QWI and Shift-Share Analysis: Tapping a Powerful Resource

*originally presented at the 2013 LED Partnership Workshop
June 12, 2013
Shift – Share Analysis

- Looks at the growth or decline over time for a specific industry or industrial group and determines if that change is coming from.
  - The study area’s share of national (or regional) growth (The Larger Economy – the change due to the patterns that impact the larger geography economy).
  - The mix change in activities - Local Specific Effect – This is the change due to the local mix of the economy on the measure.
  - And the shift change of activities toward the study area - the Local Industrial Change.
- Note: These changes add to the total change.
Over Time?

- Shift-Share requires two point in time
- Same quarter - different year
  - Enables point-to-point comparisons
- As an alternative, you can use moving average
  - Eliminates possible seasonal variation
  - Limits the potential of outliers
What Can I Look at?

The Eight Quarterly Workforce Indicators

• Beginning of Quarter Employment Total number of workers who were employed by the same employer in both the current and previous quarter
• The difference between current and previous employment at each business
• The number of new jobs that are created by either new area businesses or the expansion of employment by existing firms.
• Total number of accessions that were also not employed by that employer during the previous four quarters.
• Total number of workers who were employed by a business in the current quarter, but not in the subsequent quarter.
• Turnover Rate = \( (1/2) \times (\text{full-quarter accessions} + \text{full-quarter separations}) / \text{employment stable jobs} \)
• Total quarterly earnings of all full-quarter employees divided by the number of full-quarter employees, divided by 3.
• Total quarterly earnings of all full-quarter new hires divided by the number of full-quarter new hires, divided by 3.
What do I need to start?

You need to identify the following

– The QWI of interest
– The industry
– Specific demographic of interest

*In addition,*

– The time periods to compare
  • Note: Data is not seasonally adjusted
– Select the geographic areas (county level and higher)
Tremendous Flexibility

• You could select multiple counties to create a new area
  – Not bound by physical proximity
• Add or delete counties to a predefined area (workforce board or MSA’s)
What can I do with this?

Determine if changes in Employment, Turnover, Separations, Wages are due to
• The state
• Local economy
• The local industry

For different age groups, education and race/ethnicity by sex
Answering What Questions?

- Who is filling what jobs?
- What industries are biggest employers?
- What industries employ the largest numbers of particular types of worker?
- Which industries are expanding/contracting employment?
- What industries are creating the most jobs?
- What industries are hiring the most workers?
- Which industries are hiring older workers?

By sex, age, race and education
Anything Else?

- Which industries are hiring young workers?
- What geographic areas are doing the most hiring?
- What workers are leaving jobs?
- What industries are workers leaving?
  - 1. What is the turnover rate in the workforce?
  - 2. What proportion of workers are new?
- What are the average earnings of core employees?
- What are new hires earning?

*By age groups, by sex, by industry, education and race*

All of this without being concerned with confidentiality!
Industrial Sectors/Clusters

• You could select a group of industries or other interested subgroups
• It is possible to report both the industries and the aggregate
• Can share the data and the analysis
  – does not contain confidential information
Implications

- Moves us from being a vendor to a partner

By

- giving our partners tools to understand their economic trends.

And,

- enabling those who want to combine or compare various categories captured with QWIs.
In our Partners Hands

• Empowers local users to combine subsets of data to fit their needs.
• Creates the point of starting analysis that businesses and policy makers can use
• Allows LMI producers to assist our partners as they review policies and prepare plans they can use.
• Customize reports and prepare data for additional analysis
• Moves the discussion from what data is available to what can you me tell about…
Advantages

• Employment data is readily available
  – No issues with confidentiality
  – Detailed information

• Eight measures
  – New Hires, Employment, Average Wage, Separations, Turnover, Average Wages for New Hires, Job Created and Net Job Change
    » By Age, Sex, Race, Education and Industry by County

