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A Quantitative Examination of Black and Hispanic Students' Time-to-Graduation

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A QUANTITATIVE EXAMINATION OF BLACK AND HISPANIC STUDENTS' TIME-TO-GRADUATION

by

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A dissertation submitted to the Graduate Faculty in Urban Education in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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This manuscript has been read and accepted for the Graduate Faculty in Urban Education in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy

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Abstract

A Quantitative Examination of Black and Hispanic Students' Time-to-Graduation

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Ferdinand A. Verley II

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What factors influence Black and Hispanic students' time-to-graduation, and is it different for their special opportunity program peers? Using theoretical lenses including intersectionality, class struggle, justice, and sociological practice, this dissertation employs data from a large urban public university system to examine the relative impact of demography, academic preparedness, and financial background on students' time-to-graduation performance.

Time-to-graduation, operationalized in this dissertation as the duration of years before a student earns a bachelor's degree, for full-time students often represents an investment of time at the expense of earning a wage or salary in the job market. The economic gain that accrues to students who have at least a bachelor's degree is well documented. Little attention, however, has been given to how much demographic, academic preparedness, and financial background factors account for student time-to-graduation. For this reason, this dissertation interrogates the relationship between the foregoing variables for Black and Hispanic students, and includes a stratification that bifurcates between traditional first-time, full-time students, and those enrolled in the special opportunity program at the City University of New York's (CUNY) senior colleges known as the Searching for Education, Elevation, and Knowledge (SEEK) program.

In all, the most important findings in this dissertation include: 1) the SEEK program appears to decrease time-to-graduation gaps for Black and Hispanic students, 2) high school GPA and the English Regents exam are better predictors of time-to-graduation than the SAT Verbal and Math test scores, and 3) financial background as a predictor of time-to-graduation for Black students is no better than chance.

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To my daughters, Äriah and Ava, I hope you one day discover the fantastic work of Kimberlé Crenshaw and Patricia Hill Collins a lot sooner in life than I did. I hope they inspire you to dream big without losing sight of all the little things that make achieving those dreams possible.

To my parents, Van and Rudolph Verley, thank you for teaching me the value of education very early on in life and illuminating the path that culminated in this crowning achievement on my educational journey.

In closing, pursuing a Ph.D., the pinnacle of academic achievement for many, would not have been possible for me if it were not for the dozens of people that helped me either directly or indirectly, and in ways both big and small. It would likely take another chapter to mention everyone and in all the ways I've been buoyed by their support to bring this dissertation to fruition. So, if you are that someone not explicitly mentioned by name, know that your support is noted in my heart and will never be forgotten for as long as I live, thank you.

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Chapter One: Introduction and Background

This section introduces the primary concern of this research: the length of time it takes students to earn a bachelor's degree. This dissertation's research question asks, what is the relative impact of demographics, academic preparedness, and financial background on time-to-graduation for Searching for Education, Elevation and Knowledge (SEEK) and non-SEEK, Black and Hispanic students? Upcoming sections will discuss the importance of time-to-degree. Empirical research will be cited to demonstrate the value that accrues to graduates over their lifetime of work. Thus, the faster students graduate with their bachelor's degree, the greater their lifetime earning potential.

Additionally, the background section will highlight some of the influential national reports that set the stage through which opportunity programs emerged. It recounts the national, state, and local political contexts that ultimately led to the SEEK programs' founding. Subsequently, a vignette of the SEEK program's function as a mitigating factor to postsecondary access barriers is presented. Next, a case study of SEEK at one of City University of New York's (CUNY) thirteen four-year colleges is offered to home in on the distinctive aspects of SEEK almost a decade after its official founding in 1966. Moreover, this case study will explore enrollment trends, student advisement, and academic support for SEEK students in the 1970s.

Finally, the legislative policy section will summarize the considerations that led to the establishment of opportunity programs in New York State law. In addition, a discussion of state laws, regulations, and policies at the institutional level demonstrates the influential role that government has in shaping opportunity programs in general and SEEK, in particular.

Statement of the Problem

The time it takes a student to earn a bachelor's degree affects costs to students and society. For students, the time it takes to earn a degree requires an investment of the limited resources of time and money. In terms of time, students attend classes, write papers, and take exams throughout their academic tenure. Their effort often comes at the expense of earning wages or salaries in the job market. Also, it is common for some students to work while they attend college. For society, a skilled workforce is needed now more than ever as the jobs market transitions away from low-skill manufacturing and manual labor to high-skill service-oriented or knowledge-intensive professions (Pew Research Center, 2016).

Still, there is a need for research to examine the complex interaction effects that lead some students to take longer to graduate than their peers. Through the identification of specific attributes that theory has shown are important to timely graduation (i.e., student finances, academic preparedness), the goal of this research is to examine how to close the gaps in time to graduation for Black and Hispanic students.

Rationale

The time that full-time postsecondary students invest in earning a bachelor's degree often means they forego full-time jobs in hopes of increasing their life long earnings. Carnevale (2016) reminds us that "…over a career, a high school diploma gets you $1.3 million, a bachelor's degree gets $2.3 million, a Ph.D. gets $3.3 million and a professional degree earns $3.7 million." Consider, however, that to move up the academic and economic ladder by degree, one has first to earn a bachelor's degree.

Therefore, students have an interest in knowing how to navigate through the halls of academia as quickly as possible to maximize their earnings and minimize their expenses. Alternatively, from an institutional perspective, one of the measures used to gauge the effectiveness of colleges and universities is the number of years it takes for students to earn a degree. Often used in formal analyses carried out by researchers at the National Center for Education Statistics (NCES), time-to-degree measures are a key component across the thousands of colleges and universities they study. However, popular college review services like U.S. News & World Report, *Money* magazine, and the Princeton Review use their proprietary algorithms to rank colleges and universities across the United States. For this reason, at the institutional level, colleges and universities have an incentive to maximize the students they graduate and minimize how long it takes to earn a degree.

Furthermore, the emphasis time-to-graduation has on students from the lowest economic strata cannot be overstated. For them, food insecurity, home instability, and their meager financial circumstances conspire to threaten their dreams of earning a degree. Moreover, those from the lowest economic quintiles stand to benefit substantially from the economic returns to a college degree (Carnevale, 2016) and the social welfare cost avoidance that college experience or a degree is associated with (Carroll and Erkut, 2009). Therefore, I will focus on a program, SEEK, for students from academically and economically-challenged backgrounds at CUNY.

Theoretical Framework

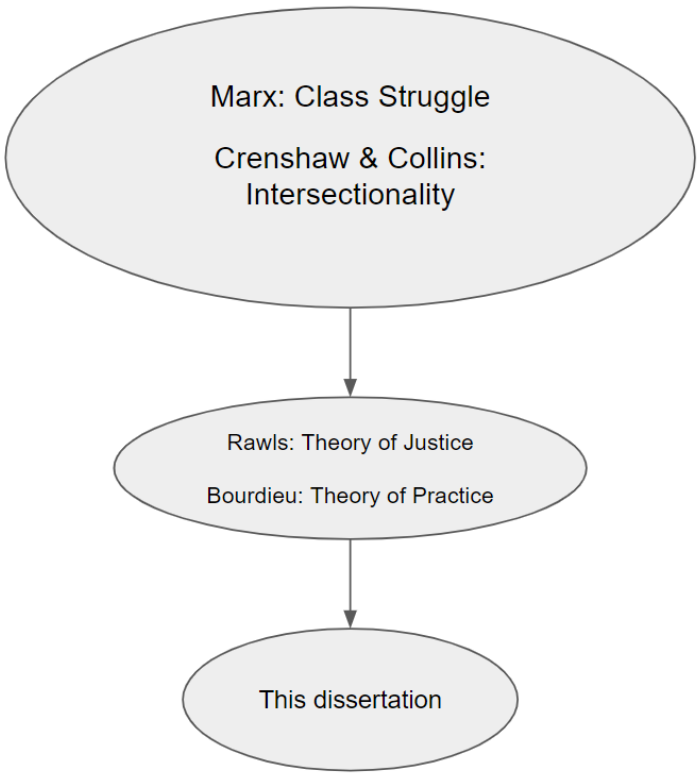
The theoretical framework employed in this dissertation guides the research methodology and orients interpretation of the findings. There are three distinct levels of theoretical discussion – the macro, meso, and micro levels of analysis. The macro-level theoretical discussion introduces the

ideas of Karl Marx on class struggle, which is a fundamental element involved in social transformation. This theory is useful in understanding the motivation for pursuing a bachelor's degree and how the degree becomes a means by which to mitigate the oppressive economic forces inherent within a capitalist society. Also, this dissertation borrows from the ideas of Kimberlé Crenshaw's intersectionality and the work of Patricia Hill Collins on equity and inclusion.

At the meso-level of analysis, John Rawls' (1971) *A Theory of Justice* provides a grounding in the ethical considerations of establishing and maintaining opportunity programs like CUNY's SEEK. Also at the meso-level of analysis, this dissertation borrows from the ideas of Pierre Bourdieu's (1977) *Theory of Practice*. Bourdieu's work frames the complex dialectical interaction that occurs between society and its members.

In sum, these theories provide the structure that shapes the examination of the study's research question: what is the relative impact of demographics, academic preparedness, and financial background on time-to-graduation for SEEK and non-SEEK, Black and Hispanic students? The following logic model provides an illustration of the theoretical framing employed in this dissertation.

