

# Postcollege Workforce Outcomes Measures: Issues Facing Policymakers, Analysts, and Researchers

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## Introduction

The impact of college on workforce outcomes has become a central issue in the ongoing debate about the role of postsecondary education in the American economy and society. Community colleges are at the center of this debate. Questions that drive the policy conversation include these three:

1. What is a postsecondary program's employment rate?
2. How much are completers earning?
3. At what level—student, program, or college—should earnings or other data for college completers be made available?

In this paper, the following points are advanced:

- The diverse paths a college student may take after graduation—including further postsecondary education, employment, participation in humanitarian efforts, enlistment in military or clandestine services, incarceration, or death—do not allow for the calculation of a precise “employment/placement rate.” As such, it may be most accurate and honest to generate an employment match rate along with earnings data. Also, note that the inverse of the employment rate does not denote failure.
- Earnings data can be problematic for a number of reasons. One way to accommodate this is to include the median in addition to a range of values.
- For practical, legal, and other reasons, an individual student is not a viable option for reporting purposes in this area. Aggregate college and university earnings value is also not generally viable because most institutions offer a wide range of programs in which earnings can vary substantially, depending on major and award level (e.g., certificate, bachelor's degree, advanced degree). Given this, data for completers should be made available at the 2-digit Classification of Instructional Programs (CIP) level, as defined by the Integrated Postsecondary Education Data System (IPEDS) of the U.S. Department of Education's (ED's) National Center for Education Statistics (NCES).<sup>1</sup>

The following sections provide justification for these ideas. The intent of this paper is to provide

a foundation on which future conversations may be based.

Substantial work has and is being conducted by state agencies and other parties to connect workforce and education data. While this work is encouraging, progress across the states varies. The following discussion assumes use of federal data.

## A Program's Employment Rate

Ideally, all workforce training programs would have a placement rate. However, in some cases former students are engaged in activities that simply are not captured by earnings or other data, yet we clearly should not count these individuals as failures. Examples include, but are not limited to, further postsecondary education, employment, participation in humanitarian efforts, enlistment in military or clandestine services, incarceration, or death. Capturing all individual cases would require connecting data systems including, but not limited to, corrections, education, vital statistics, federal offices, military branches, and employment, for example. This data collection is not feasible at this time.

A related question to consider as workforce metrics are developed is whether unemployment insurance (UI) data—developed as a state and federal partnership and utilized in various data systems—or federal data from the Social Security Administration (SSA) should be used.<sup>2</sup> SSA or Internal Revenue Service (IRS) data will result in the highest employment match rate available and therefore will result in the most comprehensive data for stakeholders. SSA data were used for the gainful employment regulations and IRS data are already matched for FAFSA completion purposes, albeit as an opt-in procedure by students completing the form.

The use of SSA data also addresses the issue of employee mobility, in that if a completer graduates in State A then moves to State B to work, State A may not have access to State B's wage data. This is especially a problem in metropolitan areas. There is an effort under way by the U.S. Department of Labor to make wage data available across state lines through a program titled the Wage Record Interchange System 2 (WRIS2).<sup>3</sup> However, at present fewer than twenty-five states participate in WRIS2.

It is for these reasons that reporting an employment match rate, as proposed, is the most appropriate way to

conceptualize placement. It also would help to eliminate the idea that any students not included in the data are unemployed, which, given the limitations expressed above, is often an incomplete and inaccurate statement.

## Earnings

Earnings data do not provide consistent data for all workers, or, often, a clear national picture. Quarterly data may be available for workers in UI systems, whereas annual data are available from the SSA for self-employed individuals and those outside UI systems. States do not consistently track hours worked, so we cannot know if the earnings reflect a full- or part-time job. We do not know if the person has one job, or more than one job. In addition, there are dramatic regional differences in earnings. These and other issues severely limit the comparability of earnings.<sup>4</sup>

Providing only median earnings may therefore misinform stakeholders. To be as transparent as possible, the best solution appears to be using the median in addition to a range of wage values—the low- and high-point estimates from either the restricted range (the 5th and 95th percentiles) or the 25th and 75th percentiles.

