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RESEARCH BRIEF:

An Examination of Postsecondary Enrollment Trends of Pennsylvania High School Graduates During the COVID-19 Pandemic

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Abstract

During the COVID-19 pandemic enrollment in postsecondary institutions declined nationally (NSC, 2020). While early statistics suggested there was an overall postsecondary enrollment decline in Pennsylvania (2020), less is known about how the postsecondary enrollment of new high school graduates was affected. In an attempt to address questions from the Pennsylvania Department of Education's (PDE) [Research Agenda](#), this research examines how the COVID-19 pandemic impacted postsecondary enrollment for students who graduated in the Class of 2020. This research also explores enrollment differences in postsecondary institution type, sector and residential status among high school graduates who enrolled in postsecondary and whether or not there were differences by student characteristics. Descriptive statistics suggest the COVID-19 pandemic may have negatively impacted postsecondary enrollment such that a smaller proportion of students from the Class of 2020 enrolled in postsecondary compared to previous years. Differences in enrollment were also identified by student characteristics. Specifically, differences in post-pandemic enrollment were identified by racial/ethnic group, economic disadvantage, special education and EL status. Among students who enrolled in postsecondary, a higher percentage of students enrolled in 4-year institutions than other types of institutions post-pandemic. Differences in institution type were also identified by race/ethnicity, EL status and socioeconomic disadvantage. These findings demonstrate how the COVID-19 pandemic altered the educational trajectory of Pennsylvania high school graduates and that some student groups were more impacted than others. Additional findings are discussed.



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KEY FINDINGS:

Overall Postsecondary Enrollment Trends

- There was a decline in postsecondary enrollment among Pennsylvania high school graduates from the 2016/2017 school year to the 2019/2020 school year.
- The decline in postsecondary enrollment was steeper among the post-pandemic cohort compared to pre-pandemic cohorts. Enrollment ranged from 60.1% to 61.7% between the 2016/2017 through 2018/2019 school years and dropped to 55.1% in the 2019/2020 school year.

Pre- and Post-Pandemic Demographic Differences in Postsecondary Enrollment

- A larger proportion of both male and female students enrolled in postsecondary institutions pre-pandemic than post-pandemic.
- Although all racial/ethnic groups experienced a notable decrease in postsecondary enrollment pre- to post-pandemic, the decline in enrollment for Native Hawaiian/Pacific Islander students was greater than the decline for all other racial/ethnic groups. Among these students there was a noticeable yearly increase in enrollment for Cohort 1 (63.9%), Cohort 2 (67.5%) and Cohort 3 (72.4%). However, from Cohort 3 to Cohort 4 (post-pandemic) there was a marked decrease in enrollment (56.7%).
- Although smaller than Native Hawaiian/Pacific Islander students, post-pandemic declines in postsecondary enrollment were also identified

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for Multiracial (Pre-pandemic: 54.5% – 56.5%; Post-pandemic: 47.0%), Hispanic (Pre-pandemic: 45.2% – 46.7%; Post-pandemic: 37.9%), Black/African American (Pre-pandemic: 48.6% – 52.9%; Post-pandemic: 42.9%), White (Pre-pandemic: 63.3% – 64.3%; Post-pandemic: 58.9%) and American Indian/Alaskan Native (Pre-pandemic: 47.9% – 51.6%; Post-pandemic: 46.5%) students.

- There were substantial differences in postsecondary enrollment among pre-pandemic and post-pandemic cohorts regardless of economic disadvantage or special education status. Though enrollment declined for all groups, economically disadvantaged and special education students were already less likely to enroll in postsecondary prior to the pandemic.
- Results suggest the pandemic had an undue influence on the postsecondary enrollment of EL students (Pre-pandemic: 36.0% – 39.9%; Post-pandemic: 29.8%). While there was a post-pandemic decline in enrollment for non-EL students, there was a more conspicuous drop in enrollment among EL students.
- Post-pandemic enrollment declined slightly more for students who graduated from high schools in cities, compared to declines in enrollment for students from other types of communities (rural, towns, suburbs). Only 43.0% of students from cities in the post-pandemic cohort enrolled in postsecondary, compared to 49.3% to 52.9% of students from pre-pandemic cohorts.

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Pre- and Post-Pandemic Differences by Institution Type, Sector and Residence Status

- There were no large differences overall across cohorts in enrollment status, residential status, or institution type (public/private).
- Overall, enrollment in 4-year institutions was slightly higher for students in the post-pandemic cohort (78.4%) compared to students in pre-pandemic cohorts (76.4% – 76.8%).

Pre- and Post-Pandemic Demographic Differences by Institution Type (2-Year/4-Year) and Residence Status

- A slightly higher percentage of EL students, 65.1%, enrolled full-time in postsecondary from the post-pandemic cohort (Pre-pandemic: 56.0% – 61.8%). No pre- and post-pandemic differences in enrollment status were present for non-EL students.
- Pre-pandemic male students' enrollment in 2-year institutions ranged from 24.6% to 25.3%, but the proportion of post-pandemic male students to enroll in 2-year institutions was slightly lower at 22.3%. Conversely, pre- and post-pandemic female enrollment in 2-year institutions held steady around 21.0%. Enrollment in 4-year institutions

increased slightly among males and female post-pandemic. Pre-pandemic enrollment in 4-year institutions for male students spanned 74.5% to 75.3% but increased to 77.5% post-pandemic. Female enrollment in 4-year institutions rose to 79.1%, a very small increase compared to pre-pandemic enrollment (78.0% – 78.1%).