Figure 1.1: Theoretical Framework



Background

In 1946 President Harry Truman formed a twenty-eight-member commission on higher education, chaired by George F. Zook, to examine the higher education system in the United States. The commission's goal was to publish a report that re-examines the higher educational system "…in terms of its objectives, methods, and facilities; and in the light of the social role it has to play." (Zook, 1947). The impetus for this massive study was to guide and facilitate federal assistance to postsecondary institutions throughout the country that served troops returning from World War II. Essentially, the sheer number of veterans entering institutions of higher education began to overwhelm their capacity. Thus, the commission sought to examine what was needed

and ways the federal government could assist. Although the Zook report spans over six volumes and covers a multitude of issues germane to the expansion of postsecondary education, two key issues are worth noting:

> Equal educational opportunity for all persons, to the maximum of their individual abilities and without regard to **economic status, race, creed, color, sex, national origin, or ancestry** [as] a major goal of American democracy [emphasis added];

moreover, that,

> …[d]enial of educational opportunity restricts the preparation of the individual for effective living. It is a limiting factor also in our national welfare. Never has our country been faced with so many and so significant problems which require the highest quality of leadership. The importance of a larger supply of intellectual eminence has been demonstrated abundantly in the physical and biological sciences. Equally well-educated leadership is necessary in our economic, social, and political life. Issues related to conservation and development of natural resources, to labor-management relations, to trade and commerce, must all be resolved in terms of the public interest (Zook, 1947, pp. 3 & 8).

Similarly, the Civil Rights Act of 1964 authorized a survey aimed at assessing the extensiveness of educational inequality in US public schools. The resultant *Equality of Educational Opportunity* report, written by James S. Coleman et al., documents the unequal character of schools for White versus African American students. Among other things, the Coleman report highlights that:

> Negro students are more likely to enter the State college system than the State university system, and further they are a smaller proportion of the student body of universities than any other category of public institutions of higher education…[they] are more frequently found in institutions which have a high dropout rate…they attend mainly institutions with low tuition (Coleman et al., 1966, pg. 25).

Indeed, the late 1960s was also a period of immense social upheaval because of the underlying inequality documented in that report. Additionally, anti-war sentiment gained

momentum in this period and shared much of the same critique that the civil rights movement espoused, which, in part, called for equal rights under the law and greater self-determination. At the intersections where these ideologies converged, efforts (i.e., the organizing and demonstrating) were re-doubled to oppose the forms of inequality that suffused society's institutions and led to the bigotry and institutional racism against which the activists railed. Slowly, allies within postsecondary institutions nationwide began to support the civil rights and anti-war movements. Those inside and outside of the academy supporting both movements began to align synergistically. They sought to counter the social, economic, and institutional arrangements that were seen as reproducing prevailing unjust conditions. In their book *Schooling in Capitalist America*, Bowles and Gintis describe the sentiment aimed at postsecondary institutions in particular as one where protesters wanted to: "…[dismantle] the multi-tiered educational stratification system, [advocate] for open-enrollment, and [demand] access to prestigious institutions… In New York City, [B]lack and Puerto Rican students took the lead in 'opening up' the previously highly selective city colleges" (Bowles and Gintis, 1976, pg.214).

It is within this national context that New York State's educational opportunity programs emerged. In the following sections, I describe the evolution of opportunity programs in New York State's public postsecondary institutions and show how the SEEK program fits within the national context of opportunity programs, where matriculants are given enhanced support to compensate for their academic and economic needs.

"Open the doors to all. Let the children of the rich and the poor take their seats together and know of no distinction save that of industry, good conduct, and intellect," announced Townsend Harris, founder of the Free Academy (forerunner of the City College of New York) in

1847 (City College of New York, 1997). His words carry forth the spirit of humanity our great nation has valued since its founding. Through the 170 years since he spoke those words, we as a nation have strived to create a "more perfect union," a phrase enshrined in the Preamble to the United States Constitution. Contemporary observers note that postsecondary education encourages people to:

> …[make] new discoveries in science, technology, and other fields of inquiry; [maintain] expert knowledge of the kind essential to the work of most important institutions; and [supply]…adults with the skills required to practice the professions, manage a wide variety of organizations, and perform an increasing proportion of the more demanding jobs in an advanced, technologically sophisticated economy (Bok, 2013).

Arguably, the importance of education from Harris to Bok's era resulted in part from increasing recognition that college attendance enhanced the likelihood of increased earnings over a lifetime (Carnevale et al., 2013; Tamborini et al., 2015; U.S. Department of Education, 2017). Continued investment by government and other types of philanthropic organizations also reaffirm the critical role that postsecondary institutions have in society more generally. An essential corollary of this social investment, evidenced in *Mobility Report Cards: The Role of Colleges in Intergenerational Mobility*, suggests upward mobility (i.e., the fraction of students who come from families in the bottom income quintile and reach the top quintile) is greatest in universities such as CUNY (Chetty et al., 2017).

One program that may play a key role in upward mobility is CUNY's SEEK program. It is one of several opportunity programs designed to get students who meet the state's definition of disadvantaged (both economically and academically) through an undergraduate program of study at one of the university's senior colleges. Essentially, SEEK enrolls students in CUNY four-year colleges whose grade point averages (HSGPA) suggest their low standardized test scores (i.e.,

ACT and SAT) are not demonstrative of their potential. Moreover, SEEK supplements the access it provides with academic support so that students can complete their degrees.

SEEK: Mitigating barriers to postsecondary access.

The SEEK program, established in 1966, is what its advocates would call "proof" of the redeemable quality of so-called underserved students. Opponents criticized SEEK-like opportunity programs because "ill-prepared" students are not cut-out for college-level work at four-year colleges. Instead, they argued, students should seek alternative educational arrangements (e.g., community colleges, vocational, or trade schools), citing students' poor high school academic performance and weak standardized test scores to substantiate their claim.

In an interview with Wallace (1980), the Honorable Shirley Chisholm, a member of the State Assembly in the late sixties, confirmed that some in the legislature indeed "…saw [opportunity programs] as a fact of lowering standards..." (Wallace, 1980, pg. 72). In other words, opponents claimed that opportunity programs at four-year schools presented a mutually exclusive choice between broad access for the disadvantaged and high standards of excellence. According to Wallace (1980), the view of White liberal legislators' was a reflection of this line of reasoning. This fallacious exclusivity, however, was undermined by pre-cursors to SEEK. Most notable were the pre-baccalaureate program (SEEK's predecessor) at City College and College Discovery at CUNY's community colleges (Wallace, 1980, pg. 128).

By 1967, Julius C.C. Edelstein (professor and coordinator of urban studies at the graduate division of CUNY in 1967, promoted to the vice chancellor for Urban Affairs in 1969) stated at a public hearing on higher education:

> On the basis of progress reports made by the teaching staff, it is clear that SEEK shows brilliant promise. At one college, ten percent of the SEEK students had average standing of "B" or better. Forty percent had average standings of "C" or better (Wallace, 1980, pg. 89).

Beyond efforts to diversify its senior colleges, the preceding statement further demonstrates that CUNY was actively countering the widely held notion that students qualifying for admission through opportunity programs were ineducable and could not perform adequately at the baccalaureate level.

Today, the academic criteria that a student needs to qualify for SEEK vary from campus to campus. For example, Baruch's SEEK webpage dispenses with the misconception that SEEK only admits students with low averages. Indeed, it reports, "…it is more difficult to be accepted as a SEEK student at Baruch than it is to be accepted as a non-SEEK student at some of the other senior colleges in CUNY" (Baruch, 2017). To be eligible academically, a student's academic credentials have to be weaker than that of their non-SEEK peers at the same institution. Another critical element that governs admissibility to SEEK is whether a student's total family annual household income is within state guidelines for special program eligibility. For 2018-19, the cutoff was $45,510 for a family of four. An additional $7,733 was added for each person in a household beyond that amount. However, this guideline is waived if (a) the student's family is the recipient of Family Assistance or Safety Net payments through the New York State Office of Temporary and Disability Assistance, receives a county Department of Social Services payment, or receives Family Day Care payments through the New York State Office of Children and Family Assistance; (b) the student is in foster care as established by a court of law; or (c) the student is a ward of the state or a county within New York.

Since SEEK students are purportedly weaker academically than their non-SEEK peers and come from families that meet low-income guidelines, earning a degree is often fraught with difficulty. So the strength of SEEK lies in its academic support, which includes individual and group tutoring, preparatory courses, intensive counseling, peer mentoring, and other activities that foster a community of support while students pursue their studies.

Meanwhile, the burden of financial constraints can make postsecondary education seem unattainable, given a student's economic reality. Food or housing insecurity are severe impediments to matriculation, persistence, and completion. The SEEK program helps students, and their families, by informally connecting them to need-based resources to prevent homelessness or hunger – both of which are fatal to student persistence (Tinto, 1987). Students enrolled in SEEK are also entitled to enhanced financial aid, book money, exemption from student fees, and other financial support to meet a student's basic economic need for food and shelter.

SEEK: Historical case study of Lehman College.

While there have been several policy analyses or interrogations of the SEEK program (Gordon, 1975; Wallace, 1980), one of the most thorough examinations of the SEEK program and its impact at a CUNY college was conducted in 1983 by Leo Corbie.

Corbie's (1983) dissertation examined how SEEK students compare to peers who were SEEK-eligible, but not able to matriculate through SEEK because of budgetary constraints affecting Lehman College in the mid-seventies. His analysis focused on freshmen students who

enrolled at Lehman in the fall of 1974 and 1975. He details the Lehman College SEEK program's many unique characteristics.

Corbie (1983) indicated that in the fall of 1974, CUNY had "…268,958 students, 11,006 of whom were in the SEEK program…" (Corbie, 1983, pg. 61). In contrast, in fall 2014 – forty years later – enrollment was 275,132 students, including 8,216 SEEK students (CUNY Office of Institutional Research and Assessment, 2019b; 2019c). Moreover, the enrollment numbers published by CUNY show that the SEEK population was down from a high of approximately 11,325 in 1992. Enrollments, however, were relatively stable over the last three years, averaging 8,450 students (fall 2015 through fall 2017) as published in *Trends in Total SEEK/CD Enrollment* (CUNY Office of Institutional Research and Assessment, 2019c). Given these data, CUNY's SEEK enrollment is down almost 22 percent (11,006 in 1974 to 8,633 in 2017) over the last four decades because of budgetary constraints. In either case, the lower enrollment trend in SEEK might also be due to SEEK-eligibles increasingly being denied access to SEEK but matriculating instead at one of the less-selective CUNY four-year colleges or admitted without SEEK's portfolio of services.

