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Examination of Cosmetology Licensing Issues

Abridged Report: Data Tables for Outcomes of Interest

American Institutes for Research
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Abridged Report: Data Tables for Outcomes of Interest

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Given the wide range of total curriculum hours required for cosmetology licensure (i.e., 1,000 to 2,300 hours), there is debate surrounding the appropriate number of curriculum hours to achieve desired outcomes. However, there do not appear to be documented explanations for how each state determines the required curriculum hours (whether through a review of curricula, analysis of training effects on outcomes, or another approach), and there is little current evidence to support the notion that higher curriculum hour requirements lead to more positive industry outcomes.

There were several outcomes of particular interest throughout this research, as outlined in Exhibit 1.

Exhibit 1. Industry Outcomes of Interest

Education Outcomes	Employment Outcomes
• School Program Length • Graduation • Licensing Exam Performance • Student Financial Stability • School Financial Stability	• Employment Rates • Wages

The purpose of this abridged report is to highlight the results for each of these outcomes. The full set of results can be found in the report titled Examination of Cosmetology Licensing Issues: Data Report.

Education Outcomes

Education outcomes of interest included school program length, graduation, licensing exam performance, student financial stability, and school financial stability. Exploring the relationship between curriculum hour requirements and these education outcomes is important for determining whether and how the number of curriculum hours may affect graduates' success and school financial stability. Although establishing a direct causal link between curriculum hours and any education variable is not possible without a controlled experimental research design to rule out alternative explanations, correlational analysis can provide preliminary evidence of an observed relationship between curriculum hours and other variables of interest.

It should also be noted that the correlations were examined at the state level rather than school level (i.e., data obtained from schools were aggregated to the state level before performing the analysis) given that the interest is in the implications of state-level educational variables such as curriculum hours and various educational outcomes in a given state. Therefore, observed relationships are based on relatively small sample sizes and the findings must be interpreted with caution.

In 2010, the U.S. Department of Education (DOE) issued a set of regulations in an effort to improve the accountability and success of postsecondary programs in preparing students for gainful employment. These regulations require qualifying institutions to disclose certain information, including graduation rates, job placement rates, cohort default rates, and student loan debt. Furthermore, schools are often required to disclose exam pass rates and financial metrics to maintain accreditation status. It is important to note that although institutions are required to provide this information, the method through which some of this information is collected and reported varies across schools and may not allow for direct comparisons.

School Program Length

School program length indicates the estimated number of months a cosmetology student takes to complete a school program. This outcome and its relationship with curriculum hours is important to explore because opponents of licensing may view a longer timeline from enrollment to completion as a barrier to graduation and, therefore, entry into the profession. School-level data for this variable were obtained from the National Center for Education Statistics (NCES)[1] for the 2015-2016 school year. Exhibit 2 provides a summary of school program length; for the data by state, refer to Appendix A: State-Level Data.

Exhibit 2. Summary of School Program Length

	n*	Minimum	Maximum	Median	*M***	*SD***
Estimated Time to Completion (Months)	11	9.1	15.6	14.7	13.0	2.3

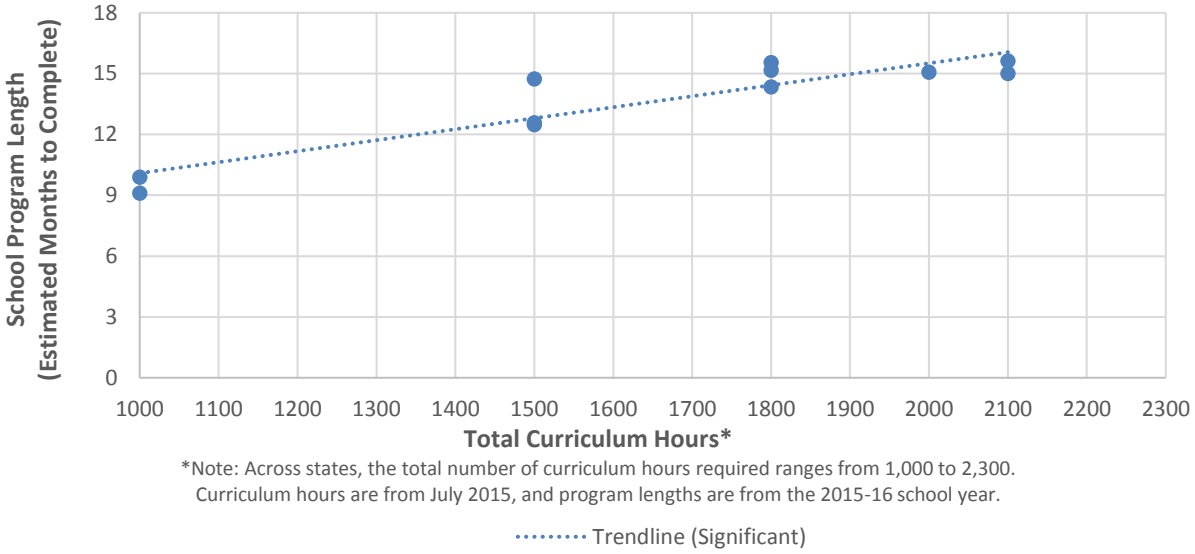
Note: n = sample size; *M* = mean; *SD* = standard deviation.
***This sample size (n) indicates the number of states that were included in the data, and does not indicate the number of schools represented overall. Data were only obtained for schools within 11 states that were of particular interest during this research. Data were not obtained for Washington, D.C.
**This mean was calculated by averaging the data across all schools in the sample (n = 243), and the standard deviation was based on this mean.
Information regarding these data:

- Excluded from this data set are large institutions with campuses in multiple states.

The state-level estimated time to completion ranges from 9.1 to 15.6 months, with an average of 13.0 (*SD* = 2.3). To determine whether the total number of curriculum hours across states may be associated with the program length, a correlational analysis at the state level was conducted. Results of this analysis are presented in Exhibit 3.

[1] http://nces.ed.gov/collegenavigator/

Exhibit 3. Curriculum Hours and School Program Length



The graph in Exhibit 3 illustrates a strong positive and significant relationship between the total number of curriculum hours and the school program length in months ($r = .92$, $p < .01$), which suggests that students in states with higher curriculum hour requirements experience a longer timeline from enrollment to completion of hours, and vice versa. The strong relationship between these variables is logical, and in many cases the length of a program may be a nearly interchangeable proxy to a state's curriculum hour requirement. However, these analyses are correlational in nature and there may be other variables that impact school program length.

Graduation

Graduation rates represent the percentage of students that successfully completed all requirements for graduation, which—in addition to completing the required curriculum hours—may also include non-academic requirements such as paying all tuition and fees.[2] This outcome and its relationship with curriculum hours is important to explore because opponents of licensing may view higher requirements for curriculum hours as a barrier to graduation and, therefore, entry into the profession. State-level data for graduation were available from the National Accrediting Commission of Career Arts and Sciences (NACCAS) for NACCAS-accredited schools. Specifically, this data set includes graduation rates that were calculated by taking the *number of students who were scheduled to graduate in 2013 (as reported by the school), and determining the percentage of these students who actually graduated prior to November 30, 2014 (as reported by the school)*, aggregated by state (NACCAS, 2014). Exhibit 4 provides a summary of graduation rates; for the data by state, refer to Appendix A: State-Level Data.

[2] Although school program completion (i.e., completing one's hours) may be a preferred variable for the analysis of licensing requirements' impact on entry into the field because it is not as clearly impacted by financial requirements, data on this variable were not available at the time of this research.

Exhibit 4. Summary of Graduation (NACCAS-Accredited Schools Only)

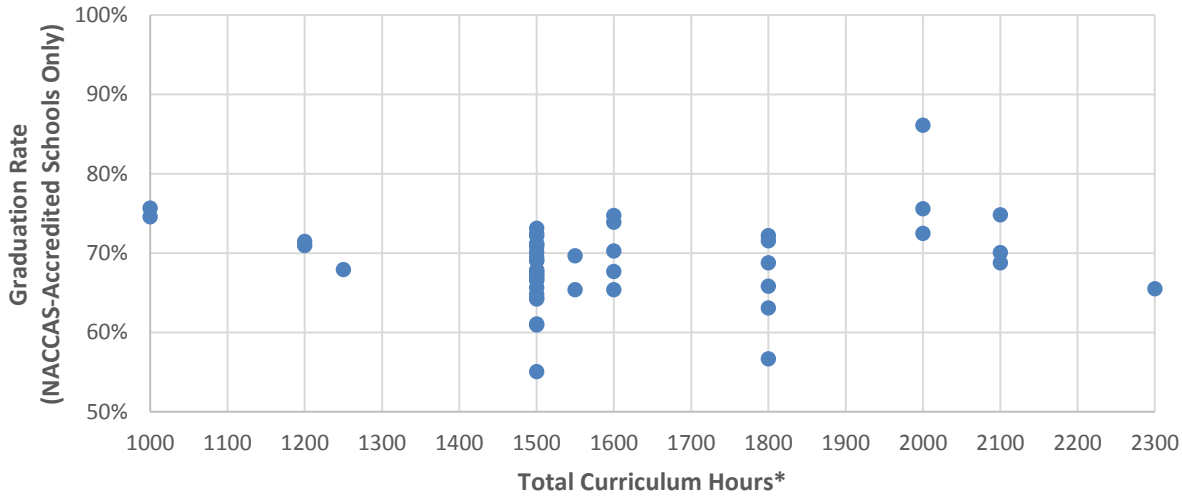
	n*	Minimum	Maximum	Median	*M***	*SD***
Graduation Rate (%)	50	55.1	86.1	68.9	69.6	5.1

Note: n = sample size; *M* = mean; *SD* = standard deviation.
***This sample size (n) indicates the number of states (including Washington, D.C.) that were included in the data, and does not indicate the number of schools represented overall.
**Mean was calculated by dividing the *total number of students who graduated* in the sample by the *total number of students scheduled to graduate* in the sample, and the standard deviation was based on this mean.
NACCAS provided the following information regarding these data:

- The data are not specific to cosmetology programs and include other programs within the beauty and wellness industry such as barbering, esthetics, manicuring, massage therapy, and instructors. There are also some schools included that have more general *wellness* programs (e.g., medical assistant, patient care assistant) but these wellness programs likely account for less than a tenth of a percent of the data.

The state-level graduation rates range from 55% to 86%, with an average of nearly 70% (*M* = 69.6%, *SD* = 5.1%). To determine whether the total number of curriculum hours across states is related to graduation rates, a correlational analysis was conducted. Results of this analysis are presented in Exhibit 5.

Exhibit 5. Curriculum Hours and Graduation Rates



*Note: Across states, the total number of curriculum hours required ranges from 1,000 to 2,300. Curriculum hours are from July 2015, and graduation rates are from 2013-2014.

The graph in Exhibit 5 shows the variability in graduation rates across the range of total curriculum hours. Statistically, there is no evidence of a relationship[3] between total curriculum hours and graduation rates in this sample of NACCAS-accredited schools. This analysis is interesting to consider in combination with the previous analysis for school program length; although higher hours may be related to longer time to complete the program, these students are not necessarily lagging in terms of graduation.

