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RESEARCH BRIEF:

# Postsecondary Access in Pennsylvania: Factors Associated with Students' Access and Travel Distance to 4-Year Universities

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# Abstract

Previous research at the national (Hillman, 2019) and at the state (Henninger-Voss & Herzenberg, 2017) level has identified certain geographical locations as “education deserts” based on their lack of viable postsecondary educational opportunities. Many students who live in these areas of low postsecondary access, especially students who are part of historically underserved groups, often must travel a great distance to attend in-person postsecondary education (Hughes, Karp, Fermin, & Bailey, 2005; Kanno & Cromley, 2013; Perna & Jones, 2013; Lopez-Turley, 2009). The present study closely examined county-wide differences in access to various forms of postsecondary education within Pennsylvania (PA). Additionally, four classes of high school graduates from school years 2013-2017 were followed to their first 4-year postsecondary enrollment. Analyses examined associations between student demographic factors and students’ travel distance to 4-year postsecondary universities within PA. Results showed that the northern region of PA was home to several counties which did not have access to various degree-granting postsecondary options, such as 4-year broad access institutions (BAIs), community college locations, and instructional sites. Conversely, groups of counties with higher levels of postsecondary access were typically found clustered around Allegheny and Philadelphia Counties. Additional results showed that student travel distance and access to PA 4-year universities often varied by institution type (PA state institution versus non-state institution) and students’ status as economically disadvantaged, English Learners (EL), and historically underperforming. These results are discussed in relation to previous literature and implications regarding PA’s postsecondary access are considered.



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## KEY FINDINGS:

### County-wide Postsecondary Access in Pennsylvania

- Descriptive analysis of degree-granting postsecondary institutions from school year 2019-2020 showed that PA is home to 75 two-year institutions, 144 four-year institutions, 65 broad access 2-year institutions, and 84 broad access 4-year institutions.
- Similarly, it was found that PA is home to 30 - community college main/branch campuses - and 478 instructional sites associated with community colleges.
- Counties with high levels of access to postsecondary education tended to be located in the south-east region (clustered around Philadelphia County) and the south-west region (clustered around Allegheny County) of Pennsylvania. -
- Conversely, counties with low levels of postsecondary access tended to be located in the northern region of PA, supporting the conclusion of Hillman (2016) who stated that “many parts of northern Pennsylvania are already a higher education desert.”
- However, the current research found that in the years since Hillman (2016) reached this conclusion, the total number of counties with no access to a community college instructional site has reduced by approximately 46%, indicating meaningful progress towards a more equitable distribution of postsecondary access in Pennsylvania.

## KEY FINDINGS:

### Student Group Differences in Student Travel Status and Distance to 4-year Postsecondary Education

- Among all students who enrolled at any 4-year institution (in-state or out-of-state), 16% did so as same-county attendees, 21.6% were bordering-county attendees, and 35.4% were other-county attendees. Further, 12.5% were bordering-state attendees and the remaining 14.5% were other-state attendees.
- Among students who attended PA state institutions, 22% traveled between 0 and 24.99 miles, 22.2% traveled between 25 and 49.99 miles, 18.4% traveled between 50 and 74.99 miles, and 37.4% traveled 75 or more miles. For students who attended a non-state institution, 41% traveled between 0 and 24.99 miles, 18.2% traveled between 25 and 49.99 miles, 10.5% traveled between 50 and 74.99 miles, and 30.3% traveled 75 miles or more.
- PA students’ travel statuses and travel distances to 4-year institutions were significantly associated with their race/ethnicity, economically disadvantaged status, English Learner (EL) status, historically underperforming status, and geographic status.
- Significant associations between student group membership and travel status/distance often varied by the type of 4-year institution that students attended. For instance, a higher percentage of Black students were other-county attendees when enrolled at state universities, but a higher percentage of White students were other-county attendees when enrolled at non-state universities.

- Students who experienced economic disadvantage, were EL, and historically underperforming were more likely than their peers to be same-county attendees when enrolled at a PA 4-year non-state institution. These findings support previous literature (Hughes, Karp, Fermin, & Bailey, 2005; Kanno & Cromley, 2013) which has found that many historically underserved students attend postsecondary education relatively close to home.
- Students who were historically underperforming and students who experienced economic disadvantage were more likely than other students to travel 75 or more miles to state universities. These findings are supported by previous research (Price (2017) which concluded that PA's state universities have historically been highly accessible to Pennsylvania's low income and working-class students. Additionally, Black students and students from cities were more likely to travel 75 or more miles to state universities than their peers.
- Students who experienced economic disadvantage, EL students, and historically underperforming students were more likely than other students to travel between 0 and 24.99 miles to non-state affiliated institutions.
- White students were more likely to travel 75 or more miles to non-state institutions than Hispanic, Asian, and Black students. Students from towns were more likely to travel 75 or more miles to non-state universities than students from cities, rural students, and suburban students.
- Black and Asian students were more likely than their peers to have high levels of county-wide access to 4-year institutions. Additionally, a higher percentage of students from cities had high levels of postsecondary access, while a high percentage of students from towns had low county-wide access.
- PA students who experienced economic disadvantage and students who were EL, special education, and historically underperforming were generally more likely than their peers to have county-wide access to more than three 4-year BAIs.
- When compared to students of other racial/ethnic identities, a higher percentage of Black and Asian students had access to more than three 4-year BAIs, while a higher percentage of White students had no county-wide access to 4-year BAIs. Further, a higher percentage of students from cities had county-wide access to more than three BAIs when compared to students from other geographic locations.

## KEY FINDINGS:

### Student Group Differences in County-Wide Postsecondary Access

- Contrary to the findings of previous literature (Hillman, 2016; Perna & Jones, 2013), chi-square analyses showed that higher percentages of students who experienced economic disadvantage, were EL, special education, and historically underperforming had high levels of county-wide access to 4-year postsecondary institutions when compared to other students.