Enrollment trends.

According to Corbie (1983), "…the number of entering first-time freshman students allocated to Lehman in the Fall 1974 semester was 2,269, which included 353 who were assigned to the SEEK program and 97 who were eligible for the SEEK program." Whereas, "…entering first-time freshman student population allocated to Lehman for the Fall 1975 semester was 1,883, which included 245 assigned to the SEEK program and 188 SEEK-eligibles" (Corbie, 1983, pp. 61-62). The author explains that the precipitous decline in new

SEEK allocants is mostly accounted for by a commensurate increase in the number of eligibles allocated to Lehman despite their SEEK rejection. It is worth noting that the total number of first-time (i.e., a student who has no prior postsecondary experience), first-year SEEK and SEEK-eligible students remained relatively constant despite a 17% decline (of 386 students) in the first-time freshmen enrollment at Lehman between 1974 and 1975.

Advisement.

The conceptual framework upon which SEEK is premised requires that students receive intensive advisement. To meet this criterion, the student-to-counselor ratio for Lehman College SEEK students, "…in the fall of 1974 and 1975 was 58:1 and 60:1, respectively, while the rest of the student population, which included the control group of SEEK-eligibles, had a student-to-counselor ratio of 347:1 in the fall 1974 semester and 307:1 in the fall 1975 semester." Moreover, students not in the SEEK program who wished to meet with a counselor would be scheduled to see whoever happened to be on duty.

SEEK advisors served as stewards of students' academic progress. Their approval was typically required before SEEK students could register for courses. Given this arrangement, SEEK advisors might counsel students to take basic skills courses if an assessment revealed a weakness. Conversely, SEEK-eligibles had no such constraint, even when basic skills were determined to be needed. Fundamentally, non-SEEK students did not need the approval of their advisor to register for classes, which allowed them to simply bypass enrollment in basic skills courses if they so chose.

Besides academic advisement, the 1,041 SEEK students at Lehman College had a total of three dedicated financial aid officers while the rest of the Lehman College community had access to a single financial aid officer. Additionally, SEEK students received a bi-weekly stipend as part of their financial aid package while their "SEEK-eligible" counterparts did not receive stipends.

Academic support.

Tutoring was available free of charge to SEEK students for as long as they were enrolled in the program. On the other hand, non-SEEK students received free tutoring services during their freshmen year only.

As required by New York State statute and regulations, CUNY submitted its General Plans for the operation, development, coordination, and operation of SEEK. The plan marked the path CUNY would follow to meet the standards established for opportunity programs in New York State.

SEEK: Legislative policy.

In general, each institutions' motivations reflect, in part, a convergence of political and social forces. Those forces had a tremendous impact on spurring the state's higher education institutions, and the elected leadership of New York State, to broaden access to the under-served throughout the state. In particular, Arthur Eve, Shirley Chisholm, Percy Sutton, and Basil Patterson were a formidable foursome in the legislature in the mid- to late-sixties. They championed opportunity programs, leading to their creation and funding for the first time in New York State history (Wallace, 1983, pg. 69).

Statutory framework.

The State of New York passed a law in 1969 that added Article 130 to Title 7 of the state's Education Law. In it, the statutory sections authorized the operation of opportunity programs at New York's public and independent colleges. Although the legislation creates a new article in the state's consolidated laws, its provisions were a transfer of authority conferred by the public laws of 1966 that established the SEEK program at CUNY.

The legislation that passed in 1969 also sought to expand higher education opportunity programs to the state's independent colleges and restructure the flow of operational funding. The state's executive chamber memorandum filed with the senate bill stated, "…funds will be appropriated to the Education Department, to be allocated by it by [*sic*] contract to recognized colleges and universities throughout the State in such best use of the available funds" (S. 5630-C, 1969, n.p.).

The state subsequently passed legislation in 1970 aimed at better coordinating the expansion of the state's opportunity programs. At CUNY, for example, programs similar to SEEK, like the *100 Scholars Program*, existed at the university level; others included the *Equal Opportunity Program* at Brooklyn College; the *SEEK-TRY* program at Queens College; and the *College Discovery* program throughout the system's community colleges. The growing complexity of coordination spurred the state to focus on enhancing coherence and unity of purpose between the public university systems and the state's administrative oversight agencies (i.e., the NYS Department of Education (SED), the NYS Board Regents (BOR), and the NYS Division of Budget (DOB)). For this reason, the state divided the section of higher education law governing the operation of opportunity programs into two. The first section of Article 130, 6451,

was amended to exclude public institutions and authorize the commissioner of the SED to enter into contracts with non-public institutions to administer opportunity programs; meanwhile, a new section, 6452, was added to continue the provision of educational opportunities throughout the state's public systems.

Regulatory framework.

The statute above vests the authority to promulgate rules with SED and BOR, as reflected in Title 8 of the New York Codes, Rules and Regulations (NYCRR). As mentioned in the Statutory Framework section above, the Commissioner of the SED and the Chancellor of the BOR have rulemaking authority over the SEEK operated by CUNY. Indeed, NYCRR's *Rules of the BOR* (Chapter I) and *Regulations of the Commissioner* (Chapter II) are the specific sections where rules about SEEK are found.

The section within the *Rules of the BOR* about the state's opportunity programs is titled *Higher Education Opportunity Programs*. As required by section 6452 of the Education Law, the NYCRR requires the public university systems of NYS to draft "…a general plan for the organization, development, coordination and operation of an education opportunity program" (8 NYCRR § 27-2.1, 2016). The six provisions expressly stated in the code require CUNY to develop a plan documenting:

> (a) the objectives of the institution's education opportunity program, both
>
> short- and long-range;
>
> (b) the criteria for student eligibility for inclusion in the institution's opportunity program;

> (c) the description of program contents, including programs of counseling and advisement, tutoring, remedial, developmental and compensatory courses, and other supportive services at the constituent institutions;
>
> (d) procedures for the evaluation of program effectiveness;
>
> (e) the nature and extent of coordination with other public and nonpublic institutions in New York State;
>
> (f) plans for periodic reports to the Regents and the Commissioner of Education beyond those required by the Rules of the Board of Regents and the Regulations of the Commissioner of Education. (8 NYCRR § 27-2.1, 2016)

Reports of the general plan were due to be furnished on or before May 1, 1971, and periodically after that as determined by the BOR (8 NYCRR § 27-2.2, 2016). Also, this section required the public systems to furnish "…an accounting of the number of students admitted to education opportunity programs" by September 1, 1970.

The NYCRR confers the responsibility for packaging financial assistance to CUNY for opportunity program students attending public university systems. The regulations list three conditions that public systems must adhere to, including, (1) the provision of financial aid, contingent on but not limited to, "family income…responsibility…projected books and maintenance costs;" (2) the public universities were to submit their financial aid plans and policies to the BOR and DOB for approval no later than July 15, 1970; and (3) any proposal to change "…such criteria shall be included in the general plan…on or before the first day of May preceding the academic year in which they take effect" (8 NYCRR § 27-2.3, 2016).

The NYCRR also expressly calls for interim reports to be furnished as required by the Commissioner of Education (8 NYCRR § 27-2.5, 2016), and final reports to be furnished no later

than each October 15th (8 NYCRR § 27-2.4, 2016). Further, the rules state that each public system's final report must include:

> (a) a description of the program, including variations at the constituent institutions;
>
> (b) the progress of students and other factors of program success with a comparison to other students enrolled in the institution;
>
> (c) the extent and nature of the responsibility exercised over such program by the central offices of the City University and the State University;
>
> (d) plans for program change, expansion and development;
>
> (e) the extent and nature of student and community involvement in program planning and development at the constituent institutions;
>
> (f) the extent and nature of faculty and staff involvement and participation in planning at the constituent institutions (8 NYCRR § 27-2.4, 2016).

Institutional-level Policy Highlights.

As mentioned, CUNY SEEK has sought to mitigate the inequalities chronicled by Zook (1947) and Coleman (1966) in the 1940s and 1960s. Essentially, students who were otherwise inadmissible gained admission through a handful of programs that lowered the barriers to entry at the University. In 1964, SEEK had a pre-cursor, known as the College Discovery (CD) program. Sheila Gordon's (1975) dissertation indicates that CD was, "…designed to identify and provide support to youngsters with undiscovered college potential…'young men and women who, because of economic deprivation and lack of expectation of opportunity which surround them in their home environment, do not rank high in academic achievement, despite their native abilities'…" (Gordon, 1975, pg. 94).

Soon after, CUNY's 1966 Master Plan included a proposal for Open Admissions stating that "…graduates of any academic, commercial, or technical high school program…in the top half of their class…[with] a grade point average of at least 75 would be eligible for admission to a [community college]" (Gordon, 1975, pg. 92). Due to the intense social and political pressure exerted on the university, the 1966 Master Plan occurred almost concurrently with the inauguration of SEEK programs at CUNY's senior colleges. Liberalized admissions policies at CUNY came from a mixture of sources external (e.g., politicians, the Urban League and other non-profit organizations, and activism of Black, Hispanic, and other sympathetic students and faculty) and internal (e.g., Chancellor Bowker, Vice Chancellor Edelstein, City College Dean Leslie Berger, Allen Ballard) to the University. Indeed, the pressure was so great that CUNY eventually capitulated on its admissions for the underserved through SEEK, going beyond the planned policy prescriptions embodied in the 1966 Master Plan, and opting in 1969 to enact a policy of open admissions six years earlier than expected (Gordon, 1975, pg. 223).

