



# **Turning Intention into Action**

**Exploring Student Attributes that Predict Enrollment  
and Retention at Central Washington University**

**Isaac Kwakye**

**Daniel M. Oliver**

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## **Foreword**

This report provides insights for Central Washington University to better understand patterns of enrollment and first-year retention. The comprehensive dataset provided by Central Washington University allowed for detailed analysis of emerging key findings that can be used to shape policy development and implement initiatives to support the institution's goals.

## **Acknowledgements**

This report was a joint effort between the Washington Student Achievement Council (WSAC), Central Washington University, and MDRC. We appreciate the collaboration between the organizations to execute this important project. We want to offer our deep gratitude to Adrian Naranjo (Business Intelligence Analyst) for his support and expertise around the data. Finally, we are grateful to Mark Lundgren (Washington Student Achievement Council), Emma Lacalli (Washington Student Achievement Council), and Dani Fumia (Washington Education Research and Data Center) for their thoughtful and thorough reviews of this research report. We hope insights from this project will provide opportunities for Central Washington University to shape the future of education in the state with decisive and inclusive action.

## Executive Summary

Although Washington State's postsecondary credential attainment rate for adults from ages 25 to 45 has grown by nearly 5 percentage points over the last decade, the state has yet to achieve the goal of 70 percent. To boost the overall attainment rate, identifying effective solutions for rapidly growing segments of the population is crucial. As an emerging Hispanic Serving Institution (HSI) and a postsecondary institution that enrolls a significant number of first-generation (first-gen) college-going students, Central Washington University (Central) stands as an essential site for research.

This study leverages detailed student-level administrative data to better understand student attributes that predict enrollment and retention at Central for students who were offered admission. By reporting on the relationship between key milestones and student attributes such as demographics, academic measures, and the timing of FAFSA submissions, the study helps identify students facing barriers to postsecondary success.

Our key findings include:

- Students with home addresses within commuting distance to Central (50 miles) are substantially more likely to enroll and be retained.
- Hispanic students are less likely to enroll at Central, but once enrolled, they have the highest retention rates among the racial groups analyzed.
- Male students of color are less likely to be retained compared to White male peers and female peers of the same race.
- In recent years, a disparity in retention rates between first-gen and non-first-gen has emerged.

The findings from our study highlight three key areas for Central's consideration:

- Develop tailored recruitment strategies to enhance the enrollment of students from local high schools.
- Leverage Central's HSI status to foster recruitments and a culture of success.
- Initiate pilot strategies to discern the most effective policies and programs that support first-gen students and men of color.

By utilizing insights from this analysis, Central can work towards improving the outcomes of future cohorts graduating from Washington high schools. This study provides valuable insights for stakeholders serving similar populations across the state of Washington.

# 1. Introduction

Higher education confers many benefits essential to the prosperity of individuals and the society. To ensure that prosperity is shared, Washington has set an educational attainment goal that 70 percent of adults ages of 25 to 44 will have a postsecondary credential. Furthermore, educational attainment will be equitable across racial groups and regions of the state. To achieve this objective, the Washington Student Achievement Council (WSAC) studies patterns of educational attainment across the state and advocates for strategies that strengthen student success.

Recently, college enrollment rates have declined nationwide, including at public four-year institutions. These declines can be attributed to various causes, including the Covid-19 pandemic, a rise in relative wage for young workers without degrees<sup>1</sup>, increases in actual and/or perceived costs to attend college<sup>2</sup>, and other factors. Central Washington University (Central) is no exception. In fact, enrollment decline is especially acute for Central because their enrollments are likely to be affected by an expanding state flagship institution that is approximately 100 miles away.<sup>3</sup> While fall freshman enrollment at public four-year institutions across the United States has fallen by approximately 3 percent between Fall 2017 and Fall 2022, Central witnessed a 25 percent decline over the same timeframe (Figure 1).<sup>4</sup>

## About the Turning Intention into Action Project

Central Washington University (Central) has partnered with the Washington Student Achievement Council (WSAC) and MDRC's Center of Applied Behavioral Science (CABS) to improve enrollment. The partnership involves two phases: a data exploration (Phase 1) and the designing of a student-centered intervention (Phase 2).

This paper presents findings from the first phase. The objective of this phase is to leverage a rich set of administrative data collected by Central to document and predict patterns of enrollment and retention among recent high school graduates who are offered a seat to attend the university.

Shedding light on student attributes that predict (or don't predict) enrollment and retention will help Central, CABS, and the state of Washington refine practices that improve student recruitments, transitions, and successes.

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<sup>1</sup> Autor et al. (2023) document an increase in wages for young non-college workers since the onset of the Covid-19 pandemic. Numerous publications such as Holzer (2022), have also documented that the wage growth has been much higher in the lowest-wage sectors of the economy. These sectors include retail and leisure/hospitality.

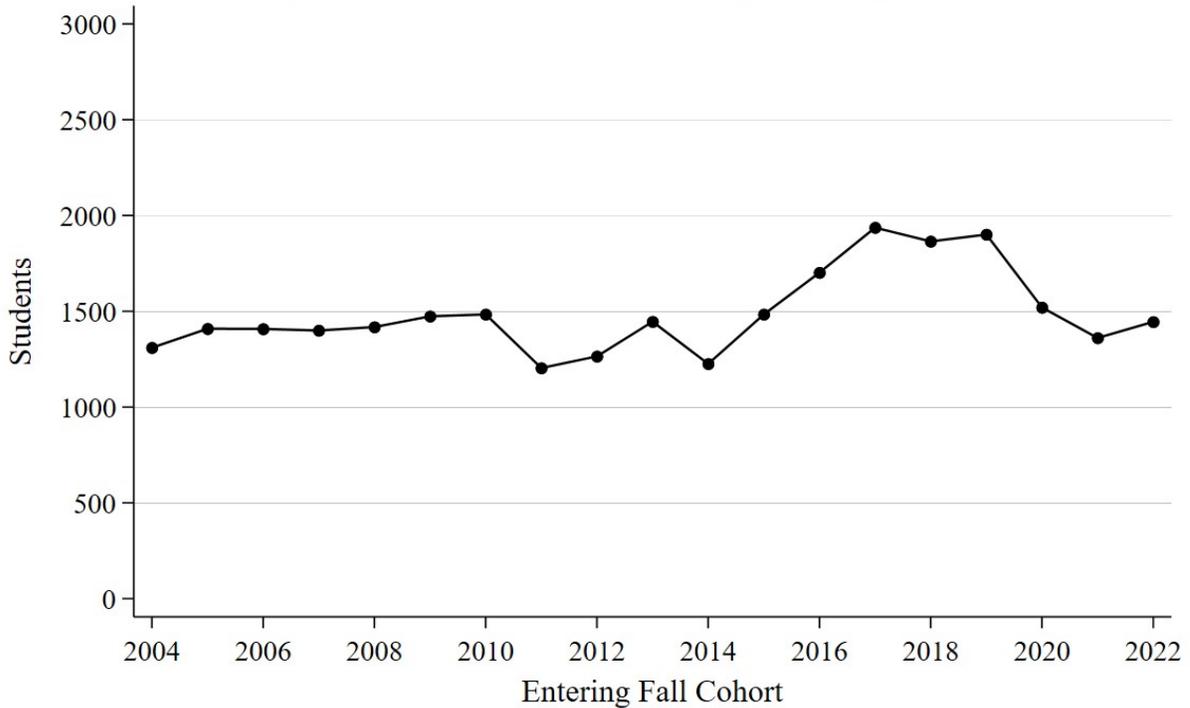
<sup>2</sup> Mitchell et al. (2019) document that adjusted for inflation, states spend \$1,220, or 13 percent, less per student between 2008 and 2018. Many college age people might not realize that the college wage premium increases from 20% to 60% between the ages of 25 and 55 (Demming, 2023). If so, this makes it difficult for students to understand the opportunity cost of not attending college.

<sup>3</sup> University of Washington enrollment has increased by over 30% from 2007 through 2021.

<https://erdc.wa.gov/data-dashboards/public-four-year-dashboard#annual-enrollment>

<sup>4</sup> National enrollment trends come from the National Student Clearinghouse (2022).