Licensing Exam Performance

Licensing exam pass rates represent the proportion of licensing candidates that score above the threshold (typically 70-75% of questions answered correctly) that is thought to represent the

[3] The correlation was not significant relative to the standard alpha level (*p*) of .05.

minimum entry-level requirements for being a practitioner. The majority of states administer both written and practical licensing exams, and pass rates are calculated separately for each section. Exam pass rates and their relationship with curriculum hours is important to explore to determine whether states with a higher requirements for curriculum hours may be associated with more safe and competent licensing candidates. The usefulness of this variable is limited by several factors, including the fact that there are a number of exam providers across states, there is often little variability in observed state-level pass rates, the data usually include repeat test takers (who have had the advantage of taking the test before), and not all examinees may have obtained the stated curriculum hours for that state (instead choosing an apprenticeship substitution).

State-level data on exam pass rates were obtained from two sources, and these data are described below and summarized in Exhibit 6.

The first sample included overall pass rate data from NACCAS for NACCAS-accredited schools. Specifically, these data included licensure rates that were calculated by taking the *number of graduates (from the 2013 graduation rate) who sat for all sections of their required licensure exam prior to November 30, 2014 (as reported by the school) and determining the percentage that passed*[4] *all sections of the exam prior to November 30, 2014 (as reported by the school); NACCAS, 2014).* These data were not broken down by written and practical exam sections. NACCAS data exist for 49 states (excluding Alaska) and Washington, D.C. For the data by state, refer to Appendix A: State-Level Data.

The second sample included written and practical exam section pass rate data from NIC. Specifically, these data include exam pass rates that were calculated by dividing the *number of examinees who passed each section between February 1 and August 24, 2015* by the *number of examinees who sat for each section between February 1 and August 24, 2015.* Because these data only include the states that administer the NIC exam sections, written exam pass rates are available for 28 states and Washington, D.C., and practical exam pass rates are available for 21 states. For the data by state, refer to Appendix A: State-Level Data.

[4] This includes not only those that passed on their first attempt, but also those that failed on their first attempt and re-took and passed all sections of the exam prior to November 30, 2014.

Exhibit 6. Summary of Exam Pass Rates

	n*	Minimum	Maximum	Median	*M***	*SD***
Overall Pass Rate (%) *(NACCAS-Accredited Schools Only)*	50	85.7	100.0	97.2	93.6	4.2
NIC Written Exam Pass Rate (%)	29	66.4	100.0	90.4	85.0	7.7
NIC Practical Exam Pass Rate (%)	21	81.8	100.0	97.4	93.7	5.2

Note: n = sample size; *M* = mean; *SD* = standard deviation.
***This sample size (n) indicates the number of states (including Washington, D.C.) that were included in the data, and does not indicate the number of schools represented overall.
**The mean for overall pass rate was calculated by dividing the *total number of examinees who passed all sections of the exam* in the sample by the *total number of examinees who sat for all sections of the exam* in the sample. The means for written and practical exam pass rates were calculated by dividing the *total number of examinees who passed each section* in the sample by the *total number of examinees who sat for each section* in the sample. The standard deviations were based on these means.
NACCAS provided the following information regarding the *overall pass rate* data:

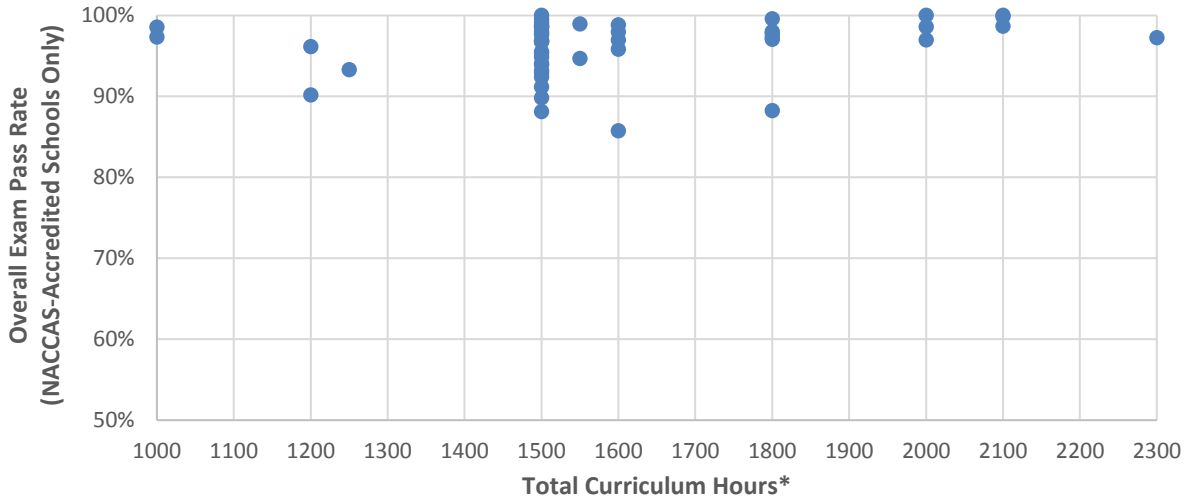
- The data are not specific to cosmetology programs and include other programs within the beauty and wellness industry such as barbering, esthetics, manicuring, massage therapy, and instructors. There are also some schools included that have more general *wellness* programs (e.g., medical assistant, patient care assistant) but these wellness programs likely account for less than a tenth of a percent of the data.
- Not all states issue exam reports to the schools. In states where no exam report is issued, it can be close to impossible for a school to determine its pass rate, because the information is not available. In these cases, schools must try to obtain the results by using an online license verification (which confirms licensed students, but does not show exam results) and by contacting students directly. It is possible that pass rates may be inflated for states where no exam report is issued because failing scores may be underreported.

Within the NACCAS data set, the state-level overall exam pass rates range from 86% to 100% (*M* = 93.6%, *SD* = 4.2%). Within the NIC exam data set, the written and practical exam pass rates range from 66% to 100% and 82% to 100% respectively. Across states, the average NIC pass rates are consistently higher for the practical section (*M* = 93.7%, *SD* = 5.2%) than for written (*M* = 85.0%, *SD* = 7.7%), and the difference is statistically significant.[5] Because the practical exam requires the use of expert raters, a comparison of scores may not be appropriate without standardized rater training (Feldman, Lazzara, Vanderbilt, & DiazGranados, 2012) and implementation of more objective rating systems such as behaviorally anchored rating scales (BARS; Debnath, Lee, & Tandon, 2015). AIR collected anecdotal evidence from SMEs that many practical exam raters tend to rate leniently, and are reluctant to fail examinees due to the face-to-face context of the practical exam. This may be one of many contributing factors to the observed difference in pass rates for written and practical sections of the exam. It should be noted that, within the NIC data set, all states had a curriculum hour requirement above the overall U.S. median (i.e., 1,500), therefore restricting the range of curriculum hours represented in this data set.

To determine whether the total number of curriculum hours across states may be related to exam pass rates, correlational analyses were conducted within the NACCAS data set. Results of this analysis are presented in Exhibit 7. However, correlational analyses were not conducted for the NIC data set because of there was a lack of available data for states with curriculum requirements below the median.

[5] A paired-samples t-test was conducted in the states where both written and practical pass rates were available (n = 20), and there was a significant difference in the pass rates for the theory (*M* = 90.1%, *SD* = 5.2%) and practical (*M* = 95.2%, *SD* = 5.0%) exam sections; *t*(19) = -3.38, *p* = 0.003.

Exhibit 7. Curriculum Hours and Overall Exam Pass Rates (NACCAS-Accredited Schools Only)



*Note: Across states, the total number of curriculum hours required ranges from 1,000 to 2,300. Curriculum hours are from July 2015, and overall exam pass rates are from 2014.

The graph in Exhibit 7 illustrates the lack of apparent relationship between the total number of curriculum hours and overall exam pass rates for NACCAS-accredited schools, and the correlational analysis resulted in a non-significant finding.[6] This finding may be due, in part, to the small range of variability in overall pass rates for this sample. Specifically, when a sample has a restricted range of scores, the correlation will be reduced.

Student Financial Stability

An important outcome to examine in relation to curriculum hours is student financial stability, because opponents of licensing may view negative financial consequences (e.g., higher program expenses, higher debt) in states with higher requirements for curriculum hours as evidence of higher curriculum hours causing a financial burden for students that may, in turn, cause a barrier to entry into the profession. We examined several variables that serve as proxies for student financial stability: (1) school program expenses, (2) Pell Grants, (3) student loan debt, and (4) cohort default. Each analysis is discussed below.

School Program Expenses

In addition to standard living expenses (e.g., rent, food), students incur direct educational expenses to attend cosmetology school programs, such as tuition, books, and other supplies. School-level data for tuition and books/supplies were obtained from the NCES[7] for the 2015-2016 school year. Exhibit 8 provides a summary of school program expenses; for the data by state, refer to Appendix A: State-Level Data.

[6] The correlation was not significant relative to the standard alpha level (*p*) of .05.
[7] http://nces.ed.gov/collegenavigator/

Exhibit 8. Summary of School Program Expenses

	n*	Minimum	Maximum	Median	*M***	*SD***
Tuition for Full Program ($)	11	12,263.1	19,235.2	14,511.9	14,611.2	2,300.4
Books/Supplies for Full Program ($)	11	1,111.6	2,269.3	1,673.8	1,700.5	385.4

Note: n = sample size; *M* = mean; *SD* = standard deviation.
***This sample size (n) indicates the number of states that were included in the data, and does not indicate the number of schools represented overall. Data were only obtained for schools within 11 states that were of particular interest during this research. Data were not obtained for Washington, D.C.
**Means were calculated by averaging the data across all schools in the sample (n = 244 for tuition and n = 231 for books/supplies), and the standard deviations were based on these means.
Information regarding these data:

- Excluded from this data set are large institutions with campuses in multiple states.

Tuition expenses range from about $12,250 to $19,250 with an average of $14,611.2 (*SD* = $2,300.4). Expenses for books/supplies range from about $1,100 to $2,275 with an average of $1,700.5 (*SD* = $385.4). To determine whether the total tuition costs and total costs for books and supplies are related to the number of curriculum hours across states, two separate correlational analyses were conducted at the state level and are presented in Exhibit 9 (tuition) and Exhibit 10 (books/supplies).