Program management and evaluation.

CUNY chose to embrace the decentralized operation of SEEK at the colleges as a means to foster "innovation and diversity;" the Central Office, meanwhile, established an evaluation research unit tasked with conducting comprehensive research in compliance with Article 130, Title 7, of the state's Education law (Gordon, 1975, pg. 86).

CUNY wanted to shift away from simply collecting descriptive data about what students were like (i.e., age, sex ethnicity, source of referral, high school average), and begin to analyze "…the relative effects of such significant program characteristics as course load (including total number of credits per semester, credit vs. non-credit loads, exclusively-SEEK compared to

mixed sections), retention policies (e.g., withdrawal from "difficult" courses, reducing the number of credits) and remedial practices (e.g., non-credit courses, tutorials) so they can decide which to discontinue, modify, or expand" (Gordon, 1975, pg. 86). In essence, stakeholders at all levels would have the means to evaluate effectiveness, identify best practices, and share those across campuses.

Student eligibility for SEEK.

The General Plan compiled by CUNY lists the eligibility guidelines for the university as follows: (1) residents of NYS; (2) graduation from an approved high school, earned a high school equivalency certificate or vetted by a constituent campus's testing procedures certifying high school equivalency; and (3) having annual income below the established cutoff, signifying economic disadvantage. Students living in low-income housing (or able to demonstrate serious mismanagement of the family's income) are considered economically disadvantaged and eligible for SEEK. If a student's family receives benefits from state or local welfare, they automatically satisfy the income test and qualify for eligibility. Last, (4) students must meet the definition of educational disadvantage while having demonstrated the potential to complete a degree program.

CUNY's General Plan specifies applicants need only be high school graduates or possess diploma equivalent with no explicit mention of academic inadmissibility to the receiving institution. The only explicit constraints mentioned in CUNY's General Plan regarding SEEK-eligibility were: (a) students being under the age of thirty; (b) no prior college attendance unless the student is a veteran; (c) at least one year New York City residency; and (d) "live in an officially designated poverty area" (University of the State of New York, 1971, pg. 80).

Presently, the SEEK section of CUNY's website expands on the geographic eligibility from New York City to New York State residency for at least one year (City University of New York, 2019). Students previously enrolled in an Educational Opportunity Program (EOP) or the Higher Education Opportunity Program (HEOP) are eligible to apply for SEEK. Also, SEEK's website does not explicitly state that students are limited by age, nor does it require students to live "in an officially designated poverty area" as it did in the General Plan of 1971. Students, however, "must attend a pre-freshman summer session if [they] do not satisfy the University criteria on one or more of the University Skills Assessments Tests in Reading, Writing, or Mathematics" (City University of New York, 2019).

By the time CUNY's General Plan was published in 1971, Open Admissions disrupted the admissions approach for SEEK students at CUNY in September 1970. In sum, Open Admissions at CUNY promised all graduates of New York City high schools admission to one or another college within the CUNY system. Despite being planned to go into effect in 1975, the earlier debut of Open Admissions meant that the special conditions of SEEK (e.g., small class size) would be more difficult to achieve. However, CUNY's General Plan predicted that "the success of SEEK remains a measure of the potential success of Open Admissions, **given an adequate level of funding** [emphasis added]" (University of the State of New York, 1971, pg. 55)

Thus, as a consequence of the volume of applications, CUNY opted to centralize the SEEK applicant pool with those of the entire university. The general plan explains that "…the processing of the SEEK applications with all other applicants for admission into the City University was made necessary by the advent of the Open Admissions program" (University of

the State of New York, 1971, pg. 78). In essence, students who were SEEK eligible would ultimately be admitted as an Open Admissions student should available slots in the SEEK program be exhausted. As was the case before, however, "…selection for admission [through SEEK] has…been by random selection from among those who satisfy basic eligibility requirements" (University of the State of New York, 1971, pg. 79). Furthermore, CUNY's General Plan goes on to indicate, "[the] distinguishing characteristic of SEEK eligibility, as contrasted with eligibility for Open Admissions, is the non-requirement for high school graduation in the immediate preceeding [*sic*] year, or for graduation from a New York City high school" (University of the State of New York, 1971, pg. 79).

Opportunity programs have played a significant role in opening the doors of CUNY to students that might otherwise not have had the chance. Its existence, as elaborated in the statutory and regulatory framework sections, illustrates the state's and city's commitment to the underserved populations in New York City. However, just as the social and legal landscapes can change, so too can the state's support of its opportunity programs. Therefore, the existence of SEEK relies on the lobbying and advocacy of the community, its legislators, and policymakers at all levels of government, which will be discussed in greater detail in Chapter Six. These efforts taken together with evidence of CUNY's ability to graduate SEEK students underscores how valuable a tool it is to counter the effects of intergenerational poverty.

In addition to the background provided in this chapter, the next five chapters each contribute a specific piece of the organic whole. More specifically, Chapter Two will deepen the theoretical framework and review the literature that serves to contextualize the current study. Next, Chapter Three will provide an in-depth discussion of the data and the methods that guide

this dissertation's research. Chapter four, thereafter, presents the results of the data analysis for the current study. Then, in Chapter Five, a discussion of the relevant findings in Chapter Four are presented and interspersed with the literature review and theoretical framework from Chapter Two. Lastly, Chapter Six will discuss how the results of this study inform students, their parents, administrators and faculty at postsecondary institutions, legislators, and government policymakers on ways to improve time-to-graduation performance. Moreover, Chapter Six contains the limitations of the study and ideas for future research.

In sum, the purpose of this study was to examine the relative impact key demographic variables, academic preparedness, and household finances have on time-to-graduation for Black and Hispanic students at a large, urban, public university. Alternatively, the research question used to guide and frame the current study asks: what is the relative impact of demographics, academic preparedness, and financial background on time-to-graduation for SEEK and non-SEEK, Black and Hispanic students.

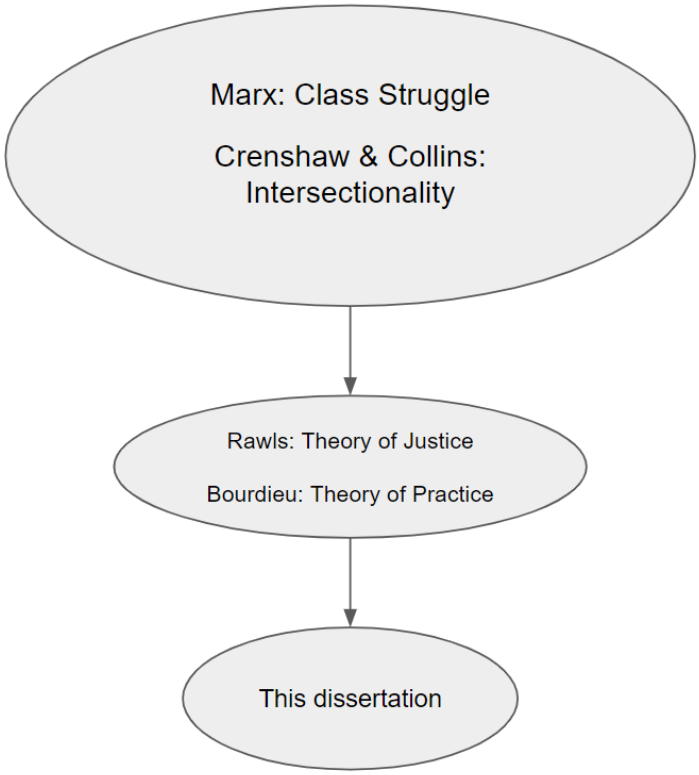
Chapter Two: Theoretical Framework and Literature Review

This section introduces the macro-, meso-, and micro-level analyses that guide my research. First, at the macro-level of analysis, the ideas of Karl Marx and his articulation of class struggle provide a framework for understanding the distinction between capitalist and working-classes and how their opposition informs social relations. Also discussed in this section, is how the lens of intersectionality, as conceived by Kimberlé Crenshaw and expanded upon by Patricia Hill Collins, can illuminate insights by recasting and disaggregating demographic, academic and financial variables.

Theoretical Framework

Using the ideas put forth by the macro- and meso-level theorists, this dissertation explicates how demographics, academic preparedness, and financial background converge to affect Black and Hispanic SEEK and non-SEEK students' time-to-graduation performance.

Figure 2.1: Theoretical Model



At the macro-level of analysis, Marx wrote about societies, politics, and economics. Essentially, Marx, using a dialectical view of social transformation, holds that class struggle is the mechanism that drives changes within a society (Gregory & Stuart, 2013). The dialectic to which he refers is that of the capitalist versus the proletariat (i.e., working-class) in capitalist society. According to Marx, class struggle is the motivating factor that ultimately led capitalism to replace feudalism (Gilbert, 2018). The defining feature of capitalism is marked by the ability of those who own the means of production to extract *surplus value* from that of laborers, i.e., "the employer can compel workers to produce a value that exceeds the value that workers need to maintain themselves" (Gregory & Stuart, 2013).

Marx's view of social formation in a capitalist environment provides the contextual basis to inform the meso-level analysis of Bourdieu. Nonetheless, Marx articulates the dynamics that drive a significant proportion of human behavior, including but not limited to, the pursuit of higher education. Ergo, the pursuit of higher education can be understood as a strategy to avoid oppressive economic circumstances, which tends to be inversely correlated with an individuals' accumulation of Bourdieusian cultural and economic capital.