These data should be provided for the calendar year after program completion (e.g., a graduate in 2010 should have earnings data for 2011). It may take time for a student to find employment if he graduates toward the end of a calendar year; by providing a range of wage values in addition to medians, this variance can be accounted for in the most helpful manner. Employment and earnings data 5 years after program completion in addition to data 1 year after completion may be appropriate for inclusion (see Table 1). This seems essential to capturing the benefits of general education programs.

**Table 1. 1- and 5-Year Employment Outcomes for Program Completers at College A, by Award Type**

Program Name at College A	1 Year after Completion						5 Years after Completion					
	Completers			Earnings (annual)			Completers			Earnings (annual)		
	Identified Workers	Employment Rate	Status Unknown <sup>a</sup>	Median	Low	High	Identified Workers	Employment Rate	Status Unknown <sup>a</sup>	Median	Low	High
Less-than-1-year certificate												
Program A	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$
Program B	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$
Program C	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$
1- to 2-year certificate												
Program A	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$
Program B	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$
Program C	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$
Associate degree												
Program A	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$
Program B	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$
Program C	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$
Bachelor's degree												
Program A	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$
Program B	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$
Program C	-,---	%	-,---	\$	\$	\$	-,---	%	-,---	\$	\$	\$

Source: ---

Note: The Employment Rate reflects those students for whom data were available. Earnings amounts include those with "\$0." There are several factors associated with earnings that may not be accounted for in this analysis.

<sup>a</sup> Those identified as having an unknown status include, but are not limited to, graduates who may have reenrolled in college or enlisted in the military, or who are incarcerated or deceased.

## Defining Programs

Another option for tracking students after they complete a postsecondary education program is using the 6-digit CIP code for a major. This level of detail provides specific program information. For example, the 6-digit CIP code 14.4001 is a code for those who majored in paper science and engineering. The drawback to using these granular data is that not many students will graduate from each unique program each year.

This extragranular approach ultimately results in a lack of available data, since there needs to be some minimum level of graduates to meet individual privacy protection guarantees. This is commonly known as the small number provision; a small number provision is applied in the determination of ED institutional cohort default rates, for example.<sup>5</sup> In fact, a painful lesson of the gainful employment regulations was that thousands of programs did not receive any earnings data in return for the data they submitted to ED for matching—resulting in an extraordinary burden with no benefit. ED officials knew going in of the impact of the small number provision, noting that 33,356 of 55,405, or 60%, of all gainful employment programs that submitted data would not receive any earnings data, because the number of graduates did not meet the minimum threshold of 31.<sup>6</sup> So while data at the granular level would be ideal, they might reveal very little.

The small number provision problem is exacerbated by the fact that it is desirable to sort earnings data by level of educational attainment, further limiting the number of graduates in any given category. For example, of the 393 students who graduated from an American Sign Language program in the 2010–11 academic year at 7,303 U.S. institutions, 89 earned a certificate of less than 1 year in duration, 81 earned a certificate of 1 to 2 years in duration, 130 earned an associate degree, 86 earned a bachelor's degree, and 7 earned a postbaccalaureate certificate.<sup>7</sup>

Given these considerations, the best possible option at this time appears to be earnings data by credential level (e.g., certificate or degree type) and 2-digit CIP code.

However, there are ways to use a more refined 4- or 6-digit CIP code without running into the small number provision problem.<sup>8</sup> First, a moving average, say over at least 5 years, could remedy this situation.

This approach would also help eliminate biases in the data due to fluctuations in the economy and the resulting impact on earnings. A second option is based on the realization that the more data that are available, the more accurate the median earnings value will be. As such, all data for all completers in all years for which data are available could be aggregated to provide program earnings and employment estimates (after earnings values are adjusted for inflation).

Many of those advocating for a 6-digit CIP code would like to make a direct connection between a specific program of study, as defined by the 6-digit CIP code, and a specific job, as classified by the U.S. Department of Labor in its Standard Occupational Classification (SOC) system.<sup>9</sup> For some majors, there is a direct connection to a specified occupation, but this is not true for all majors and occupations. In 2011, a technical review panel (TRP) of the NCES focused on developing a single, consistent job placement rate; it concluded, “[A] single job placement rate methodology could not be developed without further study because of limitations in data systems and available data” (Kelly-Reid, 2011, p. 1).<sup>10</sup> The TRP did suggest that generating an employment rate or placement is not inherently impossible.<sup>11</sup>

## Additional Questions

While the three questions outlined above provide the foundation for discussing workforce data, there are numerous other related issues. (Note this discussion does not address the data that institutions need in order to develop programs that are responsive to workforce needs). This section discusses a few of the more pressing questions.

