Is Hinds County Really Worse than Madison or Rankin County?

A Spatial Equilibrium Approach to Ranking Quality of Life

Advancing MS Conference Presentation

by

Maury Granger
Jackson State University
Economist
Is Hinds County Really Worse than Madison or Rankin County MS?
Is Hinds County Really Worse than Madison or Rankin County MS?
Is Hinds County Really Worse than Madison or Rankin County MS?
Is Hinds County Really Worse than Madison or Rankin County MS?
Is Hinds County Really Worse than Madison or Rankin County MS?
Is Hinds County Really Worse than Madison or Rankin County MS?
Logic Behind the Ranking: Compensating Wage and Rent Model

Economic Behavior + Income → Neighborhood
Logic Behind the Ranking: Compensating Wage and Rent Model

Location Decisions

Production Cost

Local Amenities

Individual Utility
Logic Behind the Ranking: Compensating Wage and Rent Model
Logic Behind the Ranking: Compensating Wage and Rent Model

- Amenities
- Income
- Location Choice or Housing
It follows that:

\[ \text{Housing prices}^* = \beta_0 + \beta_1 \text{(income}^*) + \beta_2 \text{(local-amenities)} + \nu \]

However, we estimate:

\[ \text{Housing prices}^* = \beta_0 + \beta_1 \text{ income}^* + u \]

Here the “residual error term” equals:

\[ u = \beta_2 \text{ location-amenities} + \nu \]
From Microeconomic Theory to Our Ordinary-Least-Squares Model

- If $E[v]=0$, then the “residual error term” from an OLS regression of the model gives us an unbiased estimate of the unobserved location-specific amenities—a proxy for quality of life.

- $u = \beta_2 \text{location-amenities} + v$
U.S. Census Data 2010-2014 from the American Community are used.

Estimated median value of owner-occupied housing units [B25077]

Estimated median household income in the past 12 months (in 2014 inflation-adjusted dollars) [B19013]

Data are obtained from census blocks comprising the county
Interpretation of the “Residual Error Term” - a negative residual

- If the actual housing value is less than the predicted value then the negative residual implies that given a household’s income and location, the model over predicted the value of the housing that a family would purchase.
- Here a family may be consuming an undesirable amenity which in turn results in a downward adjustment in home values.
Interpretation of the “Residual Error Term” – a negative residual

- Alternatively, the negative residual approximates the opportunity cost or intangible penalty associated with living in a given census block/track.

- To wit this personifies a labor mobility problem, and could be related to demographic characteristics and/or labor force skill levels.
Interpretation of the “Residual Error Term” - a zero residual

- When the actual housing value is equal to the predicted value, a residual equaling zero implies that income explains housing values.
- In this case there would be no insight gained about amenities.
- By definition the mean value of the residuals will equal zero.
- The variance of the residuals speak to amenity disparities in a county.
Interpretation of the “Residual Error Term” - a positive residual

- If the actual housing value is greater than the predicted value then the positive residual implies that given a household’s income and location, the model under predicts the value of the housing that a family would purchase.

- Here the family may be consuming an amenity which in turn results in a upward adjustment in home values.
Interpretation of the “Residual Error Term” – a positive residual

- Alternatively, the positive residual approximates the value of the benefit of living in a given census block/track.

- To wit this personifies high labor mobility, and is related to demographic characteristics and/or labor force skill levels.
Concluding Remarks

- The spatial-equilibrium approach provides a novel, theoretically tenable and unbiased approach to measuring amenities and gauging quality-of-life in particular locations.
This research also introduces a policy tool that could be useful to elected officials and planners focused on economic development, infrastructure investments and workforce development.
Concluding Remarks

- Conceivably, this approach will improve our understanding of dynamitic economic conditions, changing business patterns, and demographic shifts.