- Among American Indian/Alaskan Native students there was a notable pre- to post-pandemic increase in 4-year enrollment (Pre-pandemic: 58.8% to 68.7%; Post-pandemic: 79.1%). There was also an increase in enrollment in 4-year institutions among Hispanic and Asian students. The proportion of Hispanic students to enroll in postsecondary was much lower than the proportion of Asian students, but both groups enrolled in 4-year institutions at noticeably higher rates post-pandemic (Hispanic: 58.8%; Asian: 84.0%) than pre-pandemic (Hispanic: 53.1% – 53.9% ; Asian: 81.8% – 83.1%). Post-pandemic enrollment among Hispanic and Asian students decreased noticeably at 2-year institutions. Hispanic student enrollment at 2-year institutions ranged from 46.0% to 46.8% pre-pandemic, but dropped to 41.1% post-pandemic. Asian student's post-pandemic enrollment at 2-year institutions was 15.9% (Pre-pandemic: 16.8 % – 18.2%).
- Although both EL (Pre-pandemic: 28.8% – 32.1%; Post-pandemic: 38.4%) and non-EL (Pre-pandemic: 77.0% – 77.5%; Post-pandemic: 79.1%) students experienced an increase in the percentage of students who attended 4-year institutions pre- to post-pandemic, EL status students experienced a larger increase. There was also a notable decrease in 2-year enrollment among EL students. Pre-pandemic enrollment at 2-year institutions ranged from 67.9% – 71.2%

KEY FINDINGS:

but decreased to 61.5% post-pandemic. The decline in postsecondary enrollment for non-EL students was less drastic (Pre-pandemic: 22.3% – 22.8%; Post-pandemic: 20.7%).

- Enrollment in 4-year institutions ranged from 63.9% to 64.8% for economically disadvantaged students in pre-pandemic cohorts but rose slightly to 68.0% in the post-pandemic cohort. Conversely, post-pandemic enrollment in 2-year institutions decreased to 31.7% from 35.0% – 35.7% pre-pandemic. Pre-pandemic and post-pandemic cohort differences in institution type were not present among students who did not experience economic disadvantage.
- Enrollment in 4-year institutions increased post-pandemic for special education students and students who were not special education. Special education student's post-pandemic enrollment in 4-year institutions increased to 53.0%, from 45.6% – 47.6% pre-pandemic. The increase in 4-year enrollment was minimal for students who were not special education (Pre-pandemic: 78.7% – 79.1%; Post-pandemic: 80.3%). Among special education students there was a notable decline in enrollment in 2-year institutions. Pre-pandemic special education students enrolled in 2-year institutions at a rate of 51.9% - 53.8%. However, post-pandemic enrollment decreased to 46.4% for this group. There was a smaller decrease in enrollment at 2-year institutions among students who were not special education (Pre-pandemic: 20.8% – 21.5%; Post-pandemic: 19.5%).



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This research addresses questions from the Pennsylvania Department of Education’s (PDE) Research Agenda to better understand the ways in which COVID-19 has impacted postsecondary enrollment for Pennsylvania students.

Introduction

In recent years the COVID-19 pandemic has impacted the nation, as well as the Commonwealth of Pennsylvania, in ways that were previously inconceivable. While all facets of society have been impacted by the pandemic, education is arguably one of the most visibly affected. This research addresses questions from the Pennsylvania Department of Education’s (PDE) [Research Agenda](#) to better understand the ways in which COVID-19 has impacted postsecondary enrollment for Pennsylvania students. This research has the following objectives:

- **Investigate differences in postsecondary enrollment outcomes overall** and based on student demographic characteristics during the COVID-19 pandemic.
- **Compare postsecondary enrollment outcomes** between students pre- and post-COVID-19 pandemic.
- **Conduct research that helps guide policy decisions** geared towards improving postsecondary enrollment for Pennsylvania high school graduates.

Institution Type and Postsecondary Enrollment Trends During COVID-19

The COVID-19 pandemic altered the ways in which postsecondary institutions carried out their mission of educating students. Concerns regarding the health and safety of students facilitated the implementation of remote instruction at levels never seen before (U.S. Department of Education, 2021). While one can assume that concerns regarding remote instruction discouraged enrollment, particularly for high school seniors ready to move into postsecondary, it may not have been their primary concern. Among students still planning to enroll in a postsecondary institution in fall 2020, twenty-one percent of them indicated that they were changing their first-choice school, citing cost and location (Kim et al., 2020). These concerns were echoed by a nationally representative sample of parents of college-bound high school seniors (Brian Communications, 2020). Collectively, these studies suggest the COVID-19 pandemic impacted postsecondary enrollment in fall 2020. However, it would be simplistic to assume that the only impact of the pandemic would be declining enrollment, when this research suggests shifts in enrollment are just as likely.

Data from the National Student Clearinghouse, or NSC, suggests there was a decrease in undergraduate postsecondary enrollment for fall 2020 across the nation (NSC, 2020a). Undergraduate postsecondary enrollment declined by 3.6% in fall 2020, more than twice the decline reported in fall 2019. Moving past fall 2020, data suggests spring 2021 undergraduate enrollment declined at an even higher rate (4.9%) nationally compared to the same time last year (NSC, 2021). While national declines in postsecondary enrollment are notable, it is interesting that these declines were not felt equally across postsecondary institutions. Declines in postsecondary enrollment varied across public and private institutions, as well as 2-year and 4-year institutions. The most substantive postsecondary enrollment losses in fall 2020 were identified at public two-year institutions, where enrollment declined 10.1% nationally (NSC, 2020a). This trend continued into the spring of 2021, where a 9.5% decline was reported among public two-year institutions nationally (2021). Conversely, undergraduate enrollment at public 4-year institutions only decreased by 0.7% in fall 2020 compared to the previous year. Enrollment declines were also evident at 4-year private institutions in fall 2020 (1.4%) (NSC, 2020a) and spring 2021 (2.8%) (NSC, 2021). Overall, data from the NSC indicates undergraduate enrollment declined across all sectors of postsecondary education. However, the declines in enrollment were not evenly spread across institutions, as enrollment declines at 2-year institutions outpaced declines at other institutions.

Data from the NSC suggests enrollment declines were even more pronounced among student's entering postsecondary for the first time. Compared to fall 2019, freshmen student enrollment declined 13.1% in fall 2020 (NSC, 2020a). Similar to enrollment patterns identified for the larger population of postsecondary students, the steepest first-time student declines were found at public two-year institutions (22% decrease). Declines in enrollment were also identified at private four-year institutions (10.5%) and public four-year institutions (8.1%). It is worth noting that enrollment declines were noticeably larger among first-time students than the general student population across all institution types (2-year, 4-year, private and public institutions). Furthermore, compared to data trends from fall 2018 to fall 2019 (see NSC, 2020a), these data suggest the COVID-19 pandemic may have influenced the type of postsecondary institution students selected for fall 2020.