### Change in Earnings

A persistent question in determining the impact of educational programs concerns how to account for the economic/earnings value-added for students who were already working before they enrolled in college. A straightforward perspective of earnings change would take the difference in earnings before and after college to arrive at an earnings change (after adjusting for inflation).

While this simplistic calculation may provide useful information in some instances, it is not universally

enlightening. For example, if a line worker at an automotive industry lost a job that paid \$95,000 and then went to college, subsequently graduated, and was hired at a job at \$65,000, the earnings return to college would be negative. This could lead to unfounded concerns about a program’s benefits. The subsequent question as it relates to earnings change is, What is the appropriate precollege comparison point? For example, one could assume that the dislocated worker did not return to work and had earnings of \$0, or that she was hired at minimum wage and earned \$15,080 a year.<sup>12</sup>

An additional wrinkle is that students enroll in college to upskill; data have consistently shown that roughly a quarter of community college students had a postsecondary credential before enrolling. This upskilling may be to keep their current job or to gain a promotion.

A way to enhance understanding for the largest number of students is to provide high and low estimates for earnings. Just as we suggested with

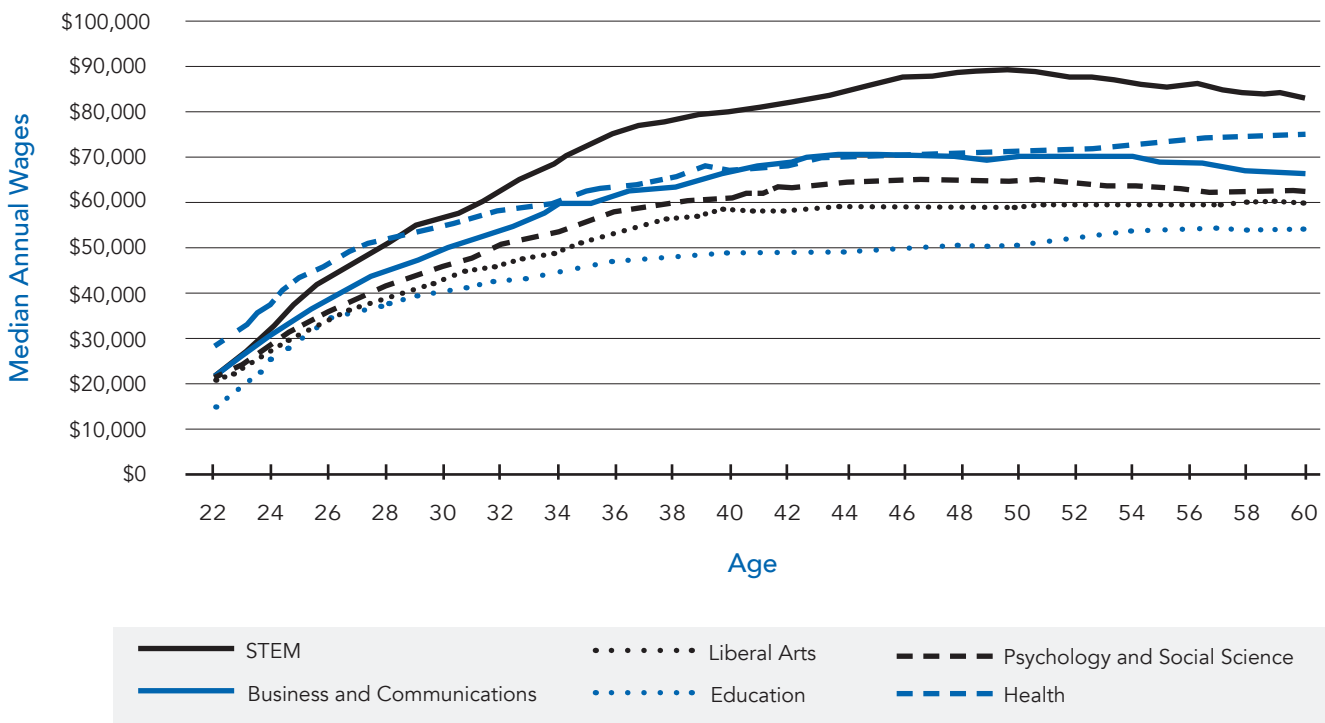
the earnings data, providing a range would be most informative and accurate, given the various factors that influence earnings and yet cannot be accounted for.

