

A Look Into How Two-Year College Graduates Do When They Go On To Get A Four-Year Degree

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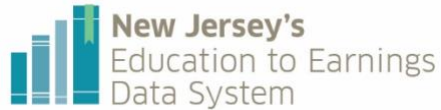
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New Jersey Education to Earnings Data System Working Paper Disclaimer Statement

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Introduction

Through New Jersey's Community College Opportunity Grant program (CCOG), millions of dollars are spent each year encouraging and assisting residents to earn an associate degree. Over time, this program continues to grow.

Year	CCOG Spending	NJ Residents Assisted
2018-19	\$6 million	5,437 residents
2019-20	\$19 million	10,224 residents
2020-21	\$27 million	13,160 residents

As funding and participation is increasing, we can assume this program must be working as intended. Which begs the question: would it be beneficial for New Jersey to expand the program by encouraging associate degree holders to continue on to get their bachelor's degree?

To answer that question, we needed the following:

- For associate degree holders, the financial impact of gaining a bachelor's degree before entering the workforce compared to going straight into the workforce.
- Data that could tell us if it is fiscally advantageous to continue to a four-year degree.
- Data that could help NJ determine if this is something the state should support.

Conventional wisdom touts the benefits of higher education and the advantage in earnings holders of bachelor's degrees have over those with an associate degree. Therefore, our expectations were that:

- Those who go on to get a bachelor degree will earn a significantly higher salary within a few short years.
- They will recoup their costs and lost wages within the next 10 years.
- These advantages will apply to almost everyone, no matter their field of study.

Literature Review

We reviewed two previous studies which covered very similar research.

The Maryland Study

MLDS Center. (2020). *Educational and Workforce Outcomes for Associate's Degree Graduates from Maryland's Community Colleges*. Baltimore, MD: Maryland Longitudinal Data System Center.

The Maryland Study explored the outcomes for students who graduated from a Maryland Community College with an associate degree during the 2013 Academic Year.

- The associate degree graduates were grouped based on their educational attainment, i.e. whether they continued college and received additional degrees.
- Quarterly Unemployment Insurance (UI) wages were used to explore wages earned in the 20th quarter, or five years, after graduation.

Maryland results:

- The study found that students that went on to earn a bachelor's degree or higher earned \$280 more in the 20th quarter compared to all associate degree earners.
- The study also found that students with an associate degree only, with no subsequent education, earned \$533 more in the 20th quarter than students that went on to earn a bachelor's degree or higher.
- An associate degree does appear to provide a meaningful return on investment.
 - The average in-county tuition and fees for completing an associate degree in Maryland in 2012-2013 was \$7,400.
 - Five years after earning the degree, the median quarterly wage for an associate degree graduate was \$10,967, or approximately \$43,000 per year.
 - The median quarterly wage for a Maryland high school graduate who does not continue on to college was \$5,931, or approximately \$24,000 per year.

St. Louis Federal Reserve Study

Kolesnikova, Natalia. "Community Colleges: A Route of Upward Mobility." Federal Reserve Bank of St. Louis. St. Louis, MO, March 2009.

This study analyzed outcomes of community college students compared to those of traditional, 4-year colleges.

- More specifically, how do students who transfer from a community college fare compared to their counterparts who start at a 4-year institution.
- The study found the bachelor degree holders with an associate degree earn \$2,436 less a year on average than those who started at a four-year college, sometimes referred to as the "community college penalty".

The Research Question:

Should New Jersey encourage and assist those who have received their associate degree to continue on, to get their bachelor's degree?

In preparing to answer this questions, there were a number of issues we needed to address:

- Make sure we were comparing the appropriate sub-cohorts (only our two groups).
- Consider what time frame should we look at?
- Consider what outcomes are relevant?
 - Financial?
 - Other?
- Consider if the outcomes differ by program area?

Expectations

Conventional wisdom touts the benefits of higher education and the advantage in earnings holders of bachelor's degrees have over those with an associate degree. Therefore, our expectations were that:

- Those who go on to get a bachelor's degree will earn a significantly higher salary within a few short years.
- They will recoup their costs and lost wages within the next 10 years.
- These advantages will apply to almost everyone, no matter their field of study.

Analytical Frame

Based on our Research question, “How do associate degree holders compare to bachelor degree holders financially over a 10-year period?” we created two sub cohorts:

