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Community College Bachelor's Degrees: How CCB Graduates' Earnings Compare to AAs and BAs

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Abstract

This research provides a descriptive analysis of labor market outcomes for graduates of Community College Baccalaureate (CCB) programs, comparing their post-graduation earnings to those of Associate's (AA) and traditional Bachelor's (BA) degree recipients. Using administrative data and controlling for institution and field of study, we find that CCB graduates earn between $4,000 and $9,000 more annually than AA degree holders one year after graduation. However, relative to traditional BA recipients, CCB graduates experience average earnings penalties of approximately $2,000 per year. These penalties vary significantly by field of study: the largest gaps are observed in Computer and Information Technology and Engineering Technology, whereas graduates in Nursing, other Healthcare fields, Business, and Criminal Justice exhibit minimal or no earnings penalties. We emphasize several limitations to interpretation. First, our estimates are descriptive and do not account for selection into CCB programs, raising concerns about causal inference. Second, given the recent expansion of CCB offerings, we are limited to short-term earnings trajectories. Third, our findings

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pertain to a subset of states and only include full-time employed graduates. Nonetheless, this analysis contributes to a nascent literature on CCB programs, offering timely evidence as additional states consider authorizing these degrees.

JEL Codes: I21, I23, I24.

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I. Introduction

The earnings gap between workers with and without a bachelor's degree has more than doubled over the past four decades (Autor, 2014; Ashworth and Ransom, 2019), indicating substantial and growing economic returns to postsecondary education. Despite a rising premium for all students, and a particularly high premium for low-income and under-represented minority (URM) students, gaps in college attendance and bachelor's degree attainment between URM and non-URM students, and between low- and high-income students, have persisted and even widened. For instance, the White-Black gap in bachelor's degree completion grew from 13 percentage points in 1980 to 17 points in 2022, while the income gap in bachelor's degree attainment by age 24 nearly doubled between 1980 and 2019 (Cahalan et al., 2021; Reber and Smith, 2023).

There are a number of structural and systemic barriers that explain why these gaps exist. Indeed, a large body of research shows that differences between groups in K-12 school resources and experiences, financial and credit constraints, and informational barriers are predictive of differential educational attainment across race and income (see, for example, Dynarski, Page, and Scott-Clayton, 2022 and Dynarski et al., 2022 for comprehensive literature reviews). Moreover, URM and low-income students are more likely to live in areas with limited access to postsecondary institutions (Hillman, 2016; Hillman and Weichman, 2016) *and* are more sensitive to the distance they must travel to reach campuses (Acton, Cortes, and Morales, 2024; Acton, Cortes, Miller, and Morales, 2025), suggesting that geographic access may be a major barrier to postsecondary enrollment and attainment for URM and low-income students.

One increasingly popular approach to expanding access to bachelor's degrees – and to closing the racial-ethnic and income gaps in educational attainment and earnings – is to offer them at community colleges. With less expensive tuition, more flexible class schedules, and better geographical accessibility for many, community colleges have historically served disproportionately large shares of URM and low-income students. To date, 24 states allow community colleges to offer bachelor's degrees (Community College Baccalaureate Association and Bragg and Associates, Inc., 2024) and the number of colleges awarding these degrees has grown tremendously in recent years. Between 2004 and 2022, the share of community colleges offering bachelor's degrees increased from 2.1% to 16.5% and the number of degrees awarded more than quadrupled, from 3,327 to 16,059.[2] While they account for a small share of all bachelor's

[2] Authors' calculations using data from IPEDS. We define community colleges as public postsecondary institutions that predominantly award degrees and certificates below the bachelor's degree level. See: https://nces.ed.gov/ipeds/use-the-data/institutional-groupings-in-ipeds.

degrees awarded nationally (approximately 0.8 percent in 2022), the share of bachelor's degrees awarded by community colleges varies widely by state: in Florida and Washington, close to 9.5% and 5.3% of BAs were awarded by community colleges in 2022, respectively.[3]

Existing literature on the returns to schooling suggest potentially large, positive returns to enrollment in bachelor's degree programs (Goodman, Hurwitz, and Smith, 2017; Kozakowski, 2020; Lovenheim and Smith, 2022). In many cases, these longer-run earnings effects are driven by academically marginal students as well as students from low-income backgrounds (Dale and Krueger, 2002; Zimmerman, 2014) – the precise types of students that tend to enroll in community colleges. However, the relatively recent introduction of the community college baccalaureate's (CCB) programs and the small number of total degrees awarded has limited the scope for research on CCB graduate outcomes. Whereas descriptive work from Florida, California, and Washington has shown strong average earnings of CCB graduates in these states (see Meza and Love, 2023), it is important to continue to assess the labor market success of their graduates on a larger scale.

This research uses the Postsecondary Employment Outcomes (PSEO) data, which covers 13 of the 24 CCB states, to provide the first comprehensive, national study of CCB graduate outcomes. In order to better understand how CCB graduates are faring relative to graduates of similar programs, we compare CCB graduate outcomes to associate's degree holders in the same field from the same institution, as well as bachelor's degrees in the same field at public four-year colleges.[4] Although we are limited in our ability to make causal conclusions, a descriptive overview of the labor market outcomes of CCB graduates will provide preliminary insights into the success of these programs in expanding access to quality bachelor's degree programs.

This paper proceeds as follows: Section II provides a short overview of community college baccalaureate legislation and implementation, focusing on the states covered by the PSEO data. Next, Section III describes the PSEO data in detail before presenting an overview of the main results in Section IV. Lastly, Section V concludes with a discussion of implications for policymakers and directions for further research on CCB programs.

[3] These calculations use state-reported volumes of CCBs awarded in Florida and Washington data on BAs awarded by state from the Integrated Postsecondary Education Data System (IPEDS).
[4] We use associate's degree and AA, as well as bachelor's and BA, interchangeably throughout the paper. In both cases, we mean to refer to the larger degree category (e.g., we mean BA to include bachelor's of science as well as bachelor's of arts).

II. Background on the Community College Baccalaureate

The American community college has historically served many roles, including offering two-year associate degrees, vocational training, and shouldering much of the responsibility for facilitating transfer to four-year institutions. As the popularity of the bachelor's degree increased over the course of the 20th and 21st centuries, however, community colleges were under significant pressure to provide affordable, localized pathways to the BA, particularly in applied fields facing local labor shortages, such as nursing. The community college baccalaureate (hereafter referred to as CCB) degree represents a significant evolution in the American higher education landscape, reflecting the shifting role of the community college and heightened demand for more accessible bachelor's degree options.

Despite significant national attention to community colleges, the movement toward CCB authorization at the state level went largely unnoticed. In 1989, West Virginia became the first state to authorize a community college to offer both associate and bachelor's degrees. Over the course of the last nearly three decades, the CCB movement has gained significant momentum without garnering additional public or media attention. Following West Virginia's lead, other states, including Florida, Washington, and Georgia, enacted similar legislation, allowing community colleges to offer bachelor's degrees in specific high-demand fields. Today, despite a large share of states passing CCB legislation, Florida and Washington are the only states in which nearly 100% of the state's community colleges are authorized to offer the degree (Love, Bragg, and Harmon, 2021). The expansion of CCB programs within and across states has been influenced by various factors, including economic shifts, demographic changes, and the evolving needs of the labor market. Community colleges have increasingly positioned themselves as critical players in workforce development, offering programs narrowly tailored to regional economic demands such as Cannabis Science programs following states' legalization of medical and recreational use of the drug (Van Noy et al., 2023; Community College of Denver).

The proliferation of CCB programs has sparked discussions regarding their impact on higher education and the labor market. Proponents argue that these programs enhance access to higher education, particularly for non-traditional students, and contribute to local economic development by aligning educational outcomes with regional industry requirements. Conversely, critics express concerns about potential mission creep, resource allocation, and the capacity of community colleges to effectively deliver bachelor's degree programs without compromising their traditional roles. Despite these debates, the trend toward offering bachelor's degrees at community colleges

continues to grow, making research into and evaluation of their effectiveness critical to future evolution and success.

III. Data and Descriptive Statistics

A. Description of PSEO Data

Research on the returns to CCB degrees has been limited by the relatively recent introduction of CCB programs and the small number of total degrees awarded. Single-state studies have provided strong, descriptive evidence in specific contexts (see Meza and Love, 2023), but the emerging nature of these programs combined with a lack of national, program-level earnings data has constrained the scope of study on earnings of CCB graduates. This paper fills the existing gaps by using the PSEO data to better understand the earnings of CCB graduates at a national level.