Exhibit 9. Curriculum Hours and Tuition

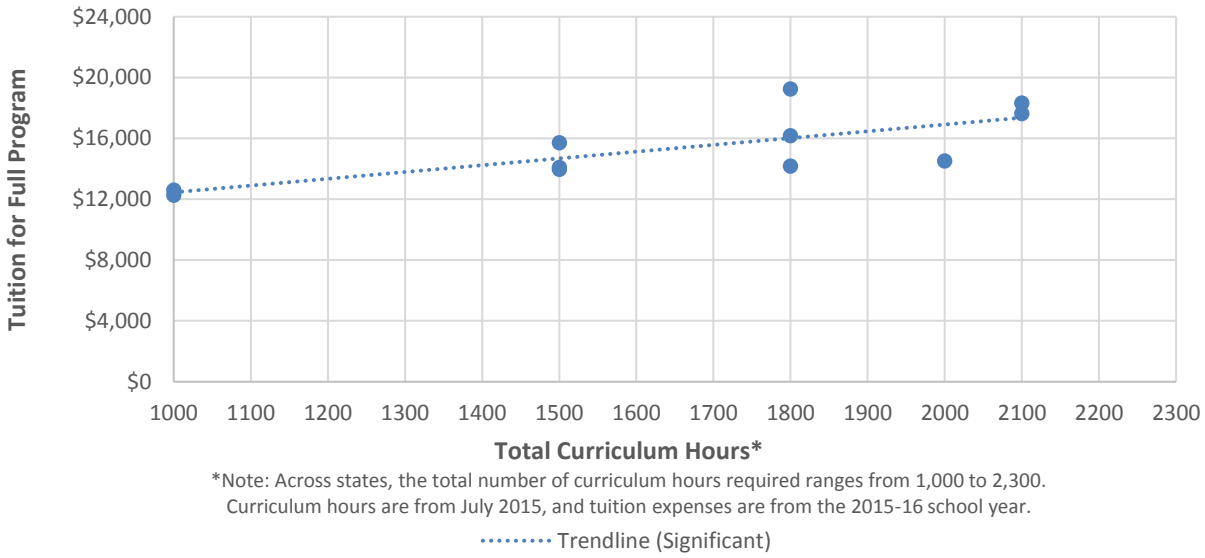
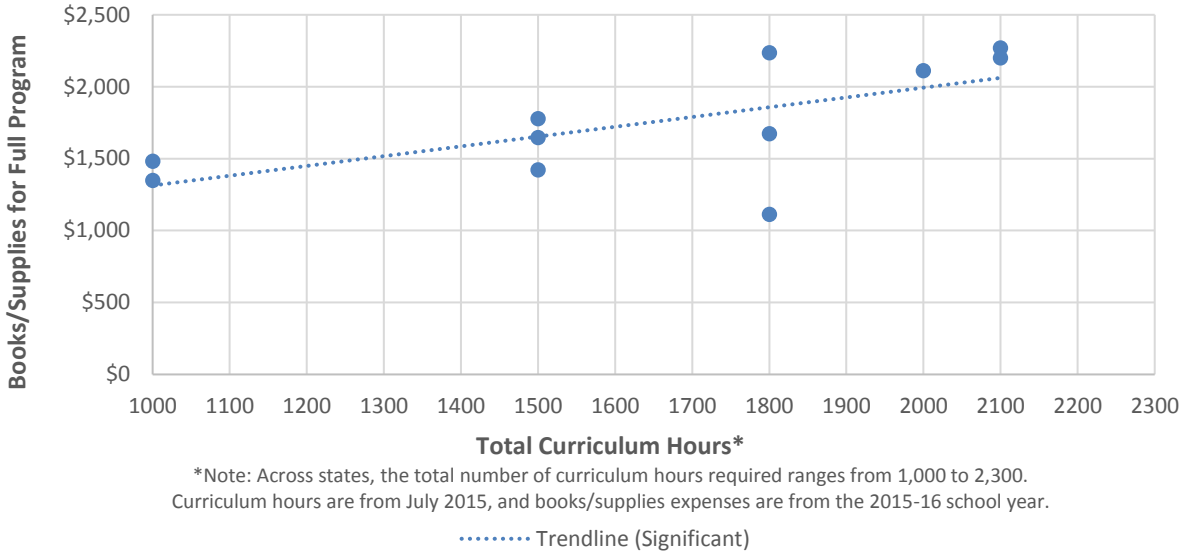


Exhibit 10. Curriculum Hours and Books/Supplies



The graph in Exhibit 9 shows a positive and significant relationship between the total number of curriculum hours and tuition expenses (r =. 76, p < .01), and the graph in Exhibit 10 shows a positive and significant relationship between the total number of curriculum hours and expenses for books and supplies (r =. 66, p < .05). These results suggest that students in states with a higher number of total curriculum hours incur higher expenses to attend cosmetology school for both tuition and books and supplies.

Student Loan Debt

Many students obtain loans for their education with the expectation that they will be able to pay off the loan once they obtain employment after graduation. However, in cosmetology, as in other industries, graduates are often not able to make the required payments with an entry-level salary. It is important to examine the relationship between curriculum hours and student loan debt because opponents of cosmetology licensing may view higher debt in states with higher requirements for curriculum hours as evidence of higher curriculum hours causing a financial burden for students that may, in turn, cause a barrier to entry into the profession. However, the usefulness of this variable is limited by several factors. For example, it could be confounded in many ways, such as by a geographical area's economic status or students' individual differences (e.g., resources or motivation with regard to applying for jobs or repaying a loan).

State-level data on median Title IV funding were obtained from individual school websites, which are assumed to be reasonably up-to-date. It should be noted that the data from this source only represent a limited sample of schools and may not include all debt incurred by students when attending cosmetology programs.

Exhibit 11. Summary of Title IV Funding

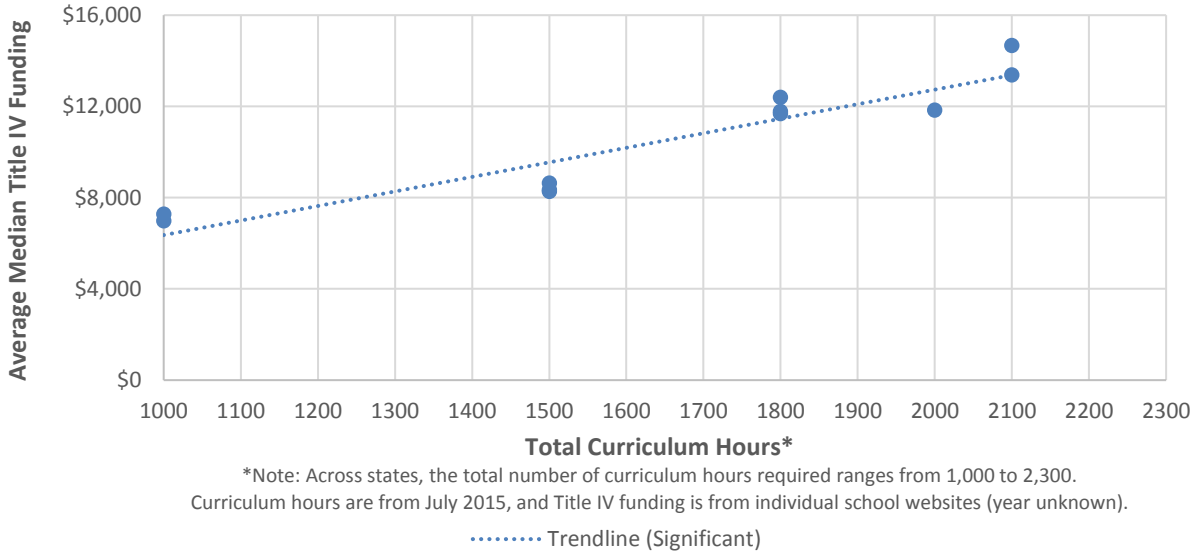
	n*	Minimum	Maximum	Median	*M***	*SD***
Median Title IV Funding	11	6,984.4	14,666.7	11,685.4	9,532.8	2,691.4

Note: n = sample size; *M* = mean; *SD* = standard deviation.
***This sample size (n) indicates the number of states that were included in the data, and does not indicate the number of schools represented overall. Data were only obtained for schools within 11 states that were of particular interest during this research. Data were not obtained for Washington, D.C.
**Mean was calculated by averaging the data across all schools in the sample (n = 154), and the standard deviation was based on this mean.
Information regarding these data:

- Excluded from this data set are large institutions with campuses in multiple states.

Median Title IV funding ranges from about $7,000 to $14,750, with an average of $9,532.8 (*SD* = $2,691.4). To determine whether the total number of curriculum hours across states may be associated with Title IV funding, a correlational analysis at the state level was conducted. These results are presented in Exhibit 12.

Exhibit 12. Curriculum Hours and Median Title IV Funding



The graph in Exhibit 12 illustrates a positive and significant relationship between the total number of curriculum hours and the median Title IV funding amount (r = .94, p < .01). In other words, students that attend programs in states with higher curriculum hours tend to incur higher median funding, on average. Although significant, these analyses are correlational in nature and it should be noted that there are likely additional variables that impact loan amounts.

Cohort Default

The cohort default rate (CDR) is a measure of federal loan borrowers that enter repayment in a given fiscal year (FY; October 1 to September 30) and default before the end of the next one to two fiscal years. This outcome and its relationship with curriculum hours is important to explore because opponents of licensing may view higher cohort default rates in states with higher requirements for curriculum hours as evidence of higher curriculum hours causing a financial burden for students that may, in turn, cause a barrier to entry into the profession. However, the usefulness of this variable is limited by several factors. For example, it could be confounded in

many ways, such as by a geographical area's economic status or students' individual differences (e.g., resources or motivation with regard to applying for jobs).

School-level data for this variable were obtained from DOE. Specifically, this data set included the FY 2012 official 3-year cohort default rates for cosmetology programs at schools participating in the Title IV student financial assistance programs, calculated as the *percentage of a school's borrowers who enter repayment on certain Federal Family Education Loan (FFEL) Program or William D. Ford Federal Direct Loan (Direct Loan) Program loans during a particular federal FY, and default or meet other specified conditions prior to the end of the second following FY*.[8] Exhibit 13 provides a summary of cohort default rates; for the data by state, refer to Appendix A: State-Level Data.

Exhibit 13. Summary of Cohort Default Rates (Title IV Cosmetology Programs Only)

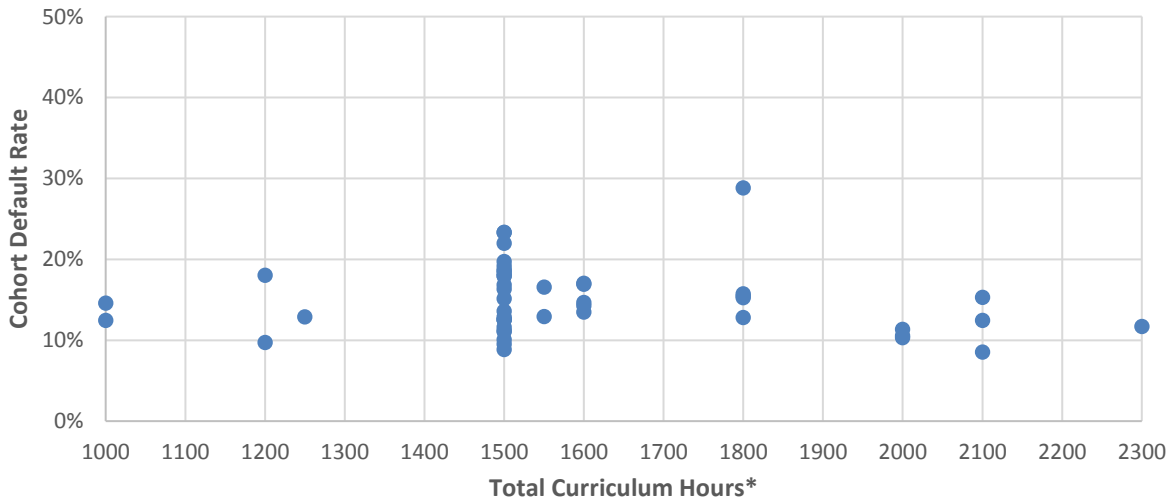
	n*	Minimum	Maximum	Median	*M***	*SD***
Cohort Default Rate (%)	48	8.5	28.8	14.4	17.1	4.7

Note: n = sample size; *M* = mean; *SD* = standard deviation.
***This sample size (n) indicates the number of states (including Washington, D.C.) that were included in the data, and does not indicate the number of schools represented overall.
**This mean for this analysis was calculated by dividing *total number of borrowers who enter repayment and default* in the sample by the *total number of borrowers who enter repayment* in the sample, and the standard deviation was based on this mean.
Information regarding these data:

- Excluded from this data set are large institutions with campuses in multiple states.

