



An Examination of Metrics of Educational and Workforce Success in Texas

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What We Studied

Texas faces a distinct set of educational challenges. Despite increasing high school graduation rates, students are not enrolling in or completing postsecondary education at similarly increasing rates. One in two (52%) of Texas's seventh-grade students enrolls in higher education, and only 19% complete some form of postsecondary credential (i.e., a certificate, associate's degree, or bachelor's degree). Although the state's performance has improved in recent years, Texas's overall college attainment rates fall well short of where they could be and reflect significant achievement gaps. Texas ranks last for the percent of adults – age 25 or older – with a high school diploma or higher (NCES, 2012). In 2013, only 45.63% of non-Hispanic Whites, 30% of African Americans, and 17.98% of Hispanics held an associate's degree or higher.

These educational gaps are of vast economic importance. In a recent study on workforce trends, the Georgetown Center for Education and the Workforce found that, by 2018, 56% of all new jobs will require a postsecondary degree or credential (Carnevale et al., 2016). However, if Texas's growing Hispanic population is unable to achieve similar educational attainment rates to Texas's shrinking non-Hispanic White population, the state will be unable to ensure employment for its future workforce and to maintain its competitive advantage. These education gaps could also reduce the per capita income in Texas as well as the state's projected tax revenues (Murcoch et al., 2014).

Increasing the earning potential of Texas's changing population is therefore important to the economic wellbeing of the state as a whole. To increase the earning potential of the Texas workforce, education is critical. Educational attainment is highly correlated with wages, and the economic potential of Texas largely depends on whether the state can figure out how to increase educational attainment rates among minority and lower income students, particularly its rapidly growing Hispanic population. To better understand postsecondary educational attainment in Texas, this study examined nine different primary research questions that spanned five research topic areas: dual credit access and completion, 2-year to 4-year college transfer success rates, preparation for college-level mathematics, workforce preparation, and rural student outcomes.

Our research questions were:

Topic Area 1: Dual Credit Access and Completion

1. Between 2004/05 and 2014/15, what percentage (and number) of Texas high school students enrolled in at least one dual credit course?
2. Between the 2007/08 and 2014/15 Texas high school graduating cohorts, what percentage (and number) of high school students graduated with at least one college credit?

Topic Area 2: Two-Year to Four-Year College Transfer Success Rates

3. Between 2007/08 and 2013/14, for Texas high school graduates, what percentage (and number) of students who enrolled directly into a 2-year college transferred to a Texas 4-year college?

4. Between 2007/08 and 2013/14, for Texas high school graduates who enrolled directly into a 2-year college and then transferred to a Texas 4-year college, what was the average number of credits earned prior to transfer? And what was the average number of semesters enrolled at a 2-year college prior to transferring to a 4-year college?
5. Between 2007/08 and 2011/12, for Texas high school graduates who enrolled directly into a 2-year college and then transferred to a Texas 4-year college, what percentage (and number) earned a 4-year credential? And what was the average time-to-degree for those students who earned a 4-year credential?

Topic Area 3: Preparation for College-Level Mathematics

6. Between the 2007/08 and 2014/15 Texas high school graduating cohorts, what percentage (and number) of students who enrolled in a Texas institution of higher education (IHE) were exempted from the mathematics Texas Success Initiative (TSI) obligation?
7. Between the 2007/08 and 2014/15 Texas high school graduating cohorts, what percentage (and number) of students who enrolled in a Texas IHE successfully completed (i.e., with a C or better) their first college-level mathematics course?

Topic Area 4: Workforce Preparation

8. Between 2009/10 and 2015/16, what percentage (and number) of students who completed a 2-year or 4-year credential entered the workforce within one year of college completion?

Topic Area 5: Rural Student Outcomes

9. Across all of the metrics of student success explored in this research project, how did the outcomes of rural students differ from their suburban and urban peers?

Each primary research question had secondary questions which explored the heterogeneity of the outcomes addressed in the respective primary research question across student subpopulations, including differences based on students' geographical location, high school academic outcomes, high school program participation, and demographic attributes.