As a further note, this earnings-added methodology should only apply to students for whom an economic return is assumed a primary driver in returning to college. This group would include those who had previous earnings reflective of an established career quantified as a family-sustaining wage, or students who are economically independent.

### The Short- and Long-Term Views on Earnings

Earnings for certain majors or college credentials peak at very different points in a person’s work career. This reality needs to be accommodated in any scheme linking education and earnings. First, research has shown that the payoff for bachelor’s degrees increases over time (see Figure 1). So, while providing an earnings value for college programs in the short term is important, it is also important to understand the long-term impact of those programs.

**Figure 1. Median Annual Wages of Bachelor’s Degree Holders, by General Field of Study and Age**



Source: Kelly (2012).

Note: Original figure notes: “Source: U.S. Census Bureau, 2010 American Community Survey (Public Use Microdata Sample). Includes only bachelor’s degree holders, not residents who earned graduate or professional degrees.”

At the same time, the short-term payoffs for credentials such as certificates should not be underestimated. Not only do they provide an initially high return on investment, but also the dynamic higher education structure in the United States allows students to continue their education. Therefore, even if there is an earnings plateau for short-term credentials, it does not necessarily signify the earnings trajectory of students earning subbaccalaureate credentials will indeed plateau, and that therefore those credentials are of lesser value or importance. The same perspective could apply to bachelor's degree recipients who then go on to earn a master's degree.

### Are There Other Data We Are Missing?

If IRS tax records were accessed for earnings data, or the SSA were to extract taxes from W-2s and include them in the Master Earnings File, it might also be possible to

provide the amount of taxes paid by graduates to better understand the return on investment of public and private investments in education and training (see Table 2). This is an extremely complicated calculation, but one that may be worth undertaking to buttress support for higher education.

### Conclusions

This discussion paper outlined some of the policy considerations interested parties need to consider when examining workforce data about former students. This conversation will continue, and will hopefully be accompanied by changes in policy, and then subsequent changes in the issues needing policy analysis. Clearly, higher education is about more than earnings or economics. But, just as clearly, workforce outcomes are essential aspects of postsecondary education.

**Table 2. Employment Outcomes for Program Completers at College A, 1 Year after Completion, by Award Type**

Program Name at College A	1 Year after Completion								
	Completers			Earnings (annual)			Taxes Paid		
	Identified Workers	Employment Rate	Status Unknown <sup>a</sup>	Median	Low	High	Median	Low	High
<b>Less-than-1-year certificate</b>									
Program A	-,---	%	-,---	\$	\$	\$	\$	\$	\$
Program B	-,---	%	-,---	\$	\$	\$	\$	\$	\$
Program C	-,---	%	-,---	\$	\$	\$	\$	\$	\$
<b>1- to 2-year certificate</b>									
Program A	-,---	%	-,---	\$	\$	\$	\$	\$	\$
Program B	-,---	%	-,---	\$	\$	\$	\$	\$	\$
Program C	-,---	%	-,---	\$	\$	\$	\$	\$	\$
<b>Associate degree</b>									
Program A	-,---	%	-,---	\$	\$	\$	\$	\$	\$
Program B	-,---	%	-,---	\$	\$	\$	\$	\$	\$
Program C	-,---	%	-,---	\$	\$	\$	\$	\$	\$
<b>Bachelor's degree</b>									
Program A	-,---	%	-,---	\$	\$	\$	\$	\$	\$
Program B	-,---	%	-,---	\$	\$	\$	\$	\$	\$
Program C	-,---	%	-,---	\$	\$	\$	\$	\$	\$

Source: ---

Note: The Employment Rate reflects those students for whom data were available. Earnings amounts include those with "\$0." There are several factors associated with earnings that may not be accounted for in this analysis.

<sup>a</sup> Those identified as having an unknown status include, but are not limited to, graduates who may have reenrolled in college or enlisted in the military, or who are incarcerated or deceased.

