Pre-Apprenticeship Programs Across Pennsylvania

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Recent Keystone Research Center Work on PA Apprenticeship

• *Inventory of Pre-apprenticeship Programs Across Pennsylvania*; online at [this link](#)

• *Ten Ways to Make Apprenticeship Central to Learning and Careers in 21st Century Pennsylvania*; available from trturner@pa.gov or herzenberg@keystoneresearch.org

• Capital Area Labor-Management Council, *Construction Apprenticeship in Pennsylvania*, 1998; available from herzenberg@keystoneresearch.org

• Forthcoming: baseline report on apprenticeship in Pennsylvania at the start of the effort to double apprenticeship by 2025
England Shows That Apprenticeship CAN Grow Dramatically from PA Levels

Apprenticeship in England Has Grown Seven Times from Low Levels

Apprenticeship Starts Per 1000 Jobs

South Carolina Shows That Apprenticeship CAN Grow Dramatically from Below PA Levels

Apprenticeship in South Carolina Has Grown to Three Times the Pennsylvania Level

Apprentices Per 1000 Jobs

Is Pennsylvania at the Start of Exponential Apprenticeship Growth?

New Apprenticeship Registrations in PA from 2015-18 Up 49% Over the Previous 4 Years

Year of Registration, 2000 to 2018

Note: Annualized estimate based on data through November 7, 2018 (i.e., $4,290\times(52/44) \approx 5,070$).

Source: Keystone Research Center analysis of Registered Apprenticeship Partners Information Data System (RAPIDS)
We Need to Expand PA Apprenticeship to More Industries

Baseline: Construction, Manufacturing and the Public Sector (Corrections) Account for Almost All Apprenticeships in Pennsylvania

Share of all Completed Apprenticeships by Major Industry 2000 to 2016

- Construction: 58%
- Public Admin.: 29%
- Manufacturing: 11%
- All Other Industries: 2%

Source: Keystone Research Center analysis of Registered Apprenticeship Partners Information Data System (RAPIDS)
We’re Just Beginning To Diffuse Apprenticeship

New Apprenticeship Registrations Up 65% in Manufacturing and Services From 2015-18

Source: Keystone Research Center analysis of Registered Apprenticeship Partners Information Data System (RAPIDS).
Baseline: Registered Apprentices in Pennsylvania Had a Completion Rate of 59% from 2000 to 2014

Apprenticeship Completions as a % of Completions Plus Cancellations, Registration 2000 to 2014

Need Quality as We Diffuse...High Completion Rates

Source: Keystone Research Center analysis of Registered Apprenticeship Partners Information Data System (RAPIDS)
Most Apprentices Experience Wage Gains...But There's a Lot of Variation
(Wage Gains, Entry to Exit, PA Apprentices Registering and Completing Since 2011)

- Electrician: 69%
- Cook: 26%
- Mechatronics Technician: 30%

Notes: The sample is limited to apprentices that registered anytime after 2010 and completed their apprenticeship by November 2018. Wages were adjusted for inflation based on the start and exit date of each apprentice and all figures.