The PSEO data provides a unique source for analyzing post-graduation outcomes across institutions, degree levels, and fields of study (U.S. Census Bureau, 2024). Developed by the U.S. Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program, PSEO statistics are generated by matching university transcript data with a national database of jobs covering over 96% of U.S. employment (Abowd et al, 2009). The foundation for these data is state unemployment insurance (UI) records collected via a voluntary federal-state data sharing partnership. This approach allows for earnings and employment outcomes to be linked to graduates regardless of where they work after graduation – a key limitation of state-level administrative data often used in research on higher education and labor market outcomes (Foote and Stange, 2022). National-level analyses of earnings at the institution or program-level often make use of the College Scorecard, which captures students nationwide who receive federal aid. While this sample is helpful for many analyses, the federal aid restriction is often particularly limited at the community college level as it inadequately represents the diverse student populations served by these institutions, especially the non-traditional and working adult students who frequently pursue CCB degrees (Foote, 2022).

Other key features of the PSEO data are the ability to capture aggregate wages at the 25th and 75th percentiles in addition to the median, and to observe graduate earnings at one-, five-, and ten-years post-graduation. Given the emerging nature of CCB programs, this paper largely makes use of the one-year earnings, but future work that uses the PSEO data to explore CCB graduate earnings *trajectories* compared to their

AA and BA peers will be an important contribution to our understanding of these programs. Additionally, PSEO provides industry and location information, offering insights into whether CCB graduates secure employment in fields relevant to their training and in their local labor market; although this research will largely focus on earnings, these data are equipped to tackle critical questions for programs that are explicitly designed to meet specific local workforce needs.

Despite these advantages, there are also important limitations to the PSEO data that circumscribe our interpretation of the results. The data only include graduates of participating institutions, therefore students who enroll but do not complete their degrees are entirely absent from the sample. Furthermore, the PSEO data excludes graduates with insufficient labor market attachment in the reference year. Specifically, graduates who earn less than the annual equivalent of full-time work at the federal minimum wage or who have two or more quarters with no earnings are omitted from the earnings statistics. This restriction, while designed to reflect earnings for consistently employed graduates, may systematically exclude those with unstable employment, seasonal work patterns, or those who transition to self-employment—all potentially important outcomes for CCB graduates. Additionally, while the LEHD database covers most corporate and government employment, it notably excludes independent contractors, unincorporated self-employed workers, military personnel, and employees of certain non-profits. Using the PSEO flows data, we calculate that roughly 22% of graduates from CCB programs that we identify in the PSEO flows data (described below) do not meet the labor force requirements to be included in the earnings data.[5]

B. Identifying CCB Programs within the PSEO Data

The first step in our analysis is to identify CCB programs within the PSEO data. To do so, we merge the detailed PSEO earnings at the institution-degree-CIP-cohort level with institution-level characteristics – such as institutional control, location, and awards conferred – from the Integrated Postsecondary Education Data System (IPEDS).[6] We identify CCBs as any bachelor's degree program at a public postsecondary institution that predominantly awards degrees below the bachelor's level and that does not offer

[5] Specifically, 22% of graduates from CCB programs that we identify in the PSEO flows data are classified as "jobless or marginally employed," meaning that they earn less than the annual equivalent of full-time work at the federal minimum wage or they have two or more quarters with no earnings.
[6] CIP (Classification of Instructional Programs) codes, used by the U.S. Department of Education, are a standardized way to define academic majors/programs.

graduate degrees. We exclude bachelor's degrees offered by institutions that are members of larger four-year university systems.[7]

This process identifies **108** unique CCB programs in the PSEO earnings data. Of these 108 programs, 54 (50%) have at least one cohort with a sufficient number of graduates identified in the labor market one year after degree completion to produce earnings statistics.[8] Due to the relatively recent proliferation of CCBs, only 30 (29%) and 18 (17%) programs have a sufficient number of graduates identified in the labor market five and ten years, respectively, following graduation. Thus, we concentrate our analysis on initial, one-year earnings outcomes to maximize sample size.

We also use the PSEO *flows* data (which is separate from the earnings data) for some supplemental analyses, specifically, to identify (1) what fraction of CCB graduates are employed in the state where they earned their degree; and (2) in which industries CCB graduates work. For these analyses, we identify a total of 244 unique CCB programs of which 122 (50%) have sufficient data to not be suppressed.

C. Descriptive Statistics

Figure 1 displays the geographic distribution of the CCB programs that we identify in the PSEO data. In Panel A, we present the number of unique programs we observe in each state. We observe programs across 10 states, with the majority coming from Georgia (43), Texas (20), and Colorado (15). In Panel B, we sum the number of graduates that the PSEO data tracks in the labor market from CCB programs in each state. Overall, the PSEO data tracks the employment and earnings outcomes of nearly 13,000 CCB graduates, with the majority coming from Georgia (3,853), Texas (3,219), and West Virginia (2,890). We do not observe any labor market outcomes for CCB programs in Hawaii, Ohio, and South Carolina.[9]

One reason why we observe a large number of CCB graduates from West Virginia – despite its relatively low number of CCB programs – is that the state has allowed community colleges to confer bachelor's degrees since the late 1980s. Thus, we observe a large number of cohorts in the PSEO data. In Figure 2, we present the

[7] Specifically, we do not classify bachelor's degree programs at City University of New York (CUNY), State University of New York (SUNY), Pennsylvania State University, nor University of Wisconsin campuses as CCBs. We additionally exclude Texas Southmost College from our CCB definition, as it was part of University of Texas at Brownsville from 1991 to 2011.

[8] The Census Bureau does not release statistics for programs with a small number of graduates due to data privacy concerns.

[9] The lack of data on CCB graduates in these states is likely a feature of recency of program introduction (in Ohio and South Carolina) or size of program (Hawaii). Ohio and South Carolina only began introducing programs in 2020.

evolution of CCB graduates across cohorts. We first show the number of CCB graduates we observe in the labor market in each cohort of the PSEO data. Beginning in the mid-2000s, we start to see an increase in the number of observed CCB graduates, which accelerates in the 2015-2020 period. Second, we show the number of graduates that we observe employed in the same state as the institution from which they earned their degree. Consistently over time, approximately 75% of CCB graduates who are employed are employed in-state, suggesting that CCBs may be important to state economic development goals.

Within the PSEO data, we also observe CCBs across a range of fields of study. In Figure 3, we present the number of CCB programs and graduates observed in the labor market across different fields of study, restricting the sample to the 54 programs where we observe graduates in the labor market. We classify fields of study by grouping together related classification of instructional program (CIP) codes. We provide the details of these groupings in Appendix Table A.1. Panel A shows that the majority of CCB programs are offered in nursing (11 programs), business (11 programs), and other allied health areas (8 programs), such as health and medical administrative services and dental support services. Panel B further shows that business and nursing graduates make up the majority of CCB holders in our samples, followed by liberal arts/general studies programs and those in education and human services.

The PSEO flows data additionally gives us information on the industries in which CCB graduates are employed. Figure 4 shows the number of CCB graduates that we observe in each industry as measured by its 2-digit North American Industry Classification System (NAICS) code. The top industries align well with the top fields of study, with Health Care and Social Assistance and Educational Services employing the most CCB graduates. Further calculations indicate that 72% of employed CCB graduates from health programs (i.e., CIP code 51) work in Health Care and Social Assistance, and 78% of employed CCB graduates from education programs (i.e., CIP code 13) work in Educational Services, implying that many CCB graduates are finding employment in their field of study.

IV. Results

A. Earnings Differences Between CCBs, AAs, and Traditional BAs

We begin our descriptive analysis on the labor market outcomes of CCB completers by examining short-term earnings across degree types – comparing CCB holders to those with associate's degrees (AAs) and those with bachelor's degrees from institutions other than community colleges (non-CC BAs). We report these metrics in Table 1, where Panel A shows earnings pooled across all fields of study and Panel B displays earnings when limiting the sample to disciplines in which CCB programs are offered within our sample (see Appendix Table A.1).[10] We weight the means by the number of graduates observed in the labor market for each institution-degree-CIP-cohort pairing. Thus, Table 1 only includes programs for which we observe labor market outcomes within the PSEO data.

Overall, completers of CCB programs experience a modest earning premium over those who with an associate's degree from community college. Pooling data across all fields of study, our estimates indicate that the median CCB graduate earns nearly $46,200 during their first year in the labor market following degree completion – approximately 15% ($6,000) more than those with an associate's degree or 14% ($5,600) more than those with an associate's degree in a field where CCBs are offered. This earnings gap is consistent across the earnings distribution, with similar premia observed at the 25th and 75th percentiles, indicating that the CCB advantage applies similarly to both lower- and higher-earning graduates.

By contrast, CCB completers face an earnings penalty compared to graduates of traditional, non-CC BA programs. Narrowing the sample to fields of study where CCBs are available (Table 1, Panel B), we document an 8% gap ($4,000) in median earnings relative to the median non-CC BA holder. Once again, these earnings differences are similar across the 25th, 50th, and 75th percentiles of the respective earnings distributions.