Quarterly data from 1990 to most recent available
  – (2013 1st quarter now available)
Questions:
• How has the rate of separations for those aged 25 to 34 changed in Milwaukee County from 2007 to 2012. How does that compare to the working population and how does this compare to the state?
Wisconsin

Counties: 72, Metro/Micropolitan Areas: 29, Workforce Investment Areas: 11

Geography Type

States

Counties

Micro/Metropolitan Areas

Workforce Investment Areas

Areas

Search:

Check All | Check None | Invert Selection

- 55 Wisconsin
- 55550015 015 Milwaukee WDA
- 55550030 030 Southeast WDA
- 55550040 040 Northwest WDA
- 55550045 045 Washington-Ozaukee-Waukesha WDA
- 55550065 065 West Central WDA
- 55550085 085 Western WDA
- 55560090 090 Fox Valley WDA
- 55560095 095 Bay Area WDA
- 55560100 100 North Central WDA
- 55560105 105 South Central WDA
- 55560110 110 Southwest WDA
<table>
<thead>
<tr>
<th>Industry Detail Level</th>
<th>Firm Ownership</th>
<th>Firm Age</th>
<th>Firm Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAICS Sectors</td>
<td>All</td>
<td>All Firm Ages</td>
<td>All Firm Sizes</td>
</tr>
<tr>
<td>NAICS 3-digit Subsectors</td>
<td></td>
<td>0-1 Years</td>
<td>0-18 Employees</td>
</tr>
<tr>
<td>NAICS 4-dgt Industries</td>
<td></td>
<td>2-3 Years</td>
<td>20-49 Employees</td>
</tr>
</tbody>
</table>

**Industries**

- 00 All NAICS Sectors
- 11 Agriculture, Forestry, Fishing and Hunting
- 21 Mining, Quarrying, and Oil and Gas Extraction
- 22 Utilities
- 23 Construction
- 31-33 Manufacturing
- 42 Wholesale Trade
- 44-45 Retail Trade
- 48-49 Transportation and Warehousing
- 51 Information
- 52 Finance and Insurance
- 53 Real Estate and Rental and Leasing
- 54 Professional, Scientific, and Technical Services
- 55 Management of Companies and Enterprises
- 56 Administrative and Support and Waste Management and Remediation Services
- 61 Educational Services
- 62 Health Care and Social Assistance
- 71 Arts, Entertainment, and Recreation
- 72 Accommodation and Food Services
- 81 Other Services (except Public Administration)
- 92 Public Administration

**Click to select 53 Real Estate and Rental and Leasing**
LEHD State of Wisconsin County Reports - Quarterly Workforce Indicators

Select Criteria below. A new report will be created below as selections change.

Year: 2012
Quarter: Q1
County: Milwaukee
Sex: Male and Females
Age Group: All (1-5)

<table>
<thead>
<tr>
<th>QWI Quick Facts</th>
<th>Milwaukee (Q1)</th>
<th>Milwaukee (Avg. Selected + 3 Months)</th>
<th>Wisconsin (Q1)</th>
<th>Wisconsin (Avg. Selected + 3 Months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employment</td>
<td>475,560</td>
<td>435,455</td>
<td>2,593,704</td>
<td>2,633,436</td>
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<tr>
<td>Net Job Flows</td>
<td>-3,995</td>
<td>-1,356</td>
<td>-3,993</td>
<td>12,878</td>
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<tr>
<td>Job Creation</td>
<td>17,032</td>
<td>20,295</td>
<td>96,293</td>
<td>125,290</td>
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<tr>
<td>New Hires</td>
<td>52,650</td>
<td>52,652</td>
<td>250,937</td>
<td>31,393</td>
</tr>
<tr>
<td>Separations</td>
<td>73,918</td>
<td>77,916</td>
<td>314,952</td>
<td>383,987</td>
</tr>
<tr>
<td>Turnover</td>
<td>0.9%</td>
<td>0.9%</td>
<td>7.3%</td>
<td>7.9%</td>
</tr>
<tr>
<td>Avg Monthly Earnings</td>
<td>$4,332.00</td>
<td>$4,164.00</td>
<td>$3,651.00</td>
<td>$3,551.00</td>
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<tr>
<td>Avg New Hire Earnings</td>
<td>$2,215.00</td>
<td>$2,308.25</td>
<td>$1,970.00</td>
<td>$2,096.75</td>
</tr>
</tbody>
</table>

