Expanded Measures of Education and their Labor Market Outcomes

INTRODUCTION

The well-established link between educational attainment and socioeconomic outcomes is based on social science research using federal data sources that effectively measure traditional educational credentials that result in a degree, including high school diplomas, 2- and 4- year degrees, and advanced degrees. However, with the expanding and changing landscape of the education system and labor market, alternative credentials to traditional degrees have emerged with labor market value that must be considered when examining social and economic outcomes and inequality therein. Policy makers and researchers have begun to recognize the labor market value of alternative credentials, including educational certificates and professional certifications and licenses, and President Obama has called for all adults to obtain at least one year of post-secondary education. However, there is a dearth of relevant data that comprehensively captures the prevalence of these alternative credentials.

This paper analyzes data from the Survey of Income and Program Participation (SIPP), which collects data on educational attainment and receipt of vocational certificates, to examine differences by sex, age, race and Hispanic origin in combinations of conventional educational attainment and vocational certificates, as well as how these different combinations of attainment affect labor market outcomes and inequality between demographic groups. This paper further utilizes recent data from the Re-Engineered SIPP field test (SIPP-EHC), which contains new measures of educational certificates and professional certifications and state and industry licenses, to examine the relationship between educational attainment, alternative credentials, and labor market outcomes. These analyses will demonstrate the value of expanded measures of attainment beyond conventional measures of education from most surveys.

BACKGROUND
There has been growth in sub-baccalaureate degrees at both the vocational certificate and associate’s degree level. Only 1.8 percent of the adult population reported a vocational certificate as their highest level of educational attainment in 1984 compared to 10.9 percent in 2009 (Ewert 2012). Some research suggests that men and women have equal shares of educational certificates but that such alternative credentials are more prevalent among blacks and possibly Hispanics than among whites and Asians (Carnevale et al. 2012). Professional certifications and licenses are also relevant alternative credentials with labor market value that warrant attention.

Accurately measuring these alternative credentials matters for several reasons. Time spent on education and training develops general human capital, or skills and competencies, which can increase productivity and returns in the labor market. Furthermore, sub-baccalaureate education can develop vocational skills that provide access to higher paying occupations (Grubb 1993). Therefore, growth in the number of alternative credentials, including educational certificates and professional certifications and licenses warrants an examination of not only their prevalence in the adult population but also their relationship with labor market outcomes. To the extent that rates of receipt and returns to these credentials vary by subgroups, alternative credentials may contribute to socioeconomic inequality in the U.S.

Kerckhoff and Bell (1998) concluded there is a need for more systematic data collection on the topic. They argued that limited research on educational certificates stems partly from inadequate data. This paper uses data from the SIPP and SIPP-EHC to examine the complex relationship between conventional educational attainment, alternative credentials, field of study, demographic characteristics, and labor market outcomes.

DATA AND METHODS
I use data from the 2008 SIPP Panel and the 2012 SIPP-EHC Field Test. The 2008 SIPP Panel is a nationally representative longitudinal survey of the U.S. that began in 2008 with follow-up interviews every four months. The SIPP includes a measure of conventional educational attainment as well as separate items that capture information on the receipt of vocational certificates and field of degree, thereby enabling an examination of the combination of educational credentials.¹

The SIPP-EHC is the product of the U.S. Census Bureau’s current re-engineering of SIPP to reduce burden on respondents, reduce program costs, and improve accuracy and timeliness. It shifts from the current every-four-month data collection schedule of traditional SIPP to an annual data collection in the SIPP-EHC. The SIPP-EHC includes a measure of conventional educational attainment as well as two additional questions about alternative credentials. In these two questions, the SIPP-EHC collects information on receipt of educational certificates and professional certifications and licenses. An interagency working group tasked with improving federal data collection on alternative credentials developed these measures.

This paper will first present a typology of combinations of conventional educational attainment and alternative credentials and examine this distribution of educational credentials by sex, age, race and Hispanic origin using SIPP and SIPP-EHC data. Weighted crosstabulations will document who has various combinations of credentials. These descriptive analyses will also incorporate information on field of degree into the typology of educational credentials.

The paper will then concentrate on how these combinations of credentials pay off in the labor market and whether the pay off varies by demographic group. The outcome variables highlighted in this paper include current employment status, current earnings, employment in the past year, and receipt of unemployment. This examination of the payoff to combinations of

¹ See Appendix A for the exact questions and response categories.
educational credentials, by field of degree, will begin by exploring variation in the outcome variables by combinations of credentials for different subgroups. The paper will then use a modeling framework in order to isolate how combinations of credentials affect outcomes net of other relevant factors. These parametric models will provide the opportunity to examine interactions between age and other variables. Supplemental analyses that run models separately for different groups will further explore whether and how combinations of credentials operate differently for various subgroups of the U.S. population.

PRELIMINARY RESULTS AND EXPECTED FINDINGS

Table 1 displays the unweighted sample sizes for subgroups by sex, age, and typology of educational attainment. The table shows there is a reasonable sample with cell sizes large enough to examine important subgroups of the population. Table 2 shows the percentage of adults with a vocational certificate within sex, age, and educational attainment groups. People of all levels of conventional educational attainment earned vocational certificates. They were especially common among men and women whose highest levels of educational attainment were high school completion, some college but no degree, or an associate’s degree. I calculated median earnings for those with and without vocational certificates and found interesting variation between education levels that I will explore further.