Next, we examine short-term earnings disparities across specific fields by comparing the median earnings of CCB completers to those of AA and non-CC BA graduates. Figure 5 presents these comparisons. In line with the aggregate metrics, CCB completers generally out-earn AA holders but lag behind traditional BA graduates,

[10] Note that reference to the median earner or those at the 25th and 75th percentiles in this section refers to the average at these percentiles across programs. That is, "the median CCB graduate earns nearly $46,200 during their first year in the labor market" refers to the *average*, median-earnings CCB graduate. Averages are weighted by the number of graduates in each program.

reinforcing the notion of CCBs as an intermediate credential that provides a substantial earnings advantage over associate's degrees without fully closing the gap with four-year degrees. Figure 5 highlights several notable patterns across fields of study. Nursing is the only discipline where CCB graduates earn nearly the same as their non-CC BA peers, effectively closing the earnings gap. In contrast, computer information sciences show the largest disparity, with CCB completers earning significantly less than traditional BA graduates. Finally, criminal justice stands out as the only field where CCB graduates exceed the median earnings of non-CC BA holders.

B. Regression-Adjusted Earnings Differences

While the descriptive comparisons in Table 1 and Figure 5 provide initial insights into earnings differences by degree type and field of study, they conflate these patterns with other factors correlated with earnings. To assess whether the observed disparities persist after accounting for observable characteristics – including geographic and temporal variation across cohorts and fields of study – we turn to regression-adjusted estimates. Specifically, we estimate regressions of the following form:

$$Earnings_{idfc} = \beta \cdot CCB_{idf} + X_{idfc} \cdot \Gamma + u_{idfc} \#(1)$$

where $Earnings_{idfc}$ is an earnings outcome for students who graduate from institution *i* with degree type *d* in field of study (4-digit CIP code) *f* in cohort *c*. We regress this earnings outcome on an indicator, CCB_{idf}, which is equal to 1 if degree *d* in CIP code *f* at institution *i* is a CCB program, and 0 otherwise. We then iteratively add fixed effects at the cohort, CIP code, and state level. For comparisons to associate degree holders, we further add institution and institution-by-CIP fixed effects to compare outcomes between students who earn AA and CCB degrees in the same field of study at the same institution. For comparisons to traditional bachelor's degree holders, we add state-by-CIP fixed effects, comparing students who earn CCB and traditional BA degrees in the same state and field of study.

Table 2 presents the estimates of β, comparing earnings outcomes between CCB graduates and AA graduates across three percentiles of the earnings distribution.[11] Panel A shows estimates for median earnings, while Panel B and C show earnings at the 25th and 75th percentiles, respectively. The table shows results from multiple model

[11] Note that the data groups AA graduates into three-year cohorts (i.e., the 2010 cohort is graduates from 2010-11, 2011-12, and 2012-13 school years), whereas CCB and BA graduates are combined into five-year cohorts (i.e., the 2010 cohort is 2010-11, 2011-12, 2012-13, 2013-14, and 2014-15 graduates). We do not formally adjust for this difference in cohort grouping, as average earnings at each percentile are fairly stable across cohorts.

specifications, progressively adding fixed effects to control for a richer set of time-constant characteristics at the cohort, state, and institution-by-CIP levels. Estimates from the preferred specifications, shown in Column 6, compare earnings of CCB and AA graduates within the same institution and field of study, while controlling for temporal variation across cohorts.

Consistent with the summary statistics presented above, we estimate a moderate earnings premium for CCB graduates relative to AA graduates. Specifically, completing a bachelor's degree at a community college is associated with a median earnings increase of approximately $5,700, or 14% above the median earnings of AA graduates from the same institution and field of study. We also find positive returns to a CCB degree at both the lower and upper ends of the earnings distribution, though the magnitude of the premium varies. At the 25th percentile, CCB graduates earn approximately $4,300 more than their AA peers, representing a 13.8% increase. In contrast, at the 75th percentile, the earnings premium exceeds $8,800, amounting to a 16.7% advantage over AA graduates. Collectively, these patterns indicate that the economic returns to a CCB degree are positive across the earnings distribution, with graduates earning more than their AA counterparts at all three percentiles. Moreover, the earnings premium increases with the earnings level, suggesting that the relative advantage of a CCB degree is more pronounced among higher-earning graduates.

Next, Table 3 reports the estimates of β, comparing CCB graduates to BA graduates from four-year institutions. Again, we present results from multiple specifications, showing our preferred estimates in Column 5. This specification includes a host of fixed effects accounting for time-invariant characteristics at the cohort and state-by-CIP levels, enabling comparisons of earnings among graduates from the same state and field of study, but who differ in having completed their bachelor's degrees at a community college versus a four-year institution.

We estimate that graduates who complete a bachelor's degree at a community college earn approximately $2,800 less in median annual earnings than those from traditional four-year institutions – a 5.5% earnings penalty relative to the median for four-year college graduates. We estimate a comparable earnings penalty among lower-earners, as shown in Panel B – approximately $2,300 less at the 25^{th} percentile or a 6.1% difference relative to four-year college graduates. Notably, however, there is a smaller and statistically insignificant difference in earnings between CCB and traditional BA graduates among higher earners: at the 75th percentile, CCB graduates earn just under $1,500 less, or 2.3% below those who graduated with traditional BAs.

We conclude our regression analysis by estimating earnings differences between CCB, AA, and traditional BA graduates across a range of fields. Specifically, we estimate our

most saturated version of regression equation (1) separately for each field of study aggregation shown in Appendix Table A.1. Figures 6 and 7 show estimates of β comparing earnings between CCB graduates and, respectively, AA and BA graduates at the 25th, 50th, and 75th percentiles of the earnings distribution.[12]

While we estimate a clear and moderate earnings premium for CCB graduates relative to AA holders in the aggregate, notable variation exists across fields. As illustrated in Figure 6, four out of nine fields show a meaningful earnings advantage for CCB graduates. For example, CCB graduates in computer information systems have estimated median earnings approximately $10,000 higher than their AA peers. Similarly, CCB completion in criminal justice and nursing is associated with significant earnings gains throughout the distribution. In contrast, engineering technology CCB graduates are estimated to earn less than AA graduates in the same field – approximately $10,000 lower at the 25th percentile and $5,000 lower at the median – with no significant difference observed at the 75th percentile. Finally, we find no significant differences in earnings between CCB and AA graduates in business, agriculture, or other healthcare-related fields.

CCB graduates tend to outperform AA holders across several fields of study, but comparisons to graduates with traditional BAs show that this advantage is insufficient to close the earnings gap between CCB graduates and those with traditional four-year degrees. As depicted in Figure 7, our regression estimates suggest that in most fields, completing a CCB is associated with a negative or null earnings differential relative to a traditional bachelor's degree. The largest estimated gap appears in computer and information technology, where CCB graduates earn nearly $30,000 less at the median than their four-year university peers. Smaller, but still significant, penalties are observed in agriculture and conservation, education, and liberal arts/general studies. Only in nursing and criminal justice we observe parity – or modest advantages particularly among higher-earners – for CCB graduates relative to traditional BA holders. These patterns suggest that the relative value of a CCB depends critically on the chosen field.

C. Comparing Returns to Costs

An important piece of the return on investment calculation for students enrolling in any kind of postsecondary degree program is how the benefits compare to the costs. Thus far, we have focused solely on the benefits associated with CCB completion as they

[12] We omit from the figures the estimates for biology and music programs, given the small number of graduates we observe in these CCB programs (see Figure 3).

relate to the returns to associate and bachelor's degrees as comparable institutions. The overall cost of the program, however, is a key determinant of the net benefits for students. A common assumption is that CCB programs offered through community colleges have the same cost structure as a traditional associated degree program offered at the same college. In reality, the cost structure of these programs varies widely across state and institution.

At Denver Community College (DCC) in Colorado, for example, credits that count towards an associate degree cost the same as those towards a bachelor's degree ($285.10 per credit). To obtain an AA through DCC, students are required to complete roughly 60 credits, whereas a bachelor's degree is double that, at 120 credits. The resulting cost of a bachelor's degree through DCC is precisely double that of an associate degree ($34,212 versus $17,106). In contrast, credit costs at Vincennes University in Indiana are structured based on the course level. Associate degrees typically require only lower-level course (under 300-level at Vincennes). These courses are associated with a $218.28 cost. Upper-level courses, which are typically only required for bachelor's degrees earned through Vincennes, have a per credit cost of $253.60. This is a small extra marginal cost that can add up: for a 120-credit bachelor's degree, these extra costs can add between $1,000 and $2,000 to what the cost would have been if credit cost was uniform (like the Colorado case).[13]

The comparisons above are limited in their consideration of simple tuition and fees; in other words, we only consider costs that would not have otherwise been incurred (i.e., we do not take into account potentially differential costs of housing and food). These other cost sources matter more when comparing CCBs to traditional BAs, where it is more common for students to live on-campus and thus incur significant housing costs. However, even when comparing simple tuition and fee totals across CCB and BA degrees, BA programs at nearby public four-year universities often cost 50-60% more, on average.[14] Conversely, even when CCB students pay tuition at the same rate as AA students, CCB students undertake a significant additional time cost associated with completing more credits. Once again, CCB programs tend to bridge the gap between associate degree and bachelor's degree programs, with costs lying somewhere between an associate and bachelor's degree program. Further research is needed to systematically consider the true cost differences faced by students opting for each program. A systematic consideration of costs should consider not only tuition but also housing, transportation, financial aid availability, and the opportunity cost of schooling (i.e., foregone wages for the typical student in each program).

