A Look at Strategic Sectors in Grant County

Presentation to the Grant County EDC
9.12.2013
Two paths of economic development – Responsive & Strategic

• Responsive
  – Helping to land leads that come a county’s way
  – Sometimes a new firm is the product of generally “selling” the county
  – Sometimes an opportunity that walks in the door & needs accommodating

• Strategic
  – Based on a discussion (& some analysis) of what kind of companies a county would like to see join the local economy
  – Sometimes based on aspiration
  – Our research falls into this category, but is limited to only those sectors that already have a presence in Grant County
  – I.e., not “aspirational”
Perennial question of ED – how to develop a strategy of recruitment & retention

- Build on input strengths
  - Labor – quantity & quality
  - Power
  - Location
  - Taxes

- Tout quality of life
  - Natural amenities
  - Culture
  - Schools

- More formal – “cluster analysis”
Clusters – once over lightly

• Definition – the relative share of one industry in a local economy to the relative of the same industry in the U.S.

\[
LQ = \frac{\text{# of workers in industry } z \text{ in Grant County}}{\text{all workers in Grant County}} \times \frac{\text{# of workers in industry } z \text{ in the U.S.}}{\text{all workers in the U.S.}}
\]

– If \( LQ > 1.0 \), a cluster exists

• Assumption – if a local economy has a concentration in one or several industries, it should be exploited (built upon)

• WA CTED, now Commerce, did this for many of the counties of the state in prior decade
U.S. Bureau of Labor Statistics results for Grant County in 2012: 13 clusters

Grant County sectors with LQ values > 1.0:

- Crop production: 59.15
- Ag support activities: 1.17
- Animal production
- Food manufacturing
- Warehousing & storage
- Textile product mills
- Heavy construction
- Beverage manufacturing
- Building materials & garden supply stores
- Chemical manufacturing
- Gasoline stations
- Wholesalers of nondurables
- Truck transportation
Comments to Grant County Clusters

- Not too many – 13 out of 92 sectors examined
  - Spokane – 27 out of 92 sectors
  - But typical of smaller counties

- Striking about Grant County – the size of the location quotients (LQs)
  - 6 of 13 > 2.0
    - Two, above 10.0
  - In contrast, Spokane shows only 11% > 2.0
  - In other words, a high degree of specialization
Problems with Cluster approach

- The procedure rests only on the number of workers

- Other dimensions to a local economy
  - Other inputs
    - Capital (finance)
    - Land
  - Other output measures of an economy
    - Income going to labor
    - “Gross Product” (metro, state or national)

- Does not allow for linkages between local sectors
Our project – exploit the features of input-output models

• Typically, I/O models used to answer the question of “economic impact,” or generally how big a given sector is

• Advantage – a detailed description of the interactions in an economy between:
  – All sectors
  – Consumers and businesses

• Available at the county level, so can examine the “ripple” effects of an increase of, say $1M, in sales in one particular sector throughout the local economy.
Input-output – the essentials

- Essentially, a matrix that allows the output of one industry to be the input of another industry, & allows households to be buyers of all industries as well as sellers (of their labor) to all industries.

- The I/O model allows us to measure how much larger the final result will be from the initial one.

- Size of the final effect depends on the amount of purchases from outside the economy over all the rounds of spending.
An input-output model uses or calculates:

- **Direct effect** = economic activity either given or implied by the 1st round spending ($1M in new sales)

- **Indirect effect** = how the first round spending by tree fruit growers is augmented by purchases from other businesses

- **Induced effect** = how the income initially earned by labor in the tree fruit industry is spent and re-spent in the economy

- **Total** = Direct + Indirect + Induced effects

- **Multiplier** = Total / Direct
In contrast to Cluster analysis, input-output approach gives 5 measures of an industry’s effect

- **Employment** = jobs, full, part time, self-employed, or contract

- **Income** = wages, salaries, benefits

- **Output** = value of production over all stages

- **Taxes**

- **Value-added**
Method of study – imagine the EDC becomes a czar

• Question: which sectors of Grant County will give the biggest “bang for the buck” of a $1M ↑ in sales. I.e. look at all sectors

• Two outcome measures
  – Jobs
  – Value Added (VA)
    • Highly correlated with labor income & output
    • The measure used to compute “gross product,” whether national, state or metro

• Use multipliers to rank top 20 industries in County ⇔ doesn’t penalize small sectors

• Hypothesis: a different ranking between the Jobs & VA
Our application of Input-output model to look at all sectors – first some culling

• Two rules:
  – Considered only sectors with > 5 employees
  – Net exports > 0
    • Model tracks both sales out of counties & sales in the same industry to the county
    • Strategically, want to consider only industries that, on balance, are exporting, not importing

