Presented at the Midwest Innovation Initiative: Innovations in Labor Market Information – Institute for Work & the Economy

Measuring Labor Shortages and Surpluses

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Agenda

• What are labor shortages and surpluses?
  • Definitions
  • Underlying factors and trends
• Recommended methodology
  • Eight labor market indicators
  • Detailed occupations
• How to address shortages and surpluses
• Implications for the Midwest
Definitions

What is a labor shortage? No universal definition . . .

- Static Shortage: condition in which employer demand for workers is greater than supply of workers willing to work at that wage rate
- Blank-Stigler define dynamic shortage as when supply of workers increases less rapidly than number demanded
- Arrow-Capron define dynamic shortage as when there is a steady upward shift in the demand curve, resulting in unfilled vacancies

Definitions (cont)

Situation where D > S at prevailing wage for a sustained period

- Implies 'excess' vacancies, but how many?
- Duration of disequilibrium required to consider it a shortage
- "Skills shortage" v. "occupational shortage"
- Many dimensions of a shortage:
  - Geographic scope
  - Longevity
  - Severity
  - Sub-specialty shortage
**Underlying Factors**

*Why might labor shortages occur?*

- Increase in demand for labor
- Restrictions on prices
- Movement to a higher paying occupation
- Time lags and slow adjustment
- Demographic trends and retirement age
- Education and productivity
- Immigration policy

**Time Frame**

- Last year
- Today
- Short term (1-2 years)
- Intermediate term (2-5 years)
- Long term (5-15 years)
- Seasonal considerations
  - Gardeners in the winter
  - Retail workers in December
Underlying Factors

Why might labor surpluses occur?

- Low vacancies
- High unemployment
- Supply greater than demand
- Demand falling

Underlying Factors

Impact of new technologies and work organization

- Growth of internet and decline of newspapers
- Physician assistants
- Frozen and fast foods
- Renewable energy, "smart grids", and green building
- Hybrid vehicles and battery technologies
Underlying Factors

Policy and Business Cycle Assumptions

- Will Current Stimulus Be Enough?
  - "Green jobs"
  - Investment in new infrastructure, highways and rail
- When Will Current Recession End?
  - What will happen to the Global Economy?
- What Will Immigration Policy Be?
- Outsourcing
- Government / Company Spending on Medical Care
  - Digitizing recordkeeping

Underlying Factors

Geographic variation and dependency

- Urban versus rural
  (e.g. Doctors in Chicago)
- Universities and leading labs
  (e.g. 400 applicants at Harvard)
- High cost of living areas
- Auto industry impact on the Midwest
Labor Force Trends

US Labor Force Participation – 55 yrs and over


Measuring Shortages

- Job vacancy surveys
  - Look for increase in number and duration of vacancies
- Employer skill surveys
  - Used to determine what requirements businesses foresee for different types of labor
- Using help-wanted advertising
- Labor demand and supply matrices
- Labor market indicators
# Methodology

## Labor Market Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>All Occupations</th>
<th>Architecture/ Engineering Occupations</th>
<th>Electrical &amp; Electronics Engineers</th>
<th>Special Education Teachers</th>
<th>Physical Therapists</th>
<th>Grounds Maintenance Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past Employment Change</td>
<td>0.8%</td>
<td>1.6%</td>
<td>-0.2%</td>
<td>-2.8%</td>
<td>3.6%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Annual % Change 2005-2008</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Past Unemployment Rate</td>
<td>4.6%</td>
<td>2.1%</td>
<td>1.6%</td>
<td>1.3%</td>
<td>0.8%</td>
<td>10.5%</td>
</tr>
<tr>
<td>Average 2006-2008 rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past Wage Change</td>
<td>3.5%</td>
<td>4.0%</td>
<td>2.3%</td>
<td>2.8%</td>
<td>4.3%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Annual % Change 2005-2008</td>
<td></td>
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Computed from BLS Current Population Survey Source Data
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual % Change Q2.2008-Q2.2009</td>
<td>-3.8%</td>
<td>-4.7%</td>
<td>-7.0%</td>
<td>4.6%</td>
<td>-26.0%</td>
<td>-5.3%</td>
</tr>
<tr>
<td>Past Unemployment Rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Q2.2008-Q2.2009 rate</td>
<td>6.6%</td>
<td>4.9%</td>
<td>5.8%</td>
<td>1.3%</td>
<td>0.7%</td>
<td>10.8%</td>
</tr>
</tbody>
</table>