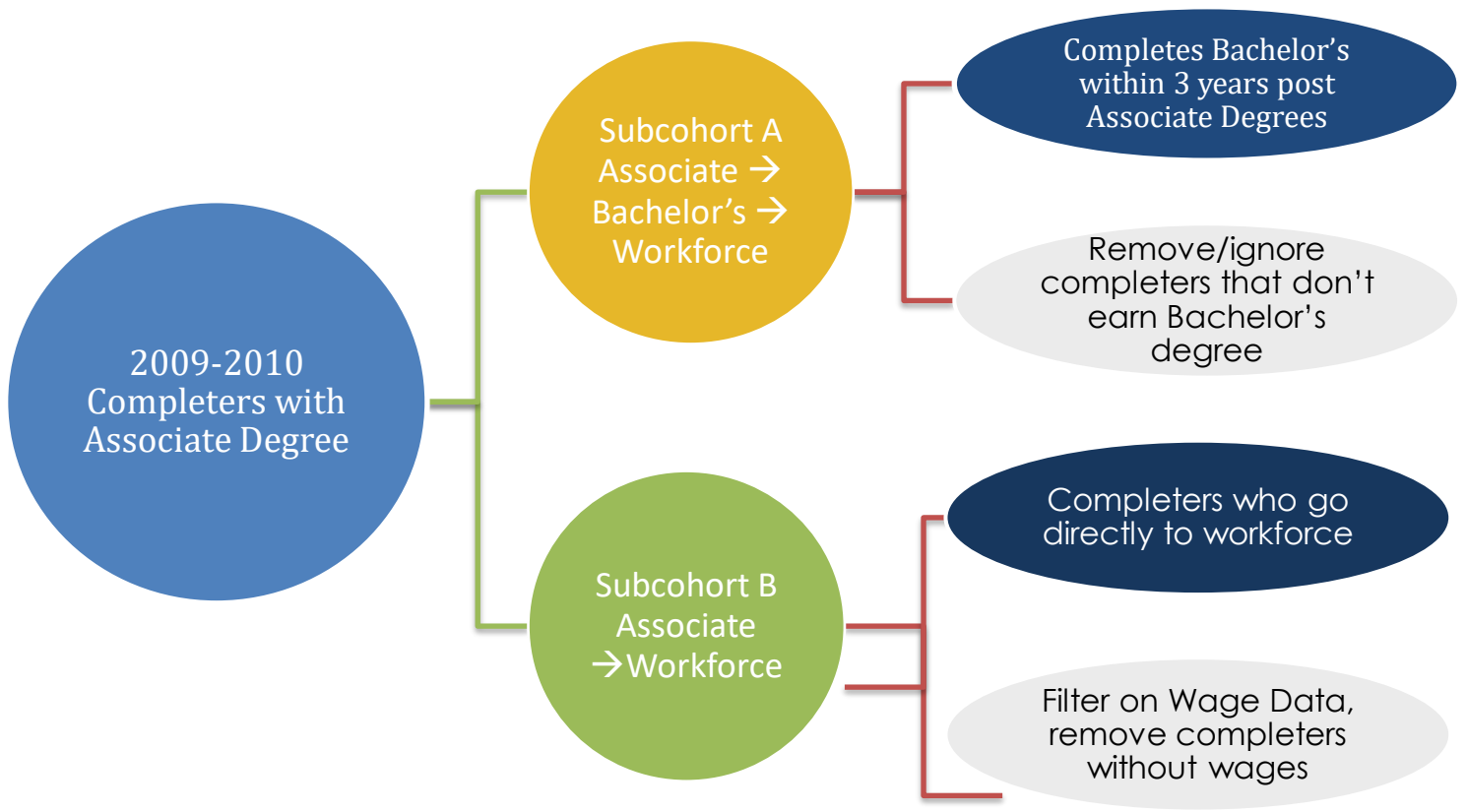
- Completers that go directly into workforce.
- Completers that go on to earn a Bachelor's (within 3 years post-associate) and then go into the workforce.

For these two cohorts, we pulled wages from year 1–9 post community college graduation, reviewing Quarters 1, 12, 24, and 36 for our comparison.

