Trends In Labor Force Supply And Demand

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Main Points

- Demographics and other long-running trends imply that the U.S. labor force will grow more slowly in the years ahead
  - Slower growth in labor supply may pose a challenge for employers
  - The future labor force will also be older and better educated

- Standard industrial and occupational projections foresee a continuation of past trends
  - E.g., a declining share of employment in manufacturing

- Such projections are highly uncertain
  - It is always difficult to anticipate key trends
  - Industry workforces are aging at different rates with implications for future job openings

- Hard and soft skills likely to be of increasing importance
  - Returns to academic and vocational skills remain high
  - Technology and international competition are eroding employment opportunities for workers doing many routine tasks
Labor Force Participation Rate is Falling

Ages 16+
(percent)

Participation Rate

Unemployment Based Prediction

Long Run LFP Trend
Labor Force Growth Has Slowed

Labor Force Growth
(percent)

-1.0
0.0
1.0
2.0

1990-2000
2000-2014
2014-2020*

U.S.
Ages 16-24

* Chicago Fed staff projections
Labor Force Share by Age

Labor Force Share
(percentage)

Projections prepared by Chicago Fed staff
Labor Force Share by Education

Labor Force Share – Ages 25 and Older
(percent)

Projections prepared by Chicago Fed staff
School Attendance Has Been Rising

Share of Population in School (percent)

Source: Bureau of Labor Statistics based on October Current Population Survey Data
Education Is A Good Investment On Average

Internal Rate of Return to Higher Education (percent)

Source: Lisa Barrow and Ofer Malamud, Chicago Fed and University of Chicago.
Returns To Vocational Education Also Attractive

- E.g., Jacobson, LaLonde and Sullivan (2005): Old dogs *can* learn new tricks
  - Retraining displaced workers can increase their earnings potential
  - Effects per credit comparable to degree programs
  - Returns vary by type of course – e.g., higher for health professions and other technical subjects
  - Returns better for workers with stronger high school backgrounds and/or some previous college experience

- Usually a better investment for relatively young workers
  - A longer period to recoup the investment
Helping Disadvantaged Youth More Difficult

- Historically, there have been many disappointments
  - Interventions are often too small to have a chance of offsetting disadvantages
  - Rigorous estimates of program impact are often indistinguishable from zero

- Recently, some more hopeful outcomes
  - E.g., career academies
  - Professors Barnow and Lerman will discuss additional successful approaches
Industry and Occupation Employment Projections

- From the Bureau of Labor Statistics
  - At state-industry and state-occupation level through 2022
  - Not an easy task – expect surprises

- Industries that are expected to grow fastest in both the U.S. and Wisconsin: construction, education and health, and business and professional services
  - Industries that are projected to grow faster in Wisconsin than the U.S. are: manufacturing and natural resources

- Occupations that are expected to grow fastest in the U.S: healthcare, personal care, construction, computer and math, community and social services, business and finance, and building maintenance
  - Occupations that are projected to grow faster in Wisconsin than the U.S. are: legal, production, and management
Has The Share in Manufacturing Stabilized?

Share of Employment in Manufacturing
(percent)

Manufacturing Workforce Older

Share of Workers over 50 (percent)

Source: Chicago Fed Staff tabulations of Current Population Survey Data
Job Growth Slow in Middle-Wage Occupations

Annualized Job Growth of Occupations Ranked by Wage Rate (percent)

Note: Low wage includes service occupations and farming, fishing and forestry occupations. Mid wage includes sales and office occupations, construction and extraction occupations, installation, maintenance, and repair occupations, and transportation and material-moving occupations. High wage includes professional and managerial occupations.
Routine Jobs Are Declining

Cognitively Routine Jobs
(percent of total US employment)

Manually Routine Jobs
(percent of total US employment)

High Demand Jobs Require Math And Social Skills

Math and Science Are Not Enough

The jobs that have grown most consistently in the last two decades have been those that require high math skills and high social skills.