## KEY FINDINGS:

### Student County-wide Postsecondary Access and Postsecondary Travel Distance

- PA students with low levels of county-wide access to 4-year institutions were more likely to travel 75 or more miles to non-state institutions when compared to their peers with higher levels of access. However, students with high access to 4-year institutions were more likely than their peers to travel 75 or more miles to PA state institutions.
- PA students with access to more than three 4-year BAIs were generally more likely than their peers to travel 75 or more miles to a PA state institution.
- PA students with no county-wide access to 4-year BAIs were more likely to travel 75 or more miles to a non-state institution when compared to their peers with higher access to 4-year BAIs.

# Literature Review

College access refers to a student's ability to enroll at and attend a postsecondary institution (Long, 2017; Price, Herzenberg, and Polson, 2018). Nicholas Hillman (2016; 2019) and other researchers (Henninger-Voss and Herzenberg 2017; Klasik, Blagg, and Pekor, 2018) have argued for the importance of geographical place when researching college access. In fact, Hillman (2016) reported that over half of American college students enroll at a postsecondary institution within 20 miles of their home address. Additionally, as postsecondary options nearby students' homes increase, the likelihood that students will apply to a college increases as well (Lopez-Turley, 2009). Although research suggests that geography exerts a significant impact on the college enrollment decision, for many students in the United States, few viable postsecondary options exist within their geographical confines.

These types of geographical areas have been labelled by researchers as "educational deserts," a title which refers to a geographical area that has zero or very limited options for public postsecondary education (Hillman 2016; Hillman, 2019). In a recent report, Hillman (2019) estimated that 10% of the United States population resides in an education desert. Hillman (2016) stated that many students in educational deserts only have access to a local community college, meaning they do not have geographical access to 4-year degree programs. Further, research suggests that a disproportionate number of underrepresented minority (URM) students live in areas designated as education deserts. Specifically, Hillman (2016) found that areas with higher populations of Hispanic students tended to have fewer nearby postsecondary options, while areas with higher concentrations of White and Asian students tended to have more options.

In a report for the Pennsylvania Budget and Policy Center, Henninger-Voss and Herzenberg (2017) described the state of geographical opportunity for students seeking postsecondary education in PA. They reported that 28 out of the Commonwealth's 67 counties (almost 42%) do not host a community college instructional site, depriving PA residents who live in these regions of accessible and affordable postsecondary education. Further, these researchers labelled 15 counties in PA as "education deserts," indicating there are either no public colleges or universities in the region or there is only one broad access (an institution which accepts more than 75% of applicants) public community college. Henninger-Voss and Herzenberg (2017) suggested that this lack of college access significantly contributes to Pennsylvania's high proportion of adults who possess a high school diploma but no postsecondary educational experiences.



Although research suggests that geography exerts a significant impact on the college enrollment decision, for many students in the United States, few viable postsecondary options exist within their geographical confines.

# Research Aims and Questions

While a significant amount of research has addressed how geography and proximity to postsecondary options may impact access to college education, comparatively few studies have investigated these issues in Pennsylvania. To the authors' knowledge, no study to date has sought to establish a statistical link between county-wide postsecondary access in PA and students' travel distance to college. Lastly, it is important to examine and describe potential issues of equity in access to postsecondary options.

Informed by previous literature on geographical differences in college access, the following study seeks to answer the following research questions:

1. Are there county-wide differences between PA students' access to in-state postsecondary education?
2. What is the descriptive breakdown of PA student graduation classes by year? Do 4-year degree-seeking students in PA tend to enroll in postsecondary institutions near the high school from which they graduated? Is their travel distance and travel status (same-county, bordering-county, other-county, bordering-state, other-state) associated with student group membership?
3. What student-level factors are associated with students' county-wide postsecondary access? Do 4-year degree-seeking students have equitable access to postsecondary education?
4. Are students' travel distances to college affected by the level of postsecondary access in their county? Specifically, do 4-year degree-seeking students travel farther to college when there is limited postsecondary access in their county?

## Research Participants, Methodologies, and Procedure

To answer research questions #2 through #4, four cohorts of Pennsylvania high school graduates from school years 2013-2014, 2014-2015, and 2015-2016, and 2016-2017 were followed to postsecondary enrollment. To examine relationships between student variables and travel status, travel distance to college, and college access, all participants were PA high school graduates who enrolled at a postsecondary institution. Students in each graduation class were followed to a different point in postsecondary education depending on their entry date, but initial college enrollment data were available for students in each graduating class. All students followed in this study graduated from a public Pennsylvania local educational agency (LEA), Intermediate Unit (IU), or public charter school.