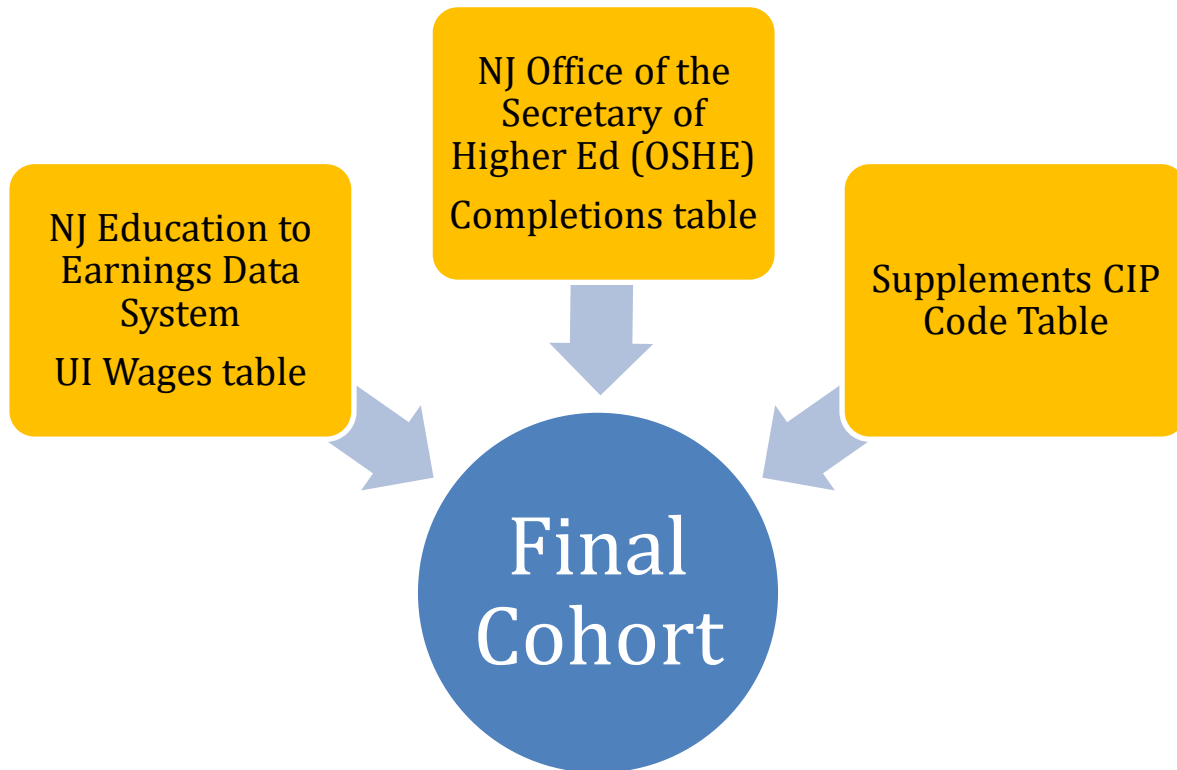
Data/Model

Creating the Cohort:

We created a sample of students who earned an associate degree during the 2009-2010 academic year. We used the hashed SSN to match those records to bachelor's completers and to the UI wage data to create our finalized dataset.



Where Did it Come From?

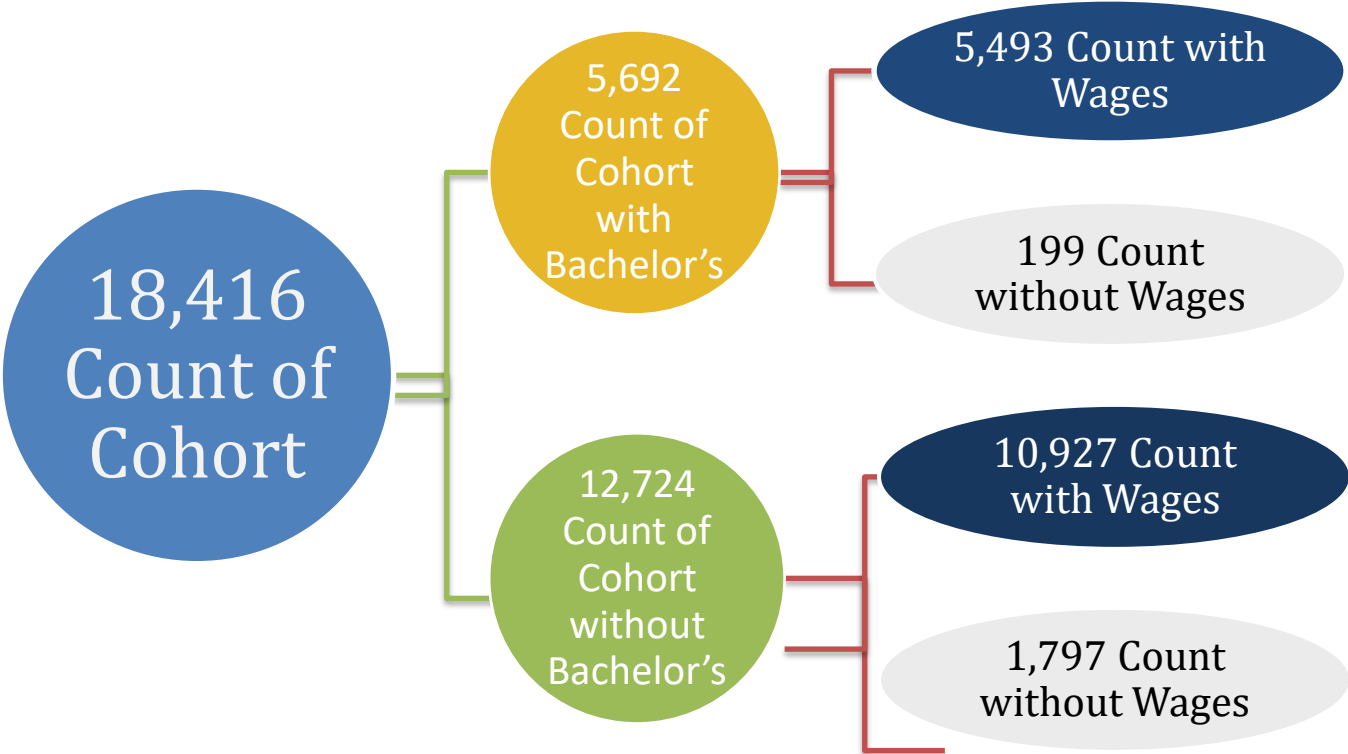


Below is a list of all datasets used, including any public data added to conduct this analysis:

- NJ Office of the Secretary of Higher Ed (OSHE) enrollment data (completers' data)
- NJ Education to Earnings Data System UI Wages
- OSHE's publicly available Program Area "buckets" that used the 2-digit Classification of Instructional Programs (CIP) Codes to create the buckets. Categories included Arts and Humanities, Business and Communications, Education, Health, STEM and Social and Behavioral Sciences and Human Services.