Demographic Trends in Postsecondary Enrollment

Postsecondary enrollment variations during the COVID-19 pandemic may not be limited to the types of institutions students enroll in, but also the types of students who enroll. Differences in fall 2020 postsecondary enrollment were evident for gender (NSC, 2020a). Across all institutions there was a 5.1% decline in enrollment for men from the previous year, but only a 0.7% decrease among women (2020a). Fall 2020 postsecondary enrollment declines for women were slightly higher than previous years, but enrollment declines among men doubled declines from fall 2019. There is also data to suggest postsecondary enrollment plans differ by race and ethnicity. Data from the NSC (2020b) suggests enrollment declines were largest for Native American (9.6%) and Black students (7.5%). There is also evidence to suggest that the economic impact of the pandemic disproportionately impacted students of color. Simpson

Data from the NSC suggests there was a decrease in undergraduate postsecondary enrollment for fall 2020 across the nation (NSC, 2020a).

Nationally, fall 2020 postsecondary enrollment declines for women were slightly higher than previous years, but enrollment declines among men doubled declines from fall 2019.

Scarborough (2020) found that close to one-quarter or more of returning Latino, Black and Asian students indicated that their parents had been laid off or furloughed due to the pandemic. Hence, the unequal economic impact of COVID-19 on students of color may exacerbate an existing postsecondary enrollment disparity that has persisted for decades (Baker et al., 2018).

Primary and Secondary Research Questions

The extent to which national data generalizes to Pennsylvania is unclear. While the NSC reports there was a 3.1% decrease in postsecondary enrollment in Pennsylvania between fall 2019 and fall 2020 (2020a), additional research is warranted to gain a more nuanced understanding of the extent to which COVID-19 altered the educational landscape for students across Pennsylvania. The current study will explore postsecondary enrollment trends in the Commonwealth during the COVID-19 pandemic and addresses the following research questions and sub-questions from the PDE Research Agenda (version from November 2020):

- **PK–20 Policy:** How did COVID-19 impact postsecondary outcomes (enrollment in postsecondary) for students who graduated in the class of 2020, by student’s home location/school, student demographics and postsecondary institution?
- **Access to Postsecondary Education:** How did postsecondary enrollment of PA high school graduates change pre- and post-COVID-19?
 - Are there differences based on institution type and sector (2 year/4 year, private/public), or attendance in-state versus out-of-state?
 - Are there differences in institution type and sector for student groups based on race, ethnicity, gender, socioeconomic status, geography?

Methodology

Procedures and Data File Preparation

Data from the National Student Clearinghouse (NSC) Student Tracker Services and Pennsylvania Information Management System (PIMS) were used to address the research questions. NSC data was used to examine student enrollment status and institution type. The PIMS Student data was used to acquire student demographic information for four cohorts of Pennsylvania high school graduates from school years 2016/2017 through 2019/2020. See Table 2.

TABLE 1. High School Graduation Cohorts by Postsecondary Enrollment Year

	Cohort	High School Graduation Year	Postsecondary Enrollment Year			
			2017/2018	2018/2019	2019/2020	2020/2021
Pre-Pandemic Cohorts	Cohort 1	2016/2017	X			
	Cohort 2	2017/2018		X		
	Cohort 3	2018/2019			X	
Post-Pandemic Cohort	Cohort 4	2019/2020				X

TABLE 2. Demographic Characteristics for Full Sample by Cohort

	Cohort 1 % (n)	Cohort 2 % (n)	Cohort 3 % (n)	Cohort 4 % (n)
Postsecondary Enrollment				
Enrolled	61.7 (77,808)	61.2 (77,371)	60.1 (75,958)	55.1 (69,088)
Not Enrolled	38.3 (48,311)	38.8 (49,072)	39.9 (50,340)	44.9 (56,276)
Gender				
Male	50.4 (63,588)	50.3 (63,567)	50.4 (63,675)	50.5 (63,297)
Female	49.6 (62,531)	49.7 (62,876)	49.6 (62,623)	49.5 (62,067)
Race				
Am. Indian/Alaskan Native	0.1 (167)	0.1 (162)	0.2 (190)	0.1 (185)
Black/African American	13.5 (17,061)	13.1 (16,608)	13.4 (16,864)	13.4 (16,849)
Hispanic	8.6 (10,906)	9.0 (11,437)	9.9 (12,506)	10.5 (13,179)
White/Caucasian	72.1 (90,921)	71.6 (90,476)	70.1 (88,574)	69.1 (86,667)
Multiracial	1.8 (2,327)	2.1 (2,660)	2.3 (2,881)	2.5 (3,141)
Asian	3.7 (4,629)	3.9 (4,983)	4.1 (5,178)	4.2 (5,239)
Native Hawaiian/Pac. Islander	0.1 (108)	0.1 (117)	0.1 (105)	0.1 (104)
Economic Disadvantage				
No	60.9 (76,762)	61.4 (77,668)	62.4 (78,769)	62.4 (78,179)
Yes	39.1 (49,357)	38.6 (48,775)	37.6 (47,529)	37.6 (47,185)
Special Education Status				
No	84.7 (106,804)	84.4 (106,728)	84.2 (106,340)	83.6 (104,787)
Yes	15.3 (19,315)	15.6 (19,715)	15.8 (19,958)	16.4 (20,577)
EL Status				
No	97.7 (123,266)	97.4 (123,158)	97.1 (122,584)	96.9 (121,527)
Yes	2.3 (2,853)	2.6 (3,285)	2.9 (3,714)	3.1 (3,837)
Urbanicity				
City	18.9 (23,881)	18.8 (23,666)	19.2 (24,271)	19.6 (24,522)
Suburb	54.4 (68,665)	54.5 (68,758)	54.7 (68,981)	54.7 (68,578)
Town	9.7 (12,227)	9.8 (12,410)	9.6 (12,069)	9.6 (11,989)
Rural	16.9 (21,335)	16.9 (21,352)	16.5 (20,771)	16.1 (20,209)
Region				
Central/North Central	5.7 (7,213)	5.8 (7,357)	5.8 (7,329)	5.8 (7,232)
Northeast	13.3 (16,728)	13.3 (16,828)	13.4 (16,909)	13.3 (16,659)
Northwest	7.4 (9,333)	7.4 (9,329)	7.1 (8,910)	6.9 (8,697)
South Central	20.5 (25,818)	20.8 (26,257)	20.8 (26,166)	21.0 (26,327)
Southeast	34.9 (44,032)	34.6 (43,673)	35.3 (44,570)	35.4 (44,384)
Southwest	18.2 (22,995)	18.0 (22,742)	17.6 (22,208)	17.6 (21,999)