**KEY: Change in share of jobs, 1980 to 2012**

- **Fell**
- **About the same**
- **Grew**

**REQUIRES SOCIAL SKILLS**

- Lawyers and judges
- Social workers
- R.N.s
- Physicians
- Computer scientists
- Financial managers
- Economists

**MATH SKILLS**

- Truck drivers
- Auto mechanics
- Carpenters
- Electricians
- Machinists
- Accounting clerks
- Mathematicians

Summary

- **The future workforce will**
  - Grow more slowly
  - Be older and better educated

- **Particular industrial and occupational growth rates will likely extend previous trends**
  - But there is a lot of uncertainty

- **A firmer expectation is that skills – both technical and social – will continue to be in high demand**
  - Occupations that can be automated or outsourced to lower-wage countries will likely shrink
  - Highly routine jobs with little need for social interaction will be most vulnerable
Appendix
Participation And Population Change By Age

2013 Labor Force Participation Rates
(percent, left axis)
Men  Women

Change in Population Share
(percentage points, right axis)

100  90  80  70  60  50  40  30  20  10  0

1.50%  0.75%  0.00%  -0.75%  -1.50%

16  20  24  28  32  36  40  44  48  52  56  60  64  68  72  76  80
Teen LFP Has Fallen Massively

Ages 16-19

(percent)

Men

Women
Early 20s LFP Also Down A Good Deal

Ages 20-24 (percent)

Men

Women
Prime Age Male LFP Steadily Down

Men, 25-54
(percent)

25-29  40-44
30-34  45-49
35-39  50-55
Prime Age Female LFP Now Slowly Down

Women, 25-54
(percent)

■ 25-29
■ 30-34
■ 35-39
■ 40-44
■ 45-49
■ 50-55
Comparison to BLS Projections

Model data and projections

BLS data and projections
## Industry Employment Projections to 2022

<table>
<thead>
<tr>
<th>Industry</th>
<th>% Difference in wages*</th>
<th>U.S. Employment % Change</th>
<th>WI 2012</th>
<th>WI Change</th>
<th>WI % Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>10.7</td>
<td>3,051,328</td>
<td>217,845</td>
<td>7.1</td>
<td></td>
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<tr>
<td>Goods</td>
<td>17.5</td>
<td>6.5</td>
<td>653,231</td>
<td>24,583</td>
<td>3.8</td>
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<tr>
<td>Natural Resources</td>
<td>16.3</td>
<td>-10.6</td>
<td>106,414</td>
<td>-1,694</td>
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<tr>
<td>Construction</td>
<td>7.3</td>
<td>28.7</td>
<td>93,197</td>
<td>17,113</td>
<td>18.4</td>
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<tr>
<td>Manufacturing</td>
<td>22.8</td>
<td>-4.6</td>
<td>453,620</td>
<td>9,164</td>
<td>2.0</td>
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<tr>
<td>Service</td>
<td>-3.7</td>
<td>12.2</td>
<td>2,244,265</td>
<td>185,817</td>
<td>8.3</td>
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<tr>
<td>Trade, Transportation, &amp; Utilities</td>
<td>-16.1</td>
<td>7.2</td>
<td>525,447</td>
<td>22,801</td>
<td>4.3</td>
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<tr>
<td>Information</td>
<td>77.2</td>
<td>-2.4</td>
<td>46,313</td>
<td>565</td>
<td>1.2</td>
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<tr>
<td>Financial</td>
<td>66.3</td>
<td>9.6</td>
<td>162,632</td>
<td>15,922</td>
<td>9.8</td>
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<tr>
<td>Professional &amp; Business Services</td>
<td>30.0</td>
<td>19.4</td>
<td>289,552</td>
<td>42,089</td>
<td>14.5</td>
</tr>
<tr>
<td>Education &amp; Health</td>
<td>-10.3</td>
<td>27.9</td>
<td>637,625</td>
<td>70,748</td>
<td>11.1</td>
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<tr>
<td>Leisure</td>
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<td>9.3</td>
<td>255,858</td>
<td>70,748</td>
<td>9.2</td>
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<tr>
<td>Other Services</td>
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<td>10.5</td>
<td>146,986</td>
<td>7,362</td>
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<tr>
<td>Government</td>
<td>N/A</td>
<td>2.3</td>
<td>179,852</td>
<td>2,688</td>
<td>1.5</td>
</tr>
</tbody>
</table>