Source: Keystone Research Center analysis of Registered Apprenticeship Partners Information Data System (RAPIDS)
<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number of Completers</th>
<th>Share of Total</th>
<th>Cumulative Total</th>
<th>Starting Wage</th>
<th>Exit Wage</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machinist</td>
<td>468</td>
<td>13%</td>
<td>13%</td>
<td>$13.62</td>
<td>$16.12</td>
<td>18%</td>
</tr>
<tr>
<td>Tool And Die Maker</td>
<td>408</td>
<td>12%</td>
<td>25%</td>
<td>$14.31</td>
<td>$16.12</td>
<td>13%</td>
</tr>
<tr>
<td>Maint Mech (Any Ind)</td>
<td>372</td>
<td>11%</td>
<td>35%</td>
<td>$20.97</td>
<td>$21.87</td>
<td>4%</td>
</tr>
<tr>
<td>Elevator Constructor Mech.</td>
<td>361</td>
<td>10%</td>
<td>46%</td>
<td>$24.91</td>
<td>$37.21</td>
<td>49%</td>
</tr>
<tr>
<td>Refinery Operator</td>
<td>341</td>
<td>10%</td>
<td>55%</td>
<td>$25.88</td>
<td>$30.16</td>
<td>17%</td>
</tr>
<tr>
<td>Electrician, Maintenance</td>
<td>216</td>
<td>6%</td>
<td>61%</td>
<td>$21.52</td>
<td>$23.06</td>
<td>7%</td>
</tr>
<tr>
<td>Welder, Combination</td>
<td>102</td>
<td>3%</td>
<td>64%</td>
<td>$16.41</td>
<td>$16.98</td>
<td>3%</td>
</tr>
<tr>
<td>Millwright</td>
<td>94</td>
<td>3%</td>
<td>67%</td>
<td>$23.21</td>
<td>$24.23</td>
<td>4%</td>
</tr>
<tr>
<td>Forming-Machine Operator</td>
<td>92</td>
<td>3%</td>
<td>70%</td>
<td>$17.71</td>
<td>$17.71</td>
<td>0%</td>
</tr>
<tr>
<td>Grinder Op Tool Precision</td>
<td>90</td>
<td>3%</td>
<td>72%</td>
<td>$11.88</td>
<td>$13.08</td>
<td>10%</td>
</tr>
<tr>
<td>Quality Control Technician</td>
<td>50</td>
<td>1%</td>
<td>74%</td>
<td>$12.08</td>
<td>$12.51</td>
<td>4%</td>
</tr>
<tr>
<td>Press Operator Heavy Duty</td>
<td>46</td>
<td>1%</td>
<td>75%</td>
<td>$12.79</td>
<td>$14.52</td>
<td>13%</td>
</tr>
<tr>
<td>Maint Repairer, Industrial</td>
<td>43</td>
<td>1%</td>
<td>76%</td>
<td>$22.98</td>
<td>$25.22</td>
<td>10%</td>
</tr>
<tr>
<td>Electrician</td>
<td>39</td>
<td>1%</td>
<td>77%</td>
<td>$24.54</td>
<td>$24.97</td>
<td>2%</td>
</tr>
<tr>
<td>Electromechanical Tech</td>
<td>36</td>
<td>1%</td>
<td>78%</td>
<td>$24.42</td>
<td>$23.92</td>
<td>-2%</td>
</tr>
<tr>
<td>Machine Repairer, Maint</td>
<td>36</td>
<td>1%</td>
<td>79%</td>
<td>$20.55</td>
<td>$21.48</td>
<td>5%</td>
</tr>
<tr>
<td>Joiner (Ship &amp; Boat Bldg)</td>
<td>34</td>
<td>1%</td>
<td>80%</td>
<td>$14.49</td>
<td>$22.99</td>
<td>59%</td>
</tr>
<tr>
<td>Mechanical-Unit Repairer</td>
<td>34</td>
<td>1%</td>
<td>81%</td>
<td>$17.79</td>
<td>$19.89</td>
<td>12%</td>
</tr>
<tr>
<td>Mold Maker, Die-Cast &amp; Plast</td>
<td>34</td>
<td>1%</td>
<td>82%</td>
<td>$17.70</td>
<td>$18.11</td>
<td>2%</td>
</tr>
<tr>
<td>Pipe Fitter</td>
<td>34</td>
<td>1%</td>
<td>83%</td>
<td>$22.54</td>
<td>$24.03</td>
<td>7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3528</strong></td>
<td></td>
<td></td>
<td><strong>$18.53</strong></td>
<td><strong>$21.89</strong></td>
<td><strong>18%</strong></td>
</tr>
</tbody>
</table>

Source: Keystone Research Center analysis of Registered Apprenticeship Partners Information Data System (RAPIDS)
### Apprenticeship Completers, Starting and Exit Wages (2016 $) for the 10 Largest Occupations in All Other Industries, 2000 to 2014

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number of Completers</th>
<th>Share of Total</th>
<th>Cumulative Total</th>
<th>Starting Wage</th>
<th>Exit Wage</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook (Hotel &amp; Restaurant)</td>
<td>177</td>
<td>24%</td>
<td>24%</td>
<td>$8.78</td>
<td>$10.35</td>
<td>18%</td>
</tr>
<tr>
<td>Internetworking Technician</td>
<td>111</td>
<td>15%</td>
<td>38%</td>
<td>$12.27</td>
<td>$13.33</td>
<td>9%</td>
</tr>
<tr>
<td>Child Care Dev Specialist</td>
<td>56</td>
<td>7%</td>
<td>46%</td>
<td>$8.69</td>
<td>$6.34</td>
<td>-27%</td>
</tr>
<tr>
<td>Power-Plant Operator</td>
<td>52</td>
<td>7%</td>
<td>53%</td>
<td>$24.57</td>
<td>$26.31</td>
<td>7%</td>
</tr>
<tr>
<td>Tree Trimmer (Line Clear)</td>
<td>41</td>
<td>5%</td>
<td>58%</td>
<td>$16.25</td>
<td>$17.90</td>
<td>10%</td>
</tr>
<tr>
<td>Car Repairer (Railroad Equipment)</td>
<td>38</td>
<td>5%</td>
<td>63%</td>
<td>$23.82</td>
<td>$22.17</td>
<td>-7%</td>
</tr>
<tr>
<td>Automobile Mechanic</td>
<td>36</td>
<td>5%</td>
<td>68%</td>
<td>$10.55</td>
<td>$12.37</td>
<td>17%</td>
</tr>
<tr>
<td>Mechanic, Industrial Truck</td>
<td>30</td>
<td>4%</td>
<td>72%</td>
<td>$13.60</td>
<td>$18.53</td>
<td>36%</td>
</tr>
<tr>
<td>Baker (Hotel &amp; Restaurant)</td>
<td>20</td>
<td>3%</td>
<td>75%</td>
<td>$8.77</td>
<td>$10.42</td>
<td>19%</td>
</tr>
<tr>
<td>Home Health Aide</td>
<td>17</td>
<td>2%</td>
<td>77%</td>
<td>$9.17</td>
<td>$8.94</td>
<td>-2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>752</td>
<td></td>
<td></td>
<td>$13.30</td>
<td>$14.38</td>
<td>8%</td>
</tr>
</tbody>
</table>

