Occupational Separations: Concepts and Methods

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PMP Summit
September 28, 2017
Overview

- Separations concepts
- Methods – old and new
- Logistics of the change
- Impact of the change
Stocks vs. Flows

THE EMPLOYMENT SITUATION — DECEMBER 2016

Total nonfarm payroll employment rose by 156,000 in December, and the unemployment rate was little changed at 4.7 percent, the U.S. Bureau of Labor Statistics reported today. Job growth occurred in health care and social assistance.

JOB OPENINGS AND LABOR TURNOVER — DECEMBER 2016

The number of job openings was little changed at 5.5 million on the last business day of December, the U.S. Bureau of Labor Statistics reported today. Over the month, hires and separations were also little changed at 5.3 million and 5.0 million, respectively. Within separations, the quits rate was little changed at 2.0 percent and the layoffs and discharges rate was unchanged at 1.1 percent. This release includes estimates of the number and rate of job openings, hires, and separations for the nonfarm sector by industry and by four geographic regions.
Occupational Growth

Current employment level

Time t

Growth

Current employment level

Time t+1
Total Job Openings

Growth and separations

Current employment level

Time t

Opportunities due to growth

Opportunities due to separations

Same occupation

Time t+1

Total Job Openings
What We’re Measuring

- Job Openings measure opportunities to enter an occupation for individuals not currently employed in that occupation.

- Opportunities arise because of:
  1. Growth in the occupation
  2. Workers permanently leaving and needing to be replaced
Why Do Workers Separate?

- Retirement
- Enrollment in school
- Family reasons
- Geographic change
- Job loss
- Opportunity in a better occupation
Methods – Old and New
How BLS Used to Measure Separations

- Examine trends in employment by detailed occupation by 5-year age cohort
- Project forward cohorts with declining employment based on current demographics
- Apply historical declines in occupational employment to reduce the number of projected job openings
How BLS Now Measures Separations

- Use longitudinal/retrospective survey data to estimate historical labor force exits and occupational transfers
- Run regression models to estimate probability of separation for various worker characteristics
- Apply regression results to current worker demographics by occupation to project separations
Why Change Methods?

- BLS continually seeks to improve data quality
- In short, the old method was inaccurate
  - Methodological review of old method identified potential for significant undercount of actual occupational separations
  - User feedback confirmed that results were unrealistically small, a fact that was particularly noticeable at the state and local level
Other Benefits of New Method

- Less proxying gives more reliable estimates for small occupations
- Ability to differentiate between labor force exits and occupational transfers
- Accounts for more factors than just age
- Consistent with projections of growth and decline
Logistics of the Change
BLS Implementation

- BLS has produced experimental data using the new method for the 2014-24 projections.
- BLS will use the separations method for official data with the 2016-26 projections, released October 24, 2017.
- BLS will not be producing alternative projections using the replacements method.
State Implementation

- States use the national separation rates calculated by BLS
- The Projections Suite software has been modified to accommodate the separations method
- Software was tested using BLS 2014-24 experimental data
- States will use the separations method for the 2017-19 short term and 2016-26 long term projections
Impact of the Change
Magnitude of Separations

- Separations method gives much higher results than prior method
  - 17.7 million vs. 4.7 million openings annually

- Increase was expected due to methodological shortcomings of prior method

- How are we sure the new numbers are better?
JOLTS Comparison

- JOLTS data show 55.8 million hires, 54.9 million separations annually over the past 10 years
  - JOLTS includes both job churn within an occupation as well as occupational separations
Separations Context

What does 17.7 million openings mean?

- Equivalent to every current worker either leaving the labor force or changing occupations once every 9 years
- In contrast, 4.7 million openings implies workers remain in their occupation for 35 years, on average
Example Rates, 2014-24

- Replacement Rate
- Occupational Transfer Rate
- Labor Force Exit Rate

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Total, All Occupations</th>
<th>Surgeons</th>
<th>Actuaries</th>
<th>Welders</th>
<th>Bartenders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0%</td>
<td>2.0%</td>
<td>4.0%</td>
<td>6.0%</td>
<td>8.0%</td>
</tr>
<tr>
<td></td>
<td>10.0%</td>
<td>12.0%</td>
<td>14.0%</td>
<td>16.0%</td>
<td>18.0%</td>
</tr>
</tbody>
</table>

- Total, All Occupations
- Surgeons
- Actuaries
- Welders
- Bartenders
# Rates Context

- Inverse of rate is proxy for average tenure in occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Replacements Method</th>
<th>Separation Method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rate</td>
<td>Average Tenure</td>
</tr>
<tr>
<td>Surgeons</td>
<td>2.7%</td>
<td>37 Years</td>
</tr>
<tr>
<td>Actuaries</td>
<td>3.0%</td>
<td>33 Years</td>
</tr>
<tr>
<td>Welders</td>
<td>2.9%</td>
<td>34 Years</td>
</tr>
<tr>
<td>Bartenders</td>
<td>3.8%</td>
<td>26 Years</td>
</tr>
</tbody>
</table>
Correlation between Separations and Replacements Rankings

100, 81.2%
250, 87.0%
819, 96.1%
What does the high correlation mean?

