



## Methodology

### Certificates Estimates for Lumina Foundation's *A Stronger Nation*

The Georgetown University Center on Education and the Workforce (CEW) has been involved in multiple efforts to better understand the role of certificates in the economy and overall educational attainment. In view of this intensive involvement in research on certificates and CEW's seminal 2012 report, *Certificates: Gateway to Gainful Employment and College Degrees*, it was natural for Lumina Foundation to ask CEW to develop state-level certificates estimates for its *A Stronger Nation* report. Lumina Foundation worked with CEW to establish a clear, parsimonious method that could be applied generally to all states.

CEW's work with Lumina Foundation to create the first set of state-level estimates of certificates with value now inform the growing number of states adopting attainment goals. This brief describes the CEW's approach to generating state estimates.

CEW first created a definition of value with a clear and conservative threshold. Simply put, we defined a stand-alone certificate as valuable if it provides a worker with median earnings at least 20 percent higher than those of a typical high school graduate. The justification for this threshold begins with empirical literature on the value of a year of postsecondary education<sup>1</sup> and the additional value of a degree (aka. Sheepskin effect).<sup>2</sup> It should be noted that this criterion is designed for a long-term (two-year) certificate and that CEW did not adjust for potential composition effects. In other words, states should consider adjusting this 20 percent threshold when a state has a mix of short- and long-term certificate programs.

Second, very little information exists about the earnings of those who complete certificates. Our primary source was the Census Bureau's Survey of Income and Program Participation (SIPP). The SIPP is a nationally representative survey that includes information on educational attainment, including certificates, broad program of study, gender, and earnings. These data enable us to determine the earnings of those who complete certificates as their highest level of educational attainment and to compare these earnings with those of workers with a high

1 See Psacharopoulos and Patrinos, "Returns to investment in education: a decennial review of the global literature", (2018), *Education Economics* v.26, no. 5, pp.455-458 for one example of many.

2 See Hungerford and Solan (1987), "Sheepskin effects and the returns to education", *The Review of Economics and Statistics*, vol.69, no.1; Park, Jin Heum. *Estimation of sheepskin effects and returns to schooling using the old and the new CPS measures of educational attainment*. No. 338. Industrial Relations Section, Princeton University, 1994.



school diploma. Because of gender-segmented labor markets,<sup>3</sup> we analyzed earnings separately for men and women. These estimates were then combined by broad program of study.<sup>4</sup>

Next we had to develop estimates of state-level certificates. There are no state-level data on the number of certificate holders in the labor force age 25-64 (the standard age band of state attainment goals), so we turned to the Integrated Postsecondary Education Data System. IPEDS provides the type and number of certificates produced annually in each state – covering all public and private Title IV eligible post-secondary institutions. Using the SIPP, we generated a national count of certificates with labor market value by program which, through IPEDS, we translated into an estimate of the state production of certificates by program. Our estimate of good certificates was limited to IPEDs at the program level (4-digit CIP mapped to 14 major categories in the SIPP).

The final step of the state estimation was to create a distribution of the national count of certificates by program of study and each state's share of national production of certificates by program. Using this information, we allocated the national certificate total to the states based on each state's share of certificates by program. We then divided this count of certificates by the number of people employed in each state, yielding a national average of 5.2 percent.

Then, we were faced with a puzzle: Because there is no consistent source of state-level data on the number of workers with certificates, how could these estimates be presented with any confidence? CEW came up with the following quantitative test to establish that the state-level estimates are within reason.

There is no precise historical data on certificates to calibrate our findings so it was necessary to create a reasonable test. The main US labor market survey, The Current Population Survey (CPS) does not give respondents the choice to answer "Certificate" as their highest level of education. Because certificates are earned in college, we suspect that when people have a certificate as their highest attainment but are not given the option to respond "certificate" most likely answer "some college, no degree." This tells us that the number of people with certificates, as highest attainment, has to be less than those with "some college, no degree" as this category contains both certificates, and true college dropouts. It also tells us that the number of workers with good certificates (certificates with labor market value—20% above the earnings of high school graduates) has to be less than or equal to the number of workers with some college, no degree who earn at least a 20 percent premium.

Using the CPS, CEW estimated the number of workers in each state who had responded "some college, no degree," and their earnings. Then we compared these earnings against median earnings for high school workers in each state. By doing so, we were able to generate an estimate of the number of workers with "some college, no degree" in each state who were earning at least 20 percent above the state high school median. We then compared our certificates estimates to these state specific benchmarks which produced the satisfactory estimates used in *A Stronger Nation*.

<sup>3</sup> Men and women commonly earn different amounts when in the same jobs at all levels of education, and each group tends to select different certificates.

<sup>4</sup> CEW is now using data from the new Adult Training and Education Survey (ATES) to update the national count of certificates.