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 Douglas 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
  – Broadband

• 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.

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

- 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

- Crop production
- Ag support activities
- Amusements, gambling & recreation
- General merchandise stores
- Wholesalers of non-durable goods
- Furnishings & home furnishings
- Food & beverage stores
- Gasoline stations
- Motor vehicles & parts dealers
- Nursing & residential care facilities
Comments to Douglas County Clusters

• Not too many – 10 out of 92 sectors examined
  – Spokane – 27
  – But typical of smaller counties

• Striking about Douglas County – the size of the location quotients (LQs)
  – 4 of 10 > 2.0
    • One over 60.0!
  – 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
  - Income going to labor
  - “Gross Product” (metro, state or national)
  - Exports

- 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**
Question: which sectors of Douglas County 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 15 industries ↔ doesn’t penalize small sectors
Hypothesis: different ranking for Jobs vs. Value Added
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 Douglas County
  - 122 sectors with some activity, out of a possible 426
  - Of those, 101 had more than 5 in the total workforce
  - Of those, 32 had positive exports
Value Added results of an additional $1M in sales

Top 15 Sectors in Douglas County by Value Added

- Nursery & floriculture production
- Dental laboratories manufacturing
- Management of companies & enterprises
- Fruit farming
- Animal production, except cattle & poultry & eggs
- Wood container and pallet manufacturing
- Oilseed farming
- Other concrete product manufacturing
- Sporting & athletic goods manufacturing
- Transport by air
- Grain farming
- All other crop farming
- Showcase, partition, shelving & locker manufacturing
- Dairy cattle & milk production
- Watch, clock & other measuring & controlling device manufacturing
Summarizing results from Value Added criterion

• Breakdown by super-sectors
  – Agriculture: 7
  – Manufacturing: 6
  – Transportation: 1
  – Holding companies 1

• Size of top sectors – mostly small (county average = 97)
  – Only 3 > 100 employees
  – 7 sectors w/ < 20 employees

• Average annual wage & benefits: 11 > County average
Jobs results of an additional $1M in sales

Top 15 Sectors in Douglas County by Jobs Impact

- Grain farming
- Oilseed farming
- Animal production, except cattle & poultry and eggs
- Dental laboratories manufacturing
- Cattle ranching & farming
- Nursery & floriculture production
- All other crop farming
- Fruit farming
- Dairy cattle and & production
- Wood container and pallet manufacturing
- Management of companies & enterprises
- Other concrete product manufacturing
- Ornamental & architectural metal products manufacturing
- Showcase, partition, shelving & locker manufacturing
- Sporting and athletic goods manufacturing
Summarizing results for Jobs criterion

• Breakdown by super-sectors
  – Agriculture: 8
  – Manufacturing: 6
  – Holding companies 1

• Caveat: in ag jobs – lots of part-time work

• Size of sectors – largely small; similar results to Value Added

• Average annual pay & benefits: 10 sectors paying > average
Do “sweet spots” exist?

- Jobs
- Value Added
- Both
Yes...very much so

<table>
<thead>
<tr>
<th>Top Sector for Labor Impacts Only</th>
<th>Shared Top Sectors</th>
<th>Top Sector for Value Added Impacts Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ornamental &amp; architectural metal products manufacturing</td>
<td>Nursery &amp; floriculture production</td>
<td>Transport by air</td>
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<td>Cattle ranching</td>
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</table>
An elevated view – common super sectors between the Jobs & Value Added criteria

<table>
<thead>
<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>7</td>
<td>1</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Management of companies</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Transportation</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
Caveats

- Surprise entrants, not necessarily based on existing industries, could happen

- 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 32 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 comprehensive look at Douglas County economy & is based on “what is”

- Results differ from cluster analysis

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

- Perhaps some surprises about particular industries?
Thank You!

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