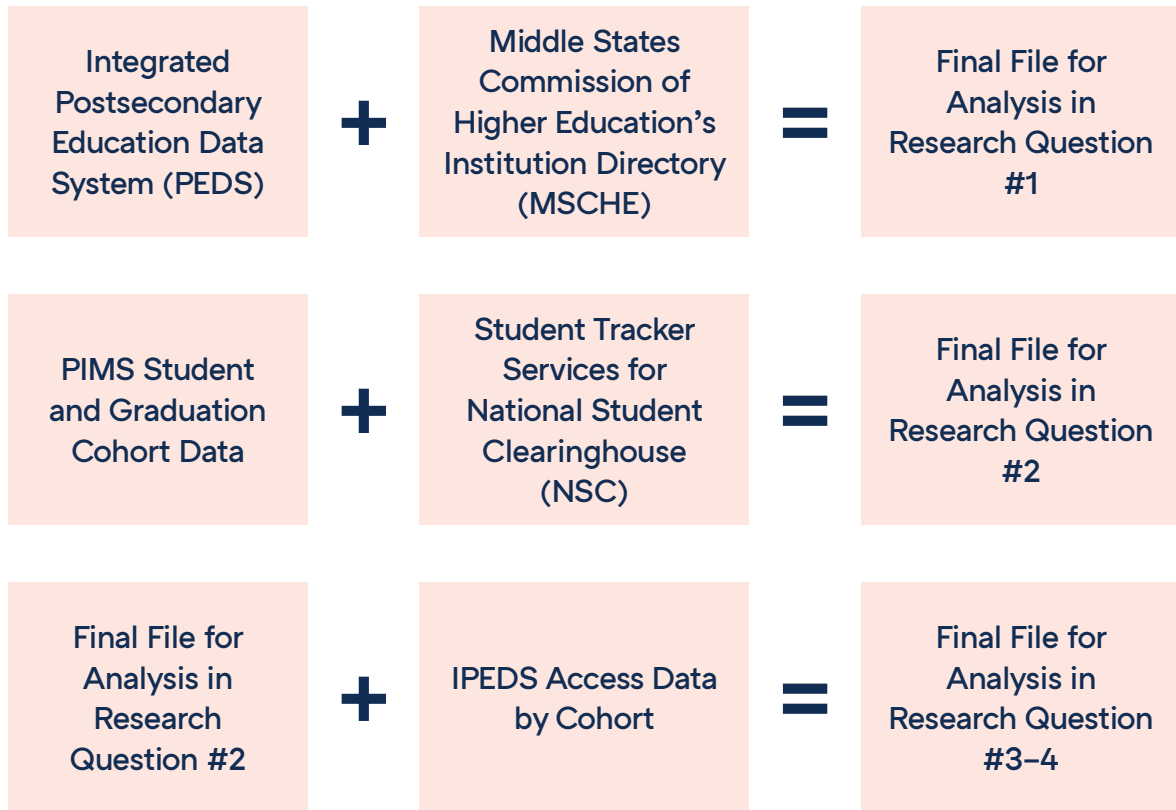
A total of 202,147 students were followed to postsecondary enrollment in any state, while 147,523 students were followed to postsecondary enrollment in PA. Raw differences in descriptive data between high school graduation classes were detected between types of college attendance, so analyses were conducted separately for students who attended PA state universities (see the [Pennsylvania State System of Higher Education website](#) for a full list of institutions) versus those who attended non-state institutions. Notably, students were excluded from certain analyses if they met specific criteria which

rendered measurement of travel status/distance impossible. Specifically, students were excluded from analyses if they attended either an online-only high school and/or postsecondary institution or if their enrollment data were incomplete, creating an inability to identify the location of their high school and/or postsecondary campus. Further, college enrollment data (NSC Student Tracker Services) did not always include the specific attendance location (branch campus or instructional site) for students who attended a community college or Pennsylvania State University (PSU). Therefore, the postsecondary attendance location for 76,625 community college and 36,888 PSU students could not be determined and the relevant students were excluded from analyses related to research questions #2 and #4.

Analyses regarding student travel status assigned students to one of five possible categories based on the location of the high school and the 4-year institution they attended: students who attended college in the same county as their high school (same-county attendees), students who attended college in a county that borders their high school's county (bordering-county attendees), students who attended college in any other county in PA (other-county attendees), students who attended college in a state that borders PA (bordering-state attendees), and students who attended college in a different, non-bordering state (other-state attendees). This is contrasted by student travel distance, which was measured by calculating the shortest travel distance (measured in miles) between the student's high school and postsecondary institution. Descriptive statistics of student travel distance showed standard deviations that were often higher than travel means, so a four-level categorical measure was created to assess travel distance (0–24.99 miles, 25–49.99 miles, 50–74.99 miles, and 75 or more miles). For analyses related to travel distance, only students who attended a PA 4-year institution were included.

The current study relied on several pre-existing data sources. The first research question was answered through analysis of data records from the Middle States Commission of Higher Education's (MSCHE) Institution Directory and from the Integrated Postsecondary Education Data System (IPEDS), created by the National Center for Education Statistics (NCES). Research questions #2 through #4 were answered through the analysis of linked Pennsylvania Information Management Systems (PIMS) datasets and postsecondary data from Student Tracker Services through the National Student Clearinghouse (NSC). To answer research questions #3 and #4, four total files containing postsecondary access data were downloaded from the IPEDS Data Center. Each file represented county-level postsecondary access for each high school graduation class, showing county-wide postsecondary access at the time students were seniors in high school and making their college enrollment decisions. Table 1 provides a detailed visualization of the file creation process used to organize the data required to answer all research questions.