[13] These comparisons are based on hand-collected data from college websites on program costs.
[14] This figure is based on comparisons of Community College of Denver to Colorado State University and Vincennes University to Indiana University – Indianapolis.

V. Discussion and Conclusion

In this paper, we have provided a systematic overview of CCB graduates earnings as compared to AA graduates and BA graduates from traditional four-year colleges. On average, we find that CCB graduates earn a $4,000-$9,000 annual premium over AA degree holders, even when including controls that enable comparisons within the same institution and field of study. In contrast, when compared to traditional BA holders, CCB graduates see penalties of around $2,000 per year, after including controls that allow for within state and field of study comparisons. CCB penalties with respect to traditional BAs vary across fields of study, with the largest gaps for Computer and Information Technology, as well as Engineering Technology graduates. Meanwhile, CCB graduates of nursing, other healthcare, business, and criminal justice programs see little to no penalties compared to traditional bachelor's degree holders. Future work can investigate why we see such differences across fields of study.

We conclude with a few caveats in interpretation of our results. First, our work is descriptive and does not fully account for selection into CCB degrees. This implies that differences in earning between CCB graduates and other degree holders may be due to differences in the populations that earn these degrees as well as any causal effects of the degree itself. Second, due to the relatively recent adoption of CCB programs, we are limited in how far we can track graduates into the labor market. While this research focuses on earnings within one year of graduation, future work can investigate how earnings evolve over the life cycle. Third, due to the nature of the PSEO data, we focus on graduates in a subset of states that offer CCB degrees, and only on people who obtain full-time employment. Nonetheless, our results give an important insight into an understudied and rapidly growing degree. Just earlier this year, Illinois proposed legislation that would allow community colleges to offer bachelor's degrees (Hudson, 2025). We provide initial evidence on the earnings of CCB graduates across a wide range of states and fields of study that can be of use to policymakers, higher education administrators, and researchers.

References

Abowd, John M., Bryce E. Stephens, Lars Vilhuber, Fredrik Andersson, Kevin L. McKinney, Marc Roemer, and Simon Woodcock. (2009). The LEHD Infrastructure Files and the Creation of the Quarterly Workforce Indicators. In Producer Dynamics: New Evidence from Micro Data, pp. 149-230. University of Chicago Press.

Acton, Riley K., Kalena E. Cortes, and Camila Morales. Distance to Opportunity: Higher Education Deserts and College Enrollment Choices. National Bureau of Economic Research, No. 33085, October 2024.

Acton, Riley, Kalena E. Cortes, Lois Miller, and Camila Morales. (2025). Distance to Degrees: How College Proximity Shapes Students' Enrollment Choices and Attainment Across Race and ethnicity and Socioeconomic Status. National Bureau of Economic Research, No. 33337, January 2025.

Ashworth, Jared, and Tyler Ransom. "Has the College Wage Premium Continued to Rise? Evidence from Multiple US Surveys." Economics of Education Review 69 (2019): 149-154.

Autor, David H. (2014). Skills, education, and the rise of earnings inequality among the "other 99 percent." Science, 344(6186), 843–851.

Cahalan, Margaret W., Marisha Addison, Nicole Brunt, Pooja R. Patel, and Laura W. Perna. "Indicators of Higher Education Equity in the United States: 2021 Historical Trend Report." Pell Institute for the Study of Opportunity in Higher Education, 2021.

Community College Baccalaureate Association (CCBA). 2024. URL: https://www.accbd.org/category/ccb-data/.

Community College of Denver. *Cannabis science and operations program.* Community College of Denver. https://www.ccd.edu/program/cannabis-science-and-operations.

Dale, S. B., & Krueger, A. B. (2002). Estimating the Payoff to Attending a More Selective College: An Application of Selection on Observables and Unobservables. Quarterly Journal of Economics, 117(4), 1491–1527.

Dynarski, Susan, Aizat Nurshatayeva, Lindsay C. Page, and Judith Scott-Clayton. Addressing Non-Financial Barriers to College Access and Success: Evidence and Policy Implications. Working Paper No. w30054. National Bureau of Economic Research, 2022.

Dynarski, Susan, Lindsay C. Page, and Judith Scott-Clayton. College Costs, Financial Aid, and Student Decisions. Working Paper No. w30275. National Bureau of Economic Research, 2022.

Foote, Andrew. (2022). Comparing earnings outcome differences between all graduates and title IV graduates. Economics of Education Review, Volume 89.

Foote, Andrew, and Kevin M. Stange. (2022). Attrition from Administrative Data: Problems and Solutions with an Application to Postsecondary Education. National Bureau of Economic Research, Working Paper No. 30232.

Goodman, J. S., Hurwitz, M., & Smith, J. (2017). Access to 4-year public colleges and degree completion. Journal of Labor Economics, 35(3), 829–867.

Hillman, Nicholas. "Geography of College Opportunity: The Case of Education Deserts." American Education Research Journal 53, no. 4 (2016).

Hillman, Nicholas, and Taylor Weichman. Education Deserts: The Continued Significance of 'Place' in the Twenty-First Century. American Council on Education Center for Policy Research and Strategy, 2016.

Hudon, Walter. 2025. "Community Colleges Expand Four-Year Degree Options as Illinois Joins National Trend." URL: https://www.diverseeducation.com/institutions/community-colleges/article/15741004

Kozakowski, W. (2023). Are Four-Year Public Colleges Engines for Economic Mobility? Evidence from Statewide Admissions Thresholds. (EdWorkingPaper: 23 -727).

Love, Ivy, Debra Bragg, and Tim Harmon. (2023). "Mapping the Community College Baccalaureate." *New America.*

Lovenheim, M. F., & Smith, J. (2022). Returns to Different Postsecondary Investments: Institution Type, Academic Programs, and Credentials. NBER Working Paper Series (no. 29933).

Meza, Elizabeth Apple, and Debra D. Bragg. "Scaling up Community College Baccalaureates in Washington State: Labor Market Outcomes and Equity Implications for Higher Education." Education Policy Analysis Archives 30, no. 140 (2022): n140.

Reber, Sarah, and Ember Smith. "College Enrollment Disparities: Understanding the Role of Academic Preparation." The Brookings Institution, 2023.

U.S. Census Bureau. (2025). Post-Secondary Employment Outcomes Data (Experimental) (2001-2021). Washington, DC: U.S. Census Bureau,

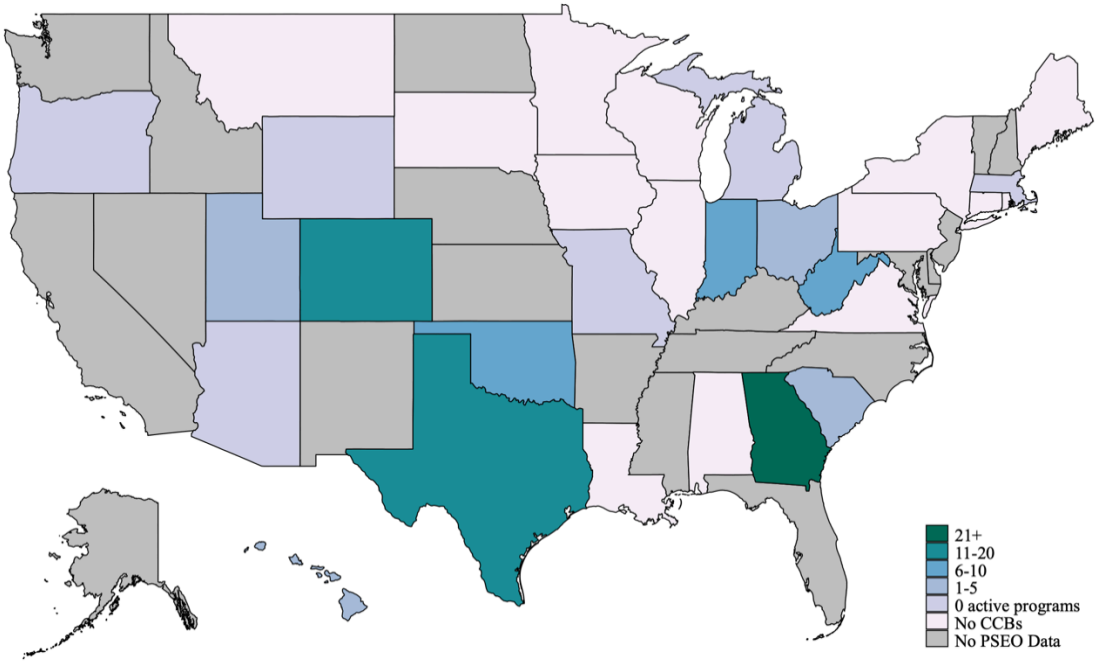
Longitudinal-Employer Household Dynamics Program, accessed on April 1, 2025 at https://lehd.ces.census.gov/data/pseo_experimental.html. Version R2024Q4.