Figure 1: Number of Students Directly Enrolling into Central



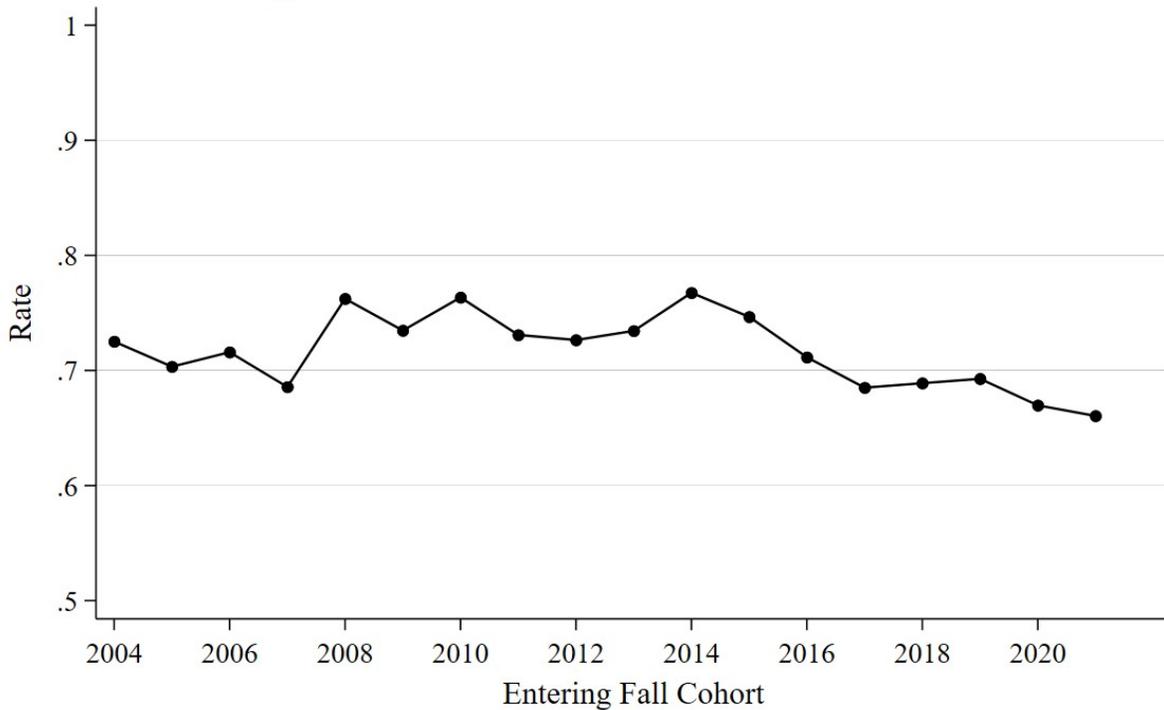
Note: The figure presents direct enrollments from WA high schools. These are students who enroll within one year of high school graduation.

Beyond enrollment, it is imperative to study patterns of retention to understand student success. Actions that improve both postsecondary enrollment and retention are vital for the students and the state. Combined, they provide a necessary steppingstone towards increasing the overall educational attainment rate in Washington. Solely increasing initial enrollment is insufficient. Instead, efforts made towards increasing initial enrollment should be implemented in an effective manner that promotes student success. Research on estimated returns from college education highlight this importance. Estimated returns from college completion are substantially higher than just college enrollment, especially for students from disadvantaged backgrounds (Oreopoulos, 2021; Zimmerman, 2014; Backes et al., 2015).

In addition to the sharp decline in initial enrollment, the fall-to-fall retention rate for first-time freshmen at Central has also trended downward from approximately 77 percent to 66 percent between 2014 and 2021 (Figure 2). In comparison, the National Student Clearinghouse (NSC) report that during the same period, the retention rate for public four-year institutions across the United States have remained relatively stable, hovering between 74 percent and 76 percent (Gardner, 2022). The large decrease in Central's retention rate may have serious long-term economic consequences for many students. A 10 percentage point drop in retention would directly affect the lives of approximately 150 to 200 students each year. A high turn-over rate also adds substantial costs to Central that are diverted away from resources that help students who remain. With a high turn-over rate, more campus resources must go towards addressing

unavoidable disruptions associated with the intake of new students each year. Alternatively, an improvement in retention would free up resources that can be used to improve student educational outcomes.

Figure 2: Fall-to-Fall Retention Rates for First-Year Students



The focus of this report is to identify patterns of enrollment and retention, both overall and for specific student groups at Central. To pinpoint factors that predict enrollment and retention at Central, we use student-level administrative data linked to high school and neighborhood characteristics. By examining and accounting for a comprehensive set of predictive factors—including demographics, academic ability, characteristics of the attended high school, and educational levels of a student's community—we aim to identify factors that might otherwise remain obscured.

While the main results from our study echo general findings that family income, parental education, and prior student performance measures are positively associated with measures of academic success, we uncover three high level findings that may be unique to Central (e.g., DeNicco et al., 2015, Flores & Park, 2013; London, 1989). First, we find that student proximity to the campus is highly predictive of enrollment and student success. No matter how we aggregate or sub-divide our analytic sample (e.g., by cohort, wealth, race, etc.),

### First-Gen Students

First-generation college students, or first-gen students, are defined as students whose parents do not have a bachelor's degree or higher. This data is drawn from students' application materials. First-gen students are faced with distinct challenges, such as navigating the administrative, academic, and social expectations of college without firsthand parental experience.

applicants who live within commuting distance of Central (50 miles or less) are approximately 11 percentage points more likely to enroll at Central than their peers who live farther away who also accept a seat. Once they enroll, they are also 9 percentage points more likely to return to Central for their sophomore year than their peers. Second, we uncover that male students of color are less likely to be retained compared to White males and female peers of the same race. Lastly, we find an important paradox in enrollment and retention for Hispanic students. Although Hispanic students are less likely than their peers to enroll at Central, they are most likely to persist into the second academic year out of all the racial and ethnic groups that are identified for our study.

The findings presented in this paper underscore opportunities for Central to serve a greater number of students successfully. This combined analysis of enrollment and retention offers Central insights into the types of students who exhibit higher success rates but might be under-recruited. Our separate analysis focusing solely on retention also pinpoints the types of students who are either succeeding or facing challenges during their transition into Central. Such student profiles hold significant potential as case study subjects for future research.

The remainder of this paper provides detailed findings from our analysis. Section 2 introduces the data and describes trends over time in enrollment and retention, overall and for key groups of students at Central. Section 3 presents the prediction model along with findings from the model. Section 4 connects key findings and Section 5 concludes.

## 2. Data and trends

### Key Findings

- The students applying to Central have similar SAT scores (a median of 1020) as the national average and come from neighborhoods with median household income (\$83 thousand) that match the overall median for Washington state.
- Enrollment rates for students admitted to Central have started to rebound after a consistent decline that began in 2014.
- The retention rate for first-year students, from fall to fall, has yet to recover following its decline that began in 2014.

### 2.1 Description of Data

The analysis is based on de-identified student records from Central. This includes data from over 100,000 potential direct enrollment students who applied for admissions into Central between 2004 and 2022. All in-state students who were offered a seat are included in this sample.<sup>5</sup> The data include elements from college applications, FAFSA records, high school transcripts, on campus housing applications, Central's enrollment system, and NSC college enrollment records. For those without SAT scores, their ACT scores are converted to the equivalent SAT score. With

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<sup>5</sup> In total, out-of-state students account for 11 percent of the sample. We exclude out-of-state students because the data does not allow us to reliably identify measures from their high school.

high school identifiers, students are linked to publicly available high school graduation rate and Advanced Placement pass rate measures from a dashboard maintained by the Washington Office of Superintendent of Public Instruction (OSPI). Using student zip codes, neighborhood data were gathered from the American Community Survey. This provides key information about the educational attainment levels, income levels, and population density of student neighborhoods. Zip codes were also used to approximate the distance from the student's home to Central.

The data indicate five main outcomes. They are based on the student experience flow displayed on Figure 3. For initial enrollment, students are indicated on whether they enroll at any postsecondary institution and whether they enroll at Central during the initial fall. This is determined by reconciling enrollment records from the NSC and Central. For retention, students that enroll at Central in the initial fall are indicated on whether they are retained until the winter, spring, and subsequent fall term.

