Building a Multistate Data Exchange: It Can Be Done

State Longitudinal Data Systems:
Driving Educational and Workforce Decision Making
New England Board of Higher Education
October 16, 2014 ~ Weston, MA
Overview

• Background and justification for exchanging data across state lines
• Process for developing WICHE’s pilot multistate longitudinal data exchange
• Results
• Lessons learned
• Next steps
Efforts to Measure Return on Investment

- Gainful employment
- *Student Right to Know Before You Go Act*
- President Obama’s college ratings
- collegemeasures.org

*Generally, these are aimed at accountability or consumer information, with not much attention given to improvement of policy or practice.*
Economic Success Measures - Colorado

School Profile

University of Colorado Boulder

School Information

<table>
<thead>
<tr>
<th>Carnegie Classification:</th>
<th>Research Universities (Very High Research Activity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>Regent Drive at Broadway</td>
</tr>
<tr>
<td></td>
<td>Boulder CO, 80309-0017</td>
</tr>
<tr>
<td>Sector:</td>
<td>Public, 4-year or above</td>
</tr>
</tbody>
</table>

Three Most Popular Disclosable Programs

![Graph showing median first-year earnings for Business Admin., Psychology, and Journalism.]

Detailed Breakdown (5 Year Data)

<table>
<thead>
<tr>
<th>Degree Level</th>
<th>Disclosable Programs</th>
<th># of Completers</th>
<th>% of Completers with Earnings Data</th>
<th>First-Year Earnings - Median</th>
<th>First-Year Earnings - QTILE 1</th>
<th>First-Year Earnings - QTILE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor's Degree</td>
<td>53 discloseable programs</td>
<td>28,569</td>
<td>17%</td>
<td>$37,735</td>
<td>$29,853</td>
<td>$48,100</td>
</tr>
<tr>
<td>Master's Degree</td>
<td>48 discloseable programs</td>
<td>5,291</td>
<td>30%</td>
<td>$56,132</td>
<td>$44,218</td>
<td>$75,558</td>
</tr>
<tr>
<td>Doctoral Degree</td>
<td>43 discloseable programs</td>
<td>2,573</td>
<td>25%</td>
<td>$57,541</td>
<td>$46,821</td>
<td>$82,570</td>
</tr>
</tbody>
</table>

*Data have been suppressed due to there being fewer than 5 Completers with Earnings data or fewer than 15% of Completers with Earnings Data.
BUILDING THE EXCHANGE: AN OVERVIEW OF THE PROCESS
WICHE’s Multistate Longitudinal Data Exchange Concept
Key for the Next Slide

- Enrollment records
- Credential(s) earned
- Employed in WA
- Employed in HI, ID, or OR
Washington High School Graduates

Begin at WA public IHE

- No xfer/ Xfer to WA public IHE
- Xfer to public IHE in HI, ID, or OR
- Xfer to private/out-of-4-state IHE

Begin at public IHE in HI, ID, or OR

- No xfer/ Xfer to public IHE in HI, ID, or OR
- Xfer to private/out-of-4-state IHE

Begin at private/out-of-4-state IHE

- Xfer to public IHE in HI, ID, or OR
- Xfer to private/out-of-4-state IHE

No college

If no SSN

No employment information

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Key:
- Enrollment records
- Credential(s) earned
- Employed in WA
- Employed in HI, ID, or OR

Darker shading, means full data are available. Lighter shading with stripes, means partial data are available. No shading, means no data are available. SLDS representations do not include data made available through its own use of National Student Clearinghouse data or through bilateral data-sharing agreements with other states. The lack of employment data for those who don't attend college is tied to the absence of SSNs common in K-12 data systems, though some states are seeking ways to obtain one from other sources. Employment data for states not included in the data exchange are unavailable for all student pathways.
WICHE’s Data Exchange Pilot

• Warehouse Model
  – States provided data on pre-defined cohorts of students to central repository (NSC).
  – An identity resolution process matched student records
  – Warehouse returned enhanced datasets to states

• Data from K-12, Higher Education, and Workforce, plus National Student Clearinghouse StudentTracker
Research Questions Embedded in MOA

1. What are the patterns of postsecondary enrollment and employment of high school graduates from each participating state?

2. What are the patterns of postsecondary enrollment and employment of students in public postsecondary institutions in participating states?