Van Noy, Michelle, Andrew Weaver, Allison Forbes, and Debra Bragg. (2023). "The Community College Role in Economic Development: A Conceptual Model." *Education and Employment Research Center Working Paper Series*.

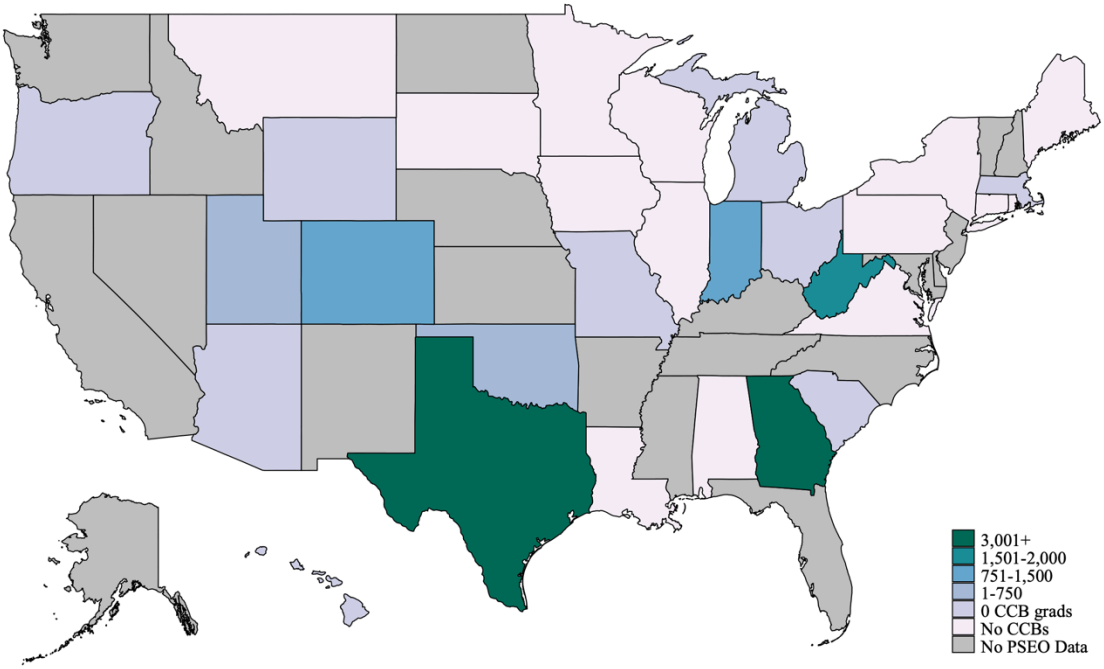
Zimmerman, S. D. (2014). The Returns to College Admission for Academically Marginal Students. Journal of Labor Economics, 32(4), 711–754.

Figure 1: PSEO Data Coverage of CCB Programs

A. Programs per State



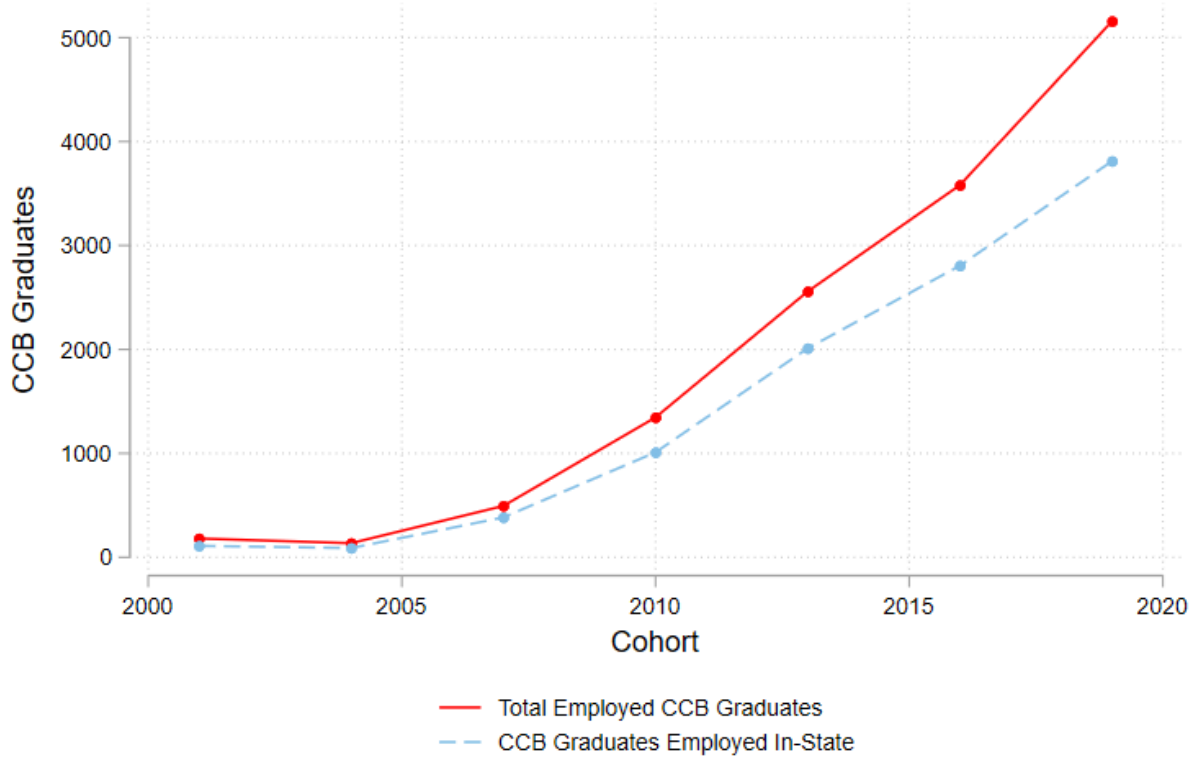
B. Graduates per State



Notes: This figure shows the geographic distribution of CCB programs (Panel A) and graduates (Panel B) across the U.S. Grey indicates that there is no PSEO data available (regardless of CCB status). Light pink indicates that PSEO has data available, but the state does not offer CCBs. Light purple indicates that the state offers CCBs and PSEO data are available, but there have yet to be

any graduates from active programs. Data are at the institution-degree-CIP-cohort level are collapsed to the state level.

