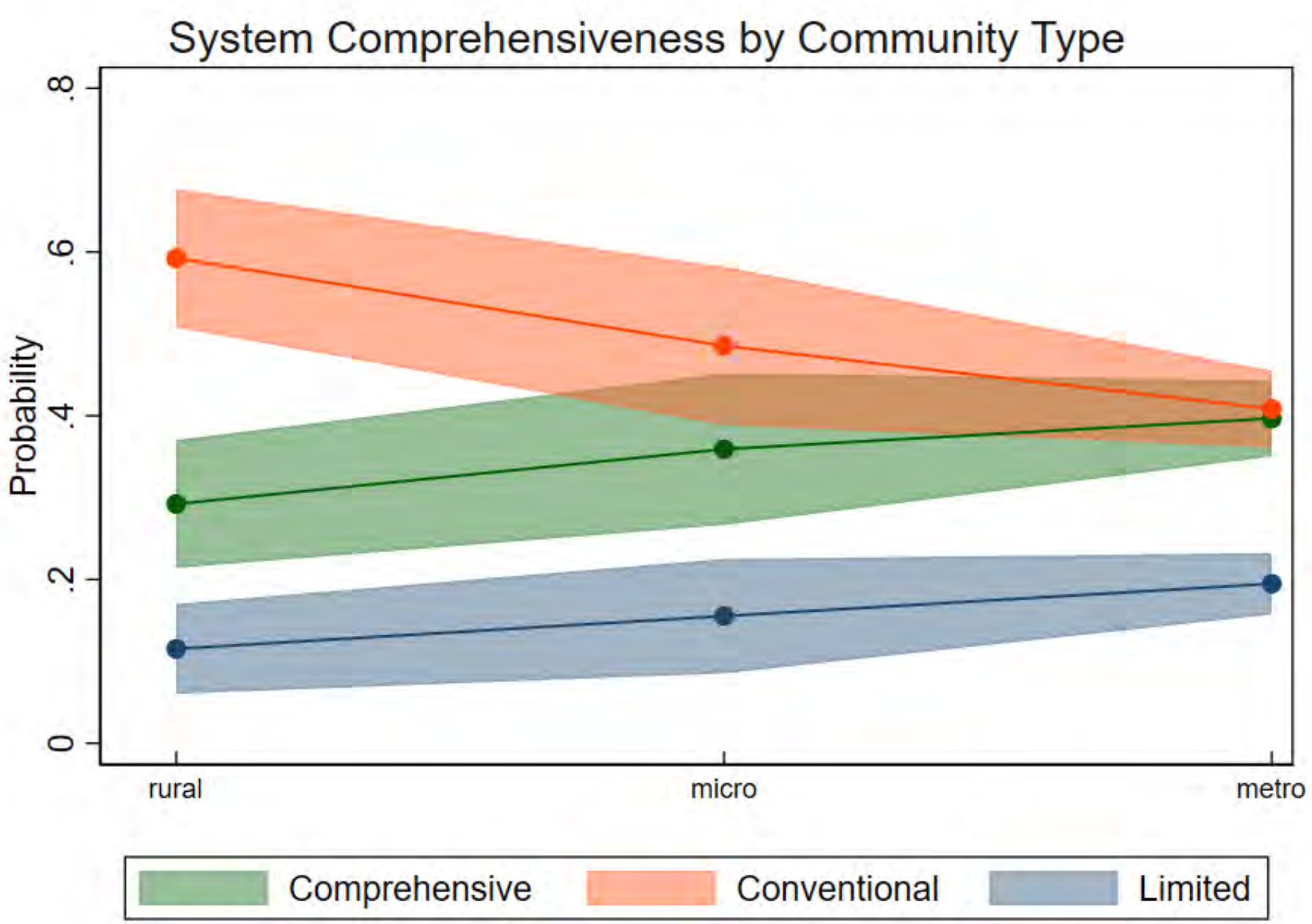
Main Variables

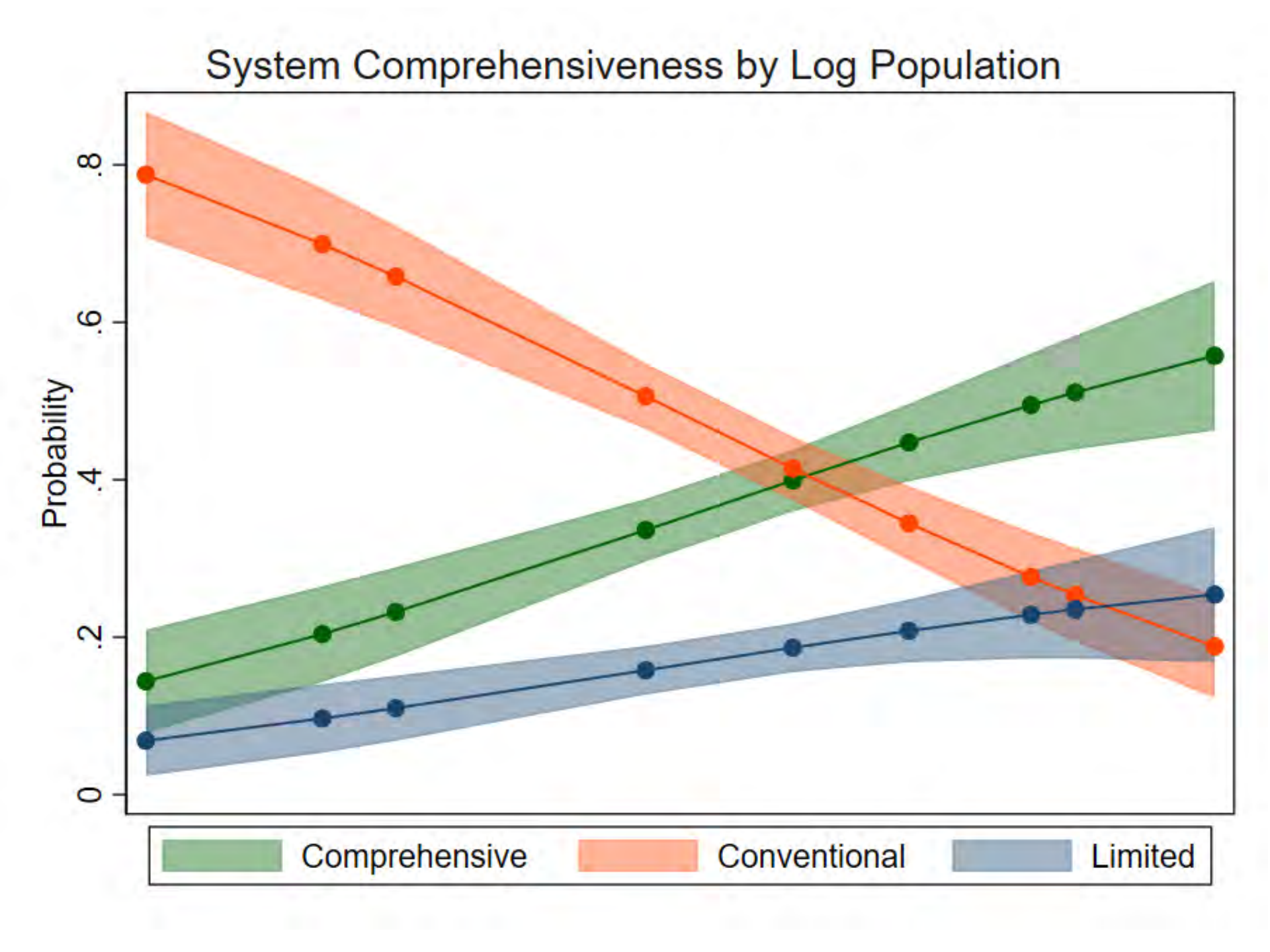


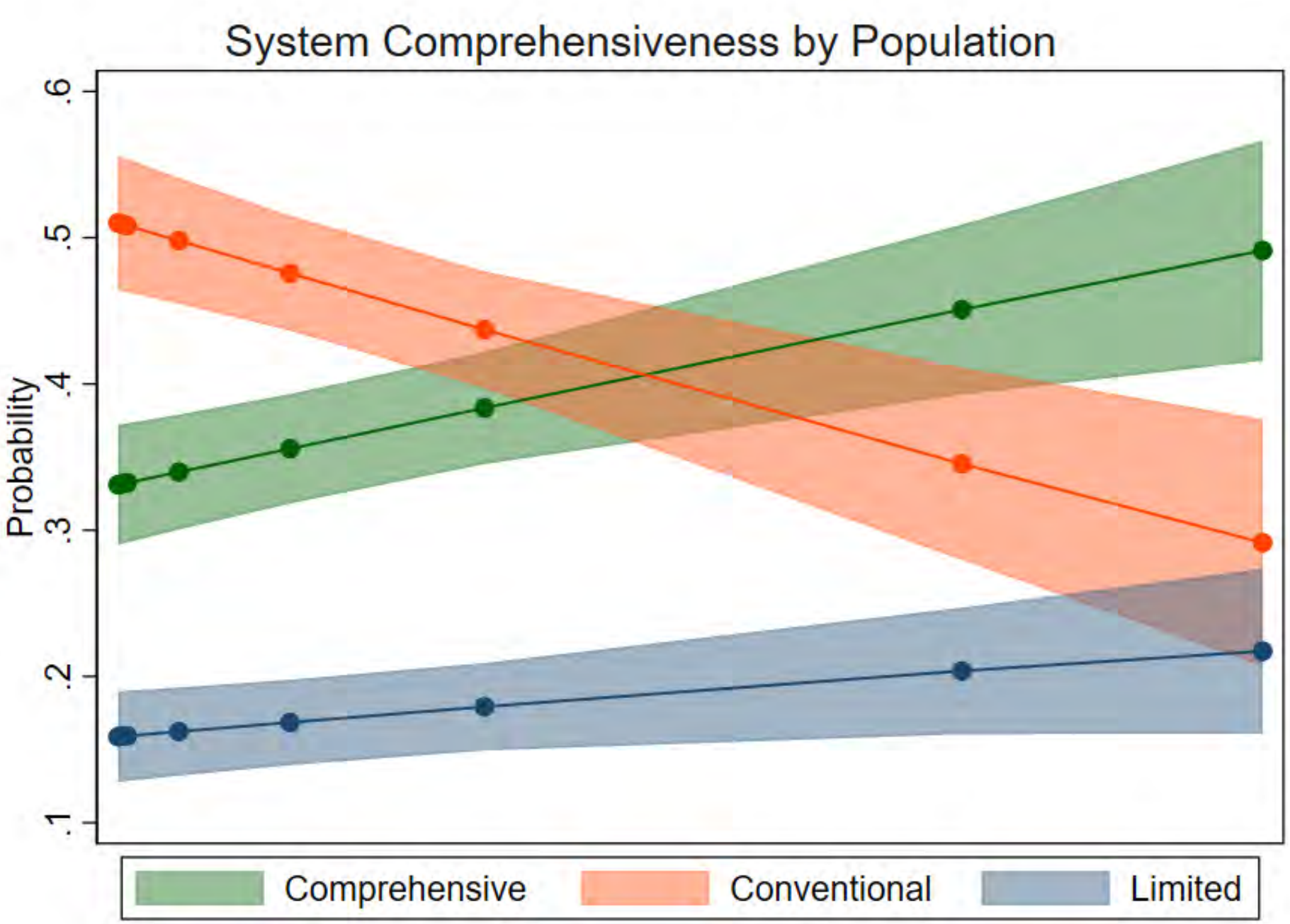
- This graph shows the number of health systems in our 2016 nalsys survey that rate as comprehensive, conventional, or limited.



- Relative numbers of rural, micro, and metropolitan jurisdictions in our sample.
- If MSA county is a metro or micro area then it is coded as such. Communities neither coded as metro or micro were tagged rural


System Comprehensiveness by Community Type
Probability
0
.2
.4
.6
.8
rural
micro
metro
Comprehensive
Conventional
Limited


System Comprehensiveness by Log Population
Probability
0
.2
.4
.6
.8
Comprehensive
Conventional
Limited


System Comprehensiveness by Population
Probability
.1
.2
.3
.4
.5
.6
Comprehensive
Conventional
Limited

