ECONOMIC PERFORMANCE and DIVERSITY

INDIANA DURING THE GREAT RECESSION OF 2008

Photographer: White, John H, 1945-
WHAT IS THE ROLE OF ECONOMIC DIVERSITY IN COUNTIES’ RESILIENCE?
KEY CONCEPTS
Resilience

It is a region’s ability “to absorb changes of state variables, driving variables, and parameters, and still persist”.

(Foster, 2007)

Drop

Number of layoffs or enterprises that went into bankruptcy

Rebound

New jobs or enterprises created after the bottom of the recession

https://www.dreamstime.com
Diversity

Simply put, it is the number of different economic activities in a region.

“A system is more diverse than another one if it comprises a higher number of different species”

(Baumgartner, 2005)
Economic Resilience and Diversity in Indiana during 2002-2016

METHODS
We built three different variables: Drop, Rebound and Diversity. Drop and Rebound are used as a proxy for Resilience.

<table>
<thead>
<tr>
<th>Resilience</th>
<th>Diversity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drop</strong></td>
<td><strong>Diversity</strong></td>
</tr>
<tr>
<td>( D_j = \text{Jobs}_{2007} - \text{Jobs}_t )</td>
<td>Index of Hirschman and Herfindahl</td>
</tr>
<tr>
<td><strong>Rebound</strong></td>
<td>( HHI_j = \sum_{i=1}^{n} S_i^2 )</td>
</tr>
<tr>
<td>( R_j = \text{Jobs}_{t+1} - \text{Jobs}_t )</td>
<td>Where ( S_i ) is the percent of jobs or enterprises of the sector ( i - \text{th} ) in the county ( j - \text{th} ).</td>
</tr>
</tbody>
</table>

\[ \text{Resilience}_j = \frac{\text{ratio}_j - \text{ave(ratio)}}{\text{stdev(ratio)}} \]

\[ \text{ratio} = -\ln\left(\frac{\text{Rebound}_j - \min(\text{Rebound}) + s}{\text{Drop}_j - \min(\text{Drop}) + s}\right) \]

Higher the value for HHI less the diversity.
Economic Resilience and Diversity in Indiana during 2002-2016

MAIN FACTS
ECONOMIC COMPOSITION OF INDIANA

Manufacturing was around 9 % of the total amount of jobs in U.S. whereas for Indiana this share was around 17 %.

The former sector had in U.S. one of the lowest rates of growth in employees during and before the recession.
For the year 2009, 82 of the 92 counties in Indiana had a less amount of jobs than in 2007.

In 2016 some counties had not recovered for the Great Recession, such as Fountaine and Greene.
OUTCOMES
DOES ECONOMIC ABILITIES TO RECOVER OR ABSORB AN ECONOMIC CRISIS HAVE SPILLOVER EFFECTS?

- There is neither spillover effects for Drop nor Rebound

Policies that aim to increase resilience among counties need to be addressed separately.

MANUFACTURING AND CONSTRUCTION ARE EXTREMELY WEAK DURING THE RECESSION
The Great Recession of 2008 stopped the diversification among industrial sectors in Indiana.

Diversity does not always mean a better economic performance.

Manufacturing is driving the main changes for both Non-Core and Micropolitan areas.
ECONOMETRIC SPATIAL LAG MODEL

\[ Resilience = \beta_0 + \gamma WY + \beta_1 Age_{2534} + \beta_2 PCHHI + \beta_3 AEarnings + \beta_4 Area + \beta_5 Manuf. Index \]

<table>
<thead>
<tr>
<th>Variables</th>
<th>Resilience</th>
<th>Drop</th>
<th>Rebound</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Std.Error</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Spatial Lag</td>
<td>-0.08</td>
<td>0.16</td>
<td>-0.10</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.12</td>
<td>0.86</td>
<td>-1476.50</td>
</tr>
<tr>
<td>PCHHI</td>
<td>(-0.01)</td>
<td>0.03</td>
<td>(-238.75**)</td>
</tr>
<tr>
<td>Manufacturing Index</td>
<td>0.04</td>
<td>0.25</td>
<td>764.94</td>
</tr>
<tr>
<td>Age 25-34</td>
<td>0</td>
<td>0</td>
<td>-0.21</td>
</tr>
<tr>
<td>Average Earnings</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Area</td>
<td>-8.93</td>
<td>4.89</td>
<td>15399.30</td>
</tr>
<tr>
<td>R squared</td>
<td>0.04</td>
<td></td>
<td>0.64</td>
</tr>
</tbody>
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Note: Regressions were computed by using Geoda. Significance at (0.01***), at (0.05**), (0.1*), PCHHI is the first component made up of HHI over time, it captures 95% of the variance.
Policies that aim to increase resilience among counties need to be multilevel and addressed locally.

Diversity does not always mean a better economic performance.

Policies during the recession need to focus specially in Manufacturing in order to minimize layoffs.

Diversity does not play a role in counties' degree of Resilience as a whole. Specifically, in the ability to rebound of a crisis.

The Greater the degree of resilience of a given county, the less amount of layoffs during a recession.

Reference : The basics you can find anywhere. 5 Steps To Successful Storytelling Published on April 5, 2014 Featured in: Marketing & Advertising