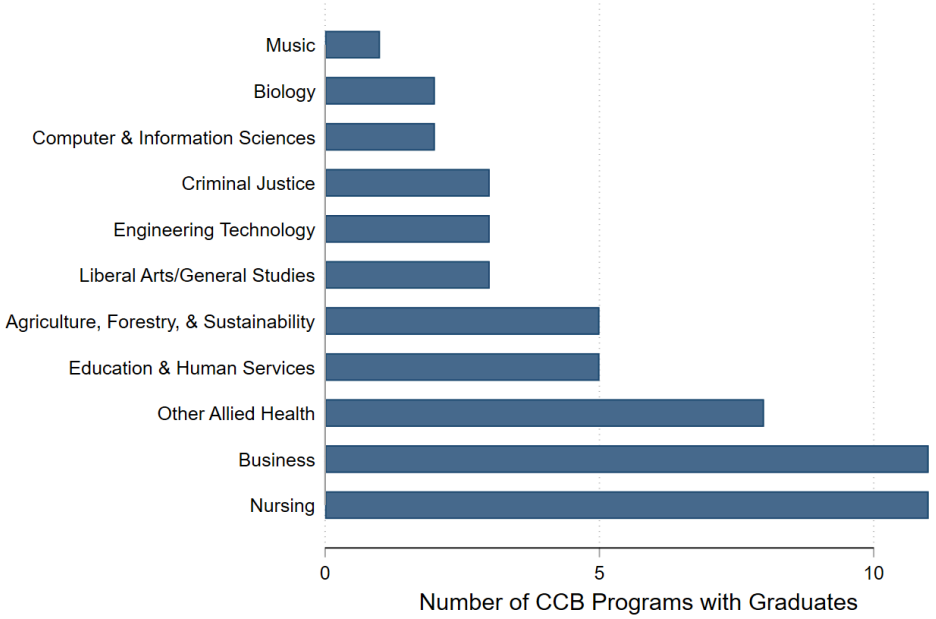
Figure 2: Growth of CCB Programs



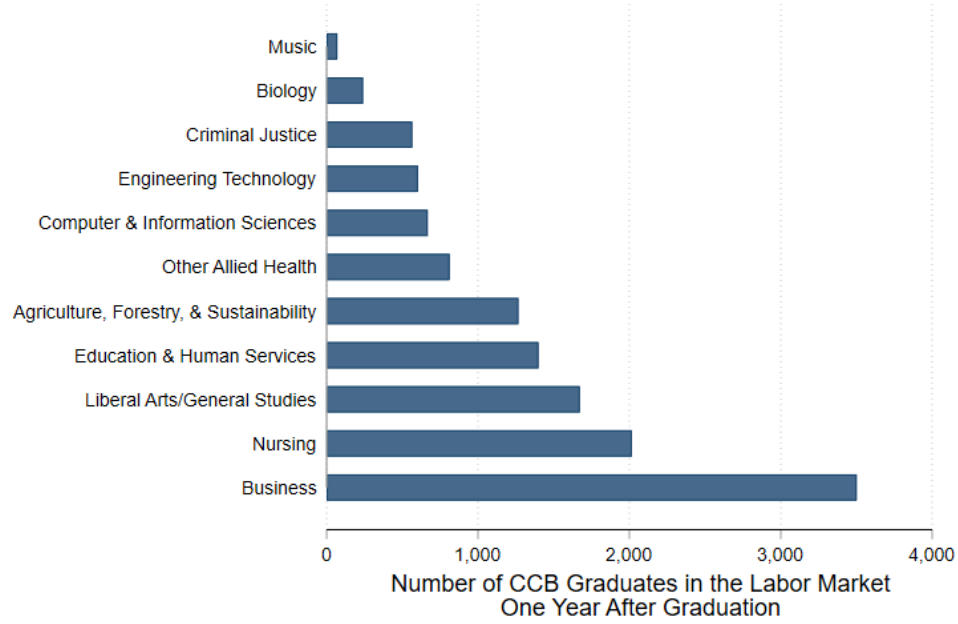
Notes: This figure shows the total number of employed CCB graduates per year (in red) and the number of CCB graduates employed in the same state that they completed their degree (blue). Data at the institution-degree-CIP-cohort level collapsed to the cohort level.

Figure 3: Fields of Study of CCB Programs

Panel A. Programs



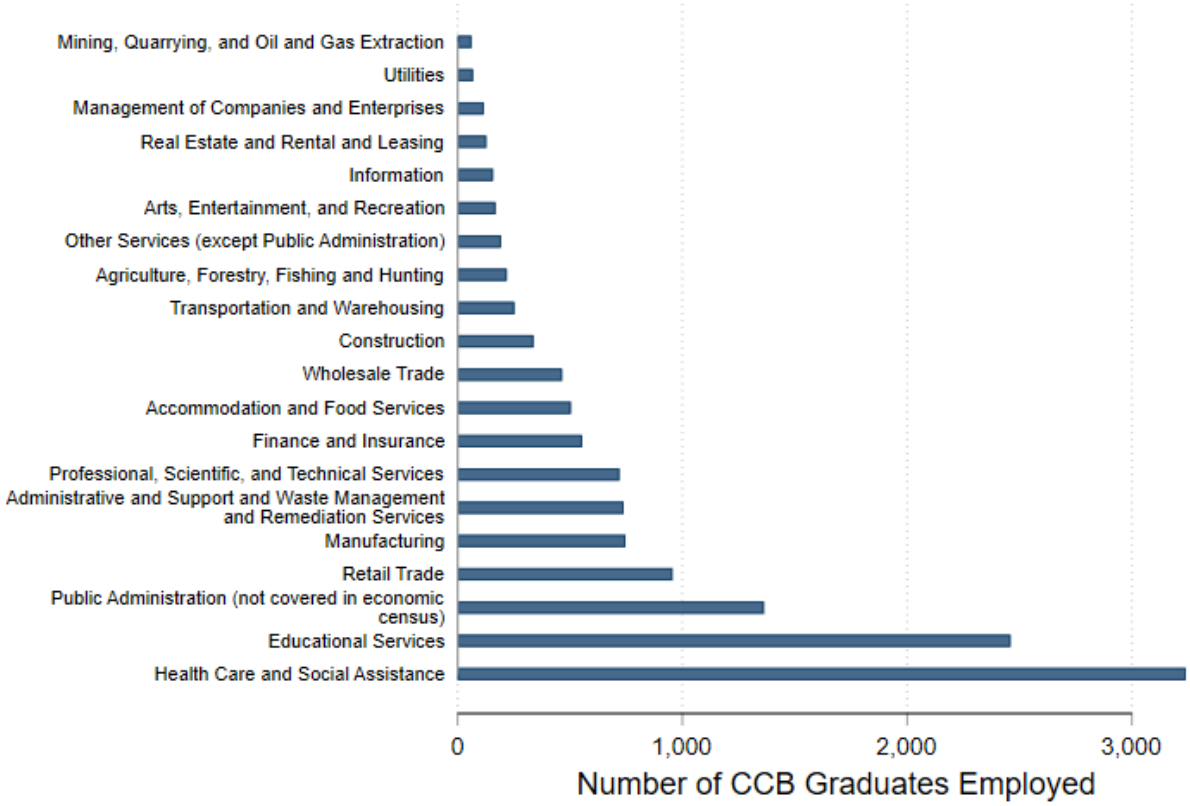
Panel B. Graduates



Notes: This figure shows the number of CCB programs (Panel A) and employed graduates (Panel B) by field of study. Data at the institution-degree-CIP-cohort level are collapsed to field of study

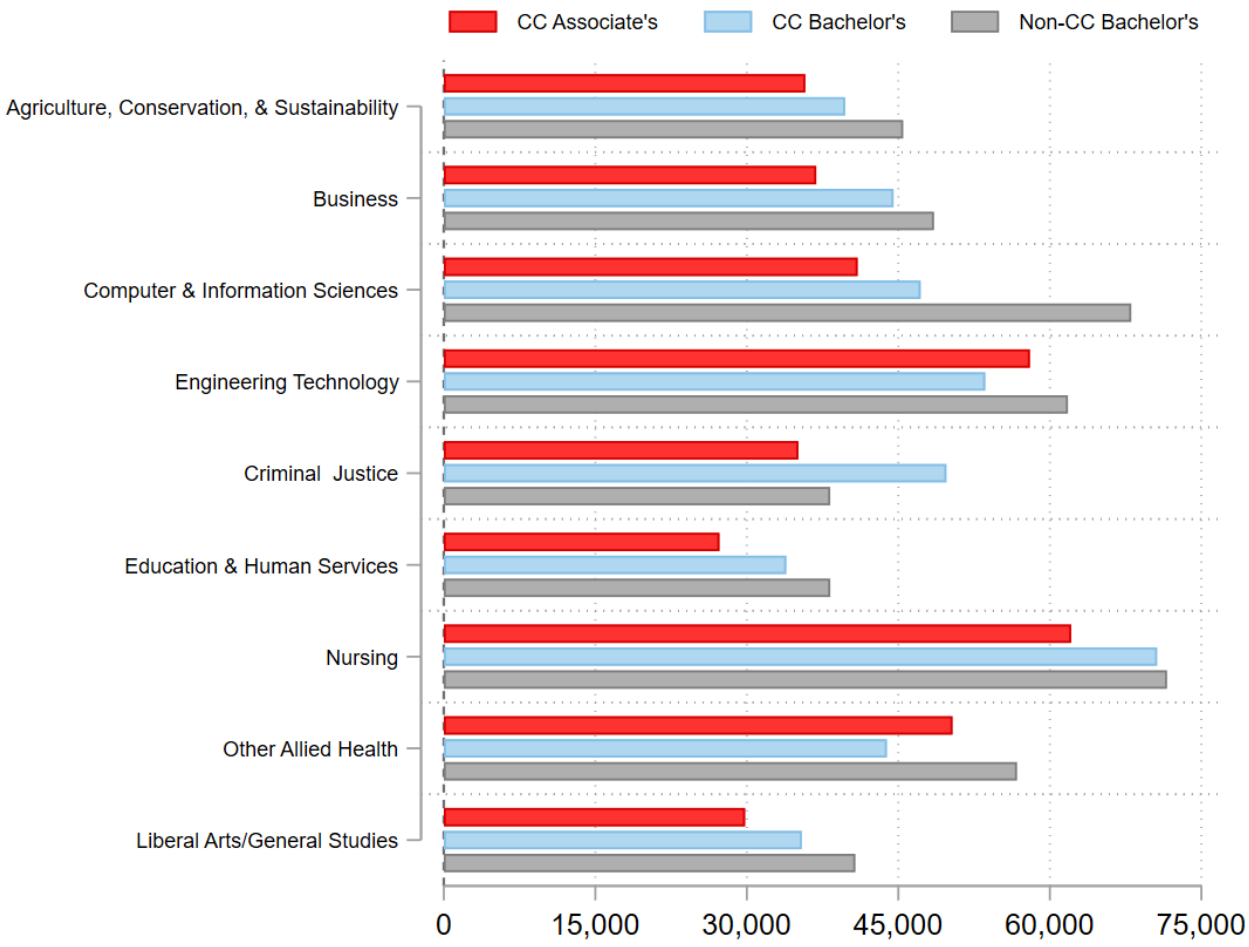
levels. Fields of study are constructed by grouping together related classification of instructional program (CIP) codes. Details of these groupings can be found in Appendix Table A.1.