**TABLE 1: Visual Representation of Data File Creation**



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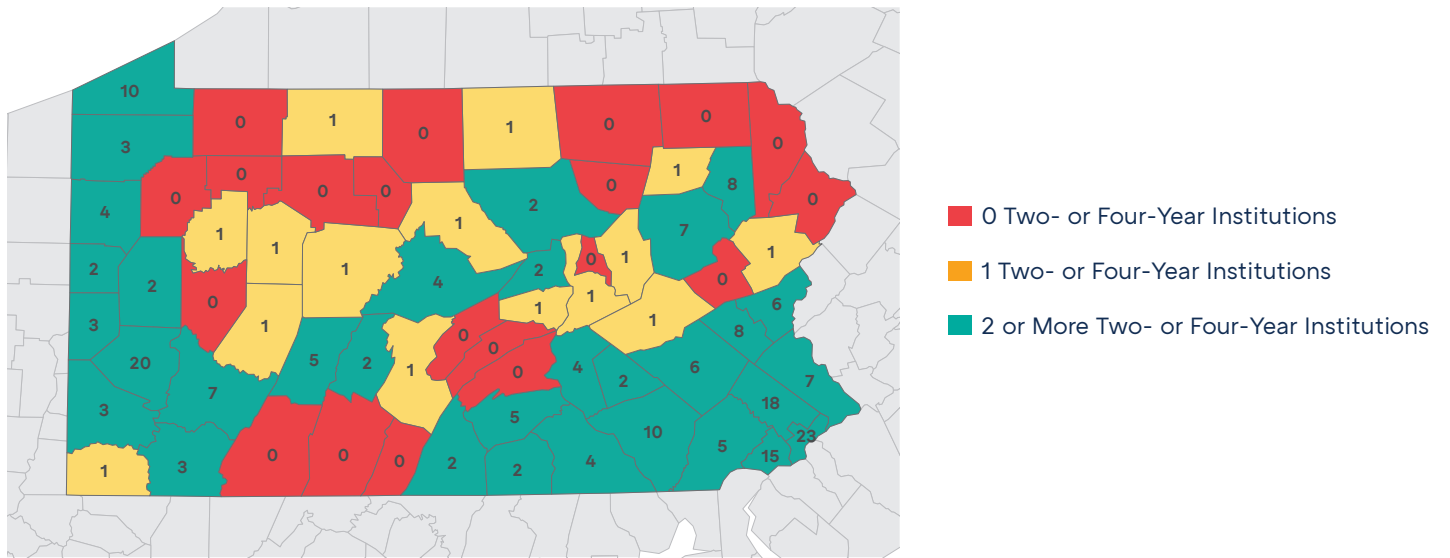
## Results: County-wide Postsecondary Access in Pennsylvania

Through the use and analysis of the most recently available IPEDS data (school year 2019-2020), all degree-granting postsecondary institutions in Pennsylvania (with the exception of seminaries and other schools which prepare students for clergy life) were totaled and assigned to their hosting counties. It was found that Pennsylvania is home to 75 degree-granting two-year institutions and 144 degree-granting 4-year institutions. A vast majority (87%) of two-year institutions were considered broad-access institutions (BAIs), meaning they accepted more than 75% of student applicants. Using the same metric, approximately 58% of Pennsylvania's 4-year institutions were considered broad access.

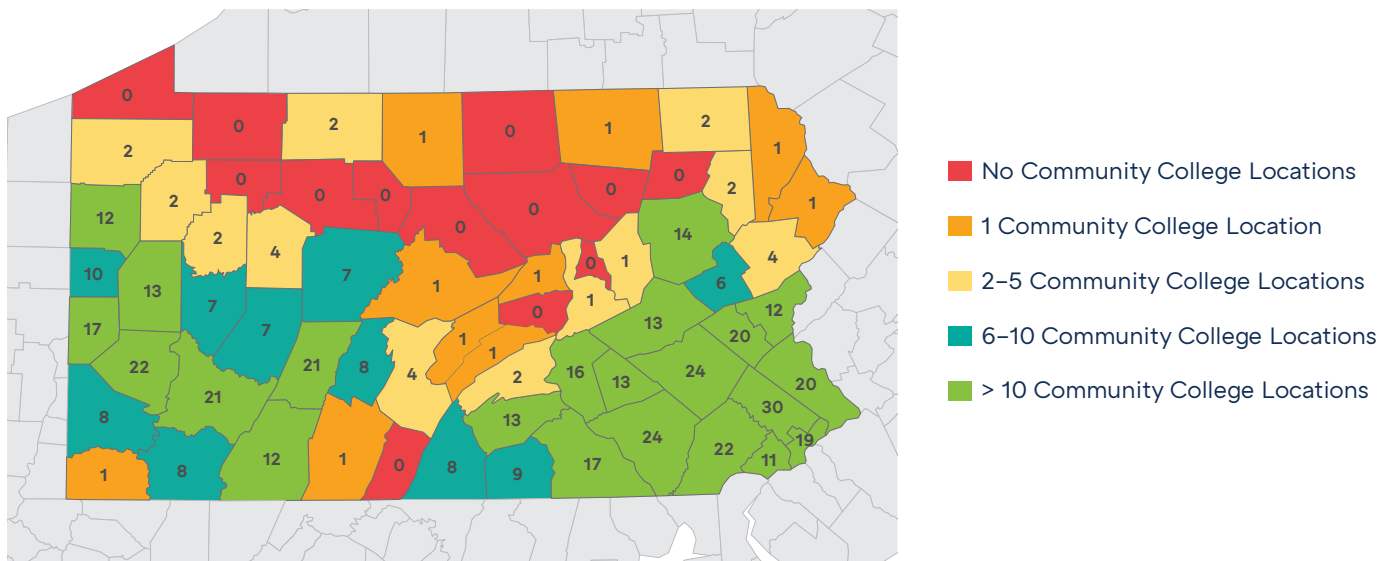
Overall, findings indicated the presence of meaningful differences in postsecondary access across various regions of Pennsylvania. Although variations in access exist depending on the type of postsecondary institution, in general, Figures 1 and 2 show that the northern counties of PA had less access to postsecondary options than counties in other regions, especially the south-eastern and south-western areas.