*Percent difference in Industry Average Weekly Wage (2014) vs U.S. Average Weekly Wage for all Industries*
## Occupation Employment Projections to 2022

<table>
<thead>
<tr>
<th>% Difference in wages*</th>
<th>U.S. Employment % Change</th>
<th>WI 2012</th>
<th>WI Change</th>
<th>WI % Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>10.7</td>
<td>3,051,328</td>
<td>217,845</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td></td>
<td>138.2</td>
<td>7.2</td>
<td>144,717</td>
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<tr>
<td><strong>Business &amp; Finance</strong></td>
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<td>53.3</td>
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<tr>
<td><strong>Computer &amp; Math</strong></td>
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<td>77.8</td>
<td>18.0</td>
<td>65,526</td>
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<tr>
<td><strong>Architecture &amp; Engineering</strong></td>
<td></td>
<td>72.6</td>
<td>7.3</td>
<td>49,017</td>
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<tr>
<td><strong>Life, Physical, and Social Sciences</strong></td>
<td></td>
<td>48.4</td>
<td>10.1</td>
<td>24,271</td>
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<tr>
<td><strong>Community and Social Services</strong></td>
<td></td>
<td>-4.1</td>
<td>17.2</td>
<td>35,929</td>
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<tr>
<td><strong>Legal</strong></td>
<td></td>
<td>114.1</td>
<td>10.7</td>
<td>15,176</td>
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<tr>
<td><strong>Education</strong></td>
<td></td>
<td>10.5</td>
<td>11.1</td>
<td>182,223</td>
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<tr>
<td><strong>Arts, Design, Media, Sports</strong></td>
<td></td>
<td>18.1</td>
<td>7.0</td>
<td>49,980</td>
</tr>
</tbody>
</table>

*Percent difference in 2014 Annual Mean Wage for Individual Occupations vs U.S. Mean Wage for All Occupations*
### Occupation Employment Projections to 2022

<table>
<thead>
<tr>
<th>Occupation</th>
<th>% Difference in wages*</th>
<th>U.S. Employment % Change</th>
<th>WI 2012</th>
<th>WI Change</th>
<th>WI % Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare</td>
<td>60.9</td>
<td>21.5</td>
<td>161,312</td>
<td>23,792</td>
<td>14.8</td>
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<td>Healthcare support</td>
<td>-39.0</td>
<td>28.1</td>
<td>82,784</td>
<td>10,984</td>
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<td>Protective Services</td>
<td>-6.9</td>
<td>7.9</td>
<td>54,884</td>
<td>2,499</td>
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<td>Food prep</td>
<td>-53.5</td>
<td>9.4</td>
<td>232,533</td>
<td>18,298</td>
<td>7.9</td>
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<tr>
<td>Building maintenance</td>
<td>-44.2</td>
<td>12.5</td>
<td>102,621</td>
<td>12,852</td>
<td>12.5</td>
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<tr>
<td>Personal care</td>
<td>-47.1</td>
<td>20.9</td>
<td>150,668</td>
<td>19,305</td>
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<tr>
<td>Sales</td>
<td>-18.1</td>
<td>7.3</td>
<td>281,322</td>
<td>11,699</td>
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<td>Office support</td>
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<td>6.8</td>
<td>444,947</td>
<td>20,468</td>
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<tr>
<td>Farming</td>
<td>-46.7</td>
<td>-3.4</td>
<td>84,896</td>
<td>-3,552</td>
<td>-4.2</td>
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<tr>
<td>Construction</td>
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<td>21.4</td>
<td>97,504</td>
<td>14,648</td>
<td>15.0</td>
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<tr>
<td>Install, repair</td>
<td>-4.3</td>
<td>9.6</td>
<td>108,958</td>
<td>7,703</td>
<td>7.1</td>
</tr>
<tr>
<td>Production</td>
<td>-24.9</td>
<td>0.8</td>
<td>314,215</td>
<td>9,924</td>
<td>3.2</td>
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<tr>
<td>Transport</td>
<td>-27.0</td>
<td>8.6</td>
<td>221,171</td>
<td>13,197</td>
<td>6.0</td>
</tr>
</tbody>
</table>

*Percent difference in WI 2014 Annual Mean Wage vs U.S. Mean Wage for all Occupations*