   – Each with appropriate disaggregations –

3. By more fully accounting for individual mobility across state lines, to what extent does sharing data among states supplement existing state data resources available for conducting evaluations leading to policy and program improvements?
Data Sources

• **Single Source States (State Longitudinal Data Systems that originally compiled the data owned by the responsible agencies in each respective state)**
  – Hawaii P-20
  – Idaho Office of the State Board of Education
  – Washington Education Research and Data Center

• **Multiple Sources (Oregon)**
  – Oregon Department of Education
  – Oregon Department of Community Colleges and Workforce Development
  – Oregon University System
  – Oregon Employment Department
Data Elements Exchanged

• **Identity and Demographics**
  – Randomly-generated Exchange ID#

• **Education (Term)**
  – High School Diploma
  – Postsecondary Institution
  – Credits Attempted, Passed
  – Postsecondary Awards
  – Field of Study

• **Employment: Unemployment Insurance Wage Records (Quarterly)**
  – Social Security Number
  – Gross Wages
  – Employer’s Industry Classification
Two Cohorts

**Cohort A**
Class of 2005
Public High School Graduates
119,085

**Cohort B**
First-time College Students
at Public Institutions
AY 2005-06
145,090
A SAMPLE OF FINDINGS
Completion by Race/Ethnicity

Source: WICHE Multistate Data Exchange
Notes: Data apply to public high school graduates from the class of 2005 in HI, ID, OR, or WA who had a subsequent postsecondary enrollment record, and first-time public postsecondary students in 2005-06 in any of those states. Data count awards achieved through end of AY2010-11. “Still Enrolled” means those without an award who had an enrollment in the final term AY2010-11.
Award Attainment by “Pell Ever” Status

Note: Award attainment through end of AY2010-11, students from either cohort; Enrolled is those without an award who had an enrollment in the final term AY2010-11.
Uncertainty About Employment Outcomes Reduced by 22% in Idaho

56% of completers found in Idaho wage records

Those “not found” reduced from 44% to 35%

22% of degree completers not found in Idaho wage records were found in the other three states’ data

Notes: 3,158 students who received associate’s or higher award from an institution in Idaho by Dec. 2010 and had a valid SSN
Employment and Subsequent Enrollment Data for Idaho Awardees

Notes: 3,158 students who received associate’s or higher award from an institution in Idaho by Dec. 2010 and had a valid SSN
## Migration Patterns

<table>
<thead>
<tr>
<th>State</th>
<th>First-Time Students(^1)</th>
<th>Taxpayers</th>
<th>Commuters(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In-Migrants</td>
<td>Out-Migrants</td>
<td>In-Migrants</td>
</tr>
<tr>
<td>Hawaii</td>
<td>19.8</td>
<td>20.7</td>
<td>4.8</td>
</tr>
<tr>
<td>Idaho</td>
<td>36.8</td>
<td>14.0</td>
<td>4.1</td>
</tr>
<tr>
<td>Oregon</td>
<td>34.4</td>
<td>10.7</td>
<td>3.6</td>
</tr>
<tr>
<td>Washington</td>
<td>19.3</td>
<td>11.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Connecticut</td>
<td>33.2</td>
<td>32.6</td>
<td>2.5</td>
</tr>
<tr>
<td>Maine</td>
<td>31.7</td>
<td>17.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>42.3</td>
<td>23.6</td>
<td>2.5</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>50.1</td>
<td>28.8</td>
<td>3.5</td>
</tr>
<tr>
<td>New York</td>
<td>21.9</td>
<td>13.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>61.3</td>
<td>22.5</td>
<td>2.9</td>
</tr>
<tr>
<td>Vermont</td>
<td>70.4</td>
<td>25.4</td>
<td>3.4</td>
</tr>
</tbody>
</table>

**Notes:** \(^1\)Students are first-time students in 2012 at Title IV-eligible institutions who graduated high school within the preceding 12 months. \(^2\)Data are subject to sampling variability.