Kimberlé Crenshaw's theory of intersectionality inspires the methodological approach used in this dissertation. Crenshaw's (1989) theoretical framework was developed within the feminist tradition as a way to identify discrimination hidden beneath the veneer of singular demographic typologies (e.g., race or gender in isolation of each other) that makes discrimination harder to observe. For example, Crenshaw (1997) argued that efforts to use the law as a mechanism to secure equity between Blacks and whites via *Brown v. Board of Education* (1954) led to the equal treatment of "…all individuals…regardless of differences they bought with them due to the effects of past discrimination or even discrimination in other venues," which can "…generate as much inequality as treating the same things differently (Crenshaw, 1997; Collins, 2002).

Similarly, this dissertation is interested in unearthing gaps in the time-to-graduation of women, particularly Black and Hispanic women. The class (i.e., economic) struggle observed by Marx becomes even more pronounced when one locates it at the intersection of gender. Studies have shown that women in the U.S. earn less than men (U.S. Bureau of Labor Statistics, 2017; Corbett & Hill, 2012). Patricia Hill Collins reminds us in her work *Black Feminist Thought* that the resistance of oppression is an aim to which we all should aspire. More specifically, Collins

(2002) argues that "[i]ntersectional paradigms remind us that oppression cannot be reduced to one fundamental type, and that oppressions work together in producing injustice" (pg. 18). Indeed, Collins advances a cogent rationalization for dismantling the discriminatory forces that affect Black women in particular. Given the marginalization in society women have experienced, the statistical analysis in this dissertation will explicitly include a variable to denote the female gender (Crenshaw, 1989; Hill, 2002; Kendi, 2019).

Additionally, given the class struggle experienced by working-class children, I suspect that students who qualify for SEEK may have a different time-to-graduation experience than their non-SEEK counterparts. For this reason, intersectionality is an indispensable tool for the examination of outcomes across multiple domains. Using this systematic methodological approach to the data may reveal disparate impact or other inequity within the aggregate set of data. This intersectional approach to the examination of time-to-graduation across demographic, academic, and financial measures allows each model to introduce variables systematically within a multi-dimensional framework. It avoids the problems of looking at a single attribute through a series of interaction effects. In effect, the methodological construct employed herein will examine the time-to-graduation overall for Black and Hispanic students and then stratify across students' SEEK status (i.e., SEEK versus non-SEEK).

Next, at the meso-level of analysis, John Rawls' (1971) *A Theory of Justice* provides a framework through which the concept of justice can be understood metaphorically by invoking an abstracted, hypothetical space known as the original position. After that, a discussion of Pierre Bourdieu's (1977) *Theory of Practice* is provided as a potential manifestation (or pragmatic implementation) of justice within the empirical world.

John Rawls' *A Theory of Justice* (1971) aligns with what is known as the social-contract tradition in philosophy. The social-contract theory holds that the moral or political obligations of individuals depend on a contract or agreement between them to form the society in which they live. Unlike utilitarianism, which argues that whatever brings the most good to the greatest number of people, Rawls' theory proffers that justice will emerge through negotiation under a condition he refers to as the "veil of ignorance" (Rawls, 1971, pg. 19). In other words, a fair and just society will emerge if the members of a body politic are unaware of the lot (e.g., wealthy, poor, influential, or without any influence whatsoever) they might draw in the society they are designing collectively. A necessary prerequisite in this theory is the presumption that those charged with creating the social contract have mercy as a moral imperative, wherein the least advantaged can redress the circumstances of their oppression. Rawls refers to this hypothetical, abstract-reality starting point as the "original position," the place in which "…the fundamental agreements reached…are fair" (pg. 17). Rawlsian justice, then, requires clarifying what parameters are fundamental to the establishment of fairness.

Rawls argues that a body politic is comprised of rational actors seeking to maximize their interests. However, since excesses are all but guaranteed without invoking the *veil of ignorance* in the *original position*, his theory suggests that the resultant society is just and fair because it was organized according to the principles agreed upon in the *original position*. Therefore, a process by which to decide what is just and fair in the original position is warranted. Rawls offers the following principles in which original-position actors, who are concerned with the establishment of justice as fairness, consider ways to maximize beneficent (i.e., just and fair) outcomes:

> *Social and economic inequities are to be arranged so that they are both (a) to the greatest benefit of the least advantaged and (b) attached to offices and positions open to all under conditions of fair equality of opportunity (pg. 60).*

Furthermore, according to Rawls, inequity is antithetical to the maximization of beneficent outcomes:

> *The…larger difference between rich and poor makes the latter even worse off, and this violates the principle of mutual advantage as well as democratic equality (pg. 79).*

Rawls' theory of justice provides a motive for this research at the meso-level of analysis. By identifying and measuring Black and Hispanic students' variables that correlate with time-to-graduation gaps, I confirm inequities exist for Black and Hispanic students empirically and, second, develop a model that identifies predictors that policies can be used to target and shrink time-to-graduation gaps. Moreover, this dissertation will examine the emergence of special programs designed to address inequity through postsecondary access and how those fit within the context of minimizing time-to-graduation.

While Rawls' theory frames the considerations of what qualifies as fair and just, Pierre Bourdieu's *Outline of a Theory of Practice* (1977) provides theory through which the variables beyond Rawls' conception of the original position might be understood as the operationalization of that hypothetical space.

In his articulation of what he refers to as habitus, Pierre Bourdieu theorizes that social environments have a strong influence on a human subject or agent formation. Paraphrasing Bourdieu (1977), habitus is a system of beliefs and values that shape an individual's views and

interpretations while simultaneously scripting the fabric of the social space to which s/he belongs. In his seminal work, *Distinction: A Social Critique of the Judgment of Taste,* Bourdieu describes habitus as:

> [an] object the knowledge which the agents, who are part of the object, have of the object, and the contribution this knowledge makes to the reality of the object (Bourdieu, 1984, pg. 467);

moreover,

> [it is] a structuring structure, which organizes practices and the perception of practices, but also a structured structure: the principle of division into logical classes which organizes the perception of the social world itself the product of internalization of the division into social classes (Bourdieu, 1984, pg. 170).

Whereas the habitus conditions agents' performances, Bourdieu (1977; 1984) argues that fields determine the tacit rules governing the interaction between the agents as they navigate the variety of fields (e.g., medical, academic, consulting, fashion, or manufacturing). Building on Bourdieu's insights, Alexander et al. (2003), adds "…[f]ields are historically embedded social contexts," and that, "[e]ach field is based on an historically generated system of shared meaning" (pg. 732). For this reason, I include a historical sketch to ground the central factors explored throughout this dissertation.

The next key component of Bourdieu's *Outline of a Theory of Practice* requires the introduction of mechanisms through which various stores of value accrue to individuals and, in part, reinforce their social class distinctions in the field and habitus. Bourdieu borrows from Karl

Marx's conception of economic capital and extends it to include three more, somewhat less tangible, but valuable forms of capital – social, cultural, and symbolic.

Bourdieu's capital represents a currency or value that individuals exchange to augment their social position within the habitus and field (Bourdieu, 1977; 1984; Iellatchitch, Mayrhofer, & Meyer, 2013). In other words, each form of capital allows rational actors to convert them strategically to maximize their intrinsic or extrinsic fulfillment or both. The dialectical relationship of the agents and their habitus and field (i.e., structure) represents an auto-catalytic process whereby the agents are shaping and being shaped by the respective structures.

Bourdieu (1984) argues that capital is the mechanism by which social relations are reproduced over generations (pg. 223). For example, one's parent(s) could exchange their store of economic capital for sending their child(-ren) to better schools, which would endow them with cultural capital. Presumably, this conversion then survives into the next generation's children use that store of cultural capital to obtain economic capital by way of a career. Alternatively, parents and their children could use the site of a school to network and increase social capital that may also be exchanged for one or more other forms of capital. The accumulation of economic, cultural, and social capital affects their symbolic capital, i.e., it operates as a signal of one's standing in the field-habitus structure.

Rawls' *A Theory of Justice* provides the moral rationale to reduce time-to-graduation, particularly for underserved groups. Bourdieu's *Outline of a Theory of Practice* provides the operational framework that explains the functioning and maintenance of modern Western society. It stresses the importance of specific endowments and dispositions as related to capital and acculturation through the habitus and field. The preceding being the case, it stands to reason

the aim of humankind should be focused on eliminating inequality, whether it be the result of human excesses, indifference, or pure malice.

Literature Review

In this section, I connect the broader academic concepts, theory, and research to ground the variables discussed in greater detail in Chapter Three. Graduation from a traditional four-year college requires persistence, and a key feature of deciding to persist is performance as measured by grades.

Again, since this study aims to measure the impact student demographics, academic preparedness, and socioeconomic status have on time-to-graduation, the following paragraphs will explore some of the most fundamental attributes that most directly affect student completion – retention and academic performance. In particular, specific attention is given to studies that focus on opportunity programs, minorities, and non-traditional students.

Retention theory.

Understanding why some students persist while others choose to drop-out or stop-out has been a fertile area of research for decades. A focus on retention by postsecondary institutions, in particular, reflects a commitment to fulfilling the broad mission shared by many institutions of higher education – to educate and graduate their students in the most efficient, cost-effective way possible. So, if a particular field of study on average requires a four-year commitment, postsecondary institutions want most students to finish in at least that amount of time, if not before. Students' lives, however, are often affected by exogenous factors that militate against

that goal. Therefore, researchers have studied the topic of retention in search of the best ways to maximize retention and program completion.

Perhaps best known for scholarship on postsecondary retention is Vincent Tinto's (1975) theory of student departure. Chief among Tinto's insights on retention was the call for research to distinguish between students leaving a specific college versus exiting the higher education system. Tinto argues that stakeholders of all stripes have to appreciate the diversity of student needs, some of which colleges are in the position to affect, and some they are not (i.e., where a referral to an external resource might be best). Recognition of students' agency creates the conditions to appraise and calibrate approaches designed to improve student outcomes, particularly those involved with persistence and retention.