Figure 4: Industries of Work of CCB Graduates



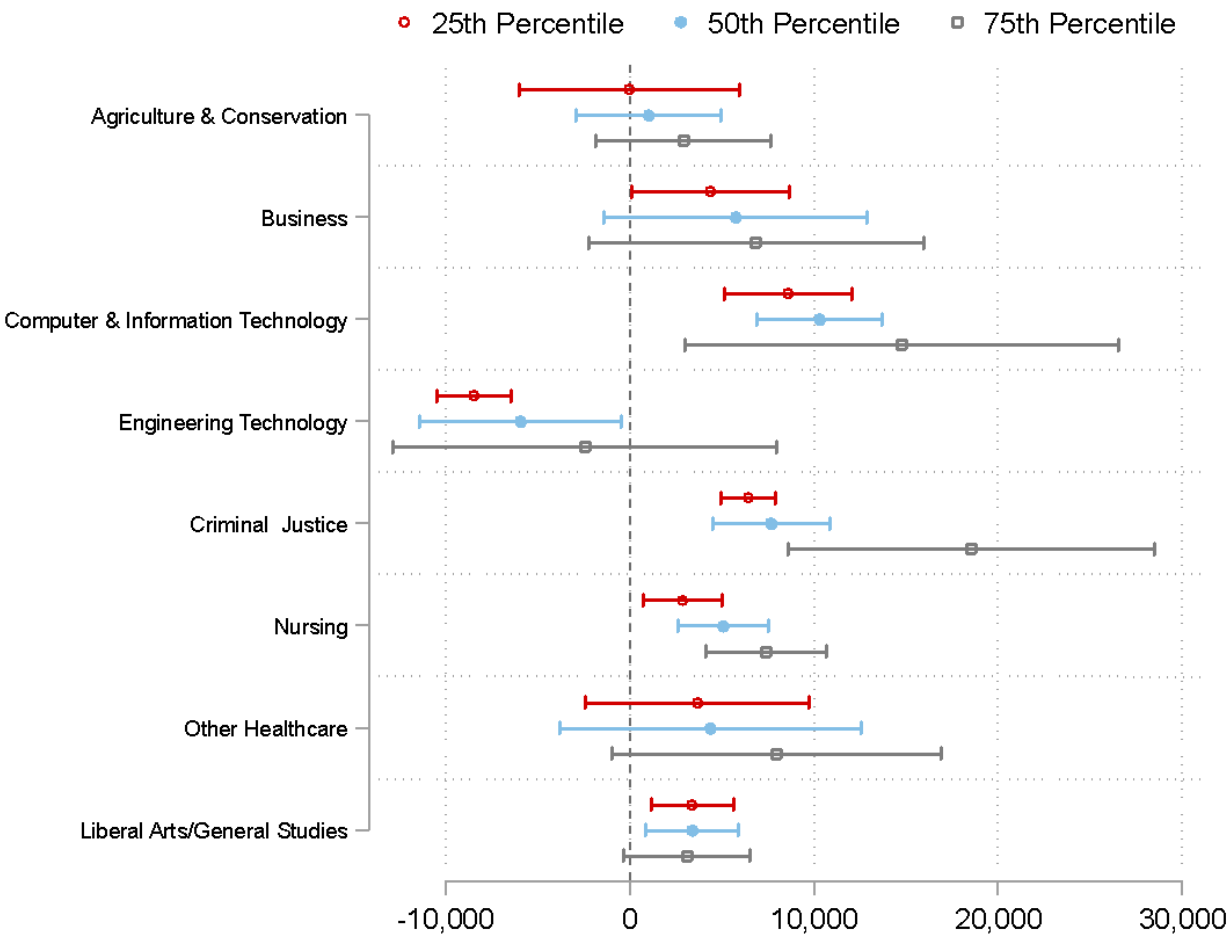
Notes: This figure shows the number of CCB graduates that we observe in each industry as measured by its 2-digit North American Industry Classification System (NAICS) code. Data at the institution-degree-CIP-cohort-industry level are collapsed to industry levels.

Figure 5: Median Earnings of CCB, AA, and BA Graduates



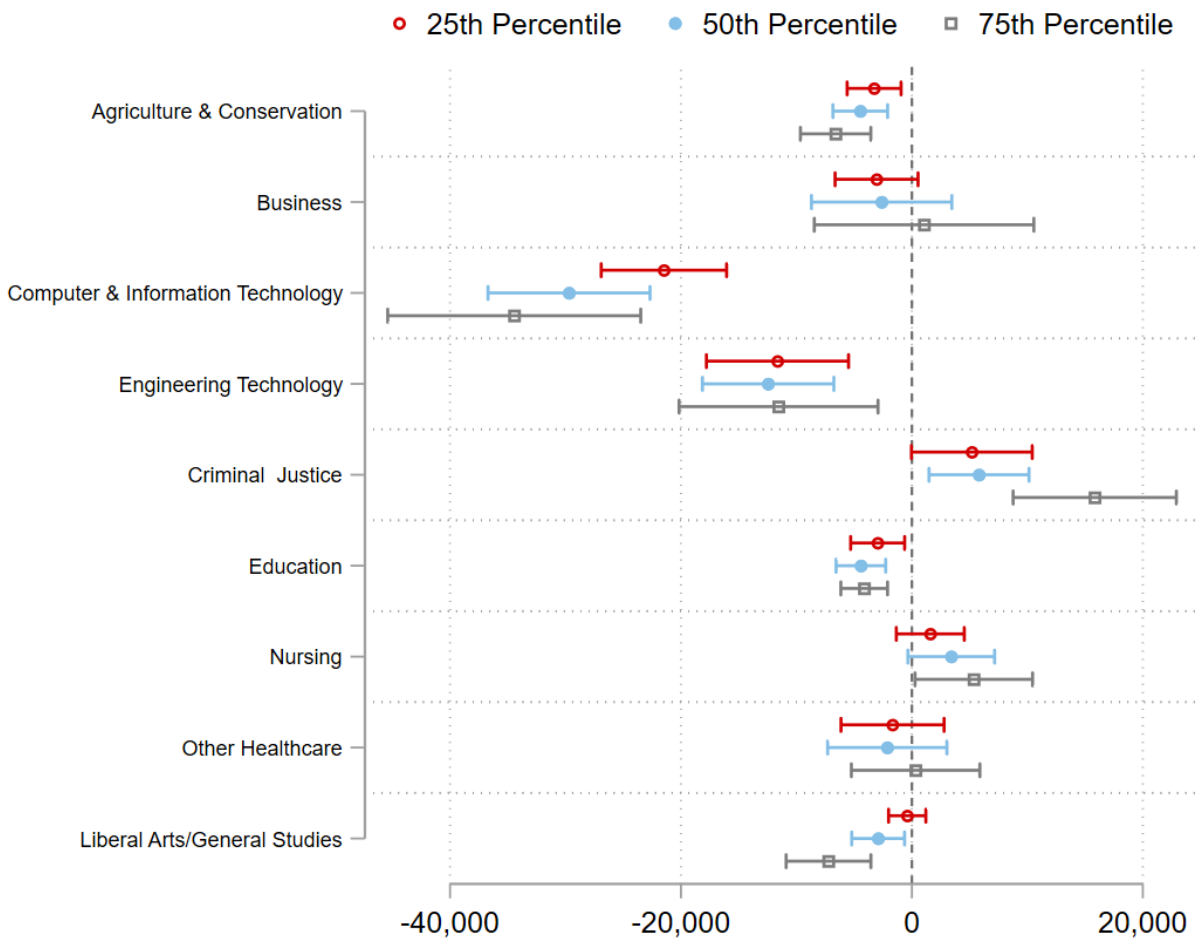
Notes: This figure shows average earnings of median-earner graduates with associate, CCB, and bachelor's degrees one-year post-graduation. Data at the institution-degree-CIP-cohort level are collapsed to field of study levels. Fields of study are constructed by grouping together related classification of instructional program (CIP) codes. Details of these groupings can be found in Appendix Table A.1.