Control Variables

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% nonwhite

% over 65

% in poverty

unemployment rate

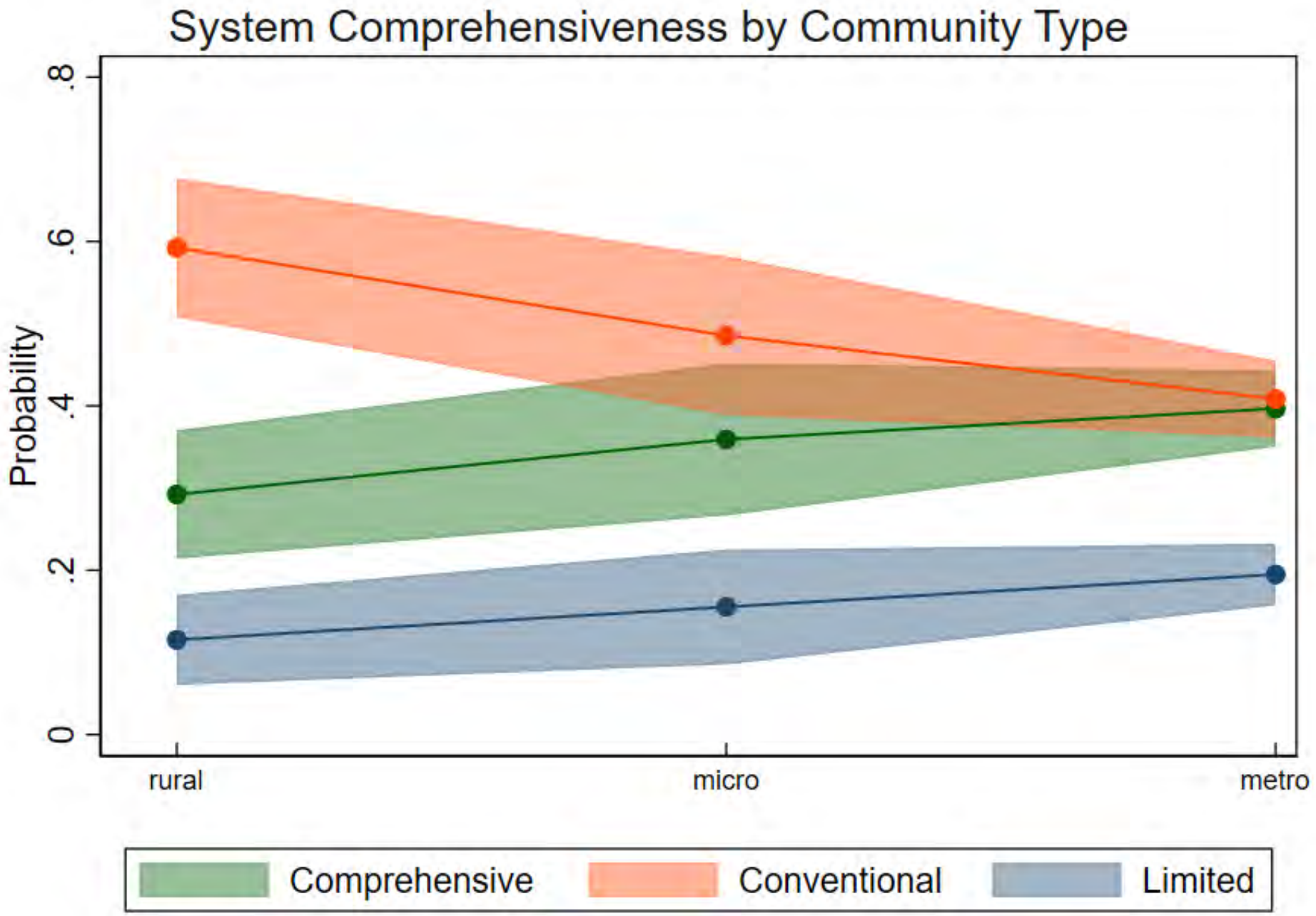
local board of health