Whether students are leaving a specific institution versus departing higher education altogether matters because it has implications for motives; for example, the school might be too far from home, or perhaps minor financial constraints that cause them to attend a lower-cost school. In light of the former, an institution's intervention might be impractical, whereas the latter's case might be within its sphere of influence. Whichever the case may be, the point is that students find themselves adapting to myriad circumstances that have many solutions that can affect persistence in pursuing a degree.

If students are departing higher education altogether due to under-preparedness, then universities can develop strategic partnerships with secondary schools and policymakers at all levels to raise academic standards. Indeed, within an institution, administration and faculty can establish peer support networks, which might include tutoring or group-study sessions. Tinto (1975; 1987) argues that student leaving is, in part, a failure to assimilate to the campuses' social

environment. In that case, postsecondary institutions might introduce or enhance their student orientation processes, sponsor social programming, and encourage students to engage in student clubs to create a more inclusive environment. Universities, however, must remain mindful of mission creep, which can increase financial and administrative costs in exchange for small benefits (Bok, 2013).

Tinto (1975; 1982; 1987) acknowledges the variety of variables (e.g., gender, race, ethnicity, and socioeconomic status) that comprises modern Title IX postsecondary institutions. Higher education institutions aspire to reflect society's values of inclusiveness; such an orientation, however, is not without its share of challenges.

Tinto's (1975; 1982; 1987) model of student departure is particularly sensitive to the challenge student assimilation presents in the presence of the headwinds they face either academically or otherwise. Like Spady (1970) before him, Tinto (1975; 1987) connects his theory of student departure to Durkheim's research on egoistic suicide (Durkheim, 1951). For Tinto (1975; 1987), the link between suicide and postsecondary departure is analogous to terminating one's matriculation because of a failure to integrate or assimilate in the campus environment. Pascarella and Terenzini (1991) confirm Tinto's (1975; 1987) theory when they remarked in *How College Affects Students*: "negative interactions and experiences…tend to impede integration and distance the individual from the academic and social communities of the institution" and ultimately lead to student attrition (Pascarella and Terenzini, 1991, pp. 54-56).

Tinto (1982) published an essay that sought to address the inadequacies of his original theoretical framework. First, he sought to clarify that his model was "primarily concerned with accounting for the differences, *within* academic institutions" (pg. 688) Additionally, he explained

that his model was "not designed to account for all variations in the student leaving behaviors. Rather [it was] designed to highlight in the clearest explanatory terms specific types of relationships between individuals and institutions that may account for particular types of dropout behavior" (pg. 689). Finally, Tinto (1982) enumerated four main weakness of his 1975 theoretical model: (1) "…the model did not give sufficient emphasis to the role of finances"; (2) "…it did not adequately distinguish between those behaviors that lead to institutional transfer and those that result in permanent withdrawal from higher education"; (3) "…it fails to highlight the important differences in education careers that mark the experiences of students of different gender, race, and social status backgrounds"; and (4) "…[the model] is not very sensitive to forms of disengagement that occur within the two-year college sector" (pg. 689).

Another influential researcher in the field of postsecondary retention, John Bean (1980), introduced his causal model of student attrition. Bean's contribution to the field of student retention explicated the factors associated with non-traditional student populations. As enrollments of non-traditional students, like those enrolled in SEEK, for example, began to change the demographics of postsecondary education, so did the need to understand the unique characteristics that differentiated this population from those of traditional students.

For Bean (1980), non-traditional students are less affected by the social integration elements because they often are commuter students with jobs or careers countering the acculturation influence permeating through the environment of a residential, postsecondary campus. Indeed, Bean and Metzner (1985) describe non-traditional students as "older," "part-time," and "commuter" (pg. 485) In other words, their theory of student departure calls for a greater emphasis on student social environments external to postsecondary institutions.

While Tinto's research was one of the first to elucidate a theoretical base for the field, Bean (1980) decried that Tinto (1975) and others did not adequately "distinguish between determinants of student attrition (analytic variables) and the correlates of student attrition (demographic variables)," which made testing the theoretical assumptions difficult (pg. 156). With this in mind, Bean (1980) adapted the work of James Price's (1977) study on workplace turnover, thereby extending its insights into the body of literature on student retention.

Bean's (1980) research cites Spady's (1970) elucidation of the postsecondary GPA role as a mediating variable on student retention wherein he argues grades are, "…extrinsic…tangible resources in the quasi-occupational role-playing of the career oriented student in his negotiations for improved opportunity for success" (Bean, 1980, pg. 157). This point is of particular importance because it emphasizes a key relationship shared by GPA and retention, "academic momentum" (Adelman, 1999; Attewell, Heil, & Reisel, 2012).

In sum, Bean's (1980) causal model of student attrition posits that there is an immutable link between academic achievement and socioeconomic status as measured by parental occupational attainment and specific organizational determinates (e.g., GPA and commitment to completion) on student satisfaction and institutional commitment, which in turn explains the propensity to stop pursuing a degree (pg. 158). Again, Bean (1980) shows that the examination of what leads to dropping out requires the simultaneous interrogation of both cognitive and non-cognitive factors.

Alexander Astin's (1977) theory of student involvement has practical utility insofar as it, too, explicates the factors involved in student departure from a postsecondary institution like the other models discussed above (Bean, 1980; Tinto, 1975). Astin's (1984) research supports,

among other things, that student environments and GPA are positively correlated with retention. Furthermore, Astin (1984) shows that experiences limiting student engagement (e.g., being a commuter, a dependent living at home with parents, off-campus employment, preoccupation with distractions such as video games or television) with their campus colleagues is inversely correlated with retention. Using data obtained from over twenty-five thousand students who entered college as freshmen in 1985, Astin (1993) produced a synthesis of college effects based on student input and college environment variables to predict student outcomes. In sum, a key contribution Astin (1993) makes on student retention theory is that a "…*student's peer group is the single most potent source of influence on growth and development during the undergraduate years* [emphasis in the original]" (pg. 398).

Research on the retention of unique student populations.

Research by Alford (1995) explored peer relationships among students in the SEEK compensatory educational program. In her study, she notes that there was a "paucity of studies" examining how relationships form among students in four-year urban commuter colleges, particularly those enrolled in compensatory educational programs (Alford, 1995). Alford (1995) asked:

a) What are the values, attitudes, behaviors, and beliefs of socioeconomically disadvantaged minority students in compensatory educational programs at urban four-year commuter colleges?

b) Do students have peer relationships[1] moreover, are those relationships peer groups?

[1] Peer relationships here refers to any association that a student has with other students; however, since these students do not spend extended amounts of time with one another nor exert influence on one another, the relationship is distinct from that of a peer group. In contrast, a peer group refers to any set of two or more students whose relationships exert influence upon them as individuals (see Newcomb, 1962, 1966).

c) What values, attitudes, beliefs, and behaviors shared by students in a compensatory program transfer from one generation to the next?

d) Does student culture within a compensatory education program promote retention or attrition? (pp. 16-17)

Using surveys, interviews, and empirical observation of approximately 230 students, she found that students often had two to three groups of friends and associates. Students that did not have at least two friends usually fell into one of the following three categories:

a) those who did not associate with people naturally, i.e., loners;

b) those who had not been permitted to associate with their neighbors by parents or guardians; and

c) those who had not lived in the communities for long enough to develop connections with their neighbors, e.g., recent immigrants (pg. 134).

The key finding by Alford (1995) was that as new students began to recognize divergent values between their friends in school and those outside of school, they would often privilege the older relationships over their newer academic-peer connections (pg. 133).

In her parting recommendations, Alford (1995) argues, "…retention might…be increased when the members of the community become involved in college life" (pg. 150). Additionally, she argues that the SEEK program needs to foster greater cross-cohort experiences such that the academically experienced have better opportunities to impart their wisdom on their less experienced classmates.

Murtaugh et al. (1999), using a statistical methodology known as survival analysis, sought to identify the critical variables in predicting retention at Oregon State University. Their study argues, in part, that student retention has macro- and micro-economic implications, which

compel postsecondary institutions to pursue maximization strategies. Given that perspective, the authors set out to identify key variables using a quantitative approach adapted from statistical research in medicine that would enable colleges and universities to know which variables are the most salient in predicting retention.

The study's design brings the timing of students' withdrawal from the university into the equation as an independent variable itself, whereas other traditional logistic regression analyses' are designed to predict attrition itself. The multivariate analyses performed in this study highlighted first-quarter GPA, freshman orientation participation, high school GPA, residency, college, ethnicity/race, and age as the best predictors of retention of 8,293 student cases.

After analyzing the model's output, Oregon State identified that enhancement of their orientation programs for out-of-state students was called for since the data showed that retention for out-of-state students as a group was considerably worse than that of Oregon State's in-state and international student populations.

Moreover, the researchers' also noted unique patterns that emerged for minority student retention at Oregon State. Specifically, Murtaugh et al. (1999) found that "black students are more likely to graduate than are members of other ethnic groups, if they enter equally prepared" (pg. 368). Their finding led to Oregon State implementing a recruitment campaign aimed at high-achieving in-state Black students.

Meanwhile, students enrolled in Oregon State's Educational Opportunity Program (EOP) between 1991 and 1996 had a four-year probability of withdrawal of 56 percent. In contrast, the probability of attrition of their non-EOP peers was 39 percent. Murtaugh et al. (1999) caution,

however, against using those ratios as an indicator of the program's effectiveness because the mean high school GPA of EOP students is 2.88 versus 3.40 for their non-EOP peers. Therefore, they argue, it is likely that the weaker students would be at an even higher risk of withdrawing without the support of the EOP.