Figure 3: High-Level Scope of Student Experiences Captured in the Data

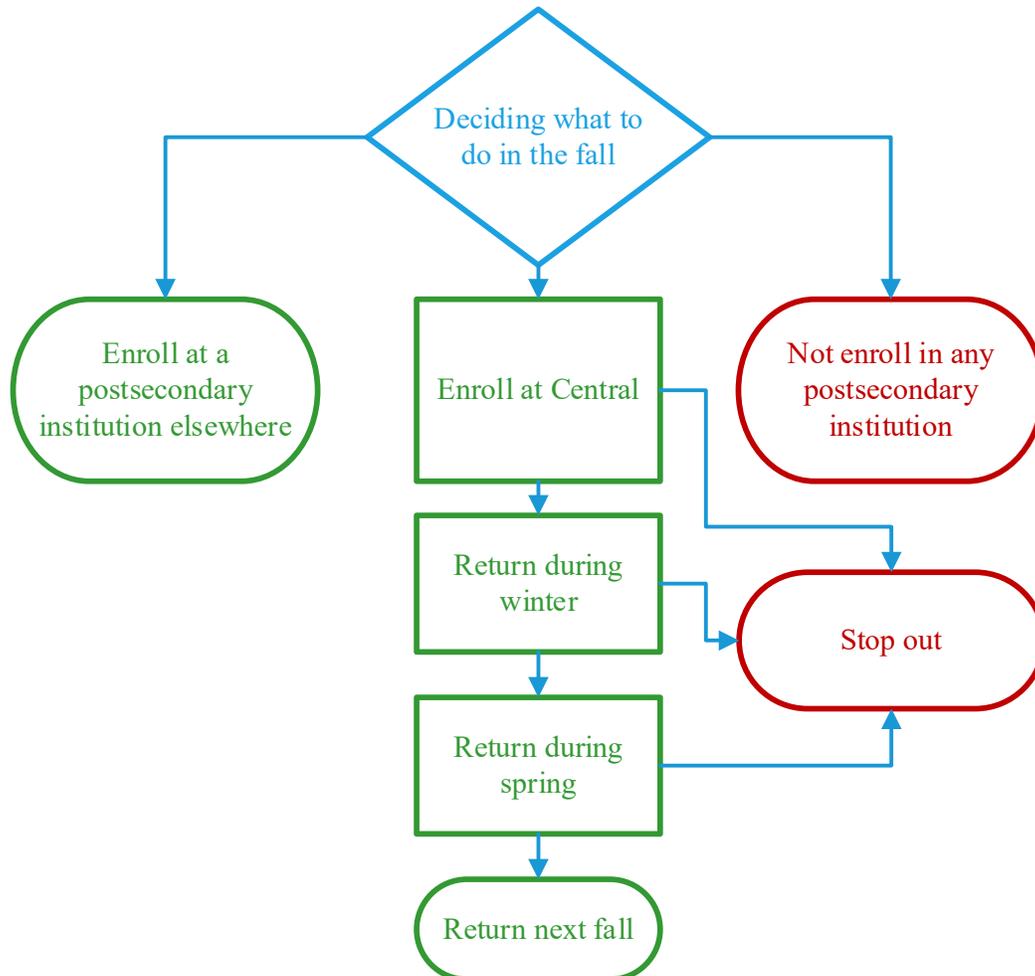


Table 1 presents summary statistics on student attributes and outcomes for the sample of students that applied to Central directly from high school between 2004 and 2022. Panel A displays data that is collected during applications and admissions at Central. Most students are White (63 percent) and female (55 percent). A substantial proportion of students are also first-gen (40 percent). By the beginning of the initial fall term, Central has FAFSA records for 69 percent of students that applied for admission. The mean and median SAT scores for students applying to Central are approximately 1020. This signifies that students who apply to Central are comparable to the national average of SAT test takers. Data from zip codes suggest that the applicants hail from neighborhoods with a median income of \$83,000 (adjusted to 2021 dollars) — a figure closely aligning with Washington state’s median.<sup>6</sup>

Table 1: Summary Statistics

Panel A: Student attributes						Panel B: Student attributes collected <i>after</i> admission					
	<u>n</u>	<u>mean</u>	<u>median</u>	<u>sd</u>	<u>yr avail</u>		<u>n</u>	<u>mean</u>	<u>median</u>	<u>sd</u>	<u>yr avail</u>
First-gen	102774	0.40			04-22	Housing application submitted	69558	0.22			12-22
College in the High School	102774	0.29			04-22	Transcript HS GPA	34654	3.10	3.13	0.55	04-22
Distance from Central (miles)	102249	144.27	147.28	68.71	04-22	<i>HS attended (characteristics in 2017)</i>					
Age at expected entry	102753	18.68	18.58	1.03	04-22	Four year graduation rate	80987	0.88	0.88	0.07	04-22
<i>Race/Ethnicity</i>						Adv. Pla. participation rate	80805	0.68	0.62	0.48	04-22
White	102774	0.63			04-22	Adv. Pla. pass rate (Score 3+)	75353	0.54	0.56	0.21	04-22
Hispanic or Latino/a/x	102774	0.18			04-22	<i>Panel C: Outcomes</i>					
Asian	102774	0.06			04-22						
Black or African American	102774	0.05			04-22						
American Indian or Alaska Native	102774	0.01			04-22						
Hawaiian or Pacific Islander	102774	0.01			04-22						
Other	102774	0.06			04-22						
<i>Gender</i>											
Female	102774	0.55			04-22						
Male	102774	0.44			04-22						
<i>FAFSA</i>											
Filed before March 1	90096	0.47			04-22						
File between March 1 & Sept 1	90096	0.22			04-22						
<i>Standardized test scores</i>											
SAT Comp	78141	1021.31	1020.00	157.76	04-20						
<i>Zip code demographics</i>											
Bachelor's or higher (age 25+)	102201	0.35	0.31	0.17	04-22						
HH median income (2021 \$'s)	102054	88664.49	83621.00	30871.68	04-22						
People per sq mile (land)	102248	2201.28	1322.70	2480.84	04-22						

Notes: "yr avail" denotes the availability of data for the entering Fall cohort that year. Household income (HH income) is top-coded at the 99 percentile. Students that do not report as being female or male are included in the sample, but there are too few to report. The denominator for the advanced placement participation rate is the size of the graduating cohort. The denominator of the advanced placement pass rate are the number of tests administered. The period for FAFSA filing is the year prior to enrollment.

An important distinction between Panel A and Panel B is the timing of when data is available. While Panel A displays data that is available to Central while students are still in high school, the data in Panel B is collected after students complete high school and are admitted into Central. A natural consequence of this timing is that students who are accepted but do not enroll at Central

<sup>6</sup> The US census reports that the median household income in Washington state is 82,400 dollars (in 2021 dollars). <https://www.census.gov/quickfacts/fact/table/WA/INC110221>

do not submit their final high school transcript. This distinction holds importance for our predictive modeling. We only use GPAs and high school information to predict retention.<sup>7</sup>

Panel C displays the five main outcomes of our study. Among all admitted applicants to Central, 85 percent enroll during the initial fall at any US college or university, while 27 percent enroll at Central. Of those who accept a seat at Central, 92 percent enroll at any college and 75 percent enroll at Central. This highlights that approximately 8 percent of applicants that accept an offer of admission at Central ultimately do not to go to any college.<sup>8</sup> A remaining 17 percent choose not to attend Central in favor of attending another college. Finally, Panel C also displays the retention patterns for students who enroll in the initial fall term. Of students who enroll in the initial fall term, 90 percent are retained to the winter term, 85 percent are retained to spring, and 72 percent are retained to the subsequent fall. The sharpest decline in retention occurs between the spring term and the subsequent fall term, when the retention rate declines by 13 percentage points. The second sharpest decline occurs during or shortly after the initial fall term, when 10 percent of students do not return for the winter term.

## ***2.2 Trends in Enrollment and Retention***

This section focuses on temporal trends in both enrollment and retention. Figure 4 displays the overall rates of enrollment based on conditional samples. The red line shows the enrollment rates for students who were offered a seat at Central. The green line shows enrollment rates for students who accept a seat at Central. Finally, the blue line shows the enrollment rates for students that applied for on-campus housing. The notable difference for this sample is that housing applications require a deposit, while accepting a seat does not. Unsurprisingly, students who accept an offer of admission are more likely to enroll than those who are offered a seat, and students who apply for housing (and put down a deposit) are most likely to enroll. However, over time, a consistent pattern across all three samples emerges. The rates of enrollment consistently trended downward from 2013 to 2020. Except for the group of students that applied for housing, the enrollment rates starting in 2021 have begun to rebound back to the mean rate.

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<sup>7</sup> While high school identifiers and high school GPAs from the initial applications are partially available, they have a high rate of missingness. Using this data would have reduced the power of our study and potentially introduce a substantial amount of non-response bias. For this reason, we excluded this data from our analysis. In contrast, high school identifiers and high school GPAs are widely available for students who ultimately enroll at Central.

<sup>8</sup> There are no deposits required when a student accepts an offer at Central.