**FIGURE 1. Total Two- and Four-Year Degree Granting Institutions (Main Campus Locations Only) per County**



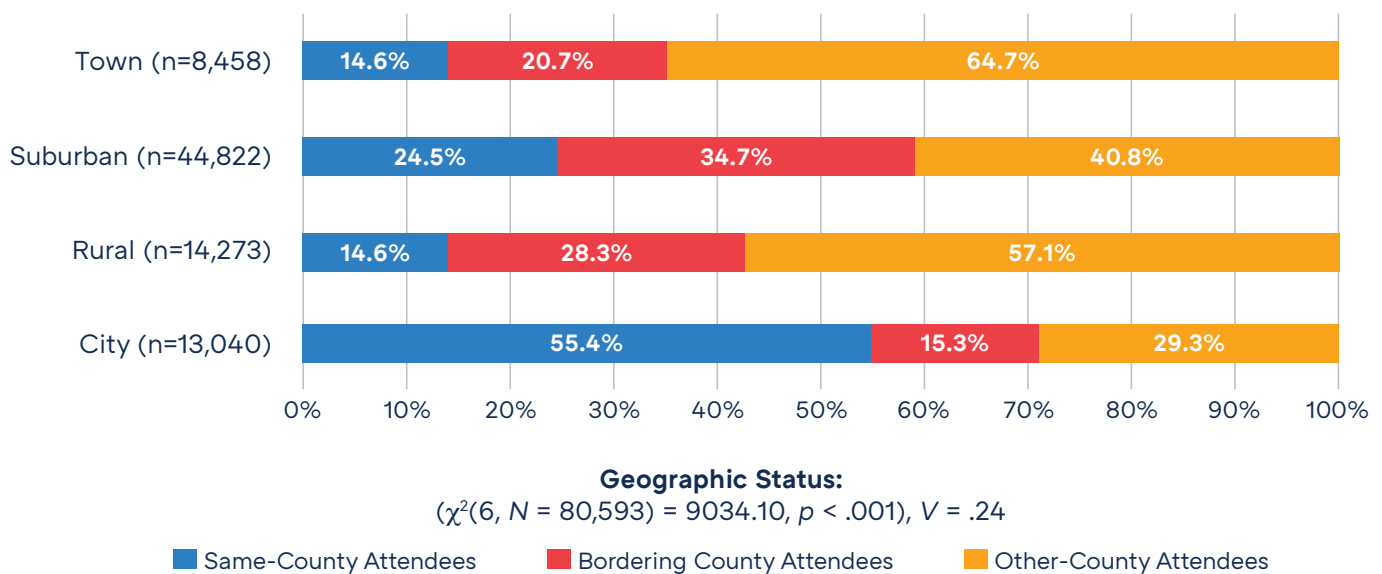
**FIGURE 2. Total Community College Presence (Main Sites, Branch Campuses, and Instructional Sites) per County**



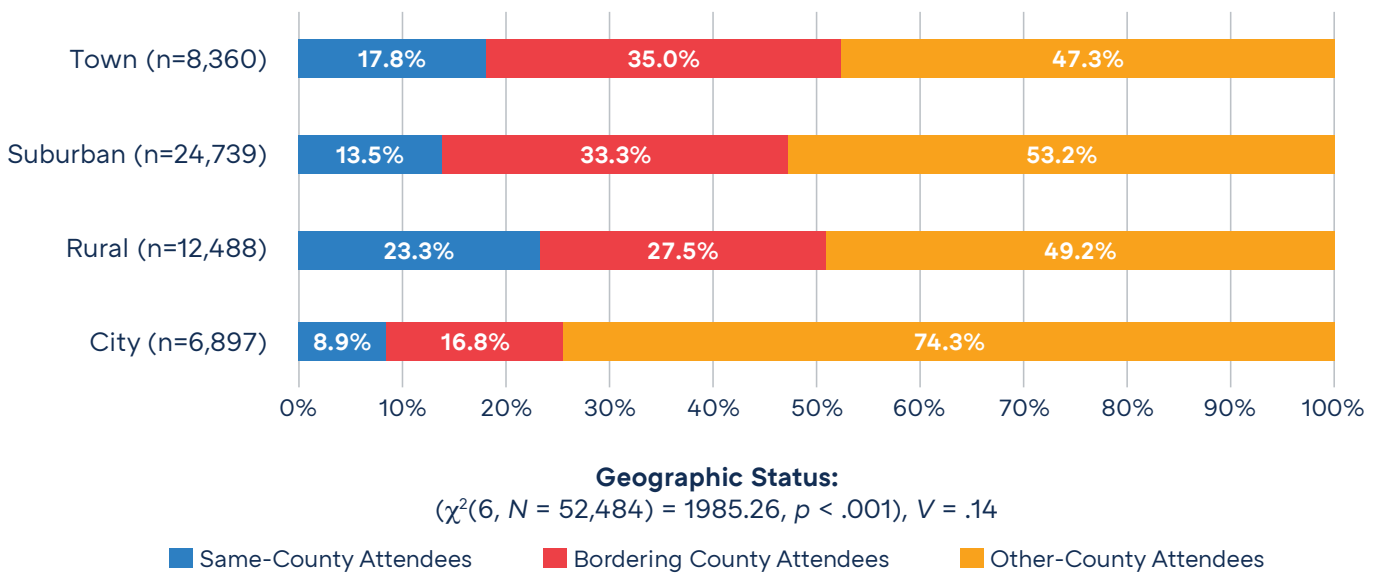
# Results: Student Group Differences in Student Travel Status and Distance to 4-year Postsecondary Education

Results showed that PA students' travel statuses and travel distances to 4-year institutions, often significantly associated with student group membership, varied by the type of institution attended. For travel status, it was found that Black students were more likely than their peers to be other-county attendees when enrolled at state universities, but White students were more likely than their peers to be other-county attendees when enrolled at non-state universities. Similarly, students who experienced economic disadvantage, EL students, and historically underperforming students were more likely than their peers to be same-county attendees when attending non-state universities. Figures 3 and 4 show associations between travel status and student geographic location; students from towns and rural students were more likely than students from cities and suburban students to be other-county attendees when enrolled at non-state institutions (Figure 3), but students from cities were most likely to be other-county attendees among students attending a 4-year institution in the state system (Figure 4).

