

Natural Resource Dependence and Rural American Economic Prosperity from 2000 to 2015

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Primary Research Questions

- What was the relationship between natural resource development and economic well-being in rural America from 2000 to 2015?
- Natural resource development: any form of economic activity relying on the local natural environment
 - Extractive – oil, gas, timber, mining
 - Non-extractive – tourism, real estate, outdoor recreation
- Research has long found negative outcomes from extractive activities
 - Results are more mixed on non-extractive



Primary Research Questions

- Hypothesis 1 – There will be a similar relationship between natural resource development and economic prosperity for extractive and non-extractive development
- Hypothesis 2 – The relationships will be non-linear, such that low levels of specialization result in increases in economic prosperity, but high levels of specialization will result in diminishing returns and negative outcomes.
 - Formation of dependency/over-specialization



Data & Methodology

- County-level dataset from five sources:
 - US Decennial Census
 - American Community Survey
 - Bureau of Economic Analysis Local Area Personal Income and Employment data
 - Wholedata: Unsuppressed County Business Patterns via Upjohn
 - USDA ERS Rural-urban Continuum Codes
 - Divide by adjacency to metro areas
- Data for 2000, 2010, and 2015 (2013-17)



Data & Methodology

- Outcome variables:
 - Poverty rate
 - Per capita income to residents
 - Gini index
- Time-variant controls:
 - Total population
 - Share over 65
 - Share non-Latino/a Black
 - Share Latino/a
- Independent Variables of Interest:
 - Extractive employment share
 - Forestry and logging
 - Fishing, hunting, and trapping
 - Support activities for forestry
 - Mining, quarrying, oil and gas
 - Non-extractive employment share
 - Accommodation and food services
 - Arts, entertainment, and recreation
 - Real estate rental and leasing
 - Scenic sightseeing and transportation



Data & Methodology

$$\begin{aligned} y_{it} = & \text{metro} * \left[\beta_1 \text{ex}_{it} + \beta_2 \text{ex}_{it}^2 \right] \\ & + \text{metro} * \left[\beta_3 \text{nx}_{it} + \beta_4 \text{nx}_{it}^2 \right] + W\theta_1 \text{ex}_{it} \\ & + W\theta_2 \text{ex}_{it}^2 + W\theta_3 \text{nx}_{it} + W\theta_4 \text{nx}_{it}^2 + \beta_7 X_{it} \\ & + W\theta_7 X_{it} + u_{it} u_{it} = \mu_i + c_t + \varepsilon_{it} \end{aligned} \tag{1}$$



Results

- Results were nuanced, dependent on outcome, and varied by remote or adjacent nonmetropolitan counties
- In brief...
 - Extractive development generally followed the expected patterns
 - Beneficial relationships at low levels, diminishing or negative returns at high levels
 - Non-extractive development did not
 - Negative relationship with per capita income
 - Positive relationship with poverty
 - No relationship with Gini



Policy

- Extractive and non-extractive did not have similar relationships
- Results show extractive leads to overspecialization and non-extractive is associated with negative outcomes across its range
 - Non-extractive was never associated with gains in economic prosperity
- As rural America continues transitioning away from extractive activities, we must be careful how much we rely on service-sector non-extractive natural resource development
 - The jobs are not comparable in terms of local benefits (e.g. bad jobs)
- We need to carefully think about what kind of development we support, and how we support it
 - The quality of jobs is just as important as the quantity



COVID-19

- COVID-19 had an interesting relationship with rural America
 - Rural areas had fewer economic hardships related to closures, remote work, missing work, etc.
 - But rural areas also have had greater relative mortality because of the lack of closures
- Many feared non-extractive dependent areas would be negatively impacted
 - And they likely were, but not in the extreme way we predicted
 - In later phases, many saw record-setting visitation
 - Further, amenity-rich areas saw large increases in in-migration
 - Likely leading to expansion of the non-extractive sector
 - Rise in remote work and many retirements
 - Given my results, this expansion probably did not/will not result in positive economic outcomes for the people already living there
 - Increases in inequality may be masked by rural gentrification effects



Thank you

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