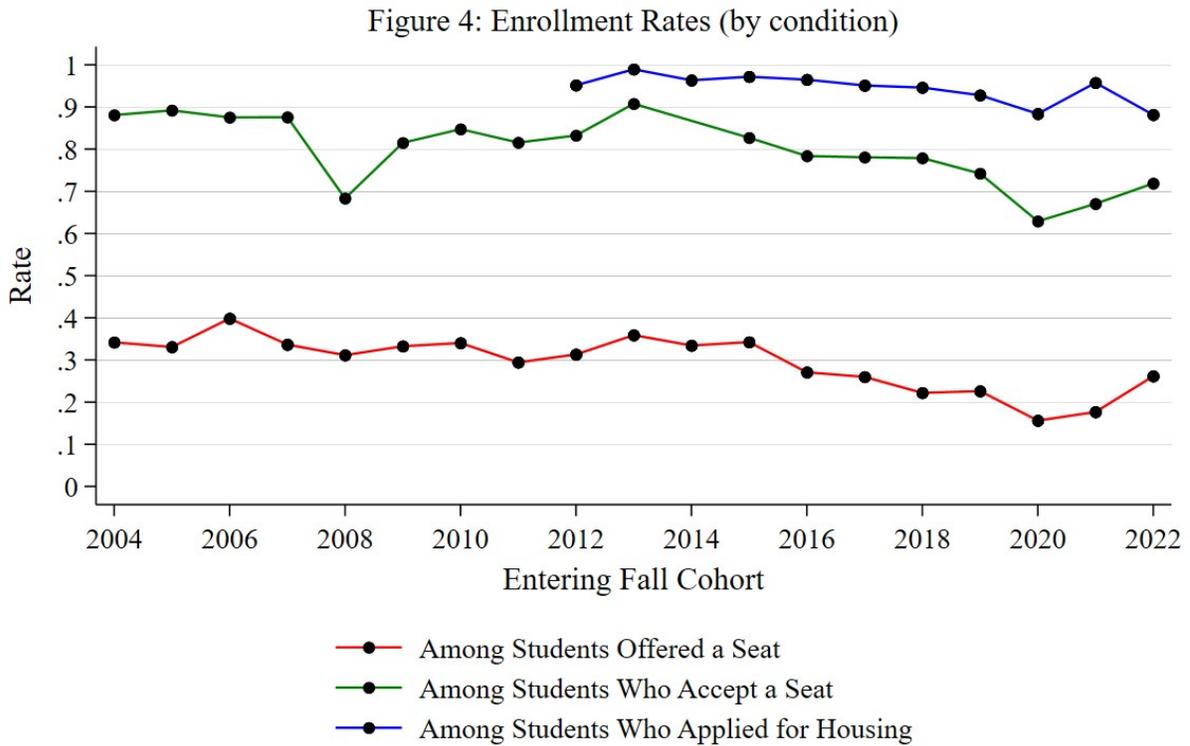
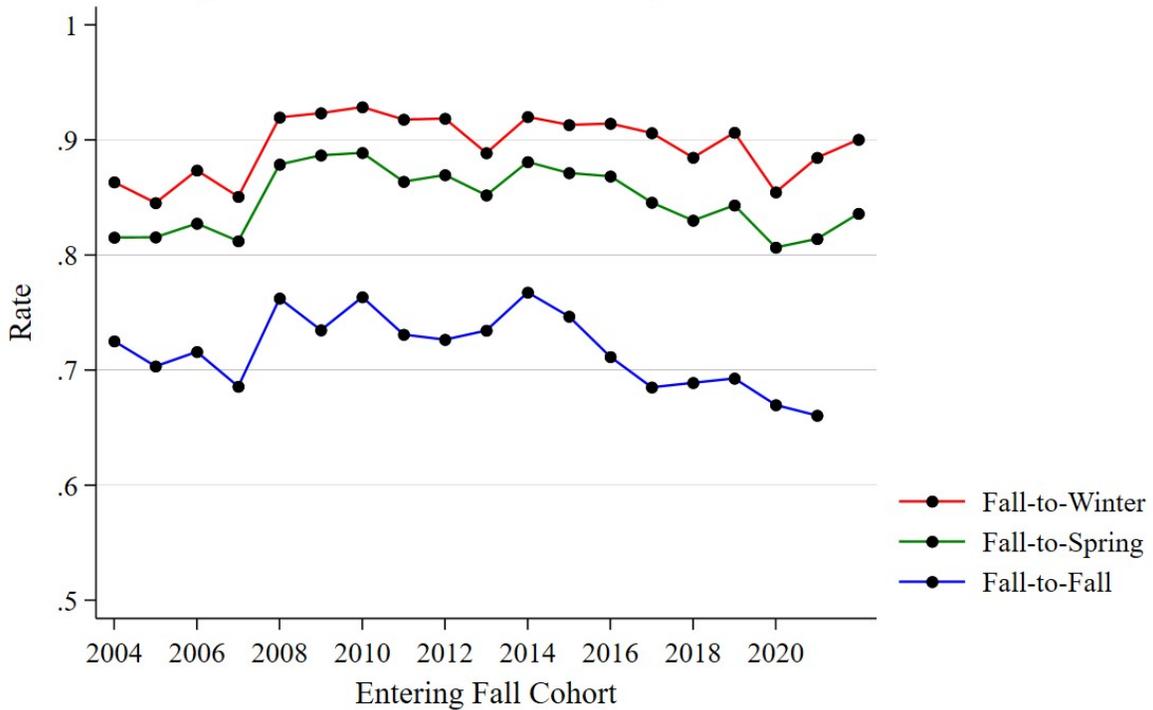


Figure 5 displays the first-year retention rate by milestone. These milestones indicate whether students who enrolled during the initial fall return in the winter, spring, or subsequent fall. Similar to the trend identified in Figure 4, Central has experienced declining retention rates from 2014 to 2020. While fall-to-winter and fall-to-spring retention rates appear to have recovered to levels that are near historical averages, the fall-to-fall retention rate has not. This trend is concerning because the fall-to-fall retention rate is the most significant measure of student success out of the three measures that are displayed. Overall, the findings from this figure highlight the importance of focusing on the fall-to-fall retention rate for our retention analysis.

Figure 5: First Year Retention Rates by Milestone



### 3. The Prediction Model and Findings

#### 3.1 The Prediction Model

The primary model used to identify factors that predict conditional enrollment rates, and first-year retention rates is described below:

$$Y_{it} = X_i' \beta + \lambda_t + u_{it}. \quad (1)$$

Each student's outcome  $Y_{it}$  depends on cohort fixed effects,  $\lambda_t$  and a vector of student attributes described by  $X_i$ . As highlighted in Section 2, these attributes include information about the student, their neighborhood, their high school, and their distance from Central. A separate  $\beta$  parameter for each attribute represents the association between the outcome of interest and characteristic. Five outcomes are examined in our analysis. The first two outcomes are indicated by whether students enroll at any college or at Central during the initial fall term. The final three outcomes are indicated by first-year retention outcomes separated by term, cumulating with the subsequent fall term. All our predictions are estimated using Ordinary Least Squares (OLS) with heteroskedasticity-robust standard errors.

To enhance the integrity and precision of the prediction model, there is a subtle difference between the prediction model on enrollment and retention. As discussed in Section 2.1, high school GPA and identifiers come from transcript data. This data is only widely available for students who enroll in the fall. To align the prediction models with the timing of data availability, this data is only used to predict retention.

### ***3.2 Predictors of Initial Fall Enrollment Among All Applicants Offered a Seat***

#### **Key Findings**

- Students who live within commuting distance of Central (50 miles or less) are 25.8 percentage points more likely to enroll at Central compared to their counterparts.
- White students, in comparison to students from other races and ethnicities, are more inclined to enroll at Central.
- Students who are first-gen, male, come from less populated areas, and those who hadn't filed a FAFSA before March are also more likely to enroll at Central.

The analysis on predictors of initial fall enrollment is divided into two main population groups. These groupings are based on the sequence of two events: 1) students first receive an offer and then 2) accept. The first group, presented in Table 2, includes all students who are offered a seat by Central. This table allows for understanding the type of students who choose to attend Central versus the students that attended any college. The outcomes of interest are indicators on whether the student attends any college or Central. The first row displays that 86.3 percent of applicants ultimately enroll at any college during the initial fall term, and that 29.8 percent of applicants enroll at Central.

First-gen students who are granted admission to Central are 3.6 percentage points less likely to enroll in college in the fall than their non-first-gen peers. However, first-gen students are 1.2 percentage points more likely to enroll at Central in the fall than their non-first-gen peers. Students who choose to enroll in any college versus Central are more likely to have participated in the College in the High School, more likely to have filed a FAFSA before March 1st, and come from neighborhoods with higher income, educational attainment, and more population density. The table also highlights that White students and Native Hawaiian or Pacific Islander students are substantially more likely to enroll at Central than their peers.<sup>9</sup>

Key findings related to commuting distance emerge in Table 2. Students who are offered admission to Central who live within 50 miles of campus are 25.8 percentage points more likely to enroll than students who live farther away.<sup>10</sup> This contrasts with the finding that students who

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<sup>9</sup> Native Hawaiian or Pacific Islanders may be more likely, but this is a very small population with imprecise estimates.

<sup>10</sup> When we explore a saturated model that uses an indicator for each decile of student distance to Central, the only decile that stood out was the first. Ultimately, we selected the 50-mile threshold because it is the closest rounded value to the 1<sup>st</sup> decile threshold.

live near Central are only 2.6 percentage points more likely to attend any college. This suggests that local students who apply to Central are more likely to choose Central over other colleges.