Key Findings

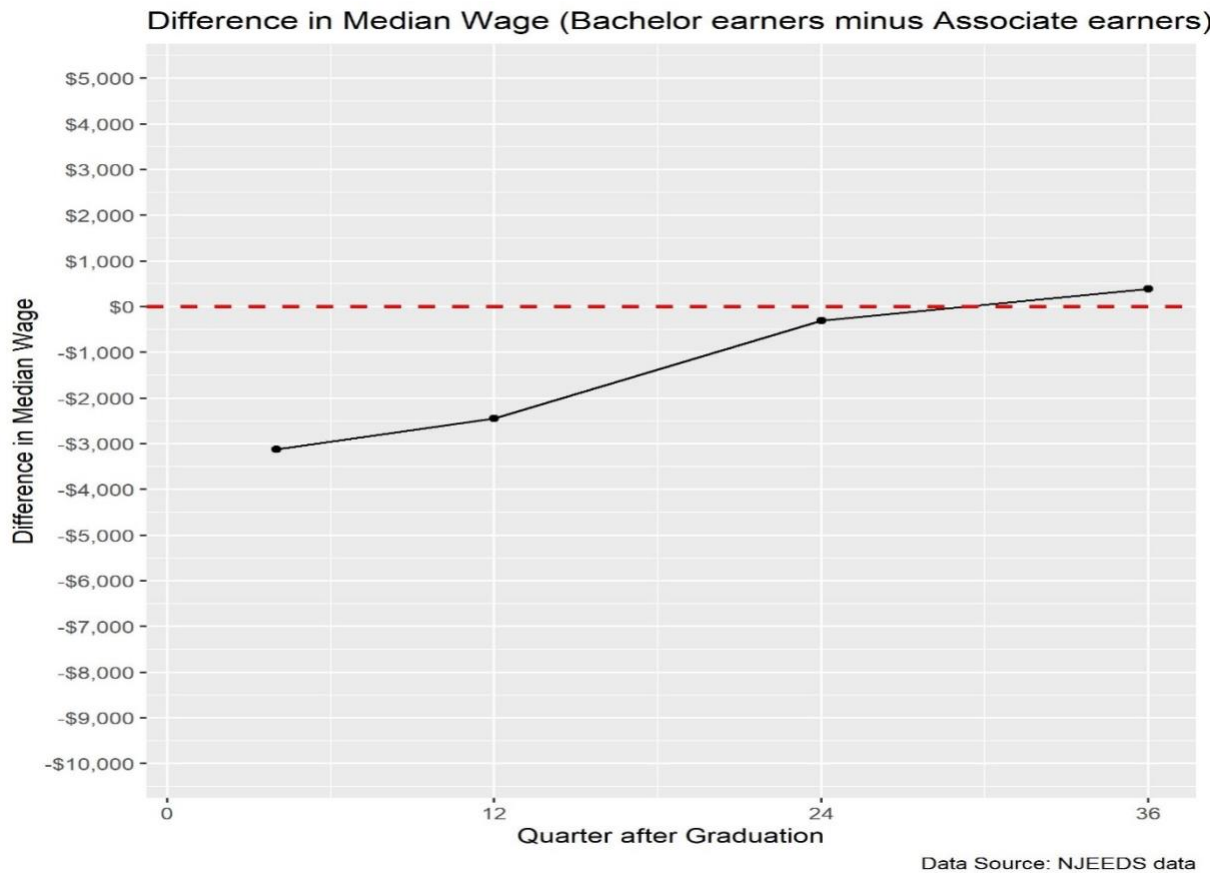
Models and Counts



Comparison between the two main sub cohorts

The below graph shows the difference in quarterly wages between those in our cohort that went on to earn a bachelor's degree compared to those who only earned an associate degree.

- The wages of those having an associate degree only are represented with the baseline, the red dotted line at zero dollars.
- The black line shows the difference in wages for those who went on to earn a bachelor's, looking at quarterly wages at four different points, one year out, three years out, six years out, and 9 years out.



This graph, for example, shows that at one year out someone with a bachelor's degree is making on average a little over 3,000 dollars less that quarter than someone who earned their associate degree and went straight into the workforce.

At the one year out mark, the individuals who went on to earn their bachelor's degree would probably still be in school. At the three years out point however, all of those within the