The state-level cohort default rates range from 8.5% to 28.8%, with an average of 17.1% (*SD* = 4.7). To determine whether the total number of curriculum hours across states may be associated with cohort default rate, a correlational analysis at the state level was conducted. These results are presented in Exhibit 14.

Exhibit 14. Curriculum Hours and Cohort Default Rate (Title IV Schools Only)



*Note: Across states, the total number of curriculum hours required ranges from 1,000 to 2,300. Curriculum hours are from July 2015, and cohort default rates are from 2012.

[8] Refer to the Cohort Default Rate Guide (http://ifap.ed.gov/DefaultManagement/finalcdrg.html) for a more in-depth description of cohort default rates and how the rates are calculated.

The graph in Exhibit 14 shows the variability in cohort default rate across the range of total curriculum hours. Statistically, there is no evidence of a relationship[9] between these variables for this sample of Title IV cosmetology programs.

Pell Grants

In addition to loans, students may receive grants to pay for schooling. The most popular federal grant is called a Pell Grant, which is limited to students with financial need, who have not earned their first bachelor's degree, or who are enrolled in certain post-baccalaureate programs through participating institutions. A Pell Grant, unlike a loan, does not have to be repaid; as such, the impact of this cost is incurred by taxpayers. In the 2010-2011 academic year, Pell Grants cost taxpayers $35.6 billion (Robinson & Cheston, 2012). Therefore, it is important to explore the relationship between curriculum hours and the amount of Pell Grants to help determine the return on investment for higher total curriculum hours. In other words, if states with higher curriculum hour requirements are not found to relate more strongly to positive outcomes than do states with lower requirements, it may indicate that grant dollars could be allocated elsewhere to be more effective (assuming grant amounts are correlated with the total number of curriculum hours per state).

The maximum amount for a Pell Grant award changes yearly, and the amount awarded of this maximum to any one student depends on the student's financial need, cost of attendance, status as a full-time or part-time student, and plans to attend school for a full academic year or less (Federal Student Aid, 2016).[10] School-level data for this variable were obtained from the NCES[11] for the 2015-2016 school year. Specifically, this data set included the average Pell Grant for cosmetology programs in a single year (operationalized as 900 hours) for full-time beginning undergraduate students (i.e., those who are entering postsecondary education for the first time). To extrapolate the Pell Grant amount for the full curriculum hour requirement, a multiplier was applied to the data (e.g., programs with 1,800 hours were given a multiplier of two). Exhibit 15 provides a summary of Pell Grants for one year and full program; for the data by state, refer to Appendix A: State-Level Data.

Exhibit 15. Summary of Pell Grants

	n*	Minimum	Maximum	Median	*M***	*SD***
Pell Grant for One Year ($)	11	4,112.4	4,674.9	4,473.4	4,360.8	179.7
Pell Grant for Full Program ($)	11	4,712.8	10,658.0	8,736.7	7,316.9	2,158.6

Note: n = sample size; *M* = mean; *SD* = standard deviation.
***This sample size (n) indicates the number of states that were included in the data, and does not indicate the number of schools represented overall. Data were only obtained for schools within 11 states that were of particular interest during this research. Data were not obtained for Washington, D.C.
**The means for this analysis were calculated by averaging the data across all schools in the sample (n = 231), and the standard deviations were based on these means.
Information regarding these data:

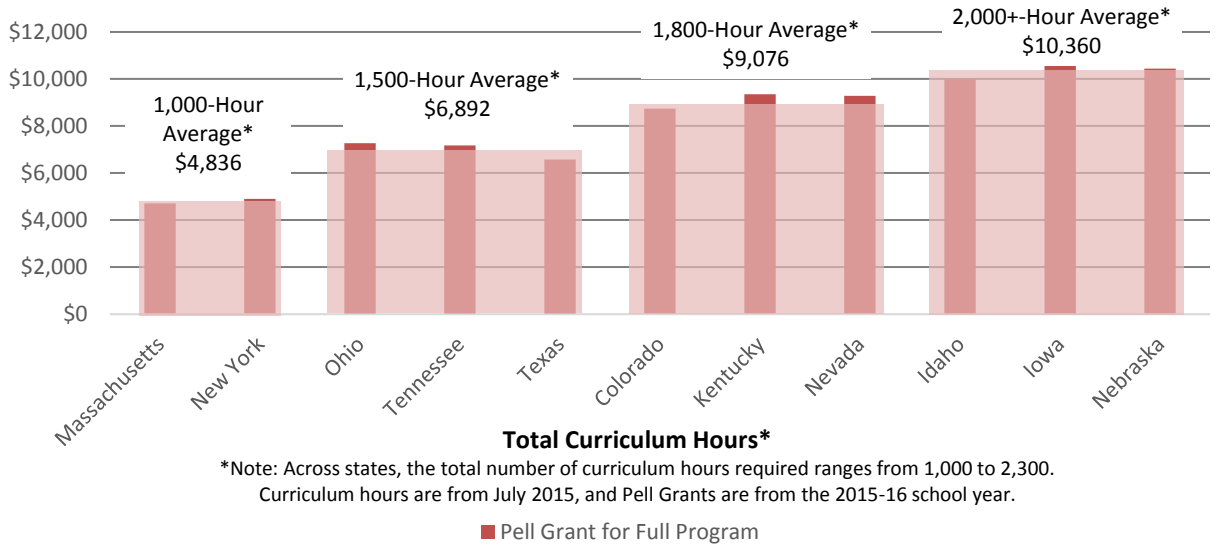
- Excluded from this data set are large institutions with campuses in multiple states.

Pell Grant award amounts for one year range from about $4,000 to $4,750, with an average of $4,360.8 (*SD* = $179.7). For a full program, award amounts range from about $4,750 to

[9] The correlation was not significant relative to the standard alpha level (*p*) of .05.
[10] For more information, visit https://studentaid.ed.gov/sa/types/grants-scholarships/pell.
[11] http://nces.ed.gov/collegenavigator/

$10,750, with an average of $7,316.9 (*SD* = $2,158.6). A correlational analysis was precluded for Pell Grant amounts for a full program because curriculum hours were used to create this variable, as discussed previously; however, Exhibit 16 illustrates the clear upward trend in this variable such that as total curriculum hours increase, Pell Grant amounts for a full program also increase.

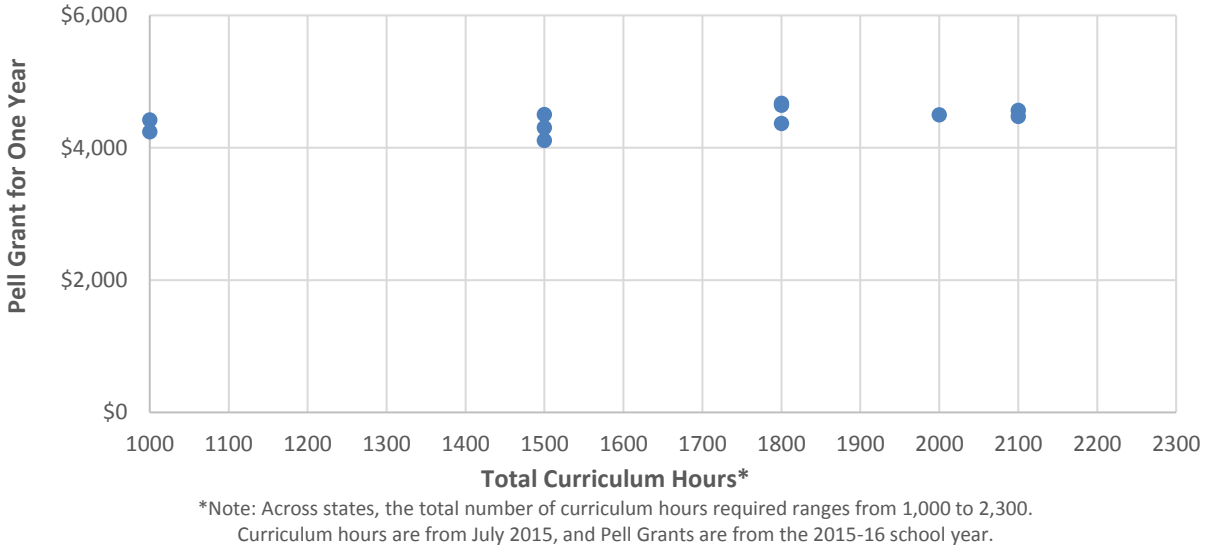
Exhibit 16. Curriculum Hours and Pell Grants for Full Program



*The group-level means were calculated by grouping schools by their total curriculum hour requirements, and averaging the Pell Grant amounts for each group. The sample size for each group is as follows: 1,000-hour n = 48; 1,500-hour n = 115; 1,800-hour n = 28; 2,000+-hour n = 39.

To determine whether the total number of curriculum hours across states may be related to the Pell Grant award amounts for one year, a correlational analysis was conducted and results are presented in Exhibit 17.

Exhibit 17. Curriculum Hours and Pell Grants for One Year



The graph in Exhibit 17 illustrates the lack of apparent relationship between the total number of curriculum hours and the Pell Grant amount for one year, and the correlational analysis resulted in a non-significant finding.[12] This finding may be due, in part, to the small range of variability in Pell Grant award amounts for this sample. Specifically, when a sample has a restricted range of scores, the correlation will be reduced. Furthermore, recall that Pell Grant award amounts are determined by several factors that do not include the number of curriculum hours (i.e., the student's financial need, cost of attendance, status as a full-time or part-time student, and plans to attend school for a full academic year or less).

School Financial Stability

School financial stability is an index of the financial health of a school, and may be defined and measured in many ways. For this particular research, a comparison of relative financial stability of schools across states was of interest to explore whether higher curriculum hours may have an impact on schools' financial stability.

State-level data for this variable were available from NACCAS for NACCAS-accredited schools. Specifically, this data set includes information on each state's 2013-2014 financial compliance rate (i.e., the *number of compliant school owners*[13] divided by the *number of school owners* in each state), and average composite score (ranging from -1 to +3, with a higher score indicating greater stability), which is a calculation involving a school's primary reserve ratio, equity ratio, and net income ratio.[14] Exhibit 18 provides a summary of school financial stability metrics in a sample of 11 states; for the data by state, refer to Appendix A: State-Level Data.

[12] The correlation was not significant relative to the standard alpha level (*p*) of .05.
[13] A school must meet a minimum composite score of 1.5 (or one of NACCAS' alternate criteria) to be compliant. The specific criteria for compliance with NACCAS financial requirements can be found in Standard VII, Criterion 1 of the NACCAS handbook: http://elibrary.naccas.org/InfoRouter/docs/Public/NACCAS%20Handbook/Standards%20and%20Criteria/Standard%20VII%20Financial%20Practices%20and%20Management.pdf.
[14] A detailed breakdown of the calculation for the NACCAS composite score can be found at the bottom of the NACCAS Applications and Forms website (http://naccas.org/naccas/all-applications-forms), in a Microsoft Excel file titled "Composite Score Formula."

Exhibit 18. Summary of School Financial Stability Metrics (NACCAS-Accredited Schools Only)

	n*	Minimum	Maximum	Median	*M***	*SD***
NACCAS Financial Compliance Rate (%)	11	87.5	100.0	96.0	95.3	3.9
Mean NACCAS Composite Score	11	1.8	2.6	2.1	2.1	0.2

Note: n = sample size; *M* = mean; *SD* = standard deviation.

***This sample size (n) indicates the number of states that were included in the data, and does not indicate the number of schools represented overall. Due to the confidential nature of these data, data were only obtained for schools within 11 states that were of particular interest during this research. Data were not obtained for Washington, D.C.