Centralized state/local health governance

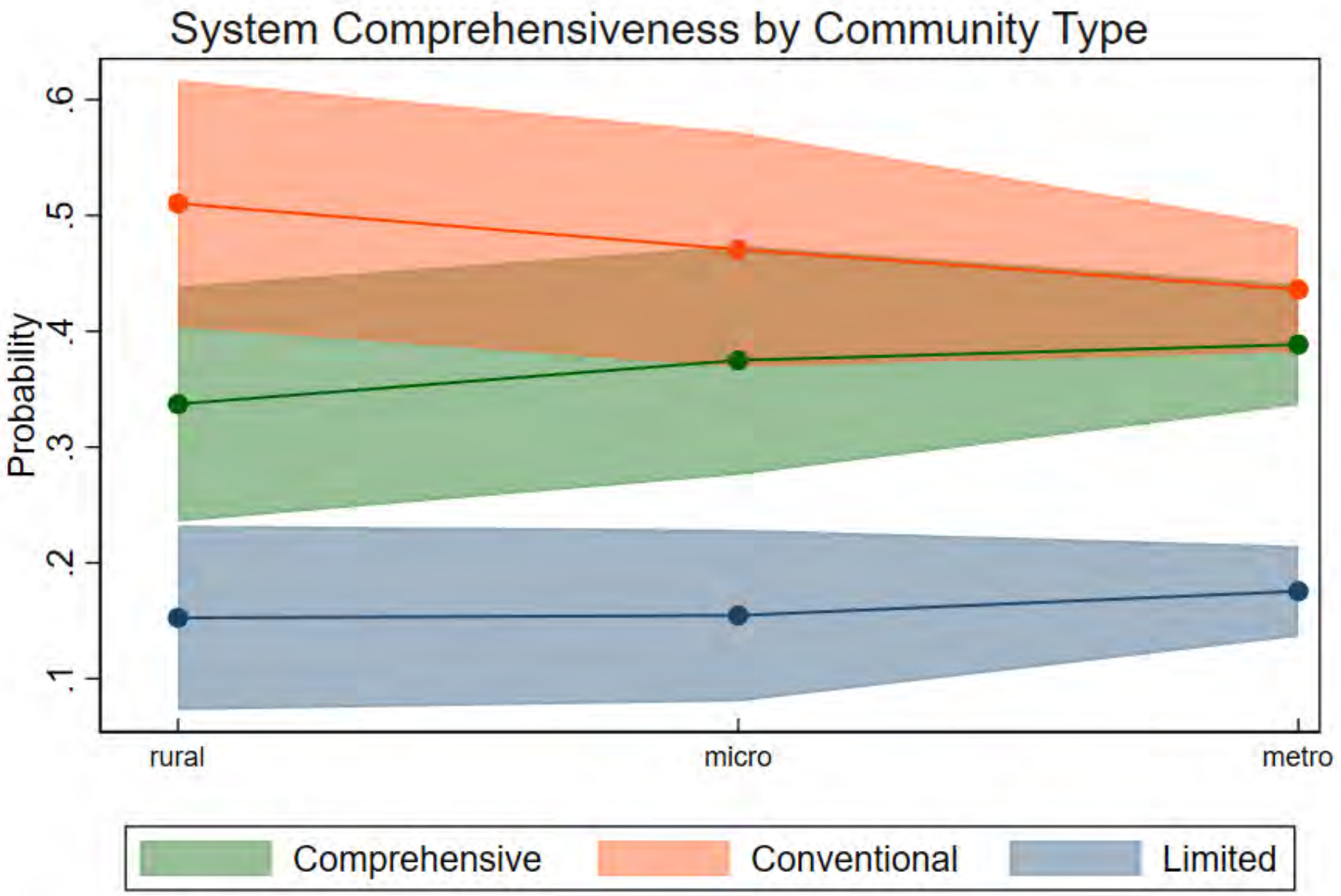
hospital beds per capita

primary care physicians per 100k

federally qualified health centers