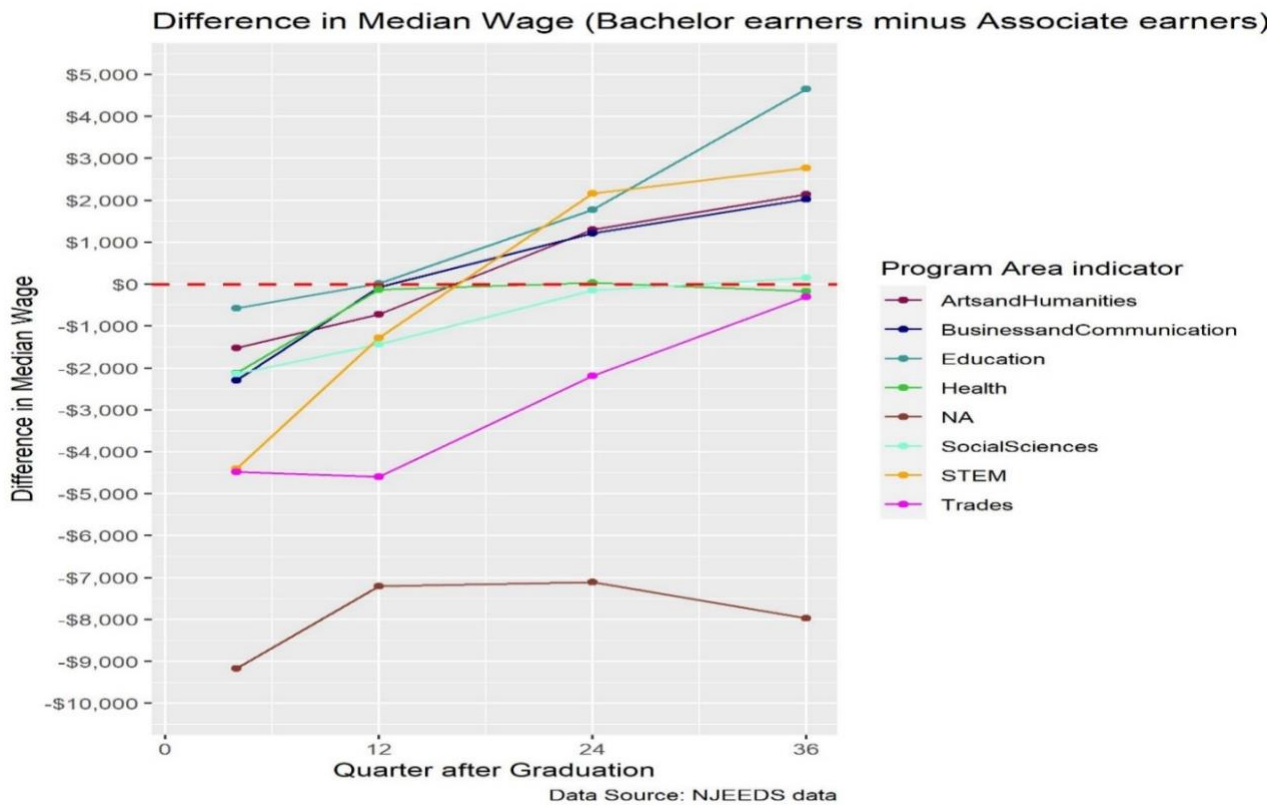
bachelor's earning cohort would have finished school, as we only looked at those who earned a bachelor's degree within 3 years of earning their associate degree. Many of these individuals might still have limited work experience, having only recently completed their bachelor's degree.

Between the sixth year out and the ninth year out, the quarterly wages of those who earned a bachelor's degree begins to exceed the quarterly wages of those who only earned an associate.

There is an experience difference that can be seen in this graph. Those who earned an associate's degree and went straight into the workforce have had the time to accumulate more work experience than those who went on to earn a bachelor's degree, which may be contributing to the higher wages for associate's earners up until the 9 year after graduation point.

Results are similar to what was found in the Maryland study. In the Maryland study, associate degree earners earned 533 dollars more in the 20th quarter than those who had gone on to earn a bachelor's degree. While we did not look at the 20th quarter, we looked at the 24th quarter out from graduation and found those who earned only an associate degree to be earning approximately 300 dollars more than those who earned a bachelor's degree.

Comparison between the different program areas



Some Findings:

For most Program Areas, Wages of bachelor's degree holders begin to exceed those of associate degree holders prior to 6 years post-graduation.

- Arts & Humanities
 - Represents nearly half of our total cohort (47.8%).
 - Nearly 4 in 10 went on to get their bachelor's degrees, the second highest out of the 7 CIP categories we studied.
 - Began to see a positive wage differential 24 quarters from graduation (3rd highest, \$1,297) and also 3rd highest after 36 quarters (\$2,138)
- Business & Communication
 - 3rd largest cohort (13.4%)
 - Nearly 1 in 3 went on to get their bachelor's degrees (32.0%)
 - Wage differential 24 and 36 quarters out from graduation was similar to that of Arts & Humanities (\$1,210 and \$2,025, respectively)
- Education
 - The second smallest of the 7 categories we studied (next to trades). Only 5% of associates earners studied Education.
 - However, this category had the most go on to earn their bachelor's degrees (39.3%).
 - The wage differential 36 quarters from graduation was the highest out of the categories we studied (\$4,658).
 - This makes sense as most teaching positions now require at least a bachelor's degree.