## Notes

- <sup>1</sup> For additional information on the CIP, see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.
- <sup>2</sup> Both data sources have strengths and weaknesses. For example, state UI data systems may not include members of the military. For another example, data from the Kentucky Community and Technical College System show that the employment match rate for all colleges was 66.8%, while the employment match rate for Hopkinsville Community and Technical College was 46.4%, primarily because it is located next to a military installation, Fort Campbell, which employs its graduates (data provided by the Office of Research and Policy Analysis of the Kentucky Community and Technical College System, December 21, 2012). Federal offices throughout the country, U.S. Postal Service workers, and self-employed workers also pose problems in determining an accurate, simple employment rate, given that earnings data may exist outside state UI systems.
- <sup>3</sup> For additional information on WRIS2, see <http://www.doleta.gov/performance/wris2.cfm>.
- <sup>4</sup> Earnings can also be influenced by age, gender, and race/ethnicity (Carnevale, 2011). In addition, wages are influenced by standard industry wages, or the firm effect. Researchers (U.S. Census Bureau, 2003, p. 3) found “[t]here are three distinct components of wages: human capital, a firm effect and an unexplained residual. Because the human capital measure and the firm effect are virtually uncorrelated, when measured at the level of an individual job, an individual’s earnings may be due to who they are or where they work . . . demographic characteristics—such as education, occupation, age, sex, marital status and even include some firm characteristics such as firm size and industry—are typically able to explain some 30% of earnings variation. Longitudinal data on workers and firms explain closer to 90% of earnings variation.”
- <sup>5</sup> 34 Code of Federal Regulations 668.7 (d) states, “(d) *Small numbers*. (1) The Secretary calculates the debt measures for a program with a small number of borrowers or completers by using the 4YP or the 4YP–R, as applicable, if— (i) For the loan repayment rate, the corresponding 2YP or the 2YP–R represents 30 or fewer borrowers whose loans entered repayment after any of those loans are excluded under paragraph (b)(4) of this section; or (ii) For the debt-to-earnings ratios, the corresponding 2YP or the 2YP–R represents 30 or fewer students who completed the program after any of those students are excluded under paragraph (c)(5) of this section. (2) In lieu of the minimum standards in paragraph (a)(1) of this section, the program satisfies the debt measures if— (i)(A) The 4YP or the 4YP–R represents, after any exclusions under paragraph (b) (4) or (c)(5) of this section, 30 or fewer borrowers whose loans entered repayment or 30 or fewer students who completed the program; or (B) SSA did not provide the mean and median earnings for the program as provided under paragraph (c)(3) of this section; or (ii) The median loan debt calculated under paragraph (c)(2)(i) of this section is zero.” Available from <http://www.gpo.gov/fdsys/pkg/CFR-2012-title34-vol3/pdf/CFR-2012-title34-vol3-sec668-7.pdf>. Additionally, the cohort default rate regulations, 34 Code of Federal Regulations 668.197, read, “Thirty-or-fewer borrowers appeals (a) *Eligibility*. You may appeal a notice of a loss of eligibility under § 668.187 if 30 or fewer borrowers, in total, are included in the 3 most recent cohorts of borrowers used to calculate your cohort default rates.” Available from <http://www.gpo.gov/fdsys/pkg/CFR-2012-title34-vol3/pdf/CFR-2012-title34-vol3-sec668-197.pdf>.
- <sup>6</sup> Federal Register 76: 113 (June 13, 2011), Table 1, p. 34457.
- <sup>7</sup> AACC analysis of the IPEDS (NCES, 2013).
- <sup>8</sup> Another option for sorting education programs is the 4-digit CIP code, but many of these 4-digit codes do not have unique 6-digit CIP codes, so the small number provision problem would again arise.
- <sup>9</sup> For additional information on SOC, see <http://www.bls.gov/SOC/>.
- <sup>10</sup> For additional information on job placement rates, see the background paper written for the TRP by Sykes (2011).
- <sup>11</sup> Specifically, the TRP stated, “The panel recognized that an important distinction can be made between *job placement rate* and *employment rate*. The panel defined *job placement* as a job in the field or a closely related field postcertificate or postdegree (regardless of prior employment) and *employment* as any employment postcertificate or postdegree (regardless of prior employment)” (emphasis in original; p. 4).
- <sup>12</sup> To determine the annual minimum wage, I multiplied 52 (weeks) \* 40 (hours a week) \* 7.25 (the federal minimum wage).



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