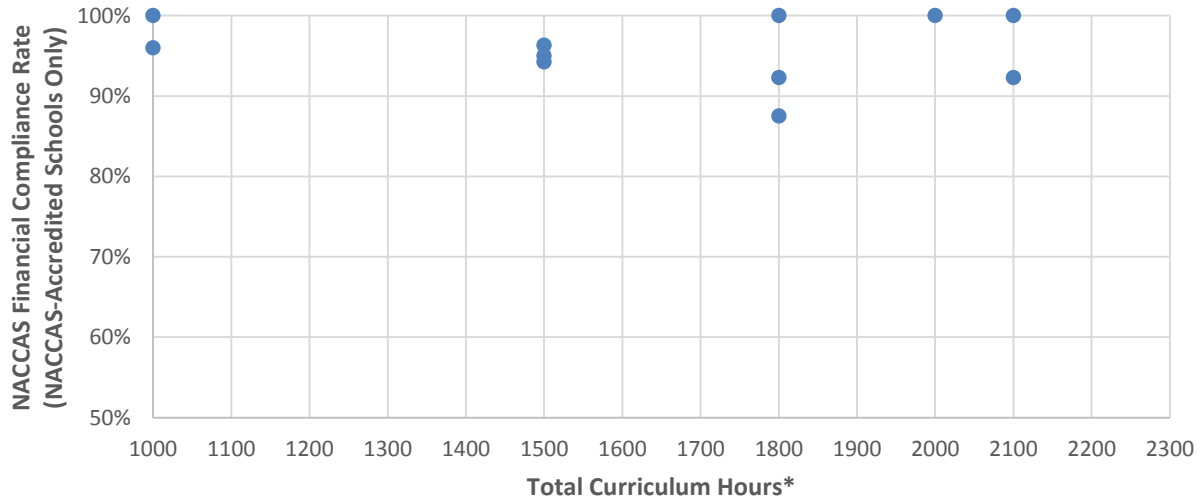
**The mean for NACCAS financial compliance rate is calculated by dividing the *total number of compliant school owners* by the *total number of school owners* in the 11-state sample. However, due to the confidentiality of school-level data, NACCAS composite scores were obtained only at the state level (i.e., the average composite score for each state), and the mean for this variable is calculated by averaging the state-level data (n = 11). The standard deviation for composite score is based on this mean.

NACCAS provided the following information regarding these data:

- The data are not specific to cosmetology programs and include other programs within the beauty and wellness industry such as barbering, esthetics, manicuring, massage therapy, and instructors. There are also some schools included that have more general wellness programs (e.g., medical assistant, patient care assistant) but these wellness programs likely account for less than a tenth of a percent of the data.
- Excluded from this data set are large institutions with campuses in multiple states.
- Because financial statements are submitted by company, not individual campus, each company's financial statements are only counted once.

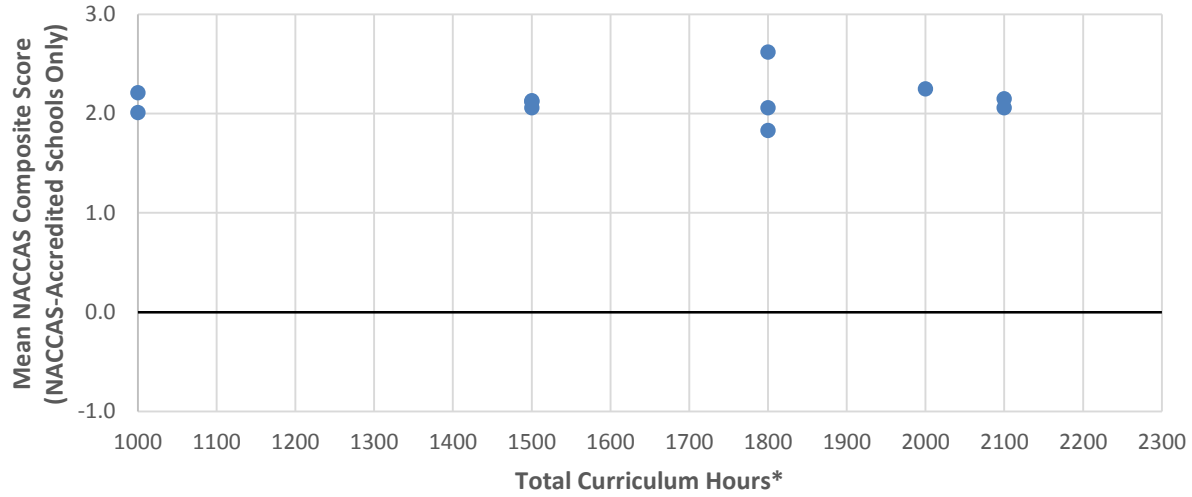
The state-level compliance rates range from 88% to 100% (*M* = 95.3, *SD* = 3.9). The state-level average composite scores range from 1.8 (just above the compliance cut-off of 1.5) to 2.6 (*M* = 2.1, *SD* = 0.2). To determine whether the total number of curriculum hours across states may be related to these school financial stability metrics, a correlational analysis at the state level was conducted. These results are presented in Exhibit 19 (compliance rate) and Exhibit 20 (composite score).

Exhibit 19. Curriculum Hours and NACCAS Financial Compliance Rates (NACCAS-Accredited Schools Only)



*Note: Across states, the total number of curriculum hours required ranges from 1,000 to 2,300. Curriculum hours are from July 2015, and NACCAS financial compliance rates are from 2011.

Exhibit 20. Curriculum Hours and NACCAS Composite Score (NACCAS-Accredited Schools Only)



*Note: Across states, the total number of curriculum hours required ranges from 1,000 to 2,300. Curriculum hours are from July 2015, and mean NACCAS composite scores are from 2011.

There is a relatively small amount of variance for both school financial stability variables in this sample of 11 states. Statistically, there is no evidence of a relationship[15] between total curriculum hours and these variables for this sample of NACCAS-accredited schools.

Conclusions

This preliminary review revealed correlational relationships between curriculum hours and education outcomes.[16] The key findings of this research are as follows:

School Program Length

- The state-level school program lengths range from 9.1 to 15.6 months, with an average of 13.0 (*SD* = 2.3).
    - There is a strong positive and significant relationship between the total number of curriculum hours and the school program length in months, which suggests that students in states with a higher curriculum hour requirements experience a longer timeline from enrollment to completion of hours, and vice versa.

Graduation

- For NACCAS-accredited schools, the state-level graduation rates range from 55% to 86%, with an average of nearly 70%.
    - Although there is variability in graduation rates across states, there is no evidence of a relationship between total curriculum hours and graduation rate for NACCAS-accredited schools.

Licensing Exam Performance

- In the sample of states that administer the NIC *written* exam, pass rates range from 66% to 100%. In the sample of states that use the NIC *practical* exam, pass rates range from

[15] The correlation was not significant relative to the standard alpha level (*p*) of .05.
[16] These relationships are correlational in nature, and causation cannot be implied.

82% to 100%. For a sample of states that use *both* NIC exam sections, the average pass rates are consistently higher for practical than for written, and the difference is statistically significant. Correlational analyses were not conducted for the NIC data set because of there was a lack of available data for states with curriculum requirements below the median (i.e., 1,500).

  - The practical exam requires the use of expert raters, and cannot be considered equivalent without standardized rater training and implementation of more objective rating systems such as behaviorally anchored rating scales. AIR collected anecdotal evidence from cosmetology SMEs that many practical exam raters tend to rate leniently, reluctant to fail examinees due to the face-to-face setting of the practical exam.

- State-level o*verall* pass rates for NACCAS-accredited schools (data were not broken down by written and practical exam sections) ranged from 86% to 100%.
  - Correlational analyses revealed that for NACCAS-accredited schools, there is no apparent relationship between the total number of curriculum hours and overall exam pass rates. This finding may be due, in part, to the small range of variability in overall pass rates for this sample.
- The usefulness of assessing licensing exam performance is limited by several factors, including the fact that there are a number of exam providers across states, there is often little variability in observed state-level pass rates, the data usually include repeat test takers (who have had the advantage of taking the test before), and not all examinees may have obtained the stated curriculum hours for that state (instead choosing an apprenticeship substitution).

Student Financial Stability

- Tuition expenses range from about $12,250 to $ 19,250 with an average of $14,611.2 (*SD* = $2,300.4). Expenses for books/supplies range from about $1,100 to $2,275 with an average of $1,700.5 (*SD* = $385.4).
  - There is a positive and significant relationship between total curriculum hours and expenses for tuition as well as books and supplies.
- The state-level cohort default rates range from 8.5% to 28.8%, with an average of 17.1%.
  - Although there is variability in cohort default rates across states, there is no evidence of a relationship between total curriculum hours and cohort default rate for this sample of Title IV cosmetology programs.
- Median Title IV funding ranges from about $7,000 to $14,750, with an average of $9,532.8 (*SD* = $2,691.4).
  - There is a positive and significant relationship between the total number of curriculum hours and the median federal loan amount.
- Pell Grant award amounts for one year range from about $4,000 to $4,750, with an average of $4,360.8 (*SD* = $179.7). To extrapolate the Pell Grant amount for the full curriculum hour requirement, a multiplier was applied to the data (e.g., programs with 1,800 hours were given a multiplier of two). For a full program, award amounts range from about $4,750 to $10,750, with an average of $7,316.9 (*SD* = $2,158.6).
  - Correlational analyses revealed that there is no apparent relationship between the total number of curriculum hours and Pell Grant award amounts for one year. This finding may be due, in part, to the small range of variability for Pell Grant award amounts for this sample.

- A correlational analysis was precluded for Pell Grant amounts for a full program because curriculum hours were used to create this variable; however, there is a clear upward trend in this variable such that as total curriculum hours increase, Pell Grant amounts for a full program also increase.

School Financial Stability

Two metrics of school financial stability were analyzed for this research, both obtained from NACCAS: the percent of compliant schools in a state and the average financial composite score.

- For NACCAS-accredited schools, financial compliance rates range from 88% to 100%, with an average of 95.3%, and average composite scores range from 1.8 (just above the financial compliance cut-off of 1.5) to 2.6, with an average of 2.1.
  - There is a relatively small amount of variance for both variables in the sample that was analyzed, and there is no evidence of a relationship between curriculum hours and these variables for this sample of NACCAS-accredited schools.

Employment Outcomes

Employment outcomes of interest included employment rates, and wages. It is important to explore the relationship between curriculum hour requirements and these employment outcomes to determine whether and how curriculum hours be related to the number of cosmetology students that enter into these fields, and the economic success of practitioners once on the job. Although establishing a direct causal link between curriculum hours and any employment variable is not possible without a controlled experimental research design to rule out alternative explanations, correlational analysis can provide preliminary evidence of an observed relationship between curriculum hours and other variables of interest.

To explore the impact that the total number of curriculum hours may have on these employment outcomes, state-level outcome data were compiled. AIR used the Bureau of Labor Statistics (BLS)[17] as the source for all employment data presented in this section of the report. Each analysis is described below, followed by results.

Employment Rates

BLS (2015) projects a growth of 13% for cosmetology over the time period of 2012-2022. However, policy makers in the cosmetology industry are concerned that a high number of curriculum hours may be perceived by aspiring practitioners as a barrier to entry into the field and may discourage would-be practitioners from pursuing these occupations. Given this, employment rate is an important variable for analysis.