Stephanie Thomas (2016) looked at how non-cognitive factors affect student retention. As discussed earlier, non-cognitive traits involve self-esteem, motivation, and effort, which combine to influence patterns of thought, behaviors, and feelings. In other words, while cognitive traits include reasoning, learning, reading, and other complex memory processes, non-cognitive traits encompass the emotional dimensions of a person's character (Duckworth & Seligman, 2005; Dweck, Walton, Cohen, & Bill and Melinda Gates Foundation, 2014; Thomas, 2016). Thomas (2016) asked, "How do non-cognitive factors affect a student's intention to stay in college? What can university administrators, faculty, and staff do to promote success for undergraduate students in college and career readiness? What college retention practices, programs or services promote students to stay in college?" (pg. 12).

Using a mixed-method approach that involved survey research coupled with focus group interviews, Thomas's (2016) study consisted of students ranging from undergraduate freshman to seniors and on-campus residents and commuters; they come from a variety of ethnic/racial and socioeconomic backgrounds, and they attend a private non-profit, nonsectarian postsecondary institution in the State of New York.

Those independent variables were studied to ascertain how they impacted students' decisions to persist or withdraw from the institution. Of particular interest here is the correlation

of responses to the question: “I see myself graduating from this college,” and the other independent variables (pg. 172).

Thomas (2016) found a strong, statistically significant relationship linking the dependent variable, “I see myself graduating from this college,” and the socioeconomic measures that included the availability of financial resources and career readiness (pg. 144). Essentially, her findings are consistent with other research examining the relationship between family income and educational attainment, which finds, “students from families in lower income quartiles are far less likely than those of higher income quartiles to earn a bachelor’s degree by the age of 24” (Mortenson, 1998; Thayer, 2000, pg. 4; Thomas, 2016, pg. 19).

Academic preparedness.

The nexus between starting and completing is bridged by students’ academic performance as measured by their grade point average (GPA) (Adelman, 1999; Attewell et al., 2012). Also, GPA is a widely used barometer of student performance (Bowles and Gintis, 1976; Duckworth and Seligman, 2005; Dweck, 2014; Mount, Barrick, & Strauss, 1994). Of particular concern for the present study, however, is how high school grade point average (HSGPA) and the SAT predict students' time-to-graduation through a composite measure constructed in the methodology section called Academic Preparedness.

GPA is a barometer of students’ school performance. It signals to objective observers how one is meeting the requirements of their grade level. In statistical parlance, a grade point average is a continuous variable that is traditionally described on a scale from 0 to 100 or 0 to 4; yet, many variations exist such as the categorical letter grades (e.g., A – F) or numerical ranges

beyond the traditional ones just mentioned. Its measurement and the epistemological value thereof are often hotly contested (Brookhart, 2013). Our primary concern is the rationale for GPA use by students, employers, schools, and researchers.

GPA and the hypothetical student perspective.

Early, and throughout a student's academic career, grades are earned for specific assignments or earned in the aggregate for an entire course or class; although elementary level students may not be as sensitive as are their older school-going compatriots. By the middle school years, most students will have come to recognize grades as a measure of their progress through academic life. In those early years, parents, teachers, and guardians use the information diagnostically, measuring where their children stand on the spectrum of academic performance. Naturally, as students mature and education shifts from compulsory to voluntary, they recognize that GPA determines whether they are on the path to earning a credential. In a broader sense, GPAs signal to all interested parties whether things are going great, where there is room for improvement, and how students rank among peers.

A wide variety of personal incentives (e.g., earning a credential, career goals, income potential, civic responsibility, pride) underlie students' motivation – and thus GPA performance – which alternates between the intrinsic-intangible (e.g., ego, self-worth), and the extrinsic (e.g., compensation; monetary or otherwise) or some combination thereof. Those who grade, however, base their scoring on rubrics that translate a student's performance into a number (or letter). In other words, GPAs are essentially a quantification of assessments that measure both cognitive and non-cognitive processes (Duckworth and Seligman, 2005; Dweck et al., 2014).

Other uses of GPA.

Apart from GPA's role as a decisive factor on the path to earning a diploma or degree, students who aspire for careers typically showcase their GPA to compete with other graduates for jobs. Typically, a prospect competes for available jobs by meeting the requirements of an employer's hiring announcement, which may include furnishing a résumé, references, academic transcripts, or any combination thereof and more. Arguably, Dweck's (2014) and Duckworth and Seligman's (2005) insights that the non-cognitive element of a students' GPA is an important determinate of a person's character is not lost on employers. Indeed, Bowles and Gintis (1976) recount the work of Gene Smith, who found that a student's "work-orientation factor" is a predictor of educational success as measured by grade-point average. Reaffirmation of the link between GPA and desirable traits in the workplace (e.g., conscientiousness) have endured in social science studies (Mount, Barrick, & Strauss, 1994).

So even as GPA serves as a diagnostic measure of school performance, some employers may use it, in part at least, to sort desirable candidates based on accolades driven by GPA (e.g., valedictorian, salutatorian, summa cum laude, Dean's list, honor societies) on résumés or applications they receive. How might an employer gauge the non-cognitive elements from a numerical grade? The non-cognitive subtleties (i.e., personality traits) that Dweck (2014) argues are influential on GPA could be assessed through an interview process or perhaps a writing sample. None of this, however, should be construed to mean that GPA is the sole determinate of whether a student will ultimately be considered for a job. Instead, the emphasis here is that GPA is one of the earliest artifacts available to potential employers, particularly those that adhere to Title VII of the Civil Rights Act of 1964, which prohibits discrimination based on race, sex, color, national origin, or religion.

The operationalization of GPA in studies on opportunity program students.

Chambers (2011) conducted a descriptive study of "at-risk" students on the campus of Indiana University of Pennsylvania-Punxsutawney (IUP). The analysis is primarily concerned with how to improve graduation and mitigate attrition through better integration of minority students as they enter what Pratt (1991) called the "contact zone…social spaces where cultures meet, clash and grapple with each other, often in contexts of highly asymmetrical relations of power, such as colonialism, slavery or their aftermaths as they are lived out in many parts of the world today" (Chambers, 2011, pg. 255; Pratt, 1991, pg. 34).

Chambers (2011) includes GPAs as one variable among many she uses to categorize students. She dichotomizes "at-risk" and all others. Her dissertation defines "at-risk" as "…students who stand less a chance of succeeding at the college level than their more academically [prepared] peers" (pg. 3). Although her definition seems to imply some specific GPA that predestines a student to one group or the other, IUP places all students it determines to be "at-risk" on the Punxsutawney campus. Therefore, as she seeks answers to the study's research questions – what is the first-year experience, and what does it mean to be a first-year student at IUP student on the Punxsutawney campus – the need to sort students happens via the admissions process. In other words, she makes empirical observations regarding "at-risk" students' GPAs without compromising the comprehensive assessment that places students in the "at-risk" category.

Further, students in Chambers' (2011) study can be likened to CUNY's SEEK students insofar as they receive additional support intended to encourage persistence toward earning a degree. Moreover, she paraphrases from research by Sorrentino (2006) that found, among other

things, that the GPA of SEEK students who participated in a pilot program at CUNY improved as a result of its mentoring intervention, which included a "goal-setting approach" (Chambers, 2011; Sorrentino, 2006).

Student retention and GPA are critical variables in the studies by Chambers (2011), Pratt (1991), and Sorrentino (2006). One reason for this is that research concerned with the trajectory of a student through school typically considers GPA and more fluid indices of persistence (e.g., enrollment, credit accumulation, number of counseling contacts, tutoring utilization) together as analytical parts of a comprehensive whole to explain a variety of student behaviors and outcomes. Scholars have also used the term "academic momentum" to describe this intersection of GPA and retention on student progress through institutions of learning (Adelman, 1999; Attewell et al., 2012).

Marie C. Nazon (2010) studied how high school GPA, household composition, length of residence in New York City, the year a student immigrated to the United States, English as their primary language, age, ethnicity, and gender predict college completion of immigrant SEEK students at CUNY's City College. She purposefully selected the variables because research shows they correlate with six-year college completion (Bean & Metzner, 1985; Ogbu, 1991; Pascarella & Terezini, 1980; Tinto, 1975).

One of her most salient findings was that immigrant SEEK students at City College with higher GPAs in high school are more likely to be successful completers than students with lower GPAs. According to Nazon (2010, pg.77), "the effect of high school GPA as an indicator of college completion is supported by previous research" (Astin, 1993; Pascarella & Terenzini, 1991; Tinto, 1975).

Research by the U.S. Department of Education's Regional Educational Laboratory (REL) Northwest examined whether high school grade point average was a better predictor of college performance than standardized tests. The principal investigators, Hodara and Lewis (2017), highlight emerging research that, among other things, questions the efficacy of standardized tests to place students in developmental courses when they might have succeeded when mainstreamed (Scott-Clayton, Crosta, & Belfield, 2014), and adds to the evidence that high school GPA predicts college performance more accurately than do standardized exam scores (Camara & Echternacht, 2000; Crouse & Trusheim, 1988; Geiser & Santelices, 2007; Hiss & Franks, 2014; Hodara & Cox, 2016).

Hodara and Lewis's (2017) study aked how well does high school GPA predict performance in college-level English and math courses among graduates after controlling for standardized test scores and other variables (i.e., ethnicity, Pell Grant eligibility as a proxy for socioeconomic status, and degree level)? The setting for their research was the University of Alaska, where the authors examined all first-time matriculants who entered the school between fall 2008 and spring 2012 semesters.

A key finding was that "[h]igh school grade point average was a more powerful predictor of college performance among students who entered college within a year of high school graduation" (Hodara & Lewis, 2017). Additionally, Hodara and Lewis (2017) adopted a theoretical model by Camille Farrington et al. (2012) to their study that posits the competencies measured by high school grade point average include non-cognitive factors in addition to cognitive skills and content knowledge; whereas standardized tests only measure the latter two (Duckworth & Seligman, 2005; Dweck et al., 2014).