- The median wage for associate's degree only was only \$9,843 after 9 years, the lowest of the 7 categories studied.
- Health
 - Health was the third largest cohort we studied (15.3%).
 - It also had the lowest share of graduates going on to get their bachelor's degrees (6.5%).
 - One objective of students at community colleges is to obtain a 2-year degree and credentials to obtain a higher paying job than one could get with only a high school diploma.
 - Health care has been and is one of the fastest growing industries and a number of well-paying in-demand occupations only require a 2-year degree, so it is not surprising that most enter the workforce without going on to get a bachelor's degree.
 - In fact, median earnings for graduates in education 36 quarters out, both with and without bachelor's degrees, was the highest out of the 7 categories we studied (\$18,741 and \$18,908 respectively).
 - Our data show that for the small share of graduates that did go on to get a bachelor's degree, there was essentially no wage differential 24 and 36 quarters from graduation (+\$33 and -\$167 respectively)
- Social Sciences
 - Nearly one in 10 associate degree earners studied Social Sciences (9.5%).
 - A relatively high share – one in three - went on to get their bachelor's degrees (33%).
 - The wage differential was negligible 6 and 9 years out (-\$151 and +\$154 respectively).

- STEM
 - STEM represented the third smallest cohort of all associate's degree earners (6.3%).
 - 26.5% went on to get a bachelor's degree in NJ.
 - The wage differential was the highest both 6- and 9-years out (\$2,159 and \$2,768 respectively).
 - Bachelor's degree earners had the second highest median wage 9-years after graduation (\$17,914, second to health).
- Trades
 - Trades was the smallest cohort of the 7 fields we studied (2.5%).
 - Also, a small percentage went on to get their bachelor's degrees (13.9%).
 - The wage differential for those who studied trades never turned positive over our timeframe.
- NA.
 - In the interest of full disclosure we included an NA category which represented a very small share of our full cohort (<1%). As such, this group's wage differentials on the chart aren't robust.

Caveats

- Only New Jersey wage data are available, so we lose the visibility with what happens when someone moves to another state or people with multiple jobs in neighboring states. Access to SWIS data would provide a more robust analysis.
- Wage data does not contain self-employed persons, independent contractors, out of state employment, military personnel & federal employees.
- Bachelor's degree data outside of NJ is not available.

Possible Research Extensions

Future research could easily expand on the existing data by expanded our two defined cohorts in any number of ways, such as:

- Examine the wage data in the years 2011, 2012, etc. and present the data in a visual manner to detect and analyze trends.
- Possibly look at completers that went on to get a bachelor's degree in ≥ 4 yrs. post-graduation.
- Review earnings outcome by dominant employer (employer in which completers got the most earnings.)
- Filter out earning that did not meet or exceed the NJ minimum wage in the applicable year.

A “Big Question” remains. The data does not show strong evidence that New Jersey should support associate degree holders continuing their education. Would looking at a longer time horizon give us a stronger sense that (after getting an associate degree) going on to get a bachelor's degree is a financially sensible choice?

Team 3

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1

Introduction

KEVIN HANNEL



2

The CCOG

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▶ New Jersey's Community College Opportunity Grant (CCOG)

- ▶ Millions of dollars spent each year to encourage and assist residents to earn an Associate Degree.

▶ 2018-19	\$6 million	5,437 residents
▶ 2019-20	\$19 million	10,224 residents
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- ▶ Assumption - this program is working as intended.

3

Begs the question

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- ▶ Should New Jersey encourage and assist those who have gotten their Associate Degree to continue on, to get their Bachelor's Degree?

- ▶ Issues
 - ▶ Apples and Oranges?
 - ▶ What time frame should we look at?
 - ▶ What outcomes are relevant?
 - ▶ Financial?
 - ▶ Other?
 - ▶ Do the outcomes differ by program area?

4

Our Motivation

5

- ▶ We want to know –
 - ▶ For Associate Degree holders, what is the financial impact of gaining a Bachelor's Degree before entering the workforce compared to going straight into the workforce?
 - ▶ What data could tell us if it is fiscally advantageous to continue to a four-year degree?
 - ▶ What data could help NJ determine if this something the state should support?

5

Expectations

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- ▶ Conventional wisdom touts the benefits of higher education and the advantage in earnings holders of Bachelor's Degrees have over those with an Associate Degree. Therefore, our expectations were that:
 - ▶ Those who go on to get a Bachelor Degree will earn a significantly higher salary within a few short years.
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 - ▶ These advantages will apply to almost everyone, no matter their field of study.

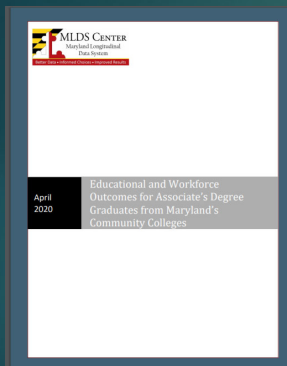
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Literature Review

SHITAL PATEL

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The Maryland Study



- ▶ Explored the outcomes for students who graduated from a Maryland Community College with an Associate's degree during the 2013 Academic Year.
- ▶ Grouped the Associate's degree graduates based on their educational attainment, i.e. whether they continued college and received additional degrees.
- ▶ Used quarterly Unemployment Insurance (UI) wages to explore wages earned in the 20th quarter, or five years, after graduation.