Table 2: Predictors of Initial Fall Enrollment (Among Students Offered a Seat by Central)

	@ Any college	@ Central
Dependent Variable Mean	0.863	0.298
<b><u>Student characteristics</u></b>		
First-gen	-0.036*** (0.003)	0.012*** (0.003)
Home is within 50 miles of Central	0.026*** (0.004)	0.258*** (0.006)
Log (Age at expected entry)	-0.368*** (0.122)	0.286*** (0.058)
Male (Relative to Female)	-0.001 (0.002)	0.043*** (0.003)
<i>Race/Ethnicity (Relative to White)</i>		
Hispanic or Latino/a/x	-0.046*** (0.004)	-0.091*** (0.004)
Asian	-0.020*** (0.005)	-0.115*** (0.005)
Black or African American	-0.006 (0.006)	-0.031*** (0.007)
American Indian or Alaska Native	-0.011 (0.014)	-0.030* (0.018)
Hawaiian or Pacific Islander	-0.109*** (0.016)	0.017 (0.015)
College in the High School experience	0.025*** (0.003)	0.011*** (0.003)
<b><u>Student neighborhood characteristics</u></b>		
Log (median household income)	0.031*** (0.006)	0.007 (0.008)
BA+ attainment rate for age 25+	0.056*** (0.011)	0.016 (0.014)
Log (People per square mile)	-0.001* (0.001)	-0.016*** (0.001)
<b><u>Financial aid application</u></b>		
Filed FAFSA (before March 1st)	0.038*** (0.002)	-0.016*** (0.003)
<i>Observations</i>	89,442	89,442

Notes: A single regression per outcome is reported on this table. In total, there are two regressions. Robust standard errors are reported in parenthesis. Students with the race/ethnicity classified as "other" are included in the sample but are not reported. Enrollment in "Any college" includes data from the National Student Clearinghouse and Central. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### ***3.3 Predictors of Initial Fall Enrollment Among All Applicants Who Accept a Seat***

#### **Key Findings**

- Students residing within commuting distance of Central (50 miles or less) who accept an offer of admission are 11.4 percentage points more likely to enroll at Central than their peers from farther home addresses.
- First-gen students who accept a seat at Central are approximately 2 percentage points less likely to enroll at any college or at Central than their non-first-gen peers.
- Students who are non-White, have College in the High School experience, and female are less likely to enroll at Central compared to any college.

The second group, presented in Table 3, solely focuses on students that accept the offer for a seat from Central. This table allows for insights on the type of students that have accepted a seat at Central but ultimately enroll or do not enroll in the fall term. Similar to Table 2, outcomes on enrolling at any college and at Central are displayed separately. As displayed by the first row, 92 percent of students that accept a seat at Central attend any college in the fall, but only 75 percent attend Central.

Table 3 highlights a few important findings. First, even after controlling for a rich set of factors, first-gen students who accept an offer of admission at Central are 1.7 percentage points less likely to enroll at any college or Central. Second, living within commuting distance continues to be a very important factor for predicting whether students will enroll at Central in the fall. We also observe that while students with College in the High School experience are more likely to enroll at any college, they are less likely to attend Central. This pattern may be a result of increased opportunities for more academically advanced students to attend other institutions. Finally, male students are more likely to attend Central, while Hispanic, Asian, Black, and Native American students are less likely to attend Central than their White peers.

Table 3: Predictors of Initial Fall Enrollment (Among Students who Accept a Seat from Central)

	@ Any college	@ Central
Dependent Variable Mean	0.922	0.753
<b><u>Student characteristics</u></b>		
First-gen	-0.026*** (0.003)	-0.017*** (0.005)
Home is within 50 miles of Central	0.014*** (0.005)	0.114*** (0.007)
Log (Age at expected entry)	-0.320*** (0.064)	-0.038 (0.080)
Male (Relative to Female)	0.005* (0.003)	0.019*** (0.004)
<i>Race/Ethnicity (Relative to White)</i>		
Hispanic or Latino/a/x	-0.027*** (0.005)	-0.061*** (0.007)
Asian	-0.011 (0.008)	-0.072*** (0.012)
Black or African American	0.004 (0.008)	-0.010 (0.012)
American Indian or Alaska Native	0.001 (0.017)	-0.006 (0.026)
Hawaiian or Pacific Islander	-0.037* (0.020)	0.004 (0.025)
College in the High School experience	0.010*** (0.003)	-0.013*** (0.005)
<b><u>Student neighborhood characteristics</u></b>		
Log (median household income)	0.007 (0.007)	0.013 (0.012)
BA+ attainment rate for age 25+	0.042*** (0.013)	0.061*** (0.021)
Log (People per square mile)	-0.002** (0.001)	-0.006*** (0.001)
<b><u>Financial aid application</u></b>		
Filed FAFSA (before March 1st)	0.019*** (0.003)	0.019*** (0.004)
<i>Observations</i>	35,131	35,131

Notes: A single regression per outcome is reported on this table. In total, there are two regressions. Robust standard errors are reported in parenthesis. Students with the race/ethnicity classified as "other" are included in the sample but are not reported. Enrollment in "Any college" includes data from the National Student Clearinghouse and Central. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### ***3.4 Predictors of Fall to Subsequent Fall Retention Among First Year Students***

#### **Key Findings**

- Higher measures of academic preparation and economic advantage are all positively associated with higher probabilities of returning the second academic year.
- Students that live within commuting distance of Central (50 miles or less) are 8.6 percentage points more likely to return their second year.
- Students who submitted their initial FAFSA earlier are substantially more likely to be retained.
- Hispanic students are 2.2 percentage points more likely to return for their second year compared to White students.
- The most minoritized racial groups of students are less likely to return for their second year. These include Black, Native American, and Hawaiian or Pacific Islander students.

Table 4 shows the student attributes that predict first-year retention rates from the initial fall to the subsequent fall. As a point of reference, the first row displays that the mean rate of retention is 73.3 percent. The table also displays a very consistent pattern of retention for students with higher measures of academic preparation and economic advantage. The most notable finding among this pattern is the strong association between GPA measures and retention. For our analysis, GPA measures were standardized to a mean of 0 with a standard deviation of 1. The coefficient for high school GPA displays that a 1 standard deviation increase in a student's GPA is associated with a 10.7 percentage point increase in probability of returning the next fall. Other measures of educational and economic advantage that predict retention include first-gen status, College in the High School experience, Advanced Placement participation and pass rates at the high school attended, neighborhood income, and neighborhood educational attainment.

Similar to our analysis on enrollment predictors, we find a strong relationship between commuting distance and retention. Students that live within 50 miles of Central are 8.6 percentage points more likely to return the next fall, compared to their peers. The magnitude is large relative to the overall rate.

This table also highlights the predictive power of FAFSA completions and their timing. Students who complete their FAFSA earlier may be more prepared for the transition to college than students who complete their FAFSA later. Respectively, students who submit their FAFSA by the March and September before initial fall enrollment, are 6.5 percentage points and 4.1 percentage points more likely to be retained than students who do not submit a FAFSA by September. This finding suggests that monitoring the timing of FAFSA completions provides Central with an early warning that a student may need to be targeted for transitional support into college.

Table 4 also identifies that Hispanic students are more likely to return in the subsequent fall term compared to all their peers. Our findings suggest that the academic environment at Central may be good for Hispanic students and that this pattern may be leveraged with Central's pursuit of a

designation as Washington’s first Hispanic Serving Institution (HSI) in the four-year sector. Promoting this culture of success for Hispanic students may be used as an important recruitment tool to increase enrollment. However, an important caveat to note, which we will detail in the subsequent section, is that this heightened retention rate for Hispanic students is predominantly driven by Hispanic women.

Although the pattern of retention appears promising for the largest minority group at Central, a concern with racial disparities for the most racially marginalized students exists. Students from the three racial categories with the least representation in the overall sample have the lowest probabilities of returning in the subsequent fall.

