

Impact of Highways on Economic Development

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Project Scope

- Assess the impacts of highway investments on counties in Appalachia
- Put findings in context of other studies linking highway investments and economic development in ARC

Project Objectives



- Economic development: Update Isserman and Rephann study, which established a link between ADHS investments and economic growth for 1969-1991.
- Transportation studies: Develop improved highway investment measures; what do improved measures say about transportation investments?

Appalachian Region

- 13 States
- 410 Counties
- 1/3 lived in poverty in 1965
- Cut in half by 1990
- Region was heavily dependent on industry and mining, diversified its economy to rely on service, retail, and government as well



Appalachian Regional Commission



- In 1964, President Johnson's commission on the region reported that isolation and lack of resources were hurting the area
- Road access was deemed inadequate
- Interstate highway system had largely bypassed the region due to topographical difficulty

Appalachian Regional Commission

- Building highways to allow access was believed to increase the area's potential for economic growth
- Cost of building highways was enormous and Federal money was needed
- Appalachian Development Highway System started in 1965
- It is still incomplete - 85% of 3,090 authorized miles have been constructed.

Difficulty in Measuring an Agency's Impact on a Region



- U.S. General Accounting Office's report on measuring economic development claims a "persuasive study" needs to:
 1. Show improvement in a given area
 2. Link program to economic changes
 3. Measure growth from others sources to isolate impact of the program on economic development
- "Linking a positive impact...is a substantial undertaking"

Isserman & Rephann Study

- "New Highways as Economic Development Tools"
- Done in 1995, measuring growth in region from 1965-1991
- Mostly concerned with post-construction effects as highway construction itself generates an initial boost to the county
- County categories: competitive, uncompetitive, adjacent, and urban spillover

Methodology



- “Quasi-experimental” method of matching counties with ADHS (highway) investment with ones without
- Each ARC county (treated) is compared to a “twin” county (untreated)
- Twins are chosen based on economic and spatial characteristics
- Pre-tested suitability of matched twins and found no significant statistical difference

Results



- ARC counties grew faster than twins in income and earnings; per capita income +17%
- Counties with ADHS grew significantly faster than their twins; per capita income +32%
- Explanatory power of their framework is low and “ARC program variables are almost never statistically significant”
- But ADHS variable not isolated

Study



- Update economic data from 1965-1991 to 1965-2000
- Improve measures of quality and timing of county-level highways based on survey of state DOTs
- Isolate ADHS and interstate highway investments

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Highway Variables



- State survey on ADHS segments in each county in ARC
- Detailed data on highway characteristics: number of lanes, access type, intersections, length, timing
- All 13 ARC states participated

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Results: Part I



- Reasonable agreement for first part of study between I&R and EDRG for 1965-1991
- “Highway variable” used in original study is still not statistically significant

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Results: Part II



- Break highway variable into two components “Interstate” and “ADHS”
- Presence of ADHS segment helps explain income growth in affected counties
- No evidence of influence on ADHS investments on earnings

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Results: Part III



- Refined ADHS variable to lane-miles relative to size of county
- Include investment type (new, widen, replace)
- Variable for lane miles of new highway is significant for income and earnings for 1965-2000

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Going Forward



- Methodological implications are critical: characteristics of highway investments matter
- Non-survey approaches to highway measurement?
- What are linkages between highways, jobs, residential patterns?

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