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Maryland Study Results

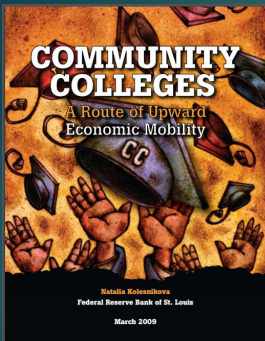
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- ▶ The study found that students that went on to earn a Bachelor's degree or higher earned \$280 more in the 20th quarter compared to all Associate's degree earners.
 - ▶ The study also found that students with an Associate's degree only, with no subsequent education, earned \$533 more in the 20th quarter than students that went on to earn a bachelor's degree or higher.
- ▶ An Associate Degree does appear to provide a meaningful return on investment.
 - ▶ The average in-county tuition and fees for completing an Associate Degree in Maryland in 2012-2013 was \$7,400.
 - ▶ Five years after earning the degree, the median quarterly wage for an Associate Degree graduate was \$10,967, or approximately \$43,000 per year.
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St. Louis Federal Reserve Study

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- ▶ This study analyzed outcomes of community college students compared to those of traditional, 4-year colleges.
- ▶ More specifically, how do students who transfer from a community college fare compared to their counterparts who start at a 4-year institution.
- ▶ The study found the Bachelor degree holders with an Associate degree earn \$2,436 less a year on average than those who started at a four-year college, sometimes referred to as a "community college penalty".

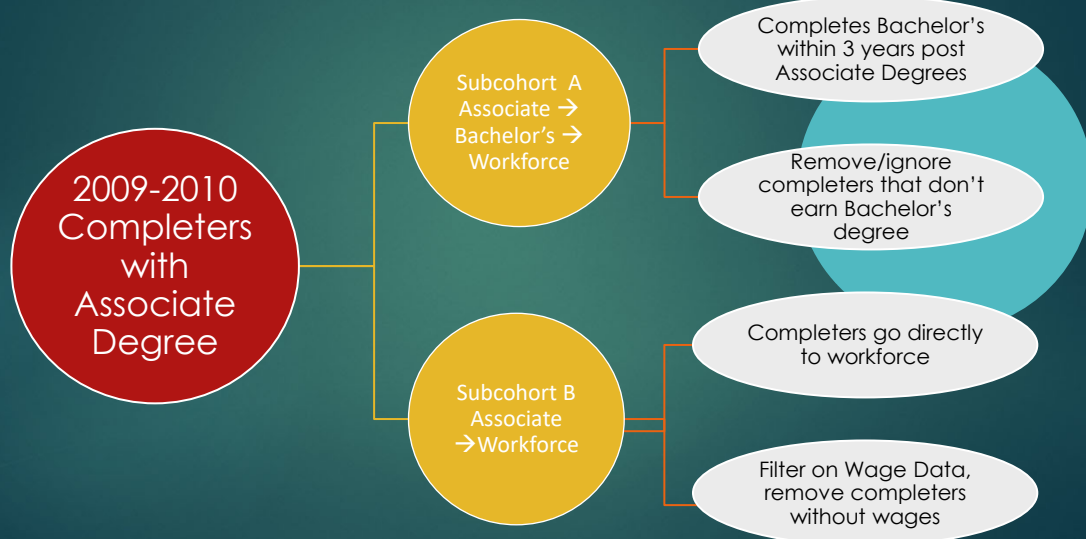
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Data and Measurement

TERRI MUNKACSY

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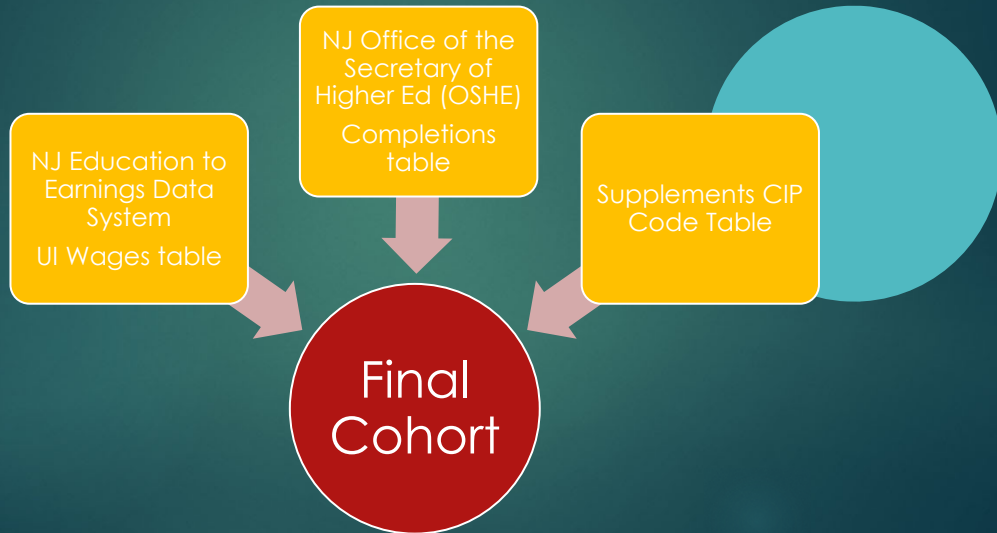
Analytical Frame:



12

Where did it come from?