How We Analyzed the Data

The research questions included in this project were answered primarily through descriptive statistics, including means, medians, and other measures of statistical variability. The differences in the study outcomes across pertinent student subgroups, including students' ethnicity, sex, high school program participation, location, and academic outcomes were of primary interest for each research question. Thus, most of the descriptive analyses were comparative across the different subgroups, and across years included in the study, with student-level characteristics being used to compare outcomes across students with similar characteristics (e.g., eighth-grade mathematics test scores).

The study sample included students who were enrolled in, and who graduated from public high schools in Texas during the study period. The design relied on waves of student cohorts as they progressed through the Texas secondary and postsecondary system, and, for several cohorts, into the workforce. Additionally, in order to obtain a measure of students' academic preparation prior to entering high school, the study required eighth-grade test scores; therefore, the study sample was expanded to students who started Grade 8 in 2003/04 in a Texas public school. The final school year for which all data were available in the ERC database was 2014/15.

Thus, the study examined research questions about postsecondary enrollment for nine cohorts of students, questions about postsecondary outcomes for eight cohorts of students, and questions about post-college graduation workforce entry for seven cohorts. In addition, the first four cohorts were examined to look at 5-year postsecondary completion.

What We Discovered

The percentage of high school students enrolled in dual credit courses since the 2004/5 school year rose. And, among graduating cohorts, the dual credit completion rate peaked with the 2011/12 cohort (22.7%) and fell to 20% among the 2014/15 cohort.

In all the years of the study, Grade 12 students had the highest rate of dual enrollment, rising from 11% in 2004/05 to 17% in 2014/15. Among students who had completed at least one dual credit enrollment course, the average number of courses completed rose consistently during the entire study period, from 2 in the 2007/08 cohort to 3 in the 2014/15 cohort.

Nearly 1 in 4 students (27%) from the 2007/8 high school graduating cohort who enrolled in a 2-year college transferred to a 4-year institution within 7 years. Ethnic disparities existed among those who transferred, and Black students had the lowest transfer rates.

The majority of these transfers (52%) occurred within 2 years. Black students had the lowest transfer rates and attempted the fewest number of credits at the community college. White students had the highest transfer rates (31%), compared to Hispanic students (23%) and Black students (21%). And, among students who transferred, fewer Black students (58%) and Hispanic students (66%) had attempted 30 or more credits prior to transferring compared to White students (68%).

Although students with dual credit in high school were more likely to earn a baccalaureate, those who were in poverty in high school were less likely to do so.

Students from the 2007/8 graduating cohort who earned dual credit in high school were more likely to earn a baccalaureate within 7 years. Still, students in poverty were less likely to earn a baccalaureate. Among the three largest student ethnic groups, Black students had the lowest baccalaureate attainment rate. Among those not in poverty, White students with dual credit had a baccalaureate attainment rate at 67%, while those without dual credit were at 57%. Similarly, Hispanic students with dual credits had degree attainment rates at 58%, while those without dual credit were at 46%. Black students with dual credit had degree attainment rates of 44%, while those without dual credit were at 38%. These degree attainment rates were lower for students in poverty across these ethnic groups. Black students who were in poverty and who had dual credit had a degree attainment rate of 35%, while those who did not have dual credit were at 30%.

Students who experienced poverty in high school were also less likely to transfer to a senior institution from a community college. Among the three largest ethnic groups, Black students were least likely to transfer to a 4-year institution.

Among those in poverty, 21% of White students transferred compared to 18% of Black and Hispanic students. Among those not in poverty, 34% of White students transferred, while 30% of Hispanic and 28% of Black students transferred.

Since 2008/9, college mathematics readiness rates rose across all ethnic groups; however, the magnitude rise was not similar across ethnicities.

In the 2008/9 graduating cohort, 73% of students were ready for college-level math, compared to 80% of students in the 2013/14 cohort. Hispanic students had the largest increase in readiness rates at 9%, while Asian students had the smallest increase in readiness at 3%. Both White and Black students had increases of 7%.

Transfer students who completed a baccalaureate earned less than direct-to-4-year enrollees, and the difference was bigger among high-wage earners (i.e., the top 10th percentile).

Two years after earning a baccalaureate, the average salary earned by a 2007/8 high school cohort was \$35,000, and the median was \$32,000; 10% of graduates earned more than \$62,000. The median wage was \$27,000 among transfer students, compared to \$34,000 among students who directly enrolled in a 4-year IHE. Among high-wage earners, this difference was even greater.