Results

■ Research Question 1:

How did COVID-19 impact postsecondary outcomes (enrollment in postsecondary) for students who graduated in the class of 2020, by student's home location/school and student demographics?

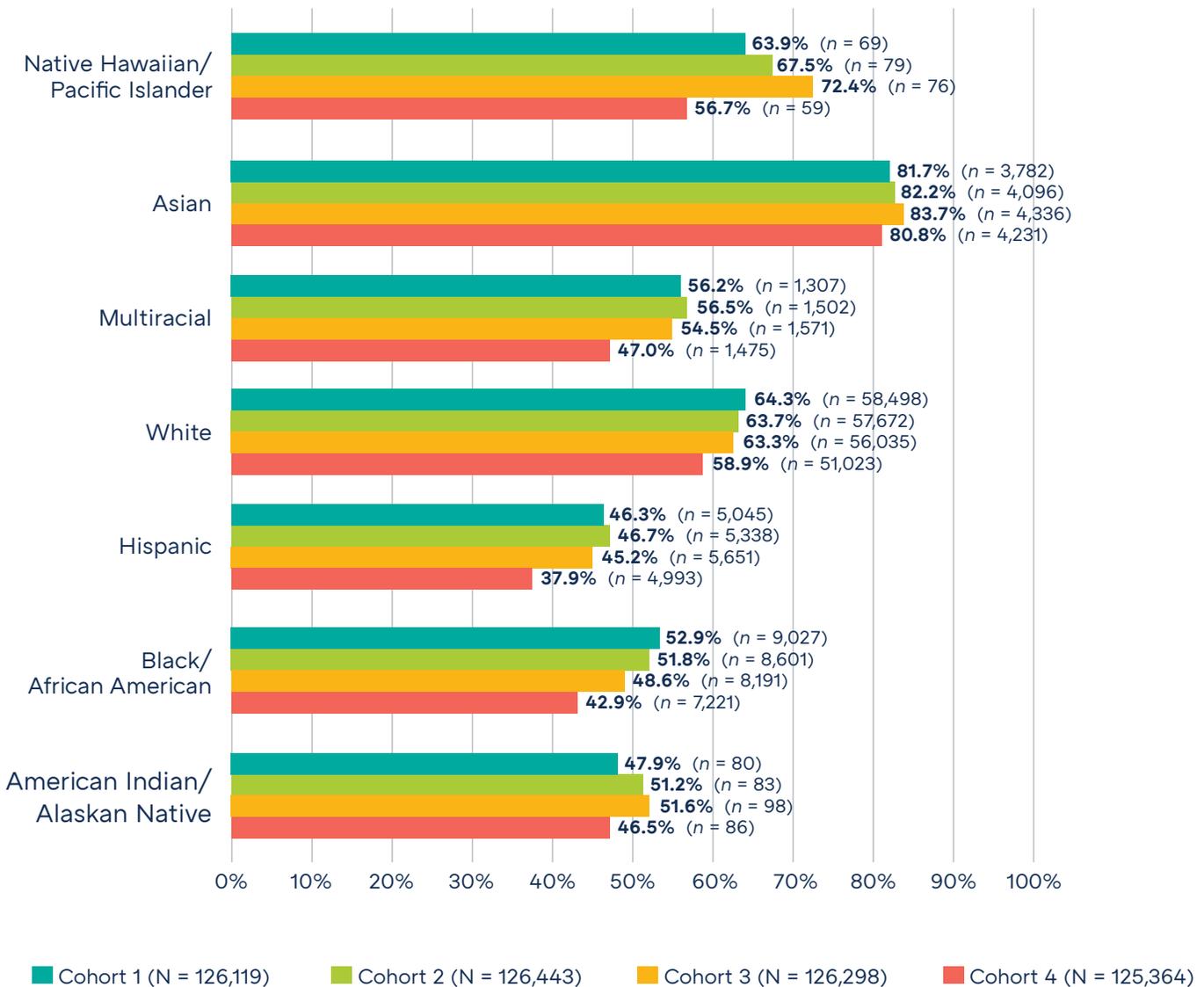
Between 2016/2017 to 2019/2020 there was a decline in postsecondary enrollment for Pennsylvania high school graduates. The decline in enrollment was steady across all years examined in this study. However, the enrollment decline was much steeper post-pandemic (55.1%) than pre-pandemic (60.1% – 61.7%). The robust decline in enrollment among the post-pandemic cohort could be interpreted as an indicator that fewer students choose to enroll in a postsecondary institution *because of the pandemic*. Despite not having empirical evidence to explain the decline in enrollment, the trend in the data across cohorts supports this theory. Specifically, the decrease in enrollment between 2018/2019 through 2019/2020, compared to the decline in enrollment from 2016/2017 to 2018/2019, was much larger. Also, previous empirical efforts (Brian Communications, 2020; Kim et al., 2020) suggest the pandemic, and factors related to the pandemic, were very influential in decisions to move forward, or not, with postsecondary enrollment in fall 2020. The decline in postsecondary enrollment for high school graduates in Pennsylvania is consistent with previous research suggesting students, particularly first-year postsecondary students, enrolled in postsecondary at lower rates due to the pandemic (Bulman & Fairlie, 2021).