Figure 6: CCB Degree Premium Over AA Degree



Notes: This figure shows the regression-adjusted estimates of CCB graduate earnings compared to AA graduate earnings. Regressions include cohort, state, and CIP-by-institution fixed effects. Regressions are estimated separately for each field of study. Fields of study are constructed by grouping together related classification of instructional program (CIP) codes. Details of these groupings can be found in Appendix Table A.1. Note that standard errors do not account for added noise (Census privacy protection measure) and are thus understated.

Figure 7: CCB Degree Penalty vs. Traditional BA Degree



Notes: This figure shows the regression-adjusted estimates of CCB graduate earnings compared to BA graduate earnings. Regressions include cohort and CIP-by-state fixed effects. Regressions are estimated separately for each field of study. Fields of study are constructed by grouping together related classification of instructional program (CIP) codes. Details of these groupings can be found in Appendix Table A.1. Note that standard errors do not account for added noise (Census privacy protection measure) and are thus understated.

Table 1: Summary Statistics by Institution and Degree Type

	Community College:		Public Four-Year:	Earning Difference:	Earning Difference:
	CCBs	AAs	Traditional BAs		
	(1)	(2)	(3)	CCBs - AAs	CCBs - BAs
Panel A: All Fields of Study					
Number of graduates in PSEO earnings data	155.5	886.8	613.2		
Number of graduates in IPEDS	171.9	1864.6	684.7		
25th Percentile Earnings	$35,220	$30,368	$35,048	$4,852	$172
50th Percentile Earnings	$46,185	$40,244	$46,491	$5,941	-$307
75th Percentile Earnings	$60,320	$52,902	$59,399	$7,418	$921
Business	0.273	0.073	0.092		
Nursing	0.157	0.164	0.076		
Liberal Arts, General Studies, & Humanities	0.130	0.344	0.025		
Education & Human Services	0.109	0.016	0.067		
Agriculture, Forestry, & Sustainability	0.099	0.003	0.006		
Allied Health	0.063	0.069	0.011		
Computer & Information Sciences	0.052	0.014	0.018		
Engineering Technology	0.047	0.013	0.003		
Criminal Justice	0.044	0.037	0.026		
Any of the above	*0.974*	*0.733*	*0.324*		
Observations(program-by-cohort)a	142	15,049	51,872		
Number of Programs	54	5,937	11,865		
Panel B: Fields of Study with CCBs					
Number of graduates in PSEO earnings data	155.5	1147.3	1155.8		
Number of graduates in IPEDS	171.9	2407.6	1150.0		
25th Percentile Earnings	$35,220	$30,803	$38,393	$4,417	-$3,173
50th Percentile Earnings	$46,185	$40,593	$50,069	$5,591	-$3,885
75th Percentile Earnings	$60,320	$53,338	$63,758	$6,982	-$3,437
Business	0.273	0.099	0.255		
Nursing	0.157	0.222	0.213		
Liberal Arts, General Studies, & Humanities	0.13	0.467	0.07		
Education & Human Services	0.109	0.022	0.185		
Agriculture, Forestry, & Sustainability	0.099	0.005	0.016		
Allied Health	0.063	0.094	0.032		
Computer & Information Sciences	0.052	0.02	0.051		
Engineering Technology	0.047	0.018	0.01		
Criminal Justice	0.044	0.051	0.073		
Any of the above	*0.974*	*0.998*	*0.905*		
Observations(program-by-cohort)a	142	7,158	13,730		
Number of Programs	54	2,509	2,921		

Notes: Panel A summarizes variables over program-cohort pairs with non-missing earnings outcomes in the PSEO data. Panel B restricts the sample to program-cohort pairs in CIP codes where CCBs are awarded (see Appendix Table A.1). Columns (1) and (2) include programs offered by community colleges, which we define as public postsecondary institutions that predominantly award degrees and certificates below the bachelor's level and do not offer graduate programs. Column (3) includes bachelor's-degree granting institutions that are not community colleges. 25th, 50th, and 75th percentile earnings refer to average earnings at this percentile across program. aNote that by "program" we refer to institution-by-degree type-by-CIP code, and by "cohort" the PSEO data groups AA graduates into three-year cohorts (i.e., the 2010 cohort is graduates from 2010-11, 2011-12, and 2012-13 school years), whereas CCB and BA graduates are combined into five-year cohorts (i.e., the 2010 cohort is 2010-11, 2011-12, 2012-13, 2013-14, and 2014-15 graduates). We do not formally adjust for this difference in cohort grouping, as average earnings at each percentile are fairly stable across cohorts.

Table 2: Earnings of Community College Bachelor's Degree Graduates Compared to Associate's Degree Graduates

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: 50th Percentile Earnings						
CCB Degree	5591.4***	5117.1*	4580.9***	5033.0**	6436.0***	5684.9***
	(1471.6)	(2687.0)	(1733.4)	(1998.4)	(1487.5)	(902.1)
Percentage increasea	13.8%	12.6%	11.3%	12.4%	15.9%	14.0%
Obs(program-by-cohort)b	7,300	7,300	7,300	7,300	7,298	6,893
Panel B: 25th Percentile Earnings						
CCB Degree	4416.9***	4084.6*	3868.3***	3890.3***	4851.3***	4264.4***
	(1248)	(2212)	(1110)	(1248)	(970)	(772)
Percentage increasea	14.3%	13.3%	12.6%	12.6%	15.7%	13.8%
Obs(program-by-cohort)b	7,300	7,300	7,300	7,300	7,298	6,893
Panel C: 75th Percentile Earnings						
CCB Degree	6982.2***	6285.4*	6030.5**	7194.0**	8992.7***	8885.3***
	(1826)	(3446)	(2813)	(3179)	(2501)	(1333)
Percentage increasea	13.1%	11.8%	11.3%	13.5%	16.9%	16.7%
Obs(program-by-cohort)b	7,300	7,300	7,300	7,300	7,298	6,893
Cohort Fixed Effects (FEs)		X	X	X	X	X
CIP Code FEs			X	X	X	X
State FEs				X	X	X
Institution FEs					X	X
CIP-by-Institution FEs						X

Notes: All specifications are weighted by the number of graduates observed in the labor market in the PSEO data. Robust standard errors are presented in parentheses. aPercentage increase relative to the 50th, 25th, or 75th percentile of associate's degree graduate earnings. bNote that by "program" we refer to institution-by-degree type-by-CIP code, and by "cohort" the PSEO data groups AA graduates into three-year cohorts (i.e., the 2010 cohort is graduates from 2010-11, 2011-12, and 2012-13 school years), whereas CCB and BA graduates are combined into five-year cohorts (i.e., the 2010 cohort is 2010-11, 2011-12, 2012-13, 2013-14, and 2014-15 graduates). We do not formally adjust for this difference in cohort grouping, as average earnings at each percentile are fairly stable across cohorts. * p<0.10, ** p<0.05, *** p<0.010.

Appendix Table A.1: Classification of CCB CIP Codes

Field Category	CIP Code	CIP Name	Graduates
Agriculture, Forestry, & Sustainability	1.01	Agricultural Business & Management	99
	1.06	Applied Horticulture & Horticultural Business Services	165
	1.99	Agriculture, Agriculture Operations, & Related Sciences, Other	624
	3.05	Forestry	169
	30.33	Sustainability Studies	210
Biology	26.01	Biology, General	241
Business	52.01	Business/Commerce, General	149
	52.02	Business Administration, Management & Operations	3280
	52.99	Business, Management, Marketing, & Related Support Services, Other	73
Computer & Information Sciences	11.01	Computer & Information Sciences, General	420
	11.10	Computer/Information Technology Administration & Management	248
Criminal Justice	43.01	Criminal Justice & Corrections	416
	43.99	Homeland Security, Law Enforcement, Firefighting & Related Protective Services, Other	150
Education & Human Services	13.10	Special Education & Teaching	242
	13.12	Teacher Education & Professional Development, Specific Levels & Methods	887
	13.13	Teacher Education & Professional Development, Specific Subject Areas	82
	44.00	Human Services, General	189
Engineering Technology	15.04	Electromechanical Instrumentation & Maintenance Technologies/Technicians	134
	15.06	Industrial Production Technologies/Technicians	332
	15.15	Engineering-Related Fields	138
Liberal Arts, General Studies, & Humanities	24.01	Liberal Arts & Sciences, General Studies & Humanities	1673
Music	50.09	Music	71
Nursing	51.38	Registered Nursing, Nursing Administration, Nursing Research & Clinical Nursing	2017
Allied Health	51.06	Dental Support Services & Allied Professions	174
	51.07	Health & Medical Administrative Services	607
	51.09	Allied Health Diagnostic, Intervention, & Treatment Professions	32

Notes: CIP (Classification of Instructional Programs) codes, used by the U.S. Department of Education, are a standardized way to define academic majors/programs.

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