**Sources:** NCES IPEDS; Internal Revenue Service; McKenzie, B., *Out-of-State and Long Commutes: 2011*, U.S. Census Bureau, Table 6.
# In-Migration of Recent Graduates

<table>
<thead>
<tr>
<th>State</th>
<th>In-Migrants (from Anywhere)</th>
<th>In-Migrants as % of All Completers From <em>Any State</em> With an Employment Record in Data Exchange States</th>
<th>In-Migrants as a % of All Completers With an Employment Record in a State Other Than Where They Obtained a Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hawaii</td>
<td>205</td>
<td>14.3%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Idaho</td>
<td>550</td>
<td>23.9%</td>
<td>17.3%</td>
</tr>
<tr>
<td>Oregon</td>
<td>1,227</td>
<td>15.5%</td>
<td>38.5%</td>
</tr>
<tr>
<td>Washington</td>
<td>1,198</td>
<td>9.2%</td>
<td>37.7%</td>
</tr>
</tbody>
</table>

Note: These data only apply to students captured in the original cohort definitions and who completed an associate’s degree or higher by Dec. 2010. Employment was measured 10-12 months after receipt of award. These data should be read as, for example, Washington attracted 1,198 recent graduates from the original cohorts to its labor market, representing 9.2% of all recent graduates found to be employed in Washington and accounting for 37.7% of all the recent graduates who crossed state lines to find work.
Location Relative to “Home”

- **Bach+ in home state**
  - Not found: 29%
  - Enrolled or wages elsewhere: 5%
  - Home - enrolled only: 4%
  - Home - wages and enrolled: 5%
  - Home - wages only: 57%

- **Assoc in home state**
  - Not found: 25%
  - Enrolled or wages elsewhere: 4%
  - Home - enrolled only: 13%
  - Home - wages and enrolled: 16%
  - Home - wages only: 42%

- **Assoc+ outside state**
  - Not found: 51%
  - Enrolled or wages elsewhere: 18%
  - Home - enrolled only: 5%
  - Home - wages and enrolled: 4%
  - Home - wages only: 23%
Mobility of Washington Bachelor’s and Higher Graduates by Field of Study

Notes: Data are for individuals who completed by December 2010. Employment measured 10-12 months after receipt of award, and subsequent enrollment measured for a term concurrent with the quarter employment was sought.
Median Wages of Washington Bachelor’s Degree Earners by CIP Field and Employment Location

Note: These data only apply to students captured in the original cohort definitions and who completed an associate’s degree or higher by Dec. 2010 and who were not simultaneously enrolled. Employment was measured 10-12 months after receipt of award.
CONCLUSIONS AND NEXT STEPS
Questions for Policy and Practice

**Policy**
- What % of graduates (and non-graduates) are employed, both in-state and elsewhere, or pursuing further education?
- How well are state education investments meeting the needs of state industries?
- To what extent is our state retaining our own residents after their studies, or attracting them back if they left for college, as well as non-resident students we educated here?
- What is our “balance of trade” in human capital?

**Practice**
- Where do our former students go to find employment and in what industries?
- How well are our former students performing after they leave and attempt to enter the workforce?
- Are we offering the right mix of academic programs to serve our state’s economic development needs?
- What curricular adjustments might more fully ensure that the programs we offer are delivering the knowledge and skills the labor market demands?

More generally

Now that we have a broad picture, what more do we need to know before we act?
Advantages

• Not restricted by state borders = more comprehensive information
• Accountability & consumer info; no policy or program improvement
• Better information possible by equipping states with key information (i.e., remediation)
• Capacity to examine outcomes for those who don’t graduate
• Capacity to examine the “balance of trade” among states in talent
Limitations

• Coverage of students attending independent institutions
• Relies on voluntary adoption
• Employment outcomes for students who do not go to college
• Self-employed, military, and federal government not covered in UI wage records
• Variables of interest missing from UI wage records
Lessons

• Analyses of mobility have policy relevance, without having to wade into interpretations of wages
• Indicators of outcomes vary based on staying or leaving
• Greater flexibility and capacity to deliver rapid responses to policy questions needed
• Need to expand to more states, not just for better coverage but also for ease of interpretation
• More capacity to do analysis needed at state level
• Ongoing debates about CCSS assessments and data security are bound up together and a threat
• Value propositions are unequal among states and state agencies
Where To From Here?

• New round of funding to expand exchange to at least 10 total states

• Changing exchange architecture to enhance usability and security

• Long-term vision: A sustainable resource available (though not necessarily free) to all states
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www.wiche.edu/longitudinaldataexchange
Identity Resolution

Notes: A & B refer to the cohorts of students from each of the four states identified for the exchange. A is all public high school graduates from 2004-05; B is first-time postsecondary students in public institutions. "NSC" refers to the National Student Clearinghouse.