Factors Affecting Spatial Differences in Health Outcomes

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INTRODUCTION

- The idea that “place” could be of importance to health has gained prominence from the 1980s and early 1990s
- Interest has increased steadily over time as many reports on geographic differences in health outcomes have recently emerged in epidemiology and public health journals.
- This idea of place has also aligned with an increasing interest in need for more heterogeneity in our measure of places.

INTRODUCTION

- In 2003, the US Census Bureau moved beyond the single metropolitan, non-metropolitan dichotomy to add a third definition, micropolitan, to incorporate small urban places inside larger swaths of rural hinterland[1]
- In more recent periods of time, the focus of studies around longevity has shifted slightly from the development of theory to a more empirical approach.

INTRODUCTION

- Chetty et al. (2016) estimated the level, time trend, and geographic variability in life expectancy as it related to income and to determine the factors related to small area variation and found;
  - ✓ higher income was associated with greater longevity
  - ✓ differences in life expectancy grew over time between 2001 and 2014.
  - ✓ there was a substantial variation, across local areas, in life expectancy.
  - ✓ geographic differences in life expectancy had significant correlations to health behaviors.

OBJECTIVE

The main objective of our research is to provide answers to the following questions.

- Do individual behavioral choice variables cause a disparity in life expectancy across the various CBSA county categories?
- Do state level and county level policies, as well as other social variables, have an effect on the differences in life expectancy across the various CBSA county categorizations?

THEORITICAL AND EMPIRICAL APPROACH

- life expectancy is a factor of;
  - ✓ an individual's choice factors[2,3]
  - ✓ the socioeconomic factors in the location the individual lives[4]

- Life expectancy can therefore be estimated as a function of the above factors.

$$LE = f\ (individual\ choice\ factors, social\ factors) \qquad \textbf{(1)}$$

THEORITICAL AND EMPIRICAL APPROACH

Variable Name	Expected Correlation with Longevity
Percentage smokers	Negative
Percentage Obese	Negative
Percentage Exercise	Positive
Social Capital	Positive
Percent Foreign born	Positive
Income Segregation	Negative
Medicare Dollar per enrollee	Negative
Unemployment rates	Negative
Preventive care index	Positive
Mean Household Income	Positive
Percentage change in population	Positive
Percentage change in labor force	Positive
Labor force participation	Negative

