CAREER AND TECHNICAL EDUCATION IN HIGH SCHOOL:
DOES IT IMPROVE STUDENT OUTCOMES?

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Career and technical education has increasingly been a buzzword over the last several years, in part driven by CCSS focus on college and career readiness (US DOE, 2012).

Prior work on the effects of CTE on student outcomes who positive effects on wages, (Bishop & Mane, 2004; Kemple, 2008; Page, 2012).

Evidence of the effects of CTE participation on academic outcomes is more mixed with less strong causal identification.

Focus of policy in Arkansas provides a nice opportunity to understand whether CTE course taking effects student high school completion, college going, and labor market outcomes.
Research Questions

1. Which students are taking CTE courses? Which courses – and how many of them – are they taking?

2. Does greater exposure to CTE improve education and employment outcomes?

3. Does CTE concentration have benefits for students? Do certain students benefit more than others?
## TABLE 1 | COHORT DATA

<table>
<thead>
<tr>
<th></th>
<th>Cohort 1</th>
<th>Cohort 2</th>
<th>Cohort 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>One year after high school</td>
<td>2012-13</td>
<td>2013-14</td>
<td>2014-15</td>
</tr>
<tr>
<td>Twelfth Grade</td>
<td>2011-12</td>
<td>2012-13</td>
<td>2013-14</td>
</tr>
<tr>
<td>Eleventh Grade</td>
<td>2010-11</td>
<td>2011-12</td>
<td>2012-13</td>
</tr>
<tr>
<td>Tenth Grade</td>
<td>2009-10</td>
<td>2010-11</td>
<td>2011-12</td>
</tr>
<tr>
<td>Ninth Grade</td>
<td>2008-09</td>
<td>2009-10</td>
<td>2010-11</td>
</tr>
<tr>
<td>Number of students</td>
<td>36,090</td>
<td>35,985</td>
<td>32,358</td>
</tr>
</tbody>
</table>

Note: Cohort 3 (class of 2014) is the first graduating class that fulfilled the Smart Core requirements of six units of career focus coursework.
Who is represented in CTE?
Who is represented in CTE?
Where are the concentrators?
How does CTE course taking impact student outcomes?

**FIGURE 8 | BENEFITS OF CTE COURSEWORK**

Just one additional CTE class above the average means a student is...

- **3** PERCENTAGE POINTS MORE LIKELY TO GRADUATE FROM HIGH SCHOOL
- **1** PERCENTAGE POINT MORE LIKELY TO ENROLL IN A TWO-YEAR COLLEGE
- **2** PERCENTAGE POINTS MORE LIKELY TO BE EMPLOYED AFTER HIGH SCHOOL
- **$28** PER QUARTER BETTER COMPENSATED IN THE YEAR AFTER HIGH SCHOOL
What are the benefits of concentrating, are all effects equal?

**Figure 10 | Benefits of Concentration**

Students who concentrate in a single program of study are:

- **21 percentage points** more likely to graduate from high school.
- **1 percentage point** more likely to enroll in a two-year college.
- **1 percentage point** more likely to be employed after high school.
- **$45 per quarter** better compensated in the year after high school.

**Figure 9 | Comparing Outcomes for Concentrators and Non-Concentrators**

- **Graduated high school:**
  - Non-concentrators: 51%
  - Concentrators: 93%

- **Enrolled in 2-year college:**
  - Non-concentrators: 13%
  - Concentrators: 20%

- **Enrolled in 4-year college:**
  - Non-concentrators: 7%
  - Concentrators: 8%

- **Employed:**
  - Non-concentrators: 53%
  - Concentrators: 64%

**Quarterly earnings after high school:**

- Non-concentrators: $791.93
- Concentrators: $1,015.90
Policy recommendations

- In Arkansas:
  - Stay the course
  - Expand understanding of potential benefits of concentrating
  - Expand high quality dual enrollment

- Other states and districts:
  - Invest more heavily in high-quality CTE
    -Aligned with labor-market demand with ability to adjust dynamically
    -Encourage pursuit of industry-recognized credentials valued by employers
    -Organize offerings to facilitate completion of a concentration
    -Harmonize dual enrollment to allow for credential “stacking” into college

- Federal reauthorization of Perkins:
  - Incentivize access to high-quality STEM
  - Allow for a diversity of delivery models
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