• I/O model description of Grant County
  – 162 sectors with some activity, out of a possible 426
  – Of those, 144 had more than 5 in the total workforce
  – Of those, 49 had positive exports
Results for Value Added criterion

Ranking of Top 20 industries in Grant County, by Value Added

- Support activities for agriculture
- Warehousing and storage
- Nursery & floriculture production
- Other amusement & recreation industries
- Support activities for transportation; scenic and sightseeing...
- Fruit farming
- Vegetable and melon farming
- Animal production except cattle, poultry & eggs
- Ground or treated mineral & earth manufacturing
- Hotels and motels
- Other accommodations
- Cut stone and stone product manufacturing
- Private colleges & professional schools
- Other aircraft parts and auxiliary equipment manufacturing
- Oilseed farming
- Machine shops
- Dairy cattle and milk production
- Ornamental & architectural metal products manufacturing
- Metal cutting & forming machine tool manufacturing
- Plate work & fabricated structural product mfg

Value Added Multipliers

0.000 0.200 0.400 0.600 0.800 1.000 1.200

Value Added Multipliers
Summarizing results from Value Added criterion

- **Breakdown by super-sectors**
  - Agriculture: 7
  - Manufacturing: 7
  - Tourism: 3
  - Education: 1
  - Transportation: 1
  - Warehousing & storage: 1

- **Average annual wage of 12 of 20 sectors > average annual wage for the entire County ($30,357 in 2011)**
Results for the Jobs criterion

Ranking of Top 20 Industries in Grant County, by Labor Impacts

- Support activities for agriculture
- Grain farming
- Other amusement & recreation industries
- Private colleges & professional schools
- Other accommodations
- Oilseed farming
- Support activities for transportation; scenic & sightseeing...
- Animal production except cattle, poultry & eggs
- Warehousing & storage
- Hotels and motels
- Cut stone & stone product manufacturing
- Cattle ranching & farming
- Forest products & timber tract production
- Machine shops
- Animal (except poultry) slaughtering, rendering & processing
- Other concrete product manufacturing
- Metal cutting & forming machine tool manufacturing
- Engineered wood member & truss manufacturing
- Vegetable & melon farming
- Nursery & floriculture production

Employment Multipliers (additional jobs)
Summarizing results for Jobs criterion

• Breakdown by super-sectors
  – Agriculture: 7
  – Ag manufacturing: 1
  – Manufacturing: 5
  – Tourism: 3
  – Education: 1
  – Transportation: 1
  – Forestry: 1
  – Warehousing: 1

• Average annual wage of 8 of 20 sectors > average annual wage for the entire County ($30,357 in 2011)
Do “sweet spots” exist?

- Jobs
- Value Added
- Both
<table>
<thead>
<tr>
<th>Top Sector only for Labor Impacts</th>
<th>Shared Top Sectors</th>
<th>Top Sector only for Value Added Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain farming</td>
<td>Support activities for agriculture</td>
<td>Fruit farming</td>
</tr>
<tr>
<td></td>
<td>Warehousing &amp; storage</td>
<td></td>
</tr>
<tr>
<td>Cattle ranching &amp; farming</td>
<td>Nursery &amp; floriculture production</td>
<td>Ground or treated mineral &amp; earth manufacturing</td>
</tr>
<tr>
<td></td>
<td>“Other” recreation industries</td>
<td></td>
</tr>
<tr>
<td>Forest products timber tracts production</td>
<td>Support activities for transportation</td>
<td>Other aircraft parts &amp; auxiliary equipment manufacturing</td>
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An elevated view – common super sectors between the Jobs & Value Added criteria

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<tr>
<th>Super Sector</th>
<th>Number of sectors in common</th>
<th>Number of sectors that are separate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Forestry</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Agricultural manufacturing</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>All other manufacturing</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Wholesale, warehousing &amp; storage</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Transportation</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Tourism</td>
<td>3</td>
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Compare to cluster results – only about 6 sectors are shared

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Caveats

- Surprise entrants, not necessarily based on existing industries, could happen -- BMW plant; new pharmaceuticals plant

- Assumes that every sector can easily expand output by $1M
  - Easy for some sectors; not so perhaps for the very smallest

- Does not look at the demand for these products – simply assumes that every sector on the final list of 20 could experience an increase

- Some of the top sectors are largely inputs to others => would not develop a strategy around them
On balance......

- Scenario analysis; not a forecast

- I/O approach offers a full look at Grant County economy & is based on “what is”

- Results differ from cluster analysis

- There are trade-offs between a strategy based on jobs on one based on enlarging the size of the county economy

- Perhaps some surprises about particular industries?
Thank You!

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