based on bivariate specification


System Comprehensiveness by Community Type
Probability
.1
.2
.3
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rural
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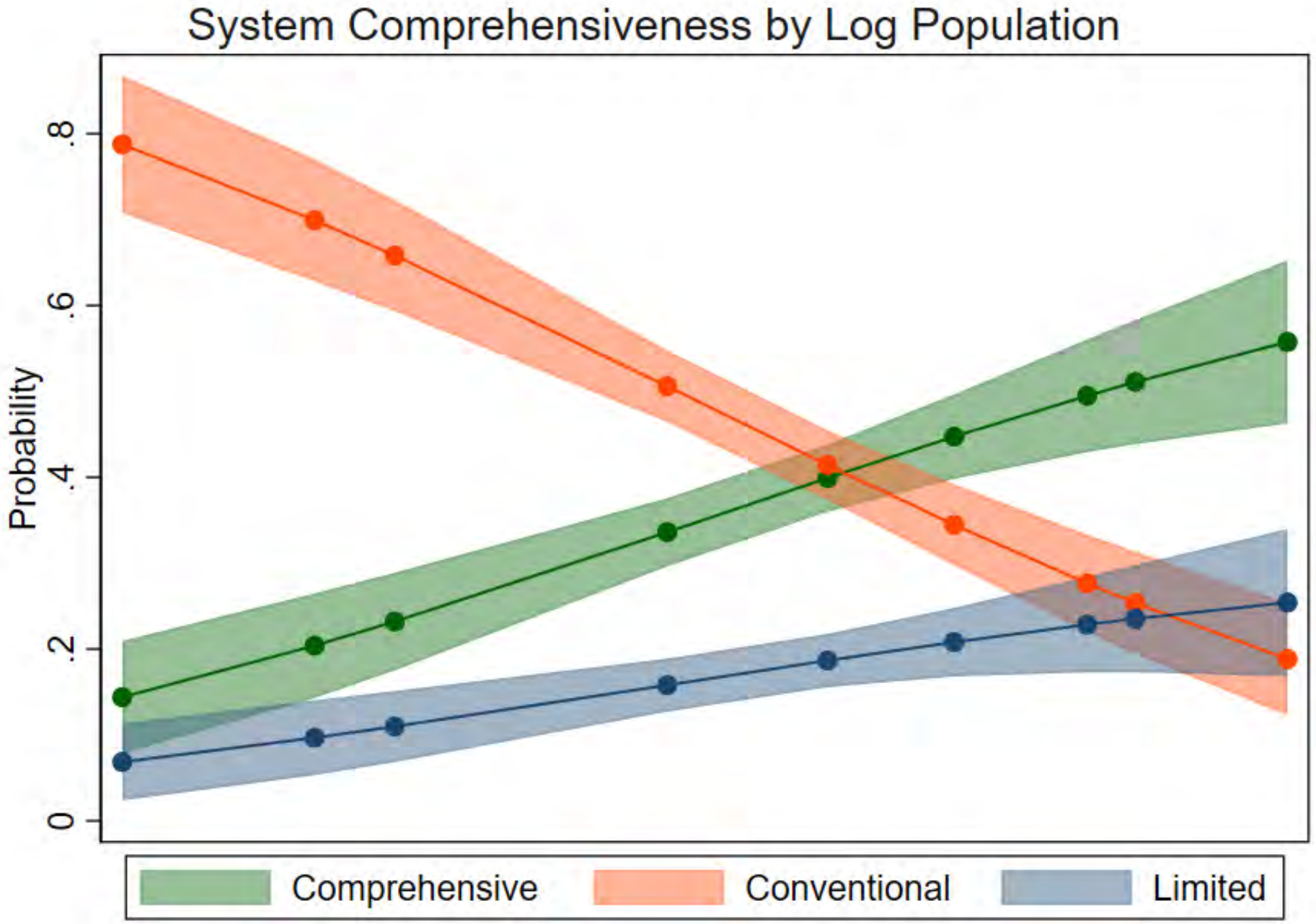
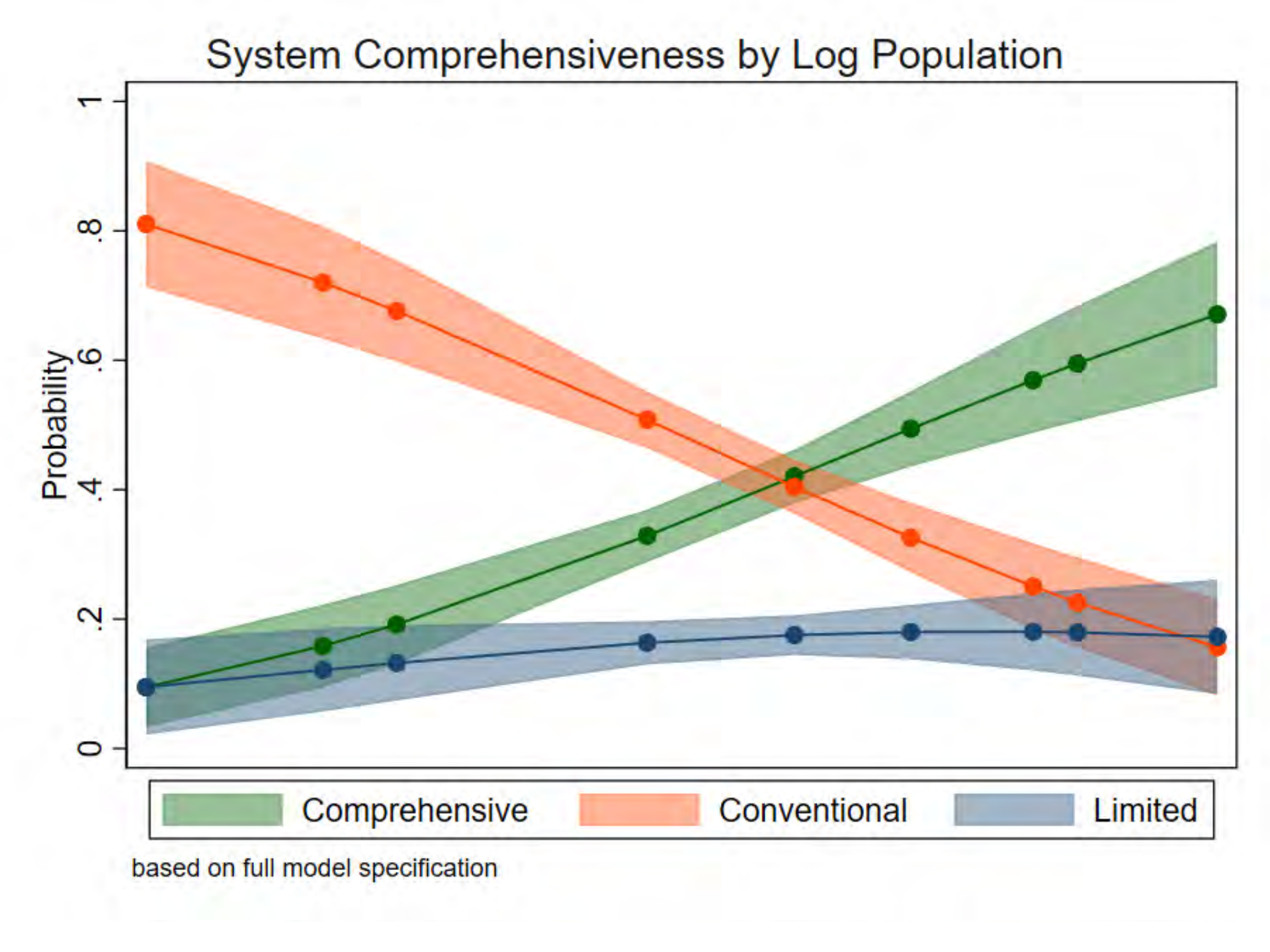
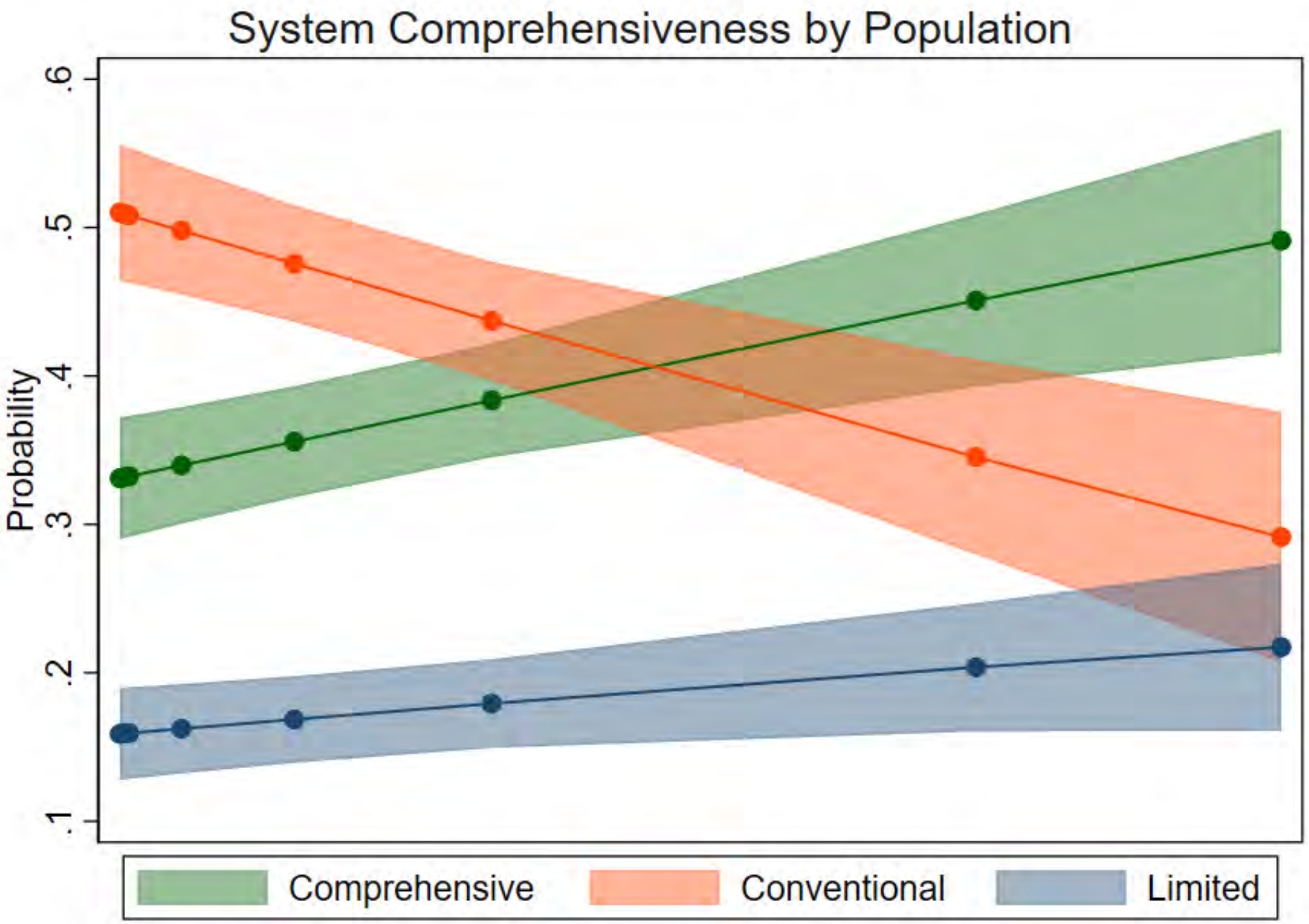
Limited
based on full model specification