**FIGURE 3. Student Travel Status by Geographic Location: Students at 4-Year Non-State PA Universities**

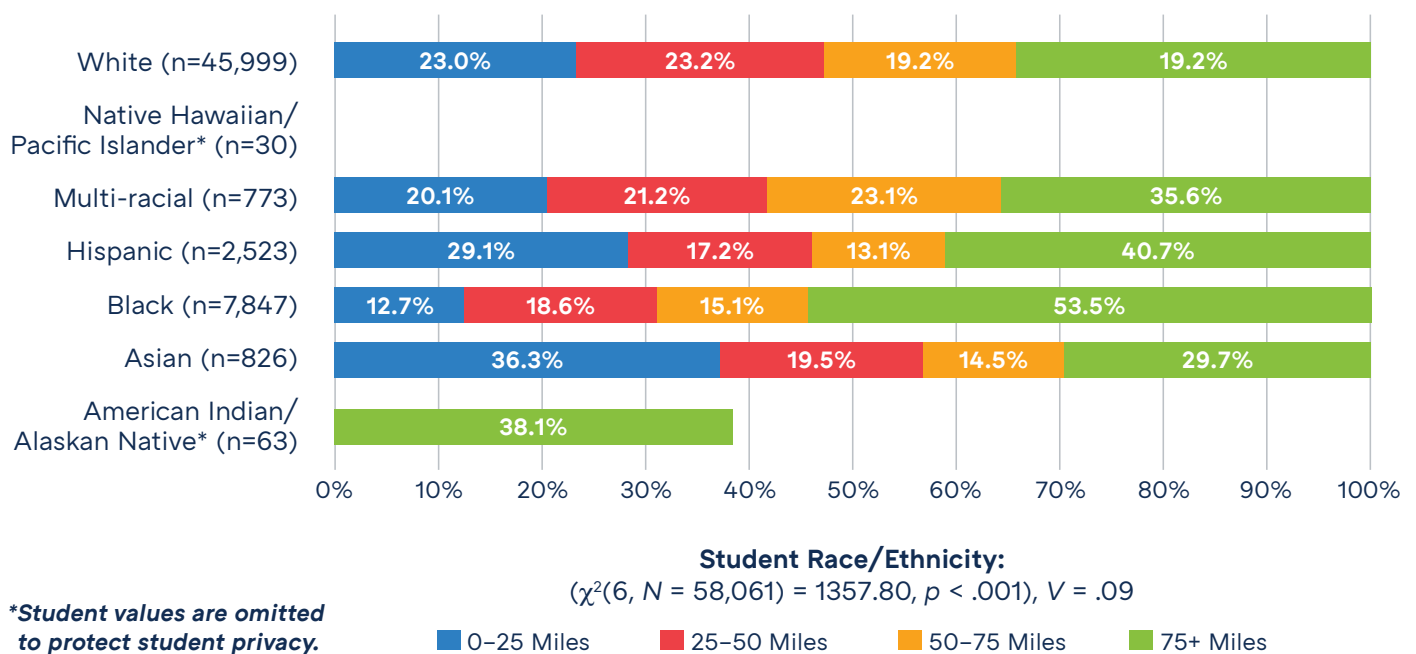


**FIGURE 4. Student Travel Status by Geographic Location: Students at PA State Universities**



Similarly, associations between student membership status and travel distance to 4-year institutions varied by the type of institution attended. It was found that students who experienced economic disadvantage, students who were historically underperforming, Black students, and students from cities were more likely than their peers to travel 75 or more miles to a PA state institution. Conversely, students who were non-EL, non-historically underperforming, and students who did not experience economic disadvantage were more likely than their peers to travel 75 or more miles to a PA non-state institution. Figure 5 shows that Black and Hispanic students were more likely than their peers to travel 75 or more miles to a PA state institution.

**FIGURE 5. Student Travel Distance by Student Race/Ethnicity: Students at PA State Universities**



# Results: County-Wide Postsecondary Access and Student Groups

Using data elements collected and organized to answer research questions #1 and #2, student group differences by county-wide postsecondary access were examined. To measure each student’s county-wide access, the number of 4-year institutions in each PA county were totaled and students were assigned to a county based on the location of their final high school on record. From this continuous measurement of county-wide access, categorical variables were created to measure county-wide access to 4-year institutions and 4-year BAIs. Frequency distributions were used to create three categories of county-wide access to 4-year institutions (low, medium, and high), while five categories were used to denote access to 4-year BAIs (0 BAIs, 1 BAI, 2 BAIs, 3 BAIs, and more than 3 BAIs). Access to 4-year postsecondary institutions was measured at four different times; county-wide postsecondary access data from the IPEDS Data Center was used for school years 2013–2014, 2014–2015, 2015–2016, and 2016–2017 to corresponded with the years when each high school class graduated.

Results showed that students who experienced economic disadvantage, students who were EL, special education, and historically underperforming were more likely to have high levels of county-wide access to 4-year postsecondary institutions when compared to their peers. It was also found that PA students who experienced economic disadvantage and students who were EL, special education, and historically underperforming were generally more likely than their peers to have county-wide access to more than three 4-year BAIs. Additionally, Black and Asian students were more likely than their peers to have high levels of county-wide access to 4-year BAIs, while a higher percentage of White students had no county-wide access to 4-year BAIs. Table 1 shows that a higher percentage of students from cities had high levels of postsecondary access, while a high percentage of students from towns had low county-wide access.