The BLS (2016) data for "employment per 1,000 jobs" were used as the employment rate for this analysis, and indicates the number of cosmetology jobs per 1,000 jobs in a given area.[18] Exhibit 21 provides a summary of employment rates; for the data by state, refer to Appendix A: State-Level Data.

[17] BLS is a federal agency that collects, compiles, analyzes, and disseminates economic data to the public.
[18] Learn more at http://www.bls.gov/oes/current/oes_abo.htm.

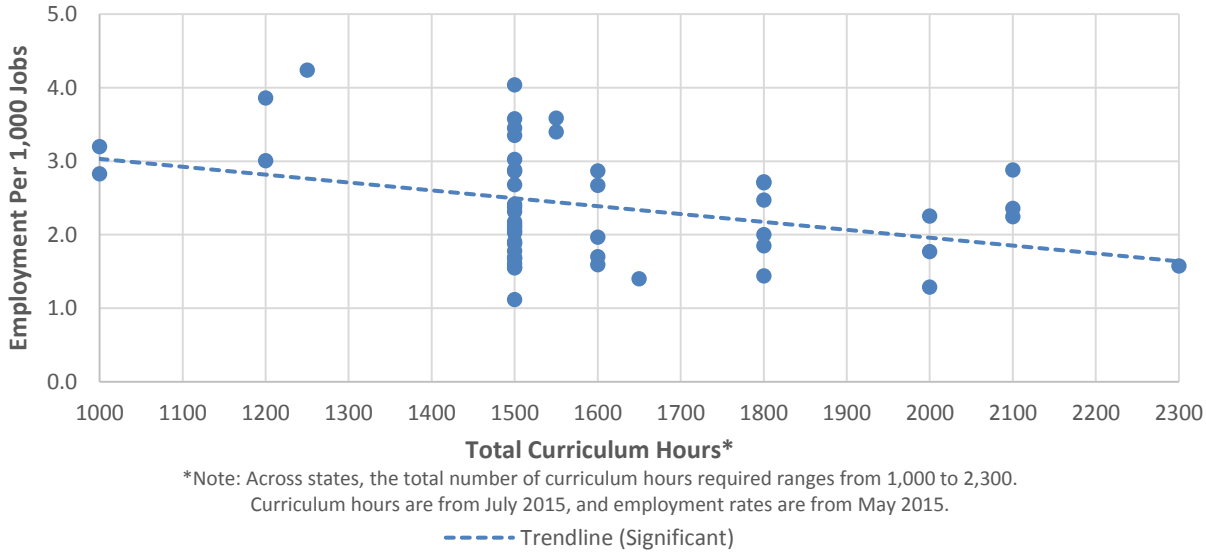
Exhibit 21. Summary of Employment Rates

	n*	Minimum	Maximum	Median	*M***	*SD***
Employment in Cosmetology per 1,000 Jobs	51	1.1	4.2	2.3	2.4	0.8

Note: n = sample size; *M* = mean; *SD* = standard deviation.
**Mean was calculated by averaging state-level data, and standard deviation was based on this mean.

The state-level employment rates range from 1.1 to 4.2 per 1,000 jobs, with an average of 2.4 (*SD* = 0.8). To determine whether the total number of curriculum hours across states may be related to employment rates, a correlational analysis was conducted. These results are presented in Exhibit 22.

Exhibit 22. Curriculum Hours and Employment Rates



The graph in Exhibit 22 illustrates a strong negative and significant relationship between the total number of curriculum hours and employment rates (r = -.37, p<.01), which provides evidence that states with a higher number of total curriculum hours tend to have lower employment rates. However, these analyses are correlational in nature and there may be other variables that impact employment rates.

Wages

The analysis of the relationship between curriculum hours and wages could help determine whether increased wages are a benefit of extended education. The BLS (2016) data for "average hourly wage" were used as the wage variable for this analysis, and is calculated using the estimated total hourly wages of an occupation divided by its estimated employment (i.e., the estimated total occupational employment not including self-employment). However, there are two primary limitations to these data: (1) the data reported incorporate reported hourly wage information, which excludes data on tips—a significant source of income for those in the service industry; and (2) wage estimates are for wage and salary workers only, which excludes self-employed persons. Exhibit 23 provides a summary of wages; for the data by state, refer to Appendix A: State-Level Data.

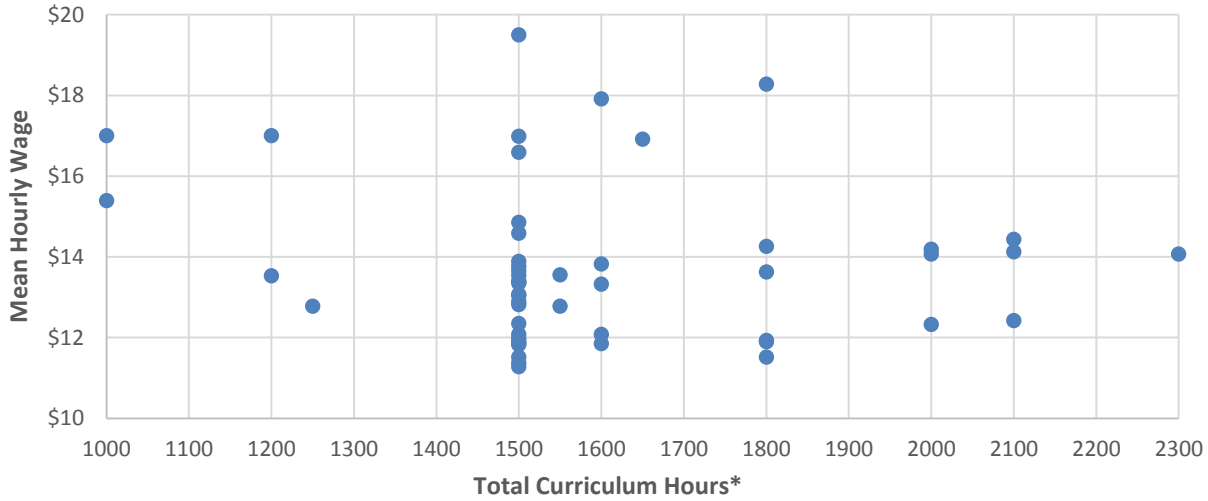
Exhibit 23. Summary of Wages

	n*	Minimum	Maximum	Median	*M***	*SD***
Mean Hourly Wage ($)	51	11.3	19.5	13.4	13.7	2.0

Note: n = sample size; *M* = mean; *SD* = standard deviation.
**Mean was calculated by averaging state-level data, and the standard deviation was based on this mean.

The state-level mean hourly wage amounts range from $11.3 to $19.5, with an average of $13.7 (*SD* = $2.0). To determine whether the total number of curriculum hours across states may be associated with mean hourly wage, a correlational analysis was conducted. These results are presented in Exhibit 24.

Exhibit 24. Curriculum Hours and Wages



*Note: Across states, the total number of curriculum hours required ranges from 1,000 to 2,300. Curriculum hours are from July 2015, and wages are from May 2015.

The graph in Exhibit 24 shows the variability in mean hourly wage across the range of total curriculum hours. Statistically, there is no evidence of a relationship[19] between total curriculum hours and wages.

Conclusions

This preliminary review revealed correlational relationships between curriculum hours and employment outcomes.[20] However, there are extensive limitations in the available employment data for the cosmetology profession, and it is recommended that this analysis be further examined with more complete and systematically-collected data. The key findings of the current research are as follows:

Employment Rates

- The state-level employment rates range from 1.1 to 4.2 per 1,000 jobs, with an average of 2.4 (*SD* = 0.8).
    - o There is a strong negative and significant relationship between the total number of curriculum hours and employment rates.

[19] The correlation was not significant relative to the standard alpha level (*p*) of .05.
[20] These relationships are correlational in nature, and causation cannot be implied.

Wages

- The state-level mean hourly wage amounts range from $11.3 to $19.5, with an average of $13.7.
    - Although there is variability in mean hourly wage across states, there is no evidence of a relationship between total curriculum hours and wages.

APPENDIX A: STATE-LEVEL DATA

This appendix provides state-level data that were analyzed and reported on throughout this report.

Licensing Requirements

A full list of licensing requirements for each state was compiled and is provided in Exhibit 25, sorted in ascending order by hours.

Exhibit 25. State-Level Data: Licensing Requirements

State	Total Curric. Hours	Apprenticeship Model		Age	Secondary Education	Physical Exam	Licensing Renewal	
		In Addition to	As a Replacement				Frequency	CE Credits
Massachusetts	1,000	None	No Option	17	10th Grade	--	2 years[21]	None
New York	1,000	None	No Option	--	--	--	4 years	None
Florida	1,200	None	No Option	16	--	--	2 years	16
New Jersey	1,200	None	No Option	17	10th Grade	--	2 years	None
Pennsylvania	1,250	None	2000	16	10th Grade	--	2 years	None
Alabama	1,500	None	3000	18	--	--	2 years	None
Arkansas	1,500	None	No Option	16	10th Grade	--	2 years	None
Connecticut	1,500	None	No Option	--	8th Grade	--	2 years	10
Delaware	1,500	None	3000	--	10th Grade	--	2 years	None
District of Columbia	1,500	None	1500	--	--	--	2 years	6
Georgia	1,500	None	3000	17	High School Diploma/GED	--	2 years	5
Illinois	1,500	None	Partial[22]	16	--	--	2 years	14
Indiana	1,500	None	No Option	18	10th Grade	--	4 years	None
Kansas	1,500	None	No Option	17	High School Diploma/GED	--	2 years	None
Louisiana	1,500	None	No Option	16	10th Grade	--	1 year	None
Maine	1,500	2 years	2500	17	10th Grade	--	1 year	None
Maryland	1,500	None	24 Months	17	9th Grade	--	2 years	16
Michigan	1,500	None	2 years	17	9th Grade	--	2 years[21]	None
Mississippi	1,500	None	No Option	17	High School Diploma/GED	--	2 years	8
Missouri	1,500	None	3000	17	High School Diploma/GED	--	2 years	None
New Hampshire	1,500	None	3000	18	High School Diploma/GED	--	2 years	None
North Carolina	1,500	None	No Option	--	--	--	3 years	24
Ohio	1,500	None	--	18	--	--	2 years	8
Oklahoma	1,500	None	3000	16	8th Grade	--	1 year	None

Note: Dashes (--) indicate missing data. GED = General Educational Development

(continued on next page)

[21] Except new licensees must renew 1 year after licensing, then every 2 years.

[22] An apprenticeship may be substituted for 150 hours of the 1500 curriculum hours if under the direct supervision of a licensed cosmetologist in a registered salon. Candidates may participate in this apprenticeship program only after completing 750 hours of school training with a minimum average grade of 80.