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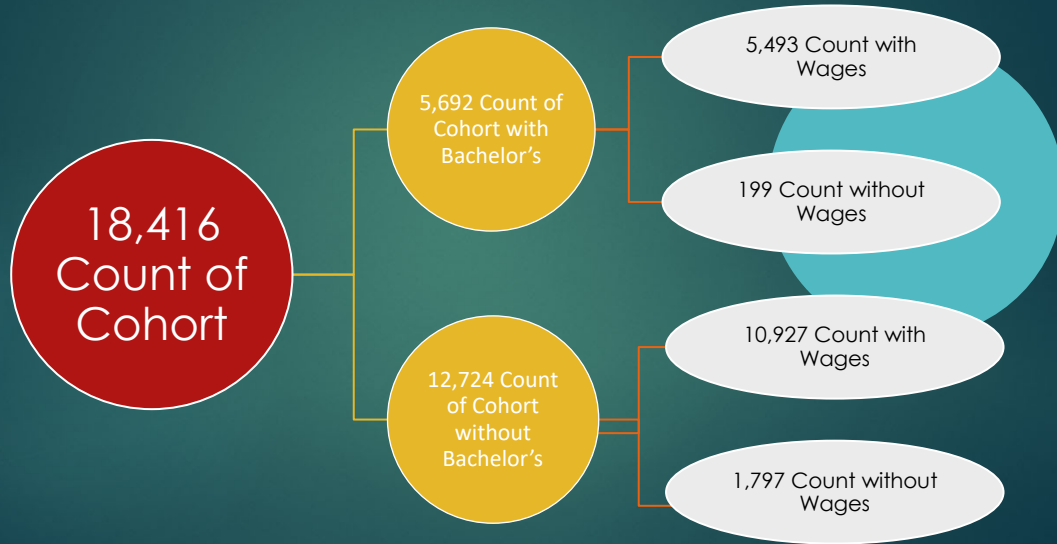
Results

ALLIE KVARANTAN



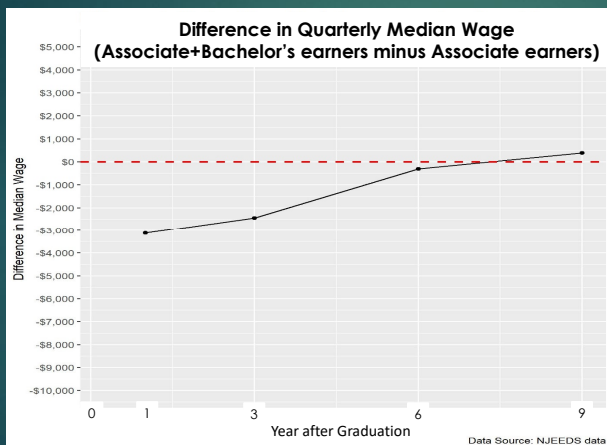
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Model and Results:



15

Comparison – The Two Main Sub Cohorts

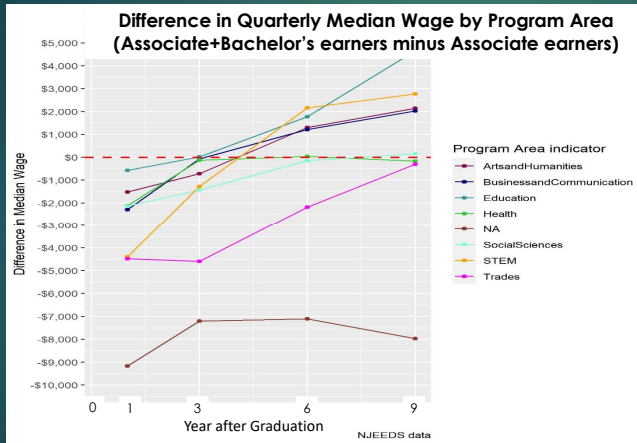


▶ Wages of (Associate plus) Bachelor's Degree holders begin to exceed those of Associate Degree holders between 6 and 9 years post-graduation

16

Comparison – Different Program Areas

17



▶ For most Program Areas, Wages of Bachelor's Degree holders begin to exceed those of Associate Degree holders prior to 6 years post-graduation

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18

Caveats

NIMIT SHAH

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Keep your eye on the Doughnut, not on the Hole!

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▶ Some caveats to keep in mind:

- ▶ Only NJ Wage Data is available, and not any other state.
- ▶ Wage data does not contain self employed persons, independent contractors, out of state employment, military personnel & federal employees.
- ▶ Bachelor's Degree data outside of NJ is not available.
- ▶ Pizza was discussed during 11 to 1 Virtual ADA Class, but let's hope we get to eat it in person.



19

20

Next Steps

KEVIN HANNEL



20

What's Next?

21

- ▶ Revise our filters on our two defined cohorts.
 - ▶ Examine the wage data in the years 2011, 2012, etc. and present the data in a visual manner to detect and analyze trends.
 - ▶ Possibly look at completers that went on to get a Bachelor's degree in ≥ 4 yrs. post graduation.
 - ▶ Review earnings outcome by dominant employer (employer in which completers got the most earnings).
 - ▶ Review only that met or exceeded the NJ minimum wage in the applicable year.

21

What's Next?

22

- ▶ The "Big Question" that remains:
 - ▶ Would looking at a longer time horizon give us a stronger sense that (after getting an associate degree) continuing on to get a Bachelor's degree is a financially sensible choice?

22

Questions?