Table 4: Predictors of Fall-to-Fall Retention at Central

	Initial fall to subsequent fall
Dependent variable mean	0.733
<b><u>Student characteristics</u></b>	
First-gen	-0.033*** (0.007)
Home is within 50 miles of Central	0.086*** (0.011)
Log (Age at expected entry)	0.083 (0.134)
Male (Relative to Female)	0.003 (0.007)
<i>Race/Ethnicity (Relative to White)</i>	
Hispanic or Latino/a/x	0.022** (0.010)
Asian	0.012 (0.017)
Black or African American	-0.014 (0.018)
American Indian or Alaska Native	-0.073* (0.042)
Hawaiian or Pacific Islander	-0.094** (0.038)
<b><u>Student academic measures</u></b>	
College in the High School experience	0.027*** (0.007)
HS GPA (standardized)	0.107*** (0.004)
<b><u>Student high school and zip code characteristics</u></b>	
HS: graduation rate	-0.021 (0.063)
HS: Advanced Placement participation rate	0.025*** (0.008)
HS: Advanced Placement pass rate (score 3 or higher)	0.039* (0.020)
Zip code: Log (median household income)	0.048*** (0.017)
Zip code: BA+ attainment rate for age 25+	0.069** (0.033)
Zip code: Log (People per square mile)	-0.004* (0.002)
<b><u>Financial aid application</u></b>	
Submitted FAFSA before March 1	0.065*** (0.009)
Submitted FAFSA before Sept 1 but after March 1	0.041*** (0.010)
Observations	18,479

Notes: Robust standard errors are reported in parenthesis. Students with the race/ethnicity classified as "other" are included in the sample but are not reported. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### ***3.5 Subgroup Analysis on Retention***

#### **Key Findings**

- Patterns of retention are generally robust across key subgroups with a few exceptions.
- Male students of color (non-White) are less likely to be retained than their White peers, and they are also less likely to be retained than their female peers of the same race.
- First-gen status, College in the High School experience, neighborhood income, population density, and FAFSA completions are substantially better predictors for underrepresented minority (URM) students than non-URM students.

Table 5 displays predictions broken out by subgroup. These subgroups include students indicated by the most recent 10 cohorts, from below median income neighborhoods, first-gen status, and gender. This table serves two purposes. The first purpose is to better understand how robust and reliable the main predictions are. The second purpose is to better understand experiences that may be unique to a subgroup. Each column displays results from separate regressions for each group.

Most patterns are robust across groups, but two patterns emerge by gender. First, the population density of a student's home neighborhood is predictive for male students but not for female students. Second, all non-White male students are less likely to be retained than White males. This sharply contrasts with a pattern that Hispanic female students and Asian female students are substantially more likely to be retained than their White female counterparts. Overall, it is unlikely that Central is the only university or college to face this challenge. An MDRC research brief by Gradenhire & Cerna (2016) highlights that this issue is pervasive across the country and lists several programs dedicated toward improving the outcome of male students of color.

Table 5: Predictors of Fall-to-Fall Retention at Central (by Subgroup)

	By subgroup					
	All	Last 10 cohorts	Low income zip	First-gen	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable mean	0.733	0.715	0.749	0.695	0.747	0.719
<b>Student characteristics</b>						
First-gen	-0.033*** (0.007)	-0.039*** (0.009)	-0.025* (0.013)		-0.039*** (0.010)	-0.029*** (0.011)
Home is within 50 miles of Central	0.086*** (0.011)	0.102*** (0.015)	0.081*** (0.017)	0.083*** (0.018)	0.081*** (0.015)	0.091*** (0.017)
Log (Age at expected entry)	0.083 (0.134)	0.166 (0.172)	-0.274 (0.219)	0.368* (0.210)	0.051 (0.203)	0.101 (0.180)
Male (Relative to Female)	0.003 (0.007)	-0.001 (0.008)	0.010 (0.012)	-0.005 (0.011)		
<i>Race/Ethnicity (Relative to White)</i>						
Hispanic or Latino/a/x	0.022** (0.010)	0.018 (0.012)	0.019 (0.016)	0.015 (0.014)	0.037*** (0.013)	-0.000 (0.016)
Asian	0.012 (0.017)	0.028 (0.021)	0.016 (0.034)	0.014 (0.029)	0.038 (0.025)	-0.011 (0.025)
Black or African American	-0.014 (0.018)	-0.004 (0.021)	-0.007 (0.035)	-0.026 (0.027)	-0.007 (0.026)	-0.017 (0.025)
American Indian or Alaska Native	-0.073* (0.042)	-0.104** (0.053)	0.012 (0.067)	-0.146** (0.066)	-0.070 (0.056)	-0.077 (0.065)
Hawaiian or Pacific Islander	-0.094** (0.038)	-0.061 (0.041)	-0.170** (0.069)	-0.099** (0.047)	-0.055 (0.064)	-0.102** (0.047)
College in the High School experience	0.027*** (0.007)	0.040*** (0.009)	0.033*** (0.013)	0.037*** (0.012)	0.024*** (0.009)	0.030*** (0.011)
HS GPA on application (standardized)	0.107*** (0.004)	0.116*** (0.005)	0.087*** (0.007)	0.106*** (0.007)	0.098*** (0.006)	0.116*** (0.006)
<b>Student high school and zip code characteristics</b>						
HS: graduation rate	-0.021 (0.063)	0.019 (0.081)	0.144 (0.111)	-0.040 (0.100)	0.011 (0.084)	-0.061 (0.096)
HS: Advanced Placement participation rate	0.025*** (0.008)	0.021* (0.011)	0.057*** (0.016)	0.001 (0.014)	0.027** (0.011)	0.022* (0.012)
HS: Advanced Placement pass rate (score 3 or higher)	0.039* (0.020)	0.057** (0.025)	-0.047 (0.030)	0.031 (0.032)	0.040 (0.026)	0.039 (0.030)
Zip code: Log (median household income)	0.048*** (0.017)	0.065*** (0.023)	0.106 (0.065)	0.064** (0.030)	0.036 (0.024)	0.063** (0.025)
Zip code: BA+ attainment rate for age 25+	0.069** (0.033)	0.055 (0.044)	0.253*** (0.085)	0.107* (0.057)	0.069 (0.045)	0.069 (0.048)
Zip code: Log (People per square mile)	-0.004* (0.002)	-0.007** (0.003)	-0.014*** (0.004)	-0.010*** (0.004)	-0.000 (0.003)	-0.008** (0.003)
<b>Financial aid application</b>						
Submitted FAFSA before March 1	0.065*** (0.009)	0.082*** (0.013)	0.069*** (0.017)	0.082*** (0.017)	0.075*** (0.013)	0.056*** (0.013)
Submitted FAFSA before Sept 1 but after March 1	0.041*** (0.010)	0.061*** (0.013)	0.056*** (0.018)	0.051*** (0.017)	0.055*** (0.013)	0.027** (0.014)
Observations	18,479	11,370	5,317	6,999	9,750	8,708

Notes: Robust standard errors are reported in parenthesis. Students with the race/ethnicity classified as "other" are included in the sample but are not reported. "Low income zip" denotes that the student comes from a zip code with household median income in the bottom half of the sample. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 6 breaks out subgroups by racial and ethnic categories. For statistical power, our preferred groupings by URM status are displayed under columns 1 and 2. Columns 3 through 6 break out the groups by race and ethnicity. Overall, the findings show that first-gen status, College in the High School, early FAFSA completions, and population density are factors that more strongly

predict retention for URM students than non-URM students. The Advanced Placement climate of the high school attended appears to be a non-significant factor for URM students, but an important factor for non-URM students. This table also shows that while White male students are more likely to be retained than White female students, male students of color are consistently less likely to be retained than their female peers.

Table 6: Predictors of Fall-to-Fall Retention at Central (by Race and Ethnicity)

	Pooled by Minority Status		By Race/Ethnicity			
	Not URM (1)	URM (2)	Not URM		URM	
			White (3)	Asian (4)	Hispanic (5)	Black (6)
Mean retention rate for sub-group	0.746	0.683	0.747	0.729	0.712	0.626
<b><u>Student characteristics</u></b>						
First-gen	-0.030*** (0.009)	-0.060*** (0.017)	-0.030*** (0.009)	-0.041 (0.041)	-0.042** (0.021)	-0.082** (0.038)
Home is within 50 miles of Central	0.089*** (0.013)	0.086*** (0.025)	0.090*** (0.013)	0.063 (0.078)	0.060** (0.028)	0.104 (0.095)
Log (Age at expected entry)	0.170 (0.152)	-0.409 (0.323)	0.136 (0.156)	0.812 (0.654)	-0.235 (0.382)	-0.063 (0.673)
Male (Relative to Female)	0.011 (0.007)	-0.029* (0.016)	0.013* (0.008)	-0.055 (0.035)	-0.030 (0.019)	-0.032 (0.036)
College in the High School experience	0.019** (0.008)	0.048*** (0.018)	0.019** (0.008)	-0.004 (0.041)	0.040* (0.021)	0.091** (0.046)
HS GPA on application (standardized)	0.106*** (0.005)	0.104*** (0.010)	0.105*** (0.005)	0.123*** (0.023)	0.105*** (0.012)	0.081*** (0.023)
<b><u>Student high school and zip code characteristics</u></b>						
HS: graduation rate	-0.046 (0.074)	-0.188 (0.133)	-0.043 (0.076)	-0.101 (0.352)	-0.249 (0.161)	-0.172 (0.300)
HS: Advanced Placement participation rate	0.035*** (0.009)	0.020 (0.020)	0.034*** (0.010)	0.039 (0.040)	0.014 (0.026)	0.029 (0.034)
HS: Advanced Placement pass rate (score 3 or higher)	0.055** (0.023)	-0.014 (0.042)	0.049** (0.024)	0.196* (0.107)	0.009 (0.048)	-0.134 (0.099)
Zip code: Log (median household income)	0.027 (0.019)	0.173*** (0.048)	0.033* (0.020)	-0.123 (0.096)	0.145** (0.058)	0.203** (0.100)
Zip code: BA+ attainment rate for age 25+	0.053 (0.037)	0.054 (0.086)	0.050 (0.038)	0.156 (0.185)	0.115 (0.105)	-0.010 (0.179)
Zip code: Log (People per square mile)	0.002 (0.003)	-0.027*** (0.005)	0.002 (0.003)	-0.001 (0.015)	-0.023*** (0.006)	-0.042** (0.017)
<b><u>Financial aid application</u></b>						
Submitted FAFSA before March 1	0.055*** (0.011)	0.105*** (0.023)	0.051*** (0.011)	0.136*** (0.050)	0.102*** (0.027)	0.149*** (0.049)
Submitted FAFSA before Sept 1 but after March 1	0.035*** (0.011)	0.058** (0.023)	0.033*** (0.011)	0.067 (0.049)	0.054* (0.028)	0.096** (0.048)
Observations	14,024	3,413	13,381	643	2,386	738