Overall, results from this study also showed pre-to post-pandemic student group differences in postsecondary enrollment. Specifically, differences in enrollment were apparent based on race/ethnicity, special education status, EL status, locality type, and region. Regarding racial/ethnic group membership, large declines in post-pandemic enrollment were found for Native Hawaiian/Pacific Islander students (Pre-pandemic: 63.9% – 72.4%; Post-pandemic: 56.7%). Smaller post-pandemic declines were also identified among Multiracial (Pre-pandemic: 54.5% – 56.5%; Post-pandemic: 47.0%), Hispanic (Pre-pandemic: 45.2% – 46.7%; Post-pandemic: 37.9%) Black/African American (Pre-pandemic: 48.6% – 52.9%; Post-pandemic: 42.9%), White (Pre-pandemic: 63.3% – 64.3%; Post-pandemic: 58.9%) and American Indian/Alaskan Native (Pre-pandemic: 47.9% – 51.6%; Post-pandemic: 46.5%) students. Asian students were the only racial/ethnic group to experience relatively small declines in enrollment post-pandemic (Pre-pandemic: 81.7% – 83.7%, Post-pandemic: 80.8%). See Figure 1. The changes in enrollment among Hispanic and Black/African American students, as well as other students of color, are consistent with past research that has examined the relationship between racial/ethnic group membership and postsecondary enrollment during the COVID-19 pandemic (NSC, 2020b). The findings from this research are interesting in that every racial/ethnic group experienced some level of enrollment decline, no group escaped the consequences of the pandemic. However, the impact of the pandemic, including related financial and health challenges, may not have been experienced equally across all groups.

Interestingly, declines in post-pandemic enrollment were present regardless of economic disadvantage or special education status. With regards to students who experienced economic disadvantage, between 45.1% (Cohort 3) and 47.4% (Cohort 1) of students enrolled in postsecondary pre-pandemic, compared to 39.2% post-pandemic. Students who were not economically disadvantaged status also experienced a decrease pre- to post-pandemic of almost five percentage points, 64.7% post-pandemic compared to a range of 69.2% to 70.9 pre-pandemic. While the pandemic may have impacted the economically disadvantaged and those who were not similarly, it is important to note that economically disadvantaged students were already less likely to enroll in postsecondary than their counterparts with more economic resources. Hence, the pandemic depressed enrollment among a group that already had lower rates of entry into postsecondary. Similar to economic disadvantage status, declines in

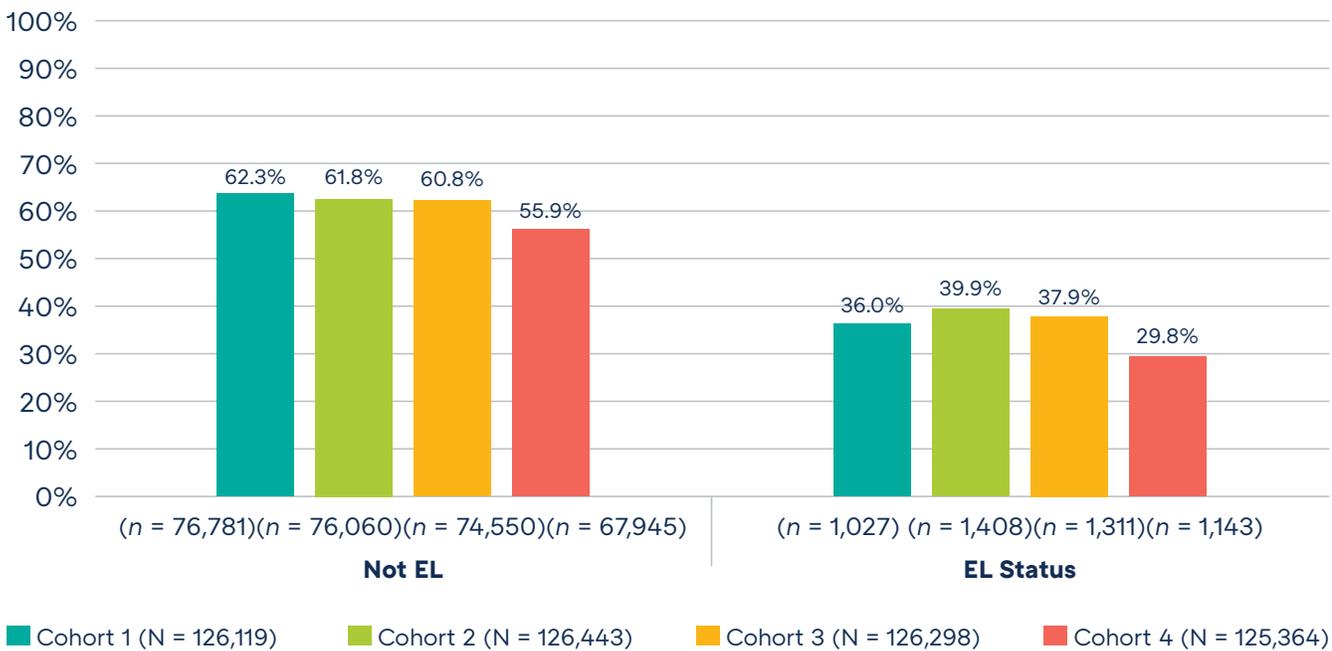
postsecondary enrollment occurred regardless of special education status. Enrollment in postsecondary decreased whether a student was identified as special education or not. On the surface this suggests the impact of the pandemic effected both student groups equally. However, similar to economic disadvantage, rates of postsecondary enrollment were already much lower for special education students, making any decrease in enrollment consequential for the overall special education population. Enrollment for Cohorts 1, 2 and 3 (pre-pandemic) hovered close to 29% for special education status students and dropped to 23.9% in Cohort 4 (post-pandemic). Taken together, postsecondary enrollment declines for economically disadvantaged and special education students serve as a reminder that similar rates of enrollment decline among dissimilar student groups (e.g., economically disadvantaged vs. not economically disadvantaged) may have very different implications. Economically disadvantaged and special education students are already underrepresented in Pennsylvania colleges and universities. When enrollment decreases for these groups it makes for a less diverse student postsecondary population in the Commonwealth, altering the college experience for students from all backgrounds.