THEORITICAL AND EMPIRICAL APPROACH

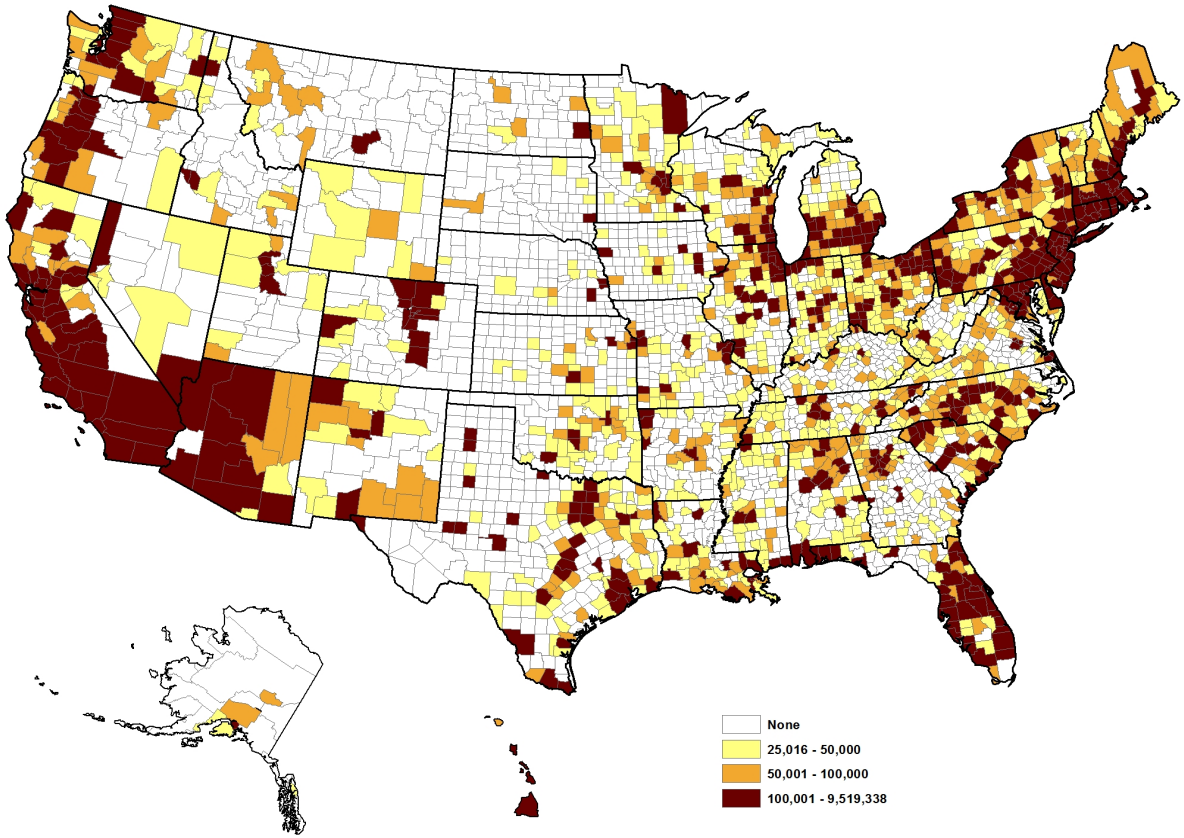
These variables were used transform equation 1 into the econometric model below.

$$LE_{county} = \beta_0 + \beta_1 PS + \beta_2 PO + \beta_3 PE + \beta_4 MDPE + \beta_5 InS + \beta_6 SSc + \beta_7 PFB +$$

$$\beta_8 UnE + \beta_9 HHI + \beta_{10} PcP + \beta_{11} PcLF + \beta_{12} LFP + \mu \quad \textbf{(2)}$$

DATA

Data for this research was obtained from the health inequality project website (www.healthinequality.org).



RESULTS

A base model was run to show the relationship between the correlates and life expectancy.

Variable Name	Life Expectancy
Percentage smokers	-0.0533***
Percentage Obese	-0.0248***
Percentage Exercise	0.0242***
Social Capital	0.239***
Percent Foreign born	0.0629***
Income Segregation	-0.0160**
Medicare Dollar per enrollee	-0.000161***
Unemployment rates	-0.0389***
Mean Household Income	2.50e-06***
Percentage change in population	-0.0104***
Percentage change in labor force	0.0147***
Labor force participation	-0.00481
Constant	84.59***

RESULTS

The effects of the correlates across the various urban hierarchy was also estimated using slope dummies. This showed that for the individual choice factors;

- the effects of smoking and obesity on life expectancy were less in large micropolitan counties compared to small and large metropolitan counties.
- exercising had less effect on life expectancy in large micropolitan counties than it did in large and small metropolitan areas.

RESULTS

For the socioeconomic variables on the other hand, there were no significant differences across the urban hierarchy. The effects of the correlates were almost the same across the various levels of rurality.

CONCLUSION

From the data analyzed in this paper;

- individual choice factors, smoking, obesity and exercise, do affect life expectancy a varying degrees across the rural-urban hierarchy.
- This makes it imperative for policy makers to formulate policies that specifically target levels of the urban hierarchy.
- we do not see socioeconomic effects on life expectancy to vary between metropolitan and micropolitan counties.
- This shows that the effects of state and federal socioeconomic policy effects do not directly cause any variations in life expectancy across the rural-urban hierarchy.

REFERENCES

[1] Cordes, S. M., & Fannin, J. M. (2015). Micropolitan America: A New and Critical Part of the Nation's Geography.

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THANK YOU!

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