Notes: Robust standard errors are reported in parenthesis. White and Asian are included in the "Not URM" group. Hispanic or Latino/a/x, Black or African American, American Indian or Alaska Native and American Indian or Alaska Native are included in the "URM" group. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### ***3.4 The Importance of High School GPA and SAT Scores in Predicting Retention***

#### **Key Findings**

- For the full sample, SAT scores have a predictive magnitude that is 31 percent of high school GPA.
- For first-gen students, SAT scores are relatively more important (38 percent of high school GPA).
- For URM students, SAT scores are relatively less important (21 percent of high school GPA).

High school GPAs and SAT scores are commonly used measures for admission requirements and to predict successful student outcomes. To better understand the predictive properties of these measures, we report predictions on retention using GPAs and SAT scores from what is available.<sup>11, 12</sup> We focus solely on GPA and SAT scores to maximize the sample of our analysis, especially for subgroups.

A key feature of this analysis involves the comparison of standardized GPAs to standardized SAT scores. The results from our prediction modeling allow us to compare the association of a one standard deviation increase in academic measure with a percentage point change in retention. The results using this method on the full sample and subgroups are presented in Table 7.

Panel A displays the results for the full sample and by first-gen status. For the full sample, a 1 standard deviation increase in SAT score, predicts an increase in the probability of retention by 2.2 percentage points. A 1 standard deviation increase in GPA predicts an increase in the probability of retention by 7.1 percentage points. The ratio that measures the relative magnitude of importance of SAT to GPA for the full sample is 0.31 (0.022 divided by 0.071). For non-first-gen students and first-gen students, we observe relative magnitudes of 0.22 and 0.38, respectively. This finding highlights that SAT scores are substantially more important for predicting retention outcomes of first-gen students than non-first-gen students. They also display that GPA are substantially more powerful at predicting retention than SAT scores, regardless of first-gen status.

Panel B presents the analysis by racial subgroups. Consistently, the panel shows that high school GPA is a more reliable predictor of retention than SAT scores across all races and ethnicities. It also indicates that the relative magnitude of importance between SAT and GPA for non-URM students is considerably higher than for URM students (0.35 vs 0.14). When we delve into the analysis by specific racial categories, we discover that the predictive value of SAT scores, when compared to GPA, is much higher for White students than for non-White students.

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<sup>11</sup> We also include cohort fixed effects to control for time varying changes (e.g., grade inflation and enrollment trends).

<sup>12</sup> SAT scores have not been required since the Covid-19 pandemic. For this reason, they were excluded from the main prediction model.

Table 7: Predicting Fall-to-Fall Retention at Central (with Academic Measures)

<i>Panel A: By Parental education</i>						
	All	Non-first-gen	First-gen			
Mean retention rate for sub-group	0.738	0.756	0.706			
<b>Student academic measures</b>						
HS GPA on transcript (standardized)	0.071*** (0.004)	0.069*** (0.004)	0.072*** (0.006)			
SAT Composite (standardized)	0.022*** (0.003)	0.015*** (0.004)	0.027*** (0.006)			
Observations	23,484	15,106	8,378			
<i>Panel B: By race and ethnicity</i>						
	Pooled		Disaggregated			
	Non-URM	URM	White	Asian	Hispanic	Black
Mean retention rate for sub-group	0.747	0.703	0.747	0.729	0.734	0.635
<b>Student academic measures</b>						
HS GPA on transcript (standardized)	0.065*** (0.004)	0.091*** (0.009)	0.063*** (0.004)	0.142*** (0.021)	0.084*** (0.010)	0.083*** (0.019)
SAT Composite (standardized)	0.023*** (0.004)	0.013 (0.008)	0.023*** (0.004)	0.017 (0.019)	0.010 (0.009)	0.026 (0.019)
Observations	17,823	4,317	17,071	752	3,166	814

Notes: Robust standard errors are reported in parenthesis. The only controls included in each regression are cohort fixed effects. White and Asian are included in the "Not URM" group. Hispanic or Latino/a/x, Black or African American, American Indian or Alaska Native and American Indian or Alaska Native are included in the "URM" group. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Overall, the takeaway from Table 7 is that both GPA and SAT scores are useful measures in predicting students' success, but GPA is a better predictor than SAT scores. Both measures are important and should be recorded carefully in Central's data warehouse. Ideally all applicants who have submitted GPA and SAT scores would have GPA and SAT records (with sub-scores), and all enrollees would have high school transcript GPA records.<sup>13</sup> This would allow for a more comprehensive analysis in prior sections. Additionally, if Central begins to require SAT score submission again, the administration should continue to monitor how well the scores predict outcomes across subgroups.

## 4. Connecting Key Findings

<sup>13</sup> We highlight this because we found the collection of data on GPA and SAT scores could be improved. Many applicants and enrollees have missing high school GPAs and SAT/ACT scores in periods outside of the Covid-19 disruption.

The overall purpose of this study is to leverage administrative data to better understand early enrollment and retention patterns for students that are offered a seat at Central. We display numerous outcomes and predictive characteristics due to the exploratory nature of this study. Our aim is to provide practitioners at Central and at WSAC with an opportunity to reconcile their experiences with a rich and transparent set of probability measures. As with all prediction models, the results presented in this study alone cannot provide a prescription that improves enrollment and retention. The information gleaned from this study provides practitioners with information to guide and improve their policies and actions. For this reason, in this section we discuss and connect high level findings that we would like to call attention to for future discussion, thought, and potential experimentation (formal and informal).

#### ***4.1 Students Who Live Within 50 Miles of Central***

##### **Key Findings**

- A decline in the proportion of admission offers to local students coincides with the decline in overall enrollment and retention rates.

Throughout our analysis on enrollment and retention at Central, we uncover a consistent and robust pattern of persistence among applicants who live within commuting distance of Central's campus. Even when we disaggregate our analytic sample by race, income, and gender, we consistently find that students whose home address is within 50 miles of campus are approximately 9 percentage points more likely to return to Central during their subsequent fall term. This is surprising because our findings already control for a rich set of observable characteristics, such as high school GPA, first-gen status, race, and neighborhood characteristics.<sup>14</sup> Overall, this highlights that there is something distinct about experiences of students that live close to Central that we cannot identify or observe with administrative data.

Figure 6 displays that the share of seats offered to students within commuting distance substantially declined from 2014 through the 2021. Their share fell from approximately 12 percent to 8 percent. This coincides with the timing of the decline in the retention rate for the same cohorts that were displayed on Figure 2.

Both of our findings using the predictive model and trends suggest there is a potential to increase initial enrollment rates and retention rates by improving recruitment efforts directed toward local high schools. Based on Central's enrollment patterns, we expect that the additional students yielded from such an effort to have similar GPAs, and be disproportionately Hispanic, first-gen, and come from non-populous areas where family incomes are lower than the state median (Table 8).

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<sup>14</sup> Specifically, we are surprised by the large magnitude of the probability change across all populations. Economists have had a long history of using distance to college as an instrument that measures college access (e.g., Card 1995; Currie & Moretti 2003; Long 2004; Hoxby 2009). Their findings often vary based on context and selectivity. Most recently, an unpublished manuscript by Lapid (2017), estimates that when a new university in California opens within 25 miles of a student's home, the four-year enrollment rates for prospective students increase by 1.5 percentage points.