Even among students who earn baccalaureates, ethnic disparities existed in their wages.

White students earned more than Hispanic and Black students, regardless of whether students transferred from a 2-year IHE to a 4-year IHE and earned a baccalaureate or enrolled directly in a 4-year college and earned a degree. White students who transferred to a 4-year IHE earned \$32,000, while Hispanic students earned \$27,000, and Black students earned \$25,000. White students who enrolled directly in a 4-year IHE earned \$39,000, while Hispanic students earned \$32,000. Black students had the lowest earnings at \$30,000.

Males earned higher wages than females.

A disproportionate number of males relative to females earned engineering and computer science (ECS) degrees. Also, a large pay gap existed between high-performing men and women who earn non-ECS degrees. The combination of these two factors helped to explain the pay disparity between men and women. Men earned, on average, \$38,000, while females earned \$32,000. The vast majority of ECS graduates were male (82%), even though men comprised a smaller share of college entrants and baccalaureate recipients. Math performance did not account for the gender differences in ECS graduates: men who were not high-performing were more likely to earn an ECS degree than high performing women (i.e., 8% of not high-performing White male students compared to 5% of high-performing White female students).

Among high-performing students, the pay gap between men and women was larger in non-ECS degree holders (approximately \$3,000) compared to ECS degree holders (<\$1,000).

Among men and women who were high-performing and who were also high-income earners, the pay disparities were further accentuated. High performing, high-income men who held non-ECS degrees earned \$8,000 more than women, while high performing, high-income men who held ECS degrees earned \$1,000 more than women.

For Grade 11 and 12 students, dual enrollment was more common among students in rural areas compared to students in suburban and city areas. Students in rural areas also completed more dual credits than their peers in other locales.

In 2014/15, among students who completed at least one dual credit course, students in rural areas completed 3.2 dual credit courses by the time they graduated high school compared to their peers in the suburbs who completed 2.0 courses.

The gap between high-performing Black students and their high-performing peers was largest in rural areas.

In all locales in 2007/8, high-performing Black students were the least likely high-performers to graduate with college credits. The gap between high-performing Black students and White students in cities was 7 percentage points compared to the 14 percentage point difference in rural areas. By the 2014/15 cohort, the gap grew to 8 and 16 percentage points, respectively, and 9 percentage points in suburban schools.

Students in suburban schools had the highest transfer rates to a senior institution, and were more likely to complete 30 more credits prior to transferring, though the differences across students' high school locale were small.

Transfer rates in suburban schools were 29%, compared to 26% in rural areas and cities, and 25% in towns. Among those who transferred, 67% of suburban students completed 30 or more credits, compared to 66% in rural areas, and 65% in both cities and towns.

Policy Recommendations/Implications

This study shows that among the three largest ethnic groups in Texas, Hispanic and Black students lag behind White students in postsecondary attainment. The study also revealed that among high-performing students, the gap between Black students and their peers is largest in rural areas. Students in poverty were also less likely to transfer to a 4-year college or to obtain a baccalaureate. These disparities in postsecondary degree attainment further translate to pay disparities once students enter the workforce.

The results of this study may help inform policymakers and educators on where to focus their advising efforts and interventions. For example, additional advising could be provided to Black and Hispanic students at 2-year colleges in order to promote more credit completion, more transfers to 4-year colleges, and more baccalaureate degree attainment. Another area of focus for policymakers and educators may also include encouraging Black and Hispanic students, as well as female students, to enroll in engineering and computer science courses. Efforts to target students who experience poverty in high school may also be valuable for increasing postsecondary attainment in the state. With the changing demographics of Texas, the success of Black and Hispanic students become vital for the future prosperity of the state and local communities.

References

- Snyder, T.D., and Dillow, S.A. (2013). Digest of Education Statistics 2012 (NCES 2014-015). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
- Murdoch, S., Cline, M., Zey, M., Jeanty, P. W., and Perez, D. (2014) Changing Texas: Implications of Addressing or Ignoring the Texas Challenge. College Station: Texas A&M University Press.
- Carnevale, A.P., Jayasundera, T., and Gulish, A. (2016). America's Divided Recover: College Haves and Have-Nots. Georgetown University Center on Education and the Workforce. Retrieved from <https://goo.gl/ZDNNwW> on July 11th, 2016.

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