**TABLE 2: County-wide Postsecondary Access by Student Geographic Location: Differences in Percentages by High School Graduation Class**

	Low Access	Medium Access	High Access
<b>2014 Graduating Class</b> ( $\chi^2(6, N = 74,330) = 28408.16, p < .001, V = .44$ )			
<b>City</b> (n = 11,816)	7.1% (n = 837)	27.5% (n = 3,253)	65.4% (n = 7,726)
<b>Rural</b> (n = 13,663)	57.6% (n = 7,884)	36.1% (n = 4,923)	6.3% (n = 856)
<b>Suburban</b> (n = 40,400)	12.3% (n = 4,967)	46.0% (n = 18,587)	41.7% (n = 16,855)
<b>Town</b> (n = 8,451)	76.0% (n = 6,420)	21.9% (n = 1,850)	2.1% (n = 181)
<b>2015 Graduating Class</b> ( $\chi^2(6, N = 72,040) = 27013.93, p < .001, V = .43$ )			
<b>City</b> (n = 11,285)	7.3% (n = 828)	28.4% (n = 3,205)	64.3% (n = 7,252)
<b>Rural</b> (n = 13,129)	58.2% (n = 7,649)	35.3% (n = 4,633)	6.5% (n = 847)
<b>Suburban</b> (n = 39,575)	12.5% (n = 4,930)	46.2% (n = 18,296)	41.3% (n = 16,349)
<b>Town</b> (n = 8,051)	76.0% (n = 6,115)	21.8% (n = 1,762)	2.2% (n = 174)

	Low Access	Medium Access	High Access
<b>2016 Graduating Class</b> ( $\chi^2(6, N = 70,504) = 26291.49, p < .001, V = .43$ )			
<b>City</b> (n = 11,000)	6.6% (n = 722)	28.3% (n = 3,119)	65.1% (n = 7,159)
<b>Rural</b> (n = 13,020)	57.8% (n = 7,532)	35.4% (n = 4,599)	6.8% (n = 889)
<b>Suburban</b> (n = 38,675)	12.7% (n = 4,904)	45.8% (n = 17,711)	41.5% (n = 16,060)
<b>Town</b> (n = 7,809)	75.8% (n = 5,920)	21.9% (n = 1,710)	2.3% (n = 179)
<b>2017 Graduating Class</b> ( $\chi^2(6, N = 68,870) = 25499.53, p < .001, V = .43$ )			
<b>City</b> (n = 10,695)	7.2% (n = 765)	27.5% (n = 2,948)	65.3% (n = 6,982)
<b>Rural</b> (n = 12,606)	56.8% (n = 7,164)	36.5% (n = 4,594)	6.7% (n = 848)
<b>Suburban</b> (n = 38,090)	11.9% (n = 4,550)	46.4% (n = 17,651)	41.7% (n = 15,889)
<b>Town</b> (n = 7,479)	74.5% (n = 5,569)	23.2% (n = 1,735)	2.3% (n = 175)

## Results: Student County-wide Postsecondary Access and Postsecondary Travel Distance

This phase of analysis sought to examine how county-wide differences in postsecondary access in PA might be related to students' travel distance to 4-year institutions and 4-year BAIs in Pennsylvania. All 147,253 students in the following analyses attended a 4-year institution in PA. Results showed that PA students with low levels of county-wide access to 4-year institutions were more likely to travel 75 or more miles to non-state institutions when compared to their peers with higher levels of access. However, students with high access to 4-year institutions were more likely than their peers to travel 75 or more miles to state institutions. Additionally, Table 2 shows that PA students with no county-wide access to 4-year BAIs were more likely to travel 75 or more miles to a non-state institution when compared to their peers with higher access to four-year BAIs.

**TABLE 3: Student Travel Distance to all PA Non-State Universities by County Access to 4-Year PA BAIs: Differences in Percentages by High School Graduation Class**

	0–24.99 Miles	25–49.99 Miles	50–74.99 Miles	75+ Miles
<b>2014 Graduating Class</b>				
$(\chi^2(12, N = 21,709) = 2478.81, p < .001), V = .20$				
<b>0 BAIs</b> (n = 4,962)	25.7% (n = 1,275)	24.0% (n = 1,190)	13.4% (n = 667)	36.9% (n = 1,830)
<b>1 BAI</b> (n = 7,439)	32.1% (n = 2,385)	22.1% (n = 1,646)	10.2% (n = 757)	35.6% (n = 2,651)
<b>2 BAIs</b> (n = 3,118)	46.7% (n = 1,452)	14.9% (n = 466)	10.7% (n = 335)	27.7% (n = 865)
<b>3 BAIs</b> (n = 4,255)	57.4% (n = 2,441)	10.8% (n = 460)	8.7% (n = 372)	23.1% (n = 982)
<b>More than 3 BAIs</b> (n = 1,935)	79.4% (n = 1,536)	3.5% (n = 67)	4.9% (n = 95)	12.2% (n = 237)
<b>2015 Graduating Class</b>				
$(\chi^2(12, N = 22,154) = 3315.64, p < .001), V = .22$				
<b>0 BAIs</b> (n = 3,794)	16.6% (n = 631)	19.8% (n = 752)	17.7% (n = 671)	45.9% (n = 1,740)
<b>1 BAI</b> (n = 5,107)	27.9% (n = 1,427)	22.1% (n = 1,127)	14.2% (n = 723)	35.8% (n = 1,830)
<b>2 BAIs</b> (n = 5,604)	35.8% (n = 2,004)	24.3% (n = 1,361)	11.0% (n = 620)	28.9% (n = 1,619)
<b>3 BAIs</b> (n = 1,112)	53.3% (n = 593)	8.6% (n = 95)	4.2% (n = 47)	33.9% (n = 377)
<b>More than 3 BAIs</b> (n = 6,537)	64.9% (n = 4,244)	11.5% (n = 749)	4.0% (n = 261)	19.6% (n = 1,283)
<b>2016 Graduating Class</b>				
$(\chi^2(12, N = 23,294) = 3757.70, p < .001), V = .24$				
<b>0 BAIs</b> (n = 4,370)	18.8% (n = 822)	18.5% (n = 807)	22.2% (n = 969)	40.5% (n = 1,772)
<b>1 BAI</b> (n = 5,644)	28.4% (n = 1,603)	24.3% (n = 1,372)	8.3% (n = 470)	39.0% (n = 2,199)
<b>2 BAIs</b> (n = 3,348)	47.5% (n = 1,590)	18.0% (n = 604)	14.8% (n = 494)	19.7% (n = 660)
<b>3 BAIs</b> (n = 4,026)	41.1% (n = 1,651)	22.3% (n = 899)	5.6% (n = 227)	31.0% (n = 1,249)
<b>More than 3 BAIs</b> (n = 4,642)	70.5% (n = 3,271)	6.7% (n = 315)	5.3% (n = 244)	17.5% (n = 812)
<b>2017 Graduating Class</b>				
$(\chi^2(12, N = 23,294) = 3518.42, p < .001), V = .22$				
<b>0 BAIs</b> (n = 3,153)	15.7% (n = 496)	22.1% (n = 698)	17.9% (n = 563)	44.3% (n = 1,396)
<b>1 BAI</b> (n = 8,214)	31.9% (n = 2,617)	23.1% (n = 1,898)	10.7% (n = 877)	34.3% (n = 2,822)
<b>2 BAIs</b> (n = 2,621)	44.8% (n = 1,173)	14.4% (n = 379)	18.0% (n = 471)	22.8% (n = 598)
<b>3 BAIs</b> (n = 2,675)	31.7% (n = 851)	22.4% (n = 598)	7.6% (n = 202)	38.3% (n = 1,024)
<b>More than 3 BAIs</b> (n = 6,631)	67.6% (n = 4,481)	10.8% (n = 714)	4.8% (n = 319)	16.8% (n = 1,117)