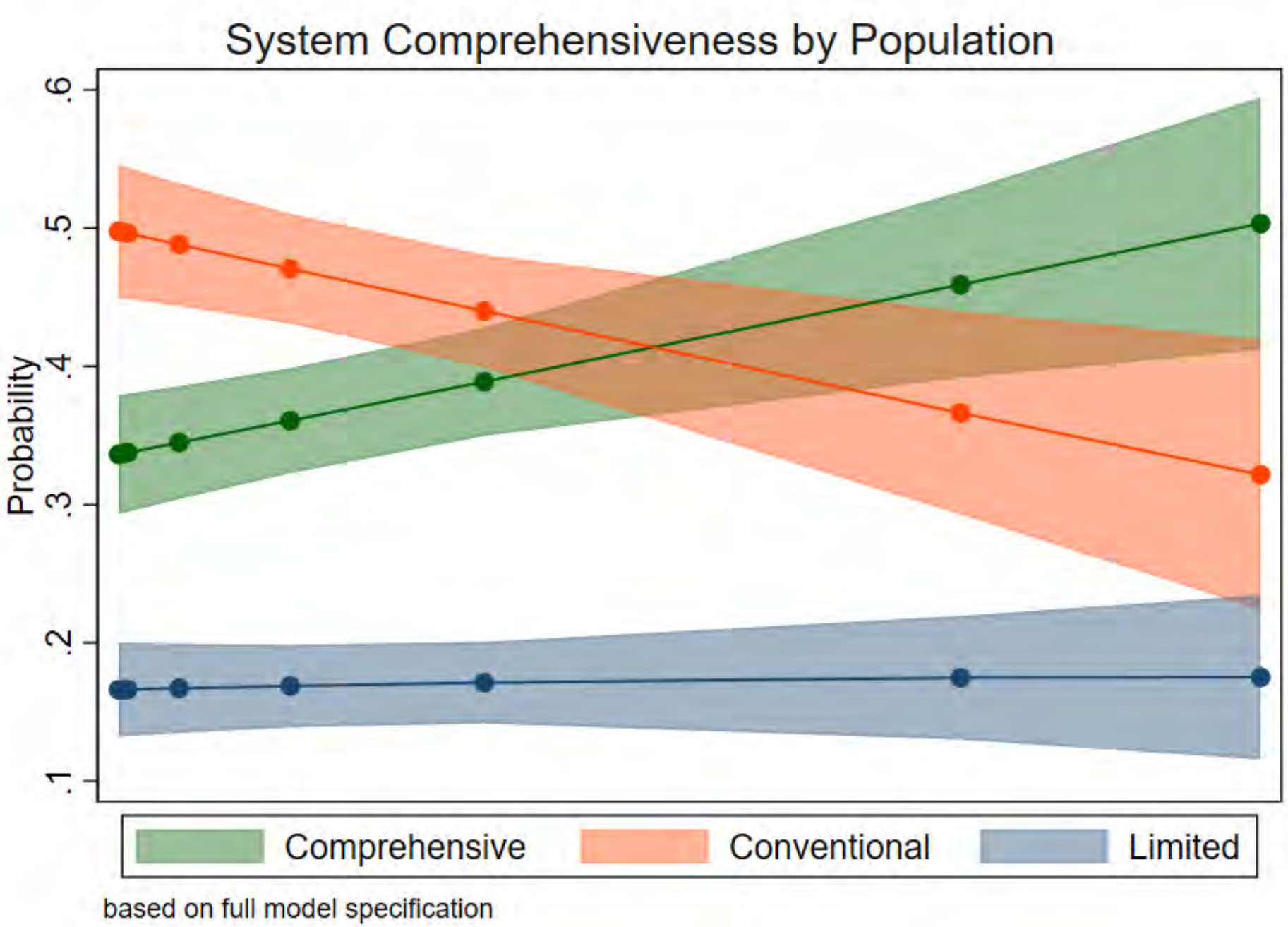


based on bivariate specification


System Comprehensiveness by Log Population
Probability
0
.2
.4
.6
.8
1
Comprehensive
Conventional
Limited
based on full model specification



based on bivariate specification


System Comprehensiveness by Population
Probability
.1
.2
.3
.4
.5
.6
Comprehensive
Conventional
Limited
based on full model specification

Summary

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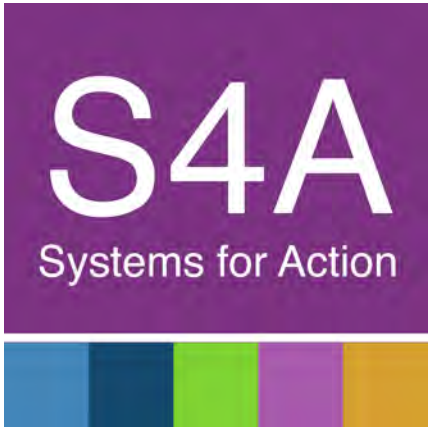
- Conventional systems appear to be more likely in smaller communities and comprehensive systems less so
- This effect is reasonably consistent across different measures of community size
- It is least consistent for the metro, micro, rural specification of community
- This effect is reasonably consistent despite the inclusion of a set of common controls
  - The three category version of community size is the least robust and differences become statistically insignificant when we include hospital characteristics like FQHC and hospital beds
  - Population and log population versions of size are barely affected by the inclusion of these variables

Thank You



www.systemsforaction.org

Systems for Action is a National Program Office of the Robert Wood Johnson Foundation and a collaborative effort of the Center for Public Health Systems and Services Research in the College of Public Health, and the Center for Poverty Research in the Gatton College of Business and Economics, administered by the University of Kentucky, Lexington, Ky.

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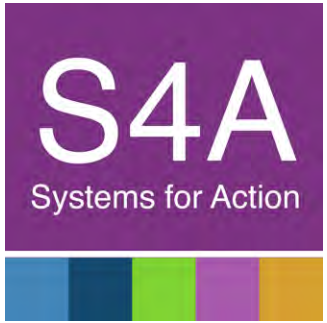
Questions?



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Upcoming Webinars

Archives

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

Upcoming

Wednesday, October 3, 2018, 12 p.m., ET

Systems for Action Individual Research Project

Testing a New Terminology System for Health and Social Services Integration

Miriam Laugesen, PhD, and Sara Abiola, PhD, JD, Columbia University Mailman School of Public Health

Wednesday, October 17, 2018, 12 p.m., ET

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TBA

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Wednesday, November 21, 2018, 12 p.m., ET

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TBA

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Acknowledgements

Systems for Action is a National Program Office of the Robert Wood Johnson Foundation and a collaborative effort of the Center for Public Health Systems and Services Research in the College of Public Health, and the Center for Poverty Research in the Gatton College of Business and Economics, administered by the University of Kentucky, Lexington, Ky.

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and

Gatton College of Business and Economics