- Ranking occupations by most openings will yield substantially the same list of occupations with the separation method.
- The more occupations included (i.e., top 200 rather than top 100), the higher the degree of correlation.
## Largest Risers in the Top 25 Occupations

<table>
<thead>
<tr>
<th>Occupation Title</th>
<th>SOC Code</th>
<th>Replacements Rank</th>
<th>Separations Rank</th>
<th>Rank Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bookkeeping, accounting, and auditing clerks</td>
<td>43-3031</td>
<td>57</td>
<td>20</td>
<td>+37</td>
</tr>
<tr>
<td>Security guards</td>
<td>33-9032</td>
<td>48</td>
<td>25</td>
<td>+23</td>
</tr>
<tr>
<td>Secretaries and administrative assistants, except legal, medical, and executive</td>
<td>43-6014</td>
<td>29</td>
<td>10</td>
<td>+19</td>
</tr>
<tr>
<td>Food preparation workers</td>
<td>35-2021</td>
<td>32</td>
<td>21</td>
<td>+11</td>
</tr>
<tr>
<td>Heavy and tractor-trailer truck drivers</td>
<td>53-3032</td>
<td>21</td>
<td>14</td>
<td>+7</td>
</tr>
</tbody>
</table>
What Do Risers Have in Common?

In general, openings increases were larger in jobs with lower education requirements.

<table>
<thead>
<tr>
<th>Typical Education Needed for Entry</th>
<th>2014 Employment</th>
<th>Annual Replacement Openings</th>
<th>Annual Separation Openings</th>
<th>Replacement Openings Rate</th>
<th>Separation Openings Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Postsecondary Education</td>
<td>95.7 million</td>
<td>3.0 million</td>
<td>12.7 million</td>
<td>3.1%</td>
<td>13.3%</td>
</tr>
<tr>
<td>Some form of Postsecondary Education</td>
<td>54.8 million</td>
<td>1.7 million</td>
<td>5.1 million</td>
<td>3.0%</td>
<td>9.2%</td>
</tr>
</tbody>
</table>
## Largest Drops in the Top 25 Occupations

<table>
<thead>
<tr>
<th>Occupation Title</th>
<th>SOC Code</th>
<th>Replacements Rank</th>
<th>Separations Rank</th>
<th>Rank Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountants and auditors</td>
<td>13-2011</td>
<td>15</td>
<td>31</td>
<td>(16)</td>
</tr>
<tr>
<td>Elementary school teachers, except special education</td>
<td>25-2021</td>
<td>23</td>
<td>36</td>
<td>(13)</td>
</tr>
<tr>
<td>Maintenance and repair workers, general</td>
<td>49-9071</td>
<td>18</td>
<td>30</td>
<td>(12)</td>
</tr>
<tr>
<td>Registered nurses</td>
<td>29-1141</td>
<td>5</td>
<td>15</td>
<td>(10)</td>
</tr>
<tr>
<td>General and operations managers</td>
<td>11-1021</td>
<td>10</td>
<td>18</td>
<td>(8)</td>
</tr>
<tr>
<td>Home health aides</td>
<td>31-1011</td>
<td>14</td>
<td>22</td>
<td>(8)</td>
</tr>
<tr>
<td>Teacher assistants</td>
<td>25-9041</td>
<td>25</td>
<td>33</td>
<td>(8)</td>
</tr>
</tbody>
</table>
How Many Openings Does a Top Occupation Have?

<table>
<thead>
<tr>
<th>Percent of Occupations</th>
<th>Minimum Number of Openings, Replacements</th>
<th>Minimum Number of Openings, Separations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 10%</td>
<td>13,700</td>
<td>48,500</td>
</tr>
<tr>
<td>Top 20%</td>
<td>6,000</td>
<td>20,300</td>
</tr>
<tr>
<td>Top 25%</td>
<td>4,500</td>
<td>15,400</td>
</tr>
<tr>
<td>Top 50%</td>
<td>1,400</td>
<td>4,900</td>
</tr>
</tbody>
</table>
Contact Information

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