# Study Limitations

The present study's methodology was limited in certain ways. First, students' home addresses were not available to the researchers to calculate travel distance to college. Although the researchers used the address of students' final high school as a proxy for their home address, the college travel calculations would have been more accurate if students' home addresses were available for use. Second, a variety of students had to be removed from all analyses related to travel status and distance because the researchers were unable to determine the location of their postsecondary destination. Specifically, students who enrolled at a PA community college or Penn State University (PSU) were omitted from these analyses because NSC Student Tracker data did not always specify which community college or PSU branch campus (or instructional site) a student attended, leading to an inability to determine how far the student traveled to pursue postsecondary education.

# Conclusions

The present study examined county-wide postsecondary access in Pennsylvania through the lens of several variables, including student group membership and college travel distance. Through use and analysis of the most recently available IPEDS data (school year 2019-2020), all degree-granting postsecondary institutions in Pennsylvania (excluding seminaries and other schools which prepare students for clergy life) were totaled and assigned to their hosting counties. Results showed that in terms of access to 2 and 4-year institutions, counties clustered around Philadelphia County (in the south-east region) and Allegheny County (in the south-west region) had higher amounts of postsecondary access than all other geographic regions in PA. Additionally, for 2 and 4-year postsecondary options, counties with no or minimal access were typically located in the northern regions of the Commonwealth. This finding supports the overall conclusion of Hillman (2016) who concluded that “many parts of northern Pennsylvania are already a higher education desert.” However, the current research found that in the years since Hillman (2016) reached this conclusion, the total number of counties with no access to a community college instructional site has reduced by approximately 46%, indicating meaningful progress towards a more equitable distribution of postsecondary access in Pennsylvania.

Results also showed significant associations between student group membership, travel status, and travel distance to 4-year institutions. For instance, a higher percentage of Black students were other-county attendees when enrolled at a PA state institution, but a higher percentage of White students were other-county attendees among students who enrolled at non-state universities. Concerning travel distance to 4-year degree-granting universities, it was found that 50% of 4-year degree seekers traveled 45 miles or less to their 4-year college campus. While EL, historically underperforming, and economically disadvantaged students traveled farther than their peers to state universities, they tended to stay closer to home when attending non-state universities. Black students traveled the farthest to state universities, while White students traveled farthest to non-state PA universities. Lastly, rural students and students

While EL, historically underperforming, and economically disadvantaged students traveled farther than their peers to state universities, they tended to stay closer to home when attending non-state universities.

from towns traveled farthest when attending non-state universities, but students from cities traveled farthest when attending state universities. These findings partially support the conclusions of various researchers (Henninger-Voss & Herzenberg, 2017; Hillman, 2019) who found that students who live in more rural areas often have less access to postsecondary options and must travel a considerable distance for postsecondary opportunities.

Results showed that student group membership was significantly associated with postsecondary access in all high school graduation classes. Regarding access to all 4-year universities, chi-square analyses showed that higher percentages of students who experienced economic disadvantage, students who were EL, special education, and historically underperforming had high levels of county-wide postsecondary access when compared to other students. Additionally, results showed that in all graduation classes and for enrollment at PA 4-year non-state institutions, students with low levels of county-wide access to 4-year institutions traveled significantly farther to college than students with medium and high levels of access. On the other hand, students with high county-wide access to 4-year institutions were more likely to travel 75 or more miles to state institutions when compared to their peers. This finding supports the overall conclusions of Price, Herzenberg, & Polson (2018) who reported that PA's state universities are an integral part of Pennsylvania's postsecondary ecosystem, providing affordable and accessible college access to PA's students.

Results from this study highlighted the geographical areas where Pennsylvania's postsecondary options were lacking, but also showed that PA's underserved students generally had high levels of county-wide access to 4-year college programs. Findings also revealed that many PA students chose to stay close to home while pursuing their 4-year degree, but students' travel behaviors were significantly associated with various student-level factors and chosen institution type. While access alone does not equate to college success, several researchers (Long, 2017; Page & Clayton, 2016) have discussed how increasing college access is of paramount importance. Indeed, as postsecondary access in PA continues to grow, more students, regardless of geographical place and circumstance, will have the opportunity to participate in postsecondary education and enjoy its many benefits.

Indeed, as postsecondary access in PA continues to grow, more students, regardless of geographical place and circumstance, will have the opportunity to participate in postsecondary education and enjoy its many benefits.



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