FIGURE 1. Percentage of Students Enrolled in Postsecondary by Race/Ethnicity for Cohort 1 through Cohort 4



Results suggest the pandemic had an undue influence on the postsecondary enrollment of EL students. While there was a post-pandemic decline in enrollment for non-EL students, there was a more conspicuous drop in enrollment among EL students. Postsecondary enrollment for EL students sat at 36.0% to 39.9% for pre-pandemic cohorts and fell to 29.8% for the post-pandemic cohort. It is possible that the students and their families were disproportionately impacted by the pandemic in ways that their native English-speaking counterparts were not. See Figure 2.

FIGURE 2. Percentage of Students Enrolled in Postsecondary by EL Status for Cohort 1 through Cohort 4



Interestingly, pre-pandemic and post-pandemic enrollment differences were also evident by geographic type and location. With regards to locality type, post-pandemic enrollment declined slightly more for students who graduated from high schools in cities, despite declines in enrollment for students from other types of communities including rural communities, towns and suburbs. Among students who graduated from high schools in the city, only 43.0% of students in the post-pandemic cohort enrolled in postsecondary, compared to 49.3% to 52.9% from pre-pandemic cohorts. Enrollment patterns also played out similarly with regards to region. Specifically, rates of post-pandemic postsecondary enrollment declined among students from all regions of the Commonwealth, but slightly more for students from the Northeast. Considering the economic and topographical diversity that exists within the Commonwealth, the fact that postsecondary enrollment declines were felt for students from all regions demonstrates the vast impact the COVID-19 pandemic had across the state.

Post-pandemic enrollment declined slightly more for students who graduated from high schools in cities.

■ Research Question 2:

How did postsecondary enrollment of PA high school graduates change pre- and post-COVID-19?

- Are there differences based on institution type and sector (2 year/4 year, private/public), or attendance in-state versus out-of-state?
- Are there differences in institution type and sector for student groups based on race, ethnicity, gender, socioeconomic status, geography?

Among enrolled students overall, there were few pre- to post-pandemic differences in enrollment by institution type (private/public) and state residency. Across cohorts a similar proportion of students enrolled in postsecondary institutions at full-time and part-time enrollment statuses. Enrollment in public and private institutions were similar across cohorts as well. This is in contrast with national data on first-time freshman enrollment (NSC, 2021) where noticeable decreases in postsecondary enrollment were identified pre- and post-pandemic. Furthermore, where marginal differences were present for residential status, the differences were essentially negligible. Generally, these results suggest post-pandemic enrollment patterns were consistent with pre-pandemic enrollment patterns for institution type (private/public) and residential status.

TABLE 3. Postsecondary Enrollment Characteristics by Cohort

	Cohort 1 % (n)	Cohort 2 % (n)	Cohort 3 % (n)	Cohort 4 % (n)
Postsecondary Enrollment Status				
Full-Time	89.4 (65,468)	89.3(65,050)	89.0 (63,549)	89.4 (58,021)
Part-Time	10.6 (7,770)	10.7 (7,810)	11.0 (7,825)	10.6 (6,871)
Residential Status				
In-state	81.6 (63,462)	81.2 (62,814)	80.6 (61,236)	80.2 (55,417)
Out-of-State	18.4 (14,344)	18.8 (14,539)	19.4 (14,722)	19.8 (13,670)
2-Year vs. 4-Year				
Less Than 2-Years	0.2 (147)	0.2 (127)	0.2 (161)	0.2 (120)
2-Year	23.4 (18,212)	23.1 (17,843)	23.1 (17,576)	21.4 (14,801)
4-Year	76.4 (59,447)	76.8 (59,383)	76.6 (58,221)	78.4 (54,166)
Public vs. Private				
Public	69.4 (54,001)	68.8 (53,212)	69.1 (52,511)	69.5 (47,993)
Private	30.6 (23,805)	31.2 (24,141)	30.9 (23,447)	30.5 (21,094)

Given the lack of cohort differences overall, one might assume that demographic differences in enrollment trends would also be absent. Results revealed this was not the case and that marginal demographic differences in enrollment trends were present in this study. Despite lower levels of overall postsecondary enrollment among EL students post-pandemic, data from this study suggests that of those EL students that did enroll, a greater proportion of them enrolled full-time (Pre-pandemic: 56.0% – 61.8%; Post-pandemic: 65.1%). Conversely, rates of part-time enrollment were higher for pre-pandemic cohorts (38.2% – 44.0%) compared to the post-pandemic cohort (34.9%). Interestingly, changes in enrollment status were not observed between non-EL pre-pandemic and post-pandemic cohorts.

Post-pandemic differences in institution type (2-year/4-year) were identified in this study overall, such that a larger proportion of students enrolled in 4-year institutions than other types of institutions. The increase in enrollment in 4-year institutions among post-pandemic male (Pre-pandemic: 74.5% – 75.3%; Post-pandemic: 77.5%) and female (Pre-pandemic: 78.0% – 78.1%; Post-pandemic: 79.1%) students was marginal at best, but there was a robust increase in enrollment in 4-year institutions for Hispanic and Asian students. It is notable that enrollment in 4-year institutions increased among racial/ethnic groups with low and high levels of enrollment. Specifically, the proportion of Hispanic students to enroll in postsecondary was much lower than the proportion of Asian students, but both groups enrolled in 4-year institutions at noticeably higher rates post-pandemic than pre-pandemic. See Table 4. Again, this suggests there was something about the post-pandemic experience that encouraged enrollment in 4-year institutions among a diverse group of students.