Figure 6: Share of Offered Seats Going to Students Within 50 Miles of Central

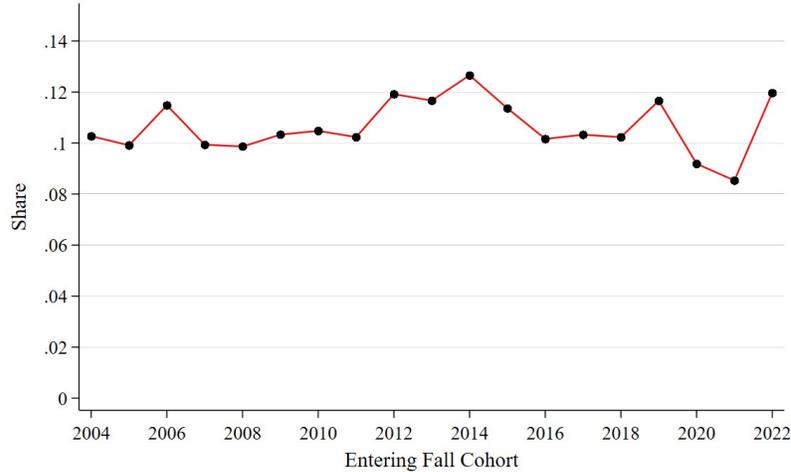


Table 8: Characteristics of students who were offered a seat by distance from Central

Student Attributes	Within 50 miles	More than 50 miles
First-gen	0.48	0.39
Has college experience in HS	0.32	0.29
Distance from Central (miles)	28.37	157.85
Age at expected entry	19.00	18.65
HS GPA on application	3.22	3.19
<i>Race/Ethnicity</i>		
White	0.59	0.63
Hispanic or Latino/a/x	0.32	0.17
Asian	0.02	0.07
Black or African American	0.01	0.06
<i>Gender</i>		
Female	0.56	0.55
Male	0.44	0.44
<i>FAFSA</i>		
Submitted before March 1	0.46	0.47
Submitted before Sept 1 but after March 1	0.30	0.21
<i>Standardized test scores</i>		
SAT Comp	1011.76	1022.47
<i>HS attended (characteristics in 2017)</i>		
Four year graduation rate	0.86	0.88
Adv. Pla. participation rate	0.37	0.72
Adv. Pla. pass rate (Score 3+)	0.57	0.54
<i>Zip code demographics</i>		
Bachelor's or higher (age 25+)	0.30	0.35
HH median income (2021 \$'s)	61343.31	91865.54
People per sq mile (land)	777.61	2368.19
<i>Observations</i>	<i>10730</i>	<i>91519</i>

Notes: Distances were approximated by using student reported zip codes. Other racial categories are included in the displayed sample.

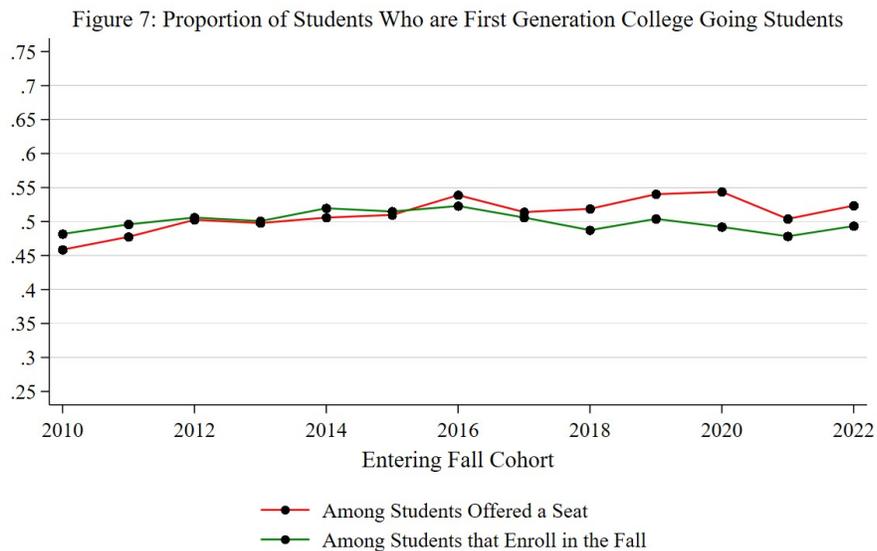
## 4.2 First-Gen Students

### Key Findings

- Since 2010, approximately half the students enrolling in Central are first-gen.
- A large retention rate disparity between first-gen and non-first gen students has recently emerged.

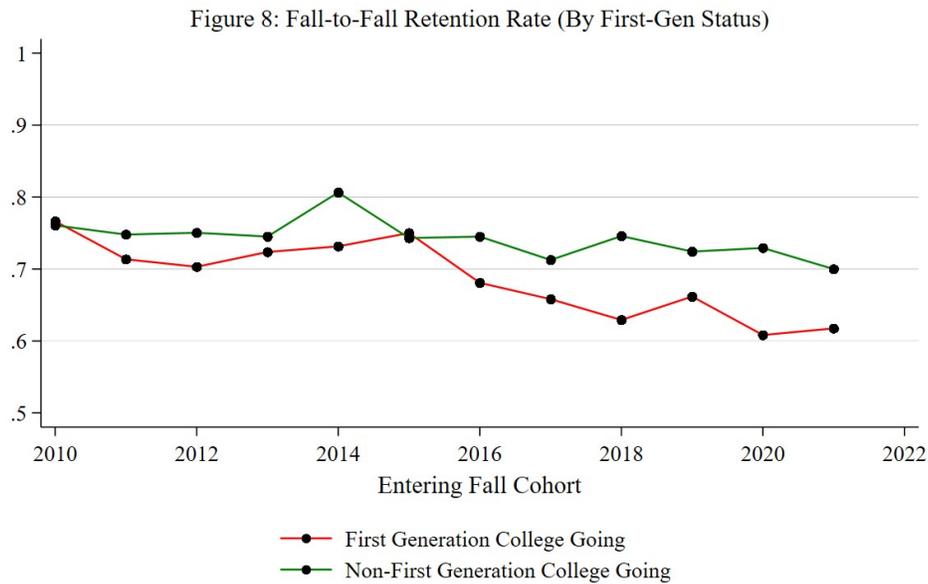
Throughout our analysis in Section 3, we find that first-gen students have a pattern of dissipating from Central regardless of the outcome or sub-sample. These students are less likely to enroll at Central and among those that ultimately enroll during the initial fall term, they are substantially less likely to return for the subsequent fall term. This pattern remains true even when our prediction model is run on separate samples by race, economic status, and gender. This echoes prior research on first-gen students (Startz, 2022; Terenzini et al. 1996). There is a significant disadvantage associated with being a first-gen student that is unexplained by all other observable characteristics.

Figure 7 displays that the share of first-gen students that are offered a seat to Central or enroll at Central has consistently hovered around 50 percent. This provides two crucial insights. First, the substantial decline in enrollment rates and retention rates documented in Section 2 are unlikely to be a result of changes in the number of first-gen students being offered a seat at Central.<sup>15</sup> Second, the figure displays that a substantial number of potential students are first-gen, and this trend is unlikely to change for the foreseeable future.



<sup>15</sup> Central changed the way they identify first generation students in 2009. For relevant comparisons, the years prior to 2010 are excluded from this figure.

Figure 8 displays that a growing disparity in retention rates between first-gen and non-first-gen students has emerged since 2016. This highlights that for the state of Washington and Central to improve the educational attainment rate of the state, stakeholders must proactively identify and implement solutions that improve the postsecondary outcomes for first-gen students.



## 5. Conclusion

A comprehensive review of Central's enrollment and retention data has allowed us to report on valuable insights that have the potential to improve postsecondary outcomes for Washingtonians. The most substantial finding from this analysis is the importance of campus proximity to a student's home address for recruitment and retention. Students living within 50 miles of the campus are predicted to have substantially higher enrollment and retention rates at Central. This finding underscores the potential value of strengthening local recruitment strategies to build an effective pipeline connecting local high school students to Central.

Additionally, we find that academic backgrounds do not fully mediate the inequalities in first-year retention that exist based on first-gen status, and by race and gender. These students, who are often at a disadvantage, face unique challenges that require our postsecondary system to be more student-centered. Adjustments to the system might range from the implementation of mentorship programs to a simplifying of financial aid structures that support their transition into college.

This report underscores the critical role of data-driven research for educational stakeholders throughout the state. We shed light on the predicted success rates of students based on their observable characteristics. This informs stakeholders with an understanding of how the postsecondary system may be supporting or neglecting many of the students we aim to serve. Our goal is not merely to increase enrollment, but to create an environment where each student

has a personalized pathway to success, irrespective of their background or location. With these insights, Central has the opportunity to serve as a forerunner in Washington by championing decisive and inclusive action.

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