Rising to the Attainment Challenge Using an Innovative K–12 Workforce Development Information System

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How can we use an information system to rigorously evaluate K–12 workforce programs to generate the highest impact results?
Why does MN K-12/higher education workforce development system need improvement?
2016 Minnesota Ninth Graders >> 2019 Seniors

84% Graduated

16% Did not Graduate

- College in MN: 42%
- College out of MN: 17%
- No College: 25%
- Continuing: 8%
- Dropped Out: 4%
- Unknown: 3%

Source = Mn Dept. of Ed Report Card and the State Longitudinal Data System; Total n = 68,314; Graduated n = 57,171
Is the Minnesota Graduation Rate Improving?
Minnesota Annual 4-Year Graduation Rate

Source = Mn Dept. of Ed

<table>
<thead>
<tr>
<th>Year</th>
<th>Graduation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>83%</td>
</tr>
<tr>
<td>2017</td>
<td>83%</td>
</tr>
<tr>
<td>2018</td>
<td>83%</td>
</tr>
<tr>
<td>2019</td>
<td>84%</td>
</tr>
</tbody>
</table>
What is the trend for Minnesota HS graduates going to college (2- or 4-year)?
Minnesota Grads Enrolling in College

<table>
<thead>
<tr>
<th>Year</th>
<th>In Minnesota</th>
<th>Outside Minnesota</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>49%</td>
<td>20%</td>
</tr>
<tr>
<td>2017</td>
<td>48%</td>
<td>20%</td>
</tr>
<tr>
<td>2018</td>
<td>47%</td>
<td>19%</td>
</tr>
<tr>
<td>2019</td>
<td>47%</td>
<td>19%</td>
</tr>
</tbody>
</table>

*Note. *n* represents the number of students enrolling in college. Source: State Longitudinal Data System
How are Minnesota 2018 non-college-going high school graduates doing?

Most recent data available
Concern – Earnings

- **Non-College Going Graduates Average Annual Earnings**: $21,645
- **2019 MN Average Minimum Annual Wage**: $20,509
- **2019 MN Average Living Annual Wage**: $31,510

Why Workforce Development is important for Minnesota’s future?
• Only 16 percent of children who grow up in poverty manage to become economically successful adults.

• Lack of skilled workers is one of the biggest threats to the economy.

McKinsey Global Institute report
Report on our progress developing a K-12/higher education Workforce Development Information System (WDIS)
The WDIS will be designed to provide data to help continuously improve the K-12/Higher Education workforce development system.
Our WDIS is a Unique Differentiating Asset for MN

Research Agreements to share data
Research agreements needed to access data to longitudinally track a student’s progress to career and/or college

Also known as “Pathways”
Longitudinally Study of Pathways

Middle School → High School Graduates → Postsecondary Education, Work
WDIS is built and continuously being improved.

How is this WDIS being used to improve our K-12/higher education workforce development system?
Pathway Research Findings

Graduation Rates by Pathways

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Graduation Rate</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>84%</td>
<td>70</td>
</tr>
<tr>
<td>Construction</td>
<td>94%</td>
<td>34</td>
</tr>
<tr>
<td>Cosmetology</td>
<td>84%</td>
<td>194</td>
</tr>
<tr>
<td>Criminal Justice</td>
<td>89%</td>
<td>210</td>
</tr>
<tr>
<td>Healthcare</td>
<td>92%</td>
<td>168</td>
</tr>
<tr>
<td>IT</td>
<td>94%</td>
<td>97</td>
</tr>
<tr>
<td>Multiple Pathways</td>
<td>93%</td>
<td>76</td>
</tr>
</tbody>
</table>

MN Average: 84%
Longitudinal Study of Programs

2016 High School Graduates

BCCA
\[ n = 61 \]

- 72.1% College
- 23.0% Workforce
- 4.9% Other

STATE MATCHED SAMPLE*
\[ n = 61 \]

- 62.3% College
- 29.5% Workforce
- 8.2% Other

*All Race/Ethnicity
Longitudinal Study of Programs

2016 High School Graduates

**BCCA**

- 8.8% Other
- 29.4% Workforce
- 61.8% College
- n = 34

**STATE MATCHED SAMPLE***

- 8.8% Other
- 32.4% Workforce
- 58.8% College
- n = 34

*Race/Ethnicity: SoC, White

College, Workforce, Other
Longitudinal Study of Programs

2016 High School Graduates

**BCCA**
- **n = 27**
- **85.2%**
- **14.8%**

**STATE MATCHED SAMPLE**
- **n = 27**
- **66.7%**
- **25.9%**
- **7.4%**

Race/Ethnicity

- **SoC**
- **White**

- **College**
- **Workforce**
- **Other**
RESEARCH QUESTION:
How do we calculate the ROI for these different workforce development programs?
ROI Empirical Approach

Baseline Data

First Outcome: Choice

High School Graduates

Postsecondary Education

Degree

Labor Market Measures

Second Outcome: Degree and Labor Market Measures

Income Level
Job Stability
Wage Growth
Industry of Empl.

Work

Labor Market Measures
Wage Estimates

Based on Current Population Survey Data (U.S. Census Bureau)

Conditional Weekly Earnings Based on Education Level

U.S. Males

U.S. Females
The y-values are the natural log of annual earnings.

The lines show how being in college generates a short-run cost in terms of wages, but a long-run payoff.

Therefore, earnings is one of our three key economic outcome variables.
**ROI Preliminary Results**

- Comparing the earnings for those who go straight into the labor force:
  - Statistically insignificant 9% higher wages for BCCA using regression with state-wide observations
  - A very significant increase of about 100% using PSM and matching within BPS

- **Average Treatment Effect (ATE)**
  - What would happen if more people went into the BCCA
  - More than 50% increase in wages (both State and BISD comparison groups)
  - Positive college-bound effect (State comparison group only)

- **Average Treatment Effect on the Treated (ATET)**
  - What the effect of the BCCA is on those who go into the BCCA
  - Slightly smaller but significant wage effects for both comparison groups.
  - Slightly larger college-bound effect for state comparison group
• Every year our Database continues to evolve and grow
• We welcome Workforce Development Research Question
End