Similar to increases in full-time enrollment, the proportion of EL students to enroll in 4-year institutions increased significantly. Again, despite the overall decrease in enrollment for this subgroup of students, a greater proportion of those to enroll selected 4-year institutions (Pre-pandemic: 28.8% – 32.1%; Post-pandemic: 38.4%). A similar increase in enrollment in 4-year institutions was also evident for special education (Pre-pandemic: 45.6% – 47.6%; Post-pandemic: 53.0%) and economically disadvantaged (Pre-pandemic: 63.9% – 64.8%; Post-pandemic: 68.0%) status students. Interestingly, there was not an increase in 4-year institution enrollment for students who did *not* experience economic disadvantage. EL, special education and economically disadvantaged students may have also taken advantage of test-optional admissions to enroll in 4-year institutions. Test-optional policies, which did not require standardized test scores for admission, were largely introduced because of and during the COVID-19 pandemic. Scholars and practitioners believe these policies may have promoted a more inclusive applicant pool and student body (Camara & Mattern, 2022), which is particularly beneficial for EL, special education and economically disadvantaged students who are generally underrepresented in postsecondary institutions (see Babineau, 2018; Newman et al., 2010; Nunez et al., 2016).

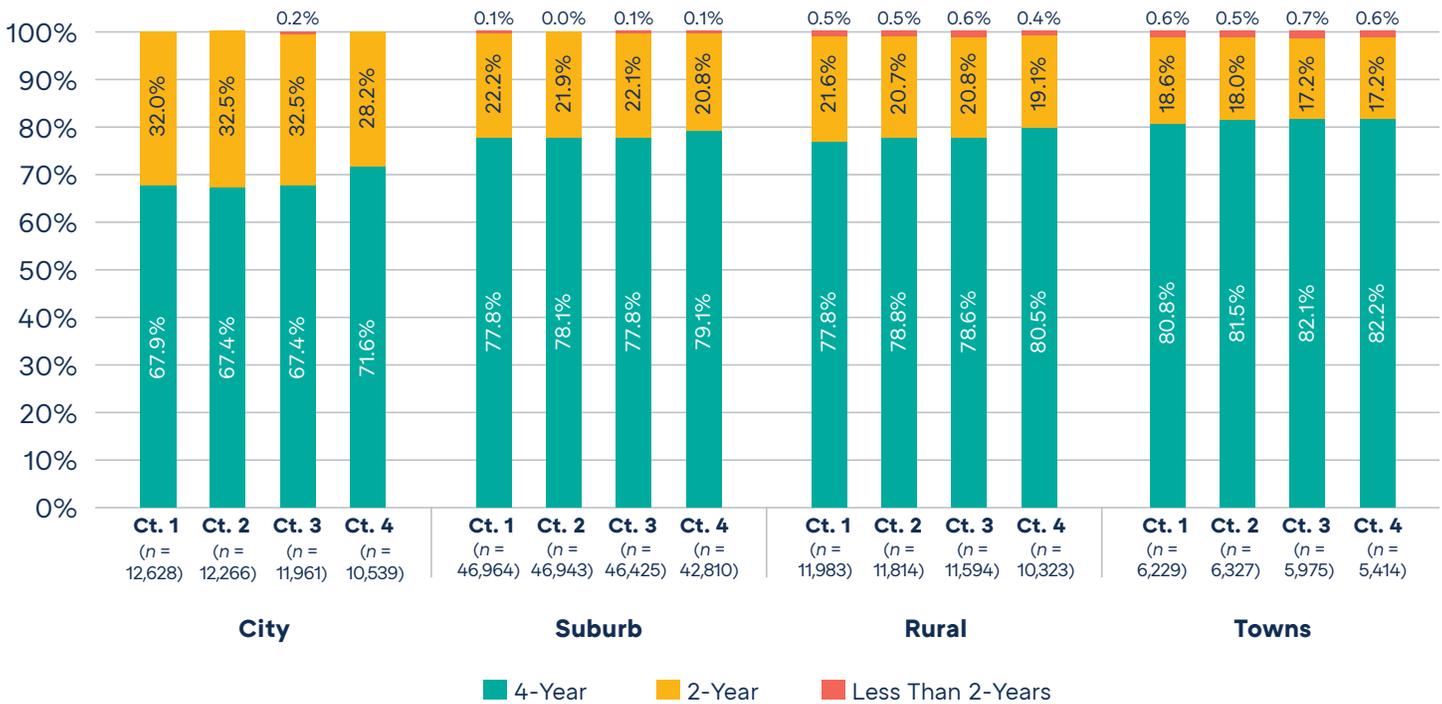
Across all regions and locality types within the Commonwealth, enrollment in 4-year institutions increased marginally post-pandemic. Compared to pre-pandemic cohorts, the proportion of students from the Northwest, South Central, Southeast and Southwest regions to enroll in 2-year institutions decreased slightly and the proportion to enroll in 4-year institutions increased slightly in the post-pandemic cohort. Regarding locality type, there was a slight increase in the proportion of rural, suburban and city students to enroll in 4-year institutions in the post-pandemic cohort. The largest increase in 4-year institution enrollment was seen among students who lived in cities, hovering around 67.0% pre-pandemic and increasing to 71.6% post-pandemic. Although similar trends were identified for suburban and rural students, the increase was less than 2%. See Figure 3. Regardless of location and community type a higher proportion of students enrolled in 4-year institutions than other types of institutions post-pandemic. In other words, after the onset of the COVID-19 pandemic students enrollment patterns changed, regardless of where they lived in the Commonwealth. Although students often attend two-year institutions as a cost-saving measure before moving on to 4-year institutions to complete their degree (Tibbetts et al., 2018), the proportion of students to enroll in 4-year institutions increased slightly post-pandemic. Additional research is needed to determine what processes shaped the increase in enrollment at 4-year institutions.