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Exhibit 25. State-Level Data: Licensing Requirements (Continued)

State	Total Curric. Hours	Apprenticeship Model		Age	Secondary Education	Physical Exam	Licensing Renewal	
		In Addition to	As a Replacement				Frequency	CE Credits
Rhode Island	1,500	None	No Option[23]	17	High School Diploma/GED	--	2 years	None
South Carolina	1,500	None	No Option	16	10th Grade	--	2 years	12
Tennessee	1,500	None	No Option	17	10th Grade	--	2 years	None
Texas	1,500	None	No Option	17	High School Diploma/GED	--	2 years	4
Vermont	1,500	None	No Option	18	High School Diploma/GED	--	2 years	None
Virginia	1,500	None	3000	None	High School Diploma/GED	--	2 years	None
Minnesota	1,550	None	No Option	16	High School Diploma/GED	--	3 years	4
Wisconsin	1,550	None	4000	18	High School Diploma/GED	--	2 years	4
Arizona	1,600	None	No Option	--	--	--	2 years	None
California	1,600	None	3200	17	10th Grade	--	2 years	None
New Mexico	1,600	None	No Option	17	10th Grade	--	1 year	None
Utah	1,600	None	2500	None	--	--	2 years	None
Washington	1,600	None	2000	17	High School Diploma/GED	--	2 years	None
Alaska	1,650	None	2000	--	--	--	2 years	None
Colorado	1,800	None	No Option	--	--	--	1 year	None
Hawaii	1,800	None	3600	16	High School Diploma/GED	--	2 years	None
Kentucky	1,800	480 hours (6 months)	No Option	16	10th Grade	--	1 year	None
Nevada	1,800	None	No Option[24]	18	10th Grade	--	2 years	4
North Dakota	1,800	None	No Option	--	High School Diploma/GED	--	1 year	None
West Virginia	1,800	None	No Option	18	High School Diploma/GED	TB test	1 year	4
Idaho	2,000	None	4000	16.5	10th Grade	--	1 year	None
Montana	2,000	None	Only with pre-approval	18	High School Diploma/GED	--	2 years[25]	30
Wyoming	2,000	None	Only with pre-approval	16	10th Grade	--	2 years	None
Iowa	2,100	None	No Option	--	High School Diploma/GED	--	2 years	8
Nebraska	2,100	None	No Option	17	High School Diploma/GED	--	2 years	8
South Dakota	2,100	None	No Option[26]	17	High School Diploma/GED	--	1 year	None
Oregon	2,300	None	No Option	None	--	--	2 years	None

Note: Dashes (--) indicate missing data. GED = General Educational Development

[23] Revoked option in 2015.
[24] Exceptions can be made for those who live more than 60 miles from closest school.
[25] 15 CE each 1 year.
[26] Few exceptions are made.

Impact of Curriculum Hours on Education Outcomes

To conduct the analyses in the section of this report entitled Education Outcomes, data were collected from accrediting agencies, state boards, or test providers upon request. State-level data for these variables are presented in Exhibit 26 through Exhibit 33, and details regarding what is included in these data are presented throughout the report.

Exhibit 26. State-Level Data: School Program Length

State	Total Curriculum Hours	School Program Length (2015-16)	
		n*	Estimated No. of Months to Complete
Massachusetts	1,000	18	9.9
New York	1,000	31	9.1
Ohio	1,500	37	14.7
Tennessee	1,500	21	12.5
Texas	1,500	68	12.6
Colorado	1,800	12	15.2
Kentucky	1,800	11	15.5
Nevada	1,800	6	14.3
Idaho	2,000	15	15.1
Iowa	2,100	18	15.6
Nebraska	2,100	5	15.0

Note: Data were only obtained for schools within 11 states that were of particular interest during this research. Data are sorted in ascending order by hours.
*This sample size (n) indicates the number of schools represented in the data for each state.

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Exhibit 27. State-Level Data: Graduation Rates (NACCAS-Accredited Schools Only)

State	Total Curriculum Hours	Graduation Rates (2013-2014)		
		No. of Actual Graduates	No. of Scheduled Graduates	Rate (%)
Wyoming	2,000	62	72	86.1
New York	1,000	5,158	6,815	75.7
Montana	2,000	310	410	75.6
Nebraska	2,100	440	588	74.8
Washington	1,600	1,857	2,484	74.8
Massachusetts	1,000	1,845	2,474	74.6
California	1,600	15,142	20,494	73.9
Alabama	1,500	403	551	73.1
Idaho	2,000	940	1,297	72.5
Georgia	1,500	1,325	1,829	72.4
Hawaii	1,800	78	108	72.2
Rhode Island	1,500	430	596	72.1
Colorado	1,800	1,670	2,334	71.6
Florida	1,200	5,933	8,300	71.5
Arkansas	1,500	901	1,266	71.2
Kansas	1,500	913	1,283	71.2
New Jersey	1,200	2,533	3,570	71.0
Louisiana	1,500	1,299	1,835	70.8
Utah	1,600	1,769	2,518	70.3
Illinois	1,500	4,150	5,920	70.1
South Dakota	2,100	110	157	70.1
Minnesota	1,550	1,348	1,935	69.7
Michigan	1,500	2,808	4,041	69.5
Missouri	1,500	1,848	2,675	69.1
New Hampshire	1,500	435	630	69.0
Iowa	2,100	840	1,221	68.8
North Dakota	1,800	284	413	68.8
Oklahoma	1,500	781	1,151	67.9
Pennsylvania	1,250	3,257	4,796	67.9
Maine	1,500	527	777	67.8
New Mexico	1,600	455	672	67.7
District of Columbia	1,500	237	351	67.5
Ohio	1,500	3,210	4,772	67.3
Tennessee	1,500	1,944	2,894	67.2
Vermont	1,500	79	118	66.9
Connecticut	1,500	972	1,459	66.6
Virginia	1,500	1,318	1,979	66.6
Nevada	1,800	1,146	1,741	65.8
Texas	1,500	5,990	9,120	65.7
Oregon	2,300	1,141	1,742	65.5
Arizona	1,600	1,676	2,563	65.4
Wisconsin	1,550	1,295	1,981	65.4
Mississippi	1,500	529	816	64.8
Indiana	1,500	1,721	2,673	64.4
South Carolina	1,500	955	1,487	64.2
West Virginia	1,800	207	328	63.1
North Carolina	1,500	1,711	2,801	61.1
Maryland	1,500	1,276	2,093	61.0
Kentucky	1,800	926	1,634	56.7
Delaware	1,500	240	436	55.0
Alaska	1,650	--	--	--

Note: Dashes (--) indicate missing data. NACCAS = National Accrediting Commission of Career Arts and Sciences. Data are sorted in descending order by graduation rate.

Exhibit 28. State-Level Data: Licensing Exam Performance

State	Total Curric. Hours	Overall Exam Pass Rate (NACCAS-Accredited Schools Only; 2014)			NIC Written and Practical Exam Pass Rate (NIC Exam Only; 2015)					
					NIC Written Exam			NIC Practical Exam		
		No. of Passing Examinees for All Sections	No. of Examinees for All Sections	Rate (%)	No. of Passing Examinees	No. of Examinees	Rate (%)	No. of Passing Examinees	No. of Examinees	Rate (%)
South Dakota	2,100	106	106	100.0	71	77	92.2	76	79	96.2
Vermont	1,500	68	68	100.0	29	32	90.6	36	41	87.8
Wyoming	2,000	58	58	100.0	50	50	100.0	56	56	100.0
Iowa	2,100	747	748	99.9	348	382	91.1	--	--	--
Alabama	1,500	224	225	99.6	612	699	87.6	629	646	97.4
North Dakota	1,800	242	243	99.6	95	105	90.5	--	--	--
Maine	1,500	369	372	99.2	130	136	95.6	132	132	100.0
Minnesota	1,550	1,138	1,150	99.0	--	--	--	--	--	--
District of Columbia	1,500	88	89	98.9	79	119	66.4	--	--	--
New Mexico	1,600	257	260	98.8	220	242	90.9	235	240	97.9
Nebraska	2,100	368	373	98.7	209	235	88.9	--	--	--
Idaho	2,000	851	863	98.6	336	364	92.3	365	371	98.4
New Hampshire	1,500	361	366	98.6	169	187	90.4	170	171	99.4
Rhode Island	1,500	348	353	98.6	180	247	72.9	--	--	--
Delaware	1,500	133	135	98.5	151	187	80.8	178	181	98.3
Massachusetts	1,000	1,414	1,435	98.5	--	--	--	--	--	--
South Carolina	1,500	769	784	98.1	1199	1382	86.8	1201	1209	99.3
Nevada	1,800	784	800	98.0	371	461	80.5	414	417	99.3
Utah	1,600	1,481	1,512	97.9	686	734	93.5	774	838	92.4
Arkansas	1,500	673	688	97.8	451	487	92.6	501	558	89.8
West Virginia	1,800	174	178	97.8	151	167	90.4	198	202	98.0
Texas	1,500	4,063	4,163	97.6	--	--	--	--	--	--
Colorado	1,800	1,219	1,253	97.3	--	--	--	--	--	--
New York	1,000	2,427	2,494	97.3	--	--	--	--	--	--
Oregon	2,300	955	982	97.3	--	--	--	--	--	--
Hawaii	1,800	33	34	97.1	--	--	--	--	--	--
Montana	2,000	287	296	97.0	128	131	97.7	121	122	99.2
Washington	1,600	1,540	1,588	97.0	--	--	--	837	953	87.8
Indiana	1,500	1,461	1,508	96.9	--	--	--	--	--	--
Georgia	1,500	672	694	96.8	1195	1472	81.2	1274	1395	91.3
Missouri	1,500	1,396	1,442	96.8	768	838	91.7	801	839	95.5
Virginia	1,500	831	859	96.7	--	--	--	--	--	--
New Jersey	1,200	1,118	1,163	96.1	--	--	--	--	--	--
Arizona	1,600	1,195	1,247	95.8	786	907	86.7	795	851	93.4
Tennessee	1,500	1,167	1,222	95.5	--	--	--	--	--	--
North Carolina	1,500	1,127	1,182	95.3	1189	1301	91.4	1188	1328	89.5
Oklahoma	1,500	628	662	94.9	736	894	82.3	--	--	--
Wisconsin	1,550	855	903	94.7	--	--	--	--	--	--
Michigan	1,500	2,091	2,223	94.1	--	--	--	--	--	--
Ohio	1,500	2,582	2,749	93.9	--	--	--	--	--	--
Pennsylvania	1,250	1,957	2,098	93.3	--	--	--	--	--	--
Kansas	1,500	615	660	93.2	--	--	--	--	--	--
Louisiana	1,500	877	944	92.9	750	994	75.5	--	--	--
Illinois	1,500	3,016	3,265	92.4	--	--	--	--	--	--
Mississippi	1,500	330	362	91.2	194	218	89.0	166	203	81.8
Florida	1,200	3,653	4,051	90.2	--	--	--	--	--	--
Connecticut	1,500	653	727	89.8	--	--	--	--	--	--
Kentucky	1,800	660	748	88.2	--	--	--	--	--	--
Maryland	1,500	750	851	88.1	--	--	--	--	--	--
California	1,600	9,964	11,620	85.7	5426	6601	82.2	--	--	--
Alaska	1,650	--	--	--	40	50	80.0	--	--	--

Note: Dashes (--) indicate missing data. NACCAS = National Accrediting Commission of Career Arts and Sciences; NIC = National-Interstate Council of State Boards of Cosmetology. Data are sorted in descending order by overall exam pass rate.

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Exhibit 29. State-Level Data: School Program Expenses (for Full Program)

State	Total Curriculum Hours	School Program Expenses (2015-16)			
		n*	Tuition ($)	n*	Books/Supplies ($)
Massachusetts	1,000	18	12,263.1	18	1,347.7
New York	1,000	31	12,603.5	30	1,481.2
Ohio	1,500	37	15,705.8	33	1,778.2
Tennessee	1,500	21	13,969.0	21	1,421.9
Texas	1,500	68	14,093.8	65	1,646.3
Colorado	1,800	12	16,168.8	11	2,235.3
Kentucky	1,800	11	14,164.5	8	1,111.6
Nevada	1,800	6	19,235.2	6	1,673.8
Idaho	2,000	16	14,511.9	16	2,110.8
Iowa	2,100	18	17,624.9	17	2,269.3
Nebraska	2,100	5	18,311.0	5	2,200.0

Note: Data were only obtained for schools within 11 states that were of particular interest during this research. Data are sorted in ascending order by hours.
*This sample size (n) indicates the number of schools represented in the data for each state.