Computed from BLS Current Population Survey Source Data

Unemployment Rates by State

Chart 1. Unemployment rates by state, seasonally adjusted, June 2009

(U.S. rate = 9.5 percent)

Source: U.S. Bureau of Labor Statistics
## Employment in Midwest

### Fastest Growing Occupations /Midwest

<table>
<thead>
<tr>
<th>Occupation Title</th>
<th>Total Employment 2008</th>
<th>% Employment Change 2005-2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance officers, except agriculture, construction, health and safety, and transportation</td>
<td>43,940</td>
<td>39.89%</td>
</tr>
<tr>
<td>Home health aides</td>
<td>215,870</td>
<td>39.06%</td>
</tr>
<tr>
<td>Physicians and surgeons, all other</td>
<td>58,090</td>
<td>37.69%</td>
</tr>
<tr>
<td>Network and computer systems administrators</td>
<td>79,890</td>
<td>31.57%</td>
</tr>
<tr>
<td>Network systems and data communications analysts</td>
<td>49,030</td>
<td>31.45%</td>
</tr>
<tr>
<td><strong>All Occupations</strong></td>
<td><strong>31,077,450</strong></td>
<td><strong>1.16%</strong></td>
</tr>
</tbody>
</table>

Computed from BLS Occupational Employment Statistics Data

Source: U.S. Bureau of Labor Statistics
### Employment in Midwest

#### Fastest Declining Occupations/Midwest

<table>
<thead>
<tr>
<th>Occupation Title</th>
<th>Total Employment 2008</th>
<th>% Employment Change 2005-2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Occupations</td>
<td>31,077,450</td>
<td>1.16%</td>
</tr>
<tr>
<td>Chefs and head cooks</td>
<td>18,770</td>
<td>-27.36%</td>
</tr>
<tr>
<td>Computer operators</td>
<td>22,060</td>
<td>-24.74%</td>
</tr>
<tr>
<td>Cooks, short order</td>
<td>42,760</td>
<td>-24.12%</td>
</tr>
<tr>
<td>Cooks, fast food</td>
<td>124,210</td>
<td>-24.04%</td>
</tr>
<tr>
<td>Switchboard operators, including answering service</td>
<td>31,920</td>
<td>-23.67%</td>
</tr>
</tbody>
</table>

Computed from BLS Occupational Employment Statistics Data

### Job Vacancies – Minnesota 2008

<table>
<thead>
<tr>
<th></th>
<th>2nd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>JV</td>
<td>JVR</td>
</tr>
<tr>
<td>All Occupations</td>
<td>51,722</td>
<td>1.9%</td>
</tr>
<tr>
<td>Architecture and Engineering Occupations</td>
<td>1,170</td>
<td>2.3%</td>
</tr>
<tr>
<td>Electrical Engineer</td>
<td>139</td>
<td>4.3%</td>
</tr>
<tr>
<td>Landscaping and Groundskeeping Workers</td>
<td>1,152</td>
<td>8.2%</td>
</tr>
<tr>
<td>Special Education Teachers - Preschool, Kindergarten, and Elementary School</td>
<td>33</td>
<td>0.6%</td>
</tr>
<tr>
<td>Physical Therapists</td>
<td>235</td>
<td>8.0%</td>
</tr>
</tbody>
</table>

Compiled by: Rachel Vilsack, Regional Labor Market Analyst Date: May 15, 2009
Limitations of Indicators

- Sampling error
- Non-sampling error
- Universe measured
- Conceptually best measure
  - Starting wages rather than average wages
  - Hard to fill vacancies
  - Establishment surveys may provide more accurate measures

How to address shortages in Midwest

Supply-driven strategy

- Develop inventory of Midwest employee skills
- Identify industries that utilize these skills
- Develop a program to attract employers in these industries to the Midwest
How to address shortages in Midwest

Demand-driven strategy

- Identify fastest growing occupations
- Offer training funds for workers to retrain in these occupations

Policy and funds strategy

- Project budgets of government agencies
- Project research and development funding by corporations
- Analyze occupations needed for projected funding
- Offer training funds for workers to retrain in these occupations
Policy and fund strategy

Examples

- Digitizing medical records
- ‘Green stimulus’
- Obama’s health care plan

Implications of LMI Research for Midwest

- Labor market indicators
  - Assist in analyzing current and future labor shortages and surpluses
  - Can be customized for the Midwest and individual states
  - Helpful in designing and optimizing training dollars in the Midwest
  - Useful in labor market analysis
  - Used in conjunction with additional labor market data to understand workforce needs in the Midwest
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