I expect the distribution of combinations of conventional educational attainment and vocational certificates will depend on race and Hispanic origin. I expect that current earnings, current employment status, and receipt of unemployment will vary across combinations of credentials and that the returns to combinations of credentials will differ for some demographic groups. I further anticipate these results will depend on the field of study.
REFERENCES


### Table 1. Unweighted Sample Size of Subgroups by Sex, Age, and Typology of Attainment for Adults 18 and Over: SIPP 2008

<table>
<thead>
<tr>
<th>Typology of attainment</th>
<th>Total N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td></td>
<td>18-24</td>
<td>25-34</td>
</tr>
<tr>
<td>No vocational certificate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>10,078</td>
<td>13.7</td>
</tr>
<tr>
<td>High school</td>
<td>19,185</td>
<td>26.1</td>
</tr>
<tr>
<td>Some college but no degree</td>
<td>11,048</td>
<td>15.0</td>
</tr>
<tr>
<td>Associate's degree</td>
<td>3,972</td>
<td>5.4</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>10,993</td>
<td>14.9</td>
</tr>
<tr>
<td>Advanced degree</td>
<td>6,268</td>
<td>8.5</td>
</tr>
<tr>
<td>Vocational certificate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>641</td>
<td>0.9</td>
</tr>
<tr>
<td>High school</td>
<td>4,798</td>
<td>6.5</td>
</tr>
<tr>
<td>Some college but no degree</td>
<td>2,970</td>
<td>4.0</td>
</tr>
<tr>
<td>Associate's degree</td>
<td>1,969</td>
<td>2.7</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>1,259</td>
<td>1.7</td>
</tr>
<tr>
<td>Advanced degree</td>
<td>418</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
<td>73,599</td>
<td>100</td>
</tr>
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</table>


### Table 2. Percent of Sex, Age, and Educational Attainment Groups with a Vocational Certificate Among Adults 18 and Over: SIPP 2008

(Weighted, numbers in thousands)

<table>
<thead>
<tr>
<th>Typology of attainment</th>
<th>Total number</th>
<th>Percent with voc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td></td>
<td>18-24</td>
<td>25-34</td>
</tr>
<tr>
<td>No vocational certificate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>32,183</td>
<td>6.0</td>
</tr>
<tr>
<td>High school</td>
<td>71,644</td>
<td>19.2</td>
</tr>
<tr>
<td>Some college but no degree</td>
<td>44,362</td>
<td>20.3</td>
</tr>
<tr>
<td>Associate's degree</td>
<td>18,429</td>
<td>32.5</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>38,782</td>
<td>10.2</td>
</tr>
<tr>
<td>Advanced degree</td>
<td>20,850</td>
<td>6.5</td>
</tr>
</tbody>
</table>

APPENDIX A

The SIPP measures conventional educational attainment and vocational certificates with the following questions:

What is the highest level of school completed or the highest degree received?
- Less than 1st grade
- 1st, 2nd, 3rd or 4th grade
- 5th or 6th grade
- 7th or 8th grade
- 9th grade
- 10th grade
- 11th grade
- 12th grade, no diploma
- High school graduate (diploma or GED equivalent)
- Some college credit, but less than 1 year
- 1 or more years of college, no degree (regular junior college/college/university)
- Associate (2-year) college degree (include academic/occupational degree)
- Bachelor’s degree (for example: BA, AB, BS)
- Master’s degree (for example: MA, MS, MENG, Med, MSW, MBA)
- Professional degree (for example: MD (doctor), DDS (dentist), JD (lawyer))
- Doctorate (for example: Ph.D., Ed.D.)

Have [you] ever attended a vocational, technical, trade, or business school beyond high school?
- Yes
- No

Have [you] received a diploma or certificate from a vocational, technical, trade, or business school?
- Yes
- No

The SIPP-EHC measures conventional educational attainment and alternative credentials with the following questions:

What is the highest level of school completed or the highest degree received?
- Less than 1st grade
- 1st, 2nd, 3rd or 4th grade
- 5th or 6th grade
- 7th or 8th grade
- 9th grade
- 10th grade
11th grade
12th grade, no diploma
High school graduate (diploma or GED or equivalent)
Some college credit, but less than 1 year
1 or more years of college, no degree (regular junior college/college/university)
Associate’s degree (2-year)
Bachelor’s degree (for example: BA, AB, BS)
Master’s degree (for example: MA, MS, MBA, MSW)
Professional degree (for example: MD (doctor), DDS (dentist), JD (lawyer))
Doctorate (for example: Ph.D., Ed.D.)

Now I’d like to ask about professional certification and licensure. Do [you] have a professional certification or a state or industry license? Mark all that apply.
   Yes, professional certification
   Yes, license
   Yes, unsure of type [do not read]
   No professional certification or license

Some people decide to enroll at a college, university, community college, or trade school to earn a certificate rather than a degree. Have [you] ever earned this type of certificate?
   Yes
   No