Source: Keystone Research Center analysis of Registered Apprenticeship Partners Information Data System (RAPIDS)
Pre-Apprenticeship Across PA Baseline

• Pre-apprenticeship survey live Aug.-Oct. 2018—distributed by PWDA, PACTA, Commission for CCs, PACA
  • 112 responses
  • 63 largely complete

• Profiles of first 10 registered pre-apps
  • 5 manufacturing, 3 construction, one each IT, maintenance, culinary
  • Pre-app. sponsors: 3 employers, 2 industry associations, 1 non-profit (now ind. assoc.), 3 schools
  • App. sponsors: 5 employers, 4 industry associations, 1 non-profit, 2 educational institutions, 1 non-profit
Most Pre-Apprenticeships Just Getting Started

At what stage is your pre-apprenticeship at?

- Established and running for multiple years: 29%
- Just established in the last year: 20%
- In the development stage: 31%
- Other: 24%
Pre-Apprenticeships Seen as Win-Win-Win-Win-Win

Who benefits from your pre-apprenticeship program?

- Employers: 86%
- Participants: 83%
- Apprenticeship programs: 62%
- Schools: 68%
- Other: 23%
Two-Thirds Grade 11-12, One Third Out-of-School
44 of 67 Counties Served

Many counties without a community college presence also don’t have pre-apprenticeships
Recruitment Reflects the Sponsor

What are your main recruitment methods?

- Schools: 65%
- CTE programs: 49%
- Community-Based Partners: 41%
- Workforce Development Boards: 40%
- Employers: 41%
- Industry Association or Local Chamber: 25%
- Labor Unions: 19%
- Other: 19%
Programs Have Connections to Industry: Credentials

Does your pre-apprenticeship program provide successful students with industry-recognized credentials?

- Yes: 94%
- No: 6%
Programs Have Connections to Industry: Jobs & Work-Based Learning

Does your pre-apprenticeship provide students with opportunities for any of the following? Check all that apply.

- Summer Employment: 43%
- Paid Internships at Employers: 59%
- Unpaid Internships at Employers: 29%
- Other Work-Based Learning Opportunities: 61%
- Other: 47%
Pre-Apprenticeships Have Diverse Funding But...
...Not Enough Funding to Scale

![Bar Chart](chart.png)

Is your current funding...

- Enough only to sustain the program for the short term: 45%
- Enough to maintain the program at its current level on an ongoing basis: 30%
- Enough to grow the program: 11%
- Other: 26%
Key Ingredients for Scaling

1) Stronger ind. assoc’ns, group apprenticeships, other intermediaries
2) Integrate pre-apprenticeship and apprenticeship with secondary & postsecondary education
3) “Pull system”: good apprenticeships grow good pre-apps.

How do we get there?
1) Industry partnership tax credit
2) Access more federal $ for college (Pell grants) by starting more post-secondary programs leading to industry recognized credentials, INCLUDING HIGH-WAGE APPRENTICESHIP
3) Stable funding for CTE and pre-apprenticeship in schools and expanded funding for community based pre-apprenticeship
PA’s Higher Ed Deserts—Counties with NO or Expensive Community College
$256 Million in Federal Pell Grants Left on Table

Increase in PA Public College Pell Grants if PA Number Equalled Our Population-Based Share of US Total

Source: Keystone Research Center based on U.S. Department of Education data from Table 21 after downloading "Zip Archive (Reports)" from https://www2.ed.gov/finaid/prof/resources/data/pell-eoy-2016-17.html

Increase in PA Public College Pell Grant Dollars if PA Number Equalled Our Population-Based Share of US Total

Source: Keystone Research Center based on U.S. Department of Education data from Table 21 after downloading "Zip Archive (Reports)" from https://www2.ed.gov/finaid/prof/resources/data/pell-eoy-2016-17.html