View Detailed Comparison Reports
For more information
The data 2011(2)-2012(1)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Industry</th>
<th>Milwaukee</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-99</td>
<td>All Industries</td>
<td>77,916</td>
<td>383,987</td>
</tr>
<tr>
<td>14-99</td>
<td>Manufacturing</td>
<td>4,407</td>
<td>33,542</td>
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<tr>
<td>25-34</td>
<td>All Industries</td>
<td>19,720</td>
<td>87,347</td>
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<tr>
<td>25-34</td>
<td>Manufacturing</td>
<td>1,134</td>
<td>7,557</td>
</tr>
</tbody>
</table>

- For 2011(2) to 2012 (1) 20 percent of the separations in state were in Milwaukee
- Separations in Manufacturing accounted for 5 percent in Milwaukee and 9 percent statewide
- In Manufacturing, 26 percent of the separations in Milwaukee were in the age group 25-34; statewide 23 percent
- 18 percent of manufacturing workforce is 25-34; Milwaukee and statewide
### The data 2006(2)-2007(1)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Industry</th>
<th>Milwaukee</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-99</td>
<td>All Industries</td>
<td>92,008</td>
<td>451,665</td>
</tr>
<tr>
<td>14-99</td>
<td>Manufacturing</td>
<td>22,476</td>
<td>97,461</td>
</tr>
<tr>
<td>25-34</td>
<td>All Industries</td>
<td>5,128</td>
<td>43,503</td>
</tr>
<tr>
<td>25-34</td>
<td>Manufacturing</td>
<td>1,152</td>
<td>9,600</td>
</tr>
</tbody>
</table>

- For 2006(2) to 2007 (1) 20 percent of the separations in state were in Milwaukee.
- Separations in Manufacturing accounted for 24 percent in Milwaukee and 22 percent statewide.
- In Manufacturing, 27 percent of the separations in Milwaukee were in the age group 25-34; statewide 22 percent.
- 18 percent of Milwaukee’s workforce is 25-34; statewide 19 percent.
The Math

• Larger Economy = Local Base Year Specific Group * 
  (Surrounding Area Comparison Year Total / Surrounding Base Year Total)-1

• Local Specific Effect = Local Base Year Specific Group 
  * ((Surrounding Area Comparison Year Specific Group /Surrounding  
  Base Year Specific Group)-1) -((Surrounding Area Comparison Year  
  Total / Surrounding Base Year Total)-1)

• Local Industrial Change = Local Base Year Specific Group * 
  ((Local Comparison Year Specific Group/ Local Base Year Specific  
  Group) -1) – (Surrounding Area Comparison Year Specific Group /  
  Surrounding Area Base Year)

Note when added together these = change in specific group from base 
year to comparison year
Findings

Milwaukee’s separations in manufacturing for 25-34 year olds did not match the expected change in the state.

• If Milwaukee had matched the state overall, it would have experienced a decline of 428 separations.

• If Milwaukee had experienced the same rate of separations for this age group, as the state in Manufacturing, separations would have increased by 183.

• If the 25-34 year olds in Manufacturing in Milwaukee had experienced the same separation as Milwaukee the separations would have increased by 227.

• Actual change was a decrease of 18 (-428+183+227)
Implication

• Milwaukee’s separations for those 25 to 34 who worked in Manufacturing is different from the state and the industry at large

Now we can start to evaluate why
Thank you

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