Exhibit 30. State-Level Data: Student Loan Debt

State	Total Curriculum Hours	Student Loan Debt (Unknown Year)	
		n*	Median Title IV Funding ($)
Massachusetts	1,000	15	6,984.4
New York	1,000	26	7,268.8
Ohio	1,500	14	8,342.4
Tennessee	1,500	14	8,269.0
Texas	1,500	30	8,633.4
Colorado	1,800	9	11,685.4
Kentucky	1,800	7	11,774.0
Nevada	1,800	5	12,392.8
Idaho	2,000	14	11,837.1
Iowa	2,100	16	13,370.9
Nebraska	2,100	3	14,666.7

Note: Data were only obtained for schools within 11 states that were of particular interest during this research. Data are sorted in ascending order by hours.
*This sample size (n) indicates the number of schools represented in the data for each state.

Exhibit 31. State-Level Data: Pell Grants

State	Total Curriculum Hours	Pell Grants (2015-16)			
		n*	Pell Grant for One Year ($)	State Multiplier**	Pell Grant for Full Program ($)
Massachusetts	1,000	18	4,241.6	1.1	4,712.8
New York	1,000	30	4,419.4	1.1	4,910.5
Ohio	1,500	36	4,501.6	1.7	7,274.7
Tennessee	1,500	18	4,305.3	1.7	7,175.5
Texas	1,500	61	4,112.4	1.7	6,582.9
Colorado	1,800	12	4,368.3	2.0	8,736.7
Kentucky	1,800	11	4,674.9	2.0	9,349.8
Nevada	1,800	5	4,642.6	2.0	9,285.2
Idaho	2,000	16	4,499.9	2.2	9,999.7
Iowa	2,100	18	4,567.7	2.3	10,658.0
Nebraska	2,100	5	4,473.4	2.3	10,437.9

Note: Data were only obtained for schools within 11 states that were of particular interest during this research. Data are sorted in ascending order by hours.
*This sample size (n) indicates the number of schools represented in the data for each state.
**This data set included the average Pell Grant for cosmetology programs in a single year (operationalized as 900 hours). To extrapolate the Pell Grant amount for the full curriculum hour requirement, a multiplier was applied to the school-level data (e.g., programs with 1,800 hours were given a multiplier of two).

Exhibit 32. State-Level Data: Cohort Default (Title IV Cosmetology Programs Only)

State	Total Curriculum Hours	Cohort Default (2012)			
		n*	No. of Borrowers in Default	No. of Borrowers in Repayment	Rate (%)
Massachusetts	1,000	16	287	1971	14.6
New York	1,000	20	653	5256	12.4
Florida	1,200	49	4993	27715	18.0
New Jersey	1,200	10	111	1143	9.7
Pennsylvania	1,250	23	621	4824	12.9
Alabama	1,500	7	3159	19376	16.3
Arkansas	1,500	14	907	5058	17.9
Connecticut	1,500	7	87	914	9.5
Delaware	1,500	2	17	152	11.2
District of Columbia	1,500	1	24	103	23.3
Georgia	1,500	17	708	3589	19.7
Illinois	1,500	33	881	6835	12.9
Indiana	1,500	15	115	1142	10.1
Kansas	1,500	10	799	5884	13.6
Louisiana	1,500	16	297	2376	12.5
Maine	1,500	2	50	452	11.1
Maryland	1,500	16	883	4837	18.3
Michigan	1,500	18	1489	8839	16.8
Mississippi	1,500	14	2825	12857	22.0
Missouri	1,500	23	1183	6598	17.9
New Hampshire	1,500	2	21	139	15.1
North Carolina	1,500	24	1798	7709	23.3
Ohio	1,500	27	305	2629	11.6
Oklahoma	1,500	17	309	2471	12.5
Rhode Island	1,500	2	16	181	8.8
South Carolina	1,500	12	2553	13329	19.2
Tennessee	1,500	20	1062	5717	18.6
Texas	1,500	53	5891	31552	18.7
Vermont	1,500	0	--	--	--
Virginia	1,500	9	97	773	12.5
Minnesota	1,550	14	2397	14469	16.6
Wisconsin	1,550	8	123	952	12.9
Arizona	1,600	8	443	2605	17.0
California	1,600	60	2106	12444	16.9
New Mexico	1,600	6	824	6127	13.4
Utah	1,600	7	71	498	14.3
Washington	1,600	16	448	3056	14.7
Alaska	1,650	0	--	--	--
Colorado	1,800	11	388	2470	15.7
Hawaii	1,800	0	--	--	--
Kentucky	1,800	7	882	3063	28.8
Nevada	1,800	4	69	447	15.4
North Dakota	1,800	5	54	422	12.8
West Virginia	1,800	5	52	341	15.2
Idaho	2,000	11	518	4571	11.3
Montana	2,000	3	24	228	10.5
Wyoming	2,000	1	13	126	10.3
Iowa	2,100	16	425	2781	15.3
Nebraska	2,100	6	153	1229	12.4
South Dakota	2,100	2	65	764	8.5
Oregon	2,300	16	172	1472	11.7

Note: Dashes (--) indicate missing data. Data are sorted in ascending order by hours.
*This sample size (n) indicates the number of schools represented in the data for each state.

Exhibit 33. State-Level Data: School Financial Stability (NACCAS-Accredited Schools Only)

State	Total Curric. Hours	School Financial Stability (2013-2014)			
		No. of Compliant School Owners	No. of School Owners	Compliance Rate (%)	Mean Composite Score
Massachusetts	1,000	8	8	100.0	2.0
New York	1,000	24	25	96.0	2.2
Ohio	1,500	26	27	96.3	2.1
Tennessee	1,500	19	20	95.0	2.1
Texas	1,500	49	52	94.2	2.1
Colorado	1,800	12	13	92.3	2.1
Kentucky	1,800	7	8	87.5	1.8
Nevada	1,800	5	5	100.0	2.6
Idaho	2,000	15	15	100.0	2.3
Iowa	2,100	12	13	92.3	2.1
Nebraska	2,100	4	4	100.0	2.2

Note: Due to the confidential nature of these data, data were only obtained for these 11 states, which were of particular interest during this research. Data are sorted in ascending order by hours.

Impact of Curriculum Hours on Employment Outcomes

To conduct the analyses in the section of this report entitled Employment Outcomes, data were collected from the Bureau of Labor Statistics (BLS; 2016). State-level data for these variables are presented in Exhibit 34, sorted in ascending order by hours.

Exhibit 34. State-Level Data: Employment Rates and Wages

State	Total Curriculum Hours	Employment in Cosmetology Per 1,000 Jobs (May 2015)	Mean Hourly Wage ($; May 2015)
Massachusetts	1,000	3.2	17.0
New York	1,000	2.8	15.4
Florida	1,200	3.0	13.5
New Jersey	1,200	3.9	17.0
Pennsylvania	1,250	4.2	12.8
Alabama	1,500	1.8	12.0
Arkansas	1,500	1.6	11.9
Connecticut	1,500	3.6	14.6
Delaware	1,500	4.0	16.6
District of Columbia	1,500	1.6	19.5
Georgia	1,500	2.1	13.1
Illinois	1,500	2.9	13.4
Indiana	1,500	2.2	11.9
Kansas	1,500	2.4	12.4
Louisiana	1,500	1.5	11.5
Maine	1,500	2.1	12.8
Maryland	1,500	3.5	14.9
Michigan	1,500	2.7	13.4
Mississippi	1,500	1.1	11.4
Missouri	1,500	2.4	13.1
New Hampshire	1,500	3.0	13.8
North Carolina	1,500	1.7	13.5
Ohio	1,500	3.4	12.1
Oklahoma	1,500	1.7	11.3
Rhode Island	1,500	2.3	13.4
South Carolina	1,500	1.9	11.8
Tennessee	1,500	2.0	13.7
Texas	1,500	1.9	12.9
Vermont	1,500	2.1	13.9
Virginia	1,500	2.9	17.0
Minnesota	1,550	3.4	13.6
Wisconsin	1,550	3.6	12.8
Arizona	1,600	2.9	12.1
California	1,600	1.7	13.8
New Mexico	1,600	1.6	13.3
Utah	1,600	2.0	11.9
Washington	1,600	2.7	17.9
Alaska	1,650	1.4	16.9
Colorado	1,800	2.7	13.6
Hawaii	1,800	1.4	18.3
Kentucky	1,800	1.9	11.9
Nevada	1,800	2.5	11.5
North Dakota	1,800	2.7	14.3
West Virginia	1,800	2.0	11.9
Idaho	2,000	2.3	12.3
Montana	2,000	1.3	14.1
Wyoming	2,000	1.8	14.2
Iowa	2,100	2.4	12.4
Nebraska	2,100	2.9	14.4
South Dakota	2,100	2.2	14.1
Oregon	2,300	1.6	14.1

Note: Dashes (--) indicate missing data. Data are sorted in ascending order by hours.

Relationships between Education and Employment Outcome Variables

The relationship between total curriculum hours and education and employment outcomes were of primary interest for this research, and these are discussed throughout the full and abridged report. Although we focused the report on how curriculum hours relate to each outcome, it is also important to explore how all variables relate to one another.

Exhibit 35 provides the correlation coefficients between the education and employment variables that were included in this research and only the highlighted correlations are statistically significant[27] and meaningful to consider; non-significant correlations are likely to be due to chance (e.g., random sampling error), and should not be interpreted for the purposes of this research. Important to note, however, is that a *correlation is only an indication of the strength and direction of the relationship between two variables, and does not infer that one variable causes another.*

Exhibit 35. Correlation Table for Education and Employment Outcomes

		Total Curric. Hours	Prog. Length	Grad. Rates	Exam Perf.	Student Financial Stability					School Fin'l Stability		Employ -ment
						Tuition	Books/ Supplies	Med. Title IV Funding	Pell Grants (One Year)	Cohort Default	Compli. Rate	Composite Score	
Program Length		.92**											
Graduation Rates		.06	-.45										
Exam Performance		.25	-.20	.25									
Student Financial Stability	Tuition	.76**	.69*	-.09	.26								
	Books/ Supplies	.66*	.53	.45	.63*	.62*							
	Median Title IV Funding	.94**	.81**	-.12	.13	.81**	.63*						
	Pell Grants (One Year)	.53	.58	-.35	-.34	.53	.10	.60*					
	Cohort Default	-.14	.19	-.38**	-.32*	-.18	-.58	.05	.15				
School Financial Stability	Compliance Rate	-.12	-.29	.66*	.64*	.15	.22	-.05	-.16	-.76**			
	Mean Composite Score	.10	-.06	.23	.51	.48	.21	.16	.16	-.46	.64*		
Employment		-.37**	-.26	-.14	-.12	.04	.20	-.22	-.04	-.32*	.49	.04	
Wages		-.12	-.77**	.17	.15	-.53	-.19	-.47	-.56	-.10	.33	-.22	.18

Note: This table is symmetrical along the diagonal, such that the correlations presented would be repeated for the remaining cells of the table. For simplicity, we present each correlation only once.

[27] The correlation was significant if the alpha (p) was less than the standard of .05. Significance level is indicated by one (p<.05) or two (p<.01) asterisks.

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