TABLE 4. Postsecondary Enrollment Across Cohorts by Institution Type (2-Year/4-Year) Based on Race/Ethnicity

	2-YEAR				4-YEAR			
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 1	Cohort 2	Cohort 3	Cohort 4
American Indian / Alaskan Native	40.0 (32)	31.3 (26)	32.7 (32)	*	58.8 (47)	68.7 (57)	67.3 (66)	79.1 (68)
Black / African American	34.2 (3,091)	35.4 (3,045)	34.6 (2,834)	31.3 (2,261)	65.7 (5,928)	64.5 (5,547)	65.3 (5,346)	68.6 (4,952)
Hispanic	46.8 (2,361)	46.4 (2,477)	46.0 (2,597)	41.1 (2,054)	53.1 (2,678)	53.5 (2,852)	53.9 (3,048)	58.8 (2,936)
White / Caucasian	20.0 (11,700)	19.3 (11,122)	19.4 (10,892)	18.4 (9,401)	79.8 (46,667)	80.5 (46,426)	80.3 (45,001)	81.4 (41,516)
Multiracial	28.8 (376)	27.1 (407)	26.7 (419)	25.9 (382)	71.2 (930)	72.7 (1,092)	73.3 (1,151)	74.0 (1,091)
Asian	16.8 (637)	18.2 (744)	18.2 (787)	15.9 (673)	83.1 (3,144)	81.8 (3,352)	81.8 (3,548)	84.0 (3,556)
Native Hawaiian / Pacific Islander	*	27.8 (22)	*	*	76.8 (53)	72.2 (57)	80.3 (61)	79.7 (47)

*NOTE: Students who were enrolled for Less Than Two Years are not shown, as the counts were too low to report.

FIGURE 3. Postsecondary Enrollment Across Cohorts by Institution Type (2-Year/4-Year) Based on Urbanicity



NOTE: Data for Less Than Two Years was not presented for City Cohort 1, Cohort 2 and Cohort 4 due to the counts being too low to report. Ct. = Cohort

Interestingly, pre-pandemic and post-pandemic demographic differences in public/private enrollment were rare in this study. While the proportion of Hispanic students to attend private institutions increased slightly (Pre-pandemic: 25.1% – 27.0%; Post-pandemic: 29.5%) the proportion of Asian students to attend private institutions decreased marginally (Pre-pandemic: 34.9% – 35.6%, Post-pandemic: 33.9%). Compared to pre-pandemic cohorts, enrollment in public institutions decreased slightly for EL students from 81.0 to 83.9% pre-pandemic to 79.0% post-pandemic. Conversely, EL student enrollment in private institutions increased slightly for the post-pandemic cohort to 21.0% from the 16.1% – 19.0% pre-pandemic enrollment rates. The relative absence of demographic differences in public/private enrollment could be reflective of the stability in public/private enrollment rates before and after the pandemic (see NSC, 2021).

Limitations and Suggestions for Future Research

This research adds to our understanding of the ways in which Pennsylvania high school graduate’s postsecondary enrollment decisions may have been altered by the COVID-19 pandemic in fall 2020. While this research is necessary and informative, there are methodological limitations that should be considered. First, for many students there were multiple entries for postsecondary enrollment in fall 2020. A sizeable number of students were enrolled in multiple postsecondary institutions simultaneously or were enrolled in two institutions at different times, but only days apart. To identify the most relevant postsecondary institution for each student, the date, length of enrollment and type of institution attended were analyzed manually for each student. Using that information, a single postsecondary institution was selected for each student where appropriate. While standards were developed to assure reliability during this process, given the volume of data, it is possible that some institutions were identified as the primary enrollment institution when they were not.

The findings from this study suggests changes in postsecondary enrollment, enrollment status and enrollment type occurred pre-pandemic and post-pandemic across various racial/ethnic and economic backgrounds. Despite these changes, it is unclear whether or not the pandemic caused the fluctuations in enrollment and enrollment type. As an example, noticeable post-pandemic enrollment declines were noted for all racial/ethnic groups, but it is possible that the most robust declines were experienced among racial/ethnic groups where students disproportionately experienced economic disadvantage. There is a substantial body of supporting literature that suggests race/ethnicity and economic status intersect to impact multiple postsecondary outcomes (Lundy-Wagner, 2012; Nunez, 2014). In other words, being a member of particular racial/ethnic groups may magnify economic disadvantage, and vice versa. Interestingly, rates of economic disadvantage were much higher among student populations of color (American Indian/Alaskan Native, Black, Hispanic, Multiracial, Asian and Native Hawaiian/Pacific Islander) than White student populations in this study. Specifically, the proportion of students to experience economic disadvantage was 37.8% or higher for populations of color, but only 19.2% for White students. Additional analyses revealed that among Black and Hispanic students only the proportion of socioeconomically disadvantaged students to enroll in postsecondary was higher than the proportion of students who did not experience socioeconomic disadvantage. This is interesting, as rates of socioeconomic disadvantage were higher among Black and Hispanic students than students from other racial/ethnic groups. This trend existed pre- and post-pandemic, suggesting it cannot be attributed to the COVID-19

Changes in postsecondary enrollment, enrollment status, and enrollment type occurred pre- and post-pandemic across various racial/ethnic and economic backgrounds.

pandemic. Regarding other study findings where there were differences between the pre-pandemic and post-pandemic cohorts, we cannot conclude that the onset of the pandemic *caused* the differences between the cohorts. Future work should explore causation further.

Finally, the current study captures postsecondary enrollment at a particular moment and time when the COVID-19 pandemic was in its earliest phase. At that time much was unknown about the virus, but also about the ways in which it would continue to impact people's health, economic opportunities, and education. Now that the pandemic is nearing endemic levels, it is worth conducting additional research to assess the extent to which COVID-19 may, or may not, influence postsecondary education enrollment plans and trajectories.

Conclusion

There is little doubt that the COVID-19 pandemic upended the educational plans and experiences of many students across the country. Findings from this study underscore the ways in which student's postsecondary engagement, in the aggregate, changed after the pandemic began and demonstrated that the effects of the pandemic were not felt evenly, as changes in enrollment and enrollment type were more evident for some groups (students of color, economically disadvantaged, EL students, etc.) than others. In addition to identifying pre- and post-pandemic changes in postsecondary enrollment, this research highlights the need for more empirical research that investigates how students in Pennsylvania have navigated their educational experiences in the years since 2020. These efforts would inform how the Commonwealth can move forward to support students who were unduly affected by the COVID-19 pandemic.

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