Bryson, Smith and Vineyard's (2002) study examined the usefulness of GPA in predicting the first-year success of "selected admissions" students at a predominately white Midwestern university. The students included in his study were similar to SEEK students insofar as they received additional academic support (i.e., advisement counselors, tutors, and mentors) dedicated specifically to their program. The central question that guides Bryson et al. (2002) is how well traditional variables of academic performance (e.g., high school GPA, class rank, standardized test scores) predict first-year student grades of so-called "non-traditional" students. Another key feature of his inquiry is a sub-analysis that isolates differences by race (for more on the outcome of the sub-analysis see the high-stakes standardized test section below).

Overall, though, their study is one of a few that traces the evolution of opportunity programs through time, exploring the diversity of opinions about what constitutes ideal indicators of students' postsecondary academic success. As discussed in the historical context section above, Bryson et al. (2002) also note the emergence of SEEK-like opportunity programs rooted in sociopolitical and demographic change happening in the U.S. during the late sixties and early seventies.

Sheila Gordon's (1975) dissertation also corroborates SEEK's emergence as coinciding with the political tumult of the sixties and seventies. In particular, she recounts, "…minority group leaders…[who] believed that their youngsters should go to [senior colleges]…[and] not just to the community colleges, which they perceived as becoming segregated, inferior institutions for the non-whites" (pg. 199). In 1968, the high school grade point average required for CUNY admission to a senior college was about 82 percent (Corbie, 1983; Gordon, 1975). Alternatively, Gordon (1975) remarked, "…ghetto high school[s]…had few students who

completed their studies and graduated, and those graduates who completed their studies and graduated…had grade point averages of below 70 percent" (pg. 231). Indeed, according to Corbie (1983, pg. 3), "the 1971 Birenbaum and Goldman study estimated that 16 percent of all black students of the New York City high schools received averages of 80 or above, as compared to 50 percent of all white graduates."

The preceding paragraphs underscore the relevance of GPA in making decisions about who goes to what school. Therefore, SEEK itself was an early and essential catalyst for bringing racial diversity to CUNY's senior colleges. It also served as evidence that the so-called under-prepared student could succeed if given an opportunity despite inferior academic backgrounds, when given the proper support.

Another example comes from Corbie's (1983) study on whether SEEK students fared better academically than a control group of students who enrolled at Lehman College and were eligible for SEEK but did not matriculate through the SEEK program because of university-wide budget constraints that affected the university at the time. The key takeaways of his research most relevant to the present study are that (1) "…prior academic achievement at the high school level was the most important determinant of achievement," and (2) "…participation in some of the academic support activities produced additional explanation of the variation in student academic performance…" (Corbie, 1983).

Despite the many research studies that argue high school GPA is a strong predictor of college success, some argue that in the absence of standardized tests – admissions officers are subject to making less-than-objective decisions on the quality of students' secondary schools. In other words, if postsecondary admissions offices were to compare students based on GPA and

class rank alone, it introduces the risk of selection bias insofar as secondary schools differ concerning, e.g., their rigor, grading policies, or some combination thereof (Camara & Michaelides, 2005).

Sackett, Borneman, and Connelly (2008) argue that observers must distinguish between the value-added by standardized tests in making predictions of the first-year GPA versus rejection of the test as a valid measure altogether. Additionally, they call for separating the technical from value-based questions. For example, as Sackett et al. (2008) point out, "…although research has answered the question '[w]ill high scores generally perform better than low scorers;' " that the question '[s]hould high scorers always be preferred to low scorers…' " is an inherently different one insofar as the former is one of a technical concern while the latter is value-based (Sackett Borneman, & Connelly, 2008).

Standardized testing.

There is a belief that standardized tests sort the academically capable students from the rest (American Federation of Teachers, 2013; Geiser & Santelices, 2007; Sackett, Borneman, & Connelly 2008). Indeed, the best-known examples of standardized tests in the United States are the SAT and ACT, though, there is a litany of others. These exams primarily serve as a tool for admissions personnel at selective[2] post-secondary institutions to sort aspiring students competing for seats at their respective schools. According to the College Board, maker of the SAT, 1.36 million test-takers took the SAT in 2016, up 180,000 over the previous year (College Board

[2] Selectivity is a categorization that differentiates (from least to most) which institutions of higher education require standardized test scores, making matriculation into their institution the easiest or most difficult to enter. The National Center for Educational Statistic's Integrated Postsecondary Education Data System is the nationally recognized benchmarking definition.

Communications, 2016). Similarly, ACT Inc. reports that approximately 2 million people took their exams in 2017 (ACT, Inc., 2017). A much smaller proportion, 443,408, sat for the Educational Testing Service's (ETS) Graduate Record Exam (GRE) in 2016 (ETS, 2017).

In all, the number of test-takers sitting for standardized exams is growing, which speaks to their growing appeal. Moreover, the emphasis placed on recruiting and retaining high-quality teachers in the recent reauthorizations of the Elementary and Secondary Education Act of 1965[3] (and its corollary reporting requirements) have played a role in redoubling the reliance on these tests beyond the realm of collegiate admissions (S. 1177 [Enacted], 2015).

An example of the sprawling use of standardized tests can be seen in their inclusion as a measure to ensure prospective teacher candidates are high-quality. Words like "accountability" and "quality" are raison d'etre for reformers that insist teacher education programs require students to sit for high-stakes summative exams to access the nation's teacher education programs. To be sure, the American Federation of Teachers task force recommended in *Raising the Bar* that teacher educator programs limit admissions to students that have a composite SAT score of 1,100, an ACT composite score of 24, or a GRE composite of 1,000 (American Federation of Teachers, 2013).

Jesse Hagopian (2014) highlights in *More than a Score* that "…standardized tests originally entered the public schools with the eugenics movement, a white-supremacist ideology…that became fashionable in the late nineteenth and early twentieth century" (pg. 22). Historian and sociologist Ibrim X. Kendi (2016) also found that eugenicists, like Lewis Terman,

[3] See No Child Left Behind and Every Student Succeeds Act.

"…managed to make Americans believe that something…inherently subjective was…objective and measurable" (p. 311). Terman's work inspired like-minded psychologist Carl C. Brigham to invent the SAT for college admissions. The SAT, and tests of a similar nature, were designed to measure one's ability in reading, math, writing, reasoning, and writing. They have gone through many iterative revisions since their respective inceptions, yet the same subjective elements that were unmeasurable by these tests in the past are still no closer to being measured today.

On the one hand, the refinement of these normative measures is purportedly made to improve the test's reliability and validity; on the other hand, is revision not then a tacit acknowledgment that earlier versions were somewhat problematic? Coincidentally, given the historically racist context in which normative exams came into existence, might their use for high-stakes purposes require a consideration like the one proposed by Michelle Alexander (2012) in *The New Jim Crow*: "[a]ny candid observer of American racial history must acknowledge that racism is highly adaptable. The rules and reasons the political system employs to enforce status relations of any kind, including racial hierarchy, evolve and change as they are challenged" (pg. 21).

According to Kendi (2016), despite the emergence of standardized tests in the early 20th century, by the last quarter of it, non-White students that tested as below average on standardized tests still managed to graduate at similar rates as their white peers. In *Stamped From the Beginning*, Kendi (2016) cites the 1978 US Supreme Court case *Regents v. Bakke* as an example of this. Besides being one of the earliest legal challenges of affirmative action initiatives, the case is particularly notable because the Regents' lawyers argued, albeit fallaciously, that non-White students did not perform well on standardized tests and had lower grade point averages

(GPAs) because of substandard K-12 schooling (pp. 426-427). Notwithstanding their lower GPAs and test scores, however, ninety percent of the non-White students successfully graduated from medical school and went on to pass their licensing exams to become medical doctors. Essentially, Kendi (2016) says, "…standardized exams have, if anything, predicted the socioeconomic class of the student and perhaps a student's first-year success in college" (p. 426). It is noteworthy to mention that Nicholas Lemann's (1999) book *The Big Test* includes references that also support this assertation. In it, Lemann paraphrases the work of educators Davis and Havighurst, who argued that "intelligence tests were a fraud, a way of wrapping the fortunate children of middle and upper-middle classes in a mantle of scientifically-demonstrated superiority. Moreover, Lemann's book quotes their article in *The Scientific Monthly* where they said of intelligence tests, they query, "a very narrow range of mental activities," and carry "a strong cultural handicap for pupils of the lower socioeconomic groups" (pg. 66)

Alternatively, admissions for legacy and athletes at highly selective institutions have also demonstrated that candidates can find success in college despite missing the cut-off to which their peers are ultimately held. One study conducted by Espenshade and Chung (2005) at Princeton calculated that being a child of an alumnus is the equivalent of scoring 160 points higher on the SAT. Being a recruited athlete is comparable to a boost in SAT score worth 200 points (Espenshade & Chung, 2005). These admissions policies continue to undermine the myth that standardized test scores are inextricably linked to performance and degree attainment.

Moreover, Crouse (1988) showed that the SAT hurts low-income applicants, Black applicants, and the effects have not changed since the 1960s despite the numerous revisions of the test over that intervening period. Crouse's quantitative analysis of the impact the SAT has on

the admissions of Black applicants found "…the SAT thus acts much like a supplement to high school rank with zero validity that rejects additional blacks…[it] does not improve colleges' ability to admit successful blacks and reject potentially unsuccessful ones. In other words, the SAT…acts like a zero-validity supplement to high school grades that increases rejections of blacks, and therefore has an adverse impact on them" (pgs. 107-108).

Three decades later, Bowen, Chingos, and McPherson (2009) affirm the disparate impact standardized exams have on Black and Hispanic students in their empirical study on college graduation. Using data on an entering first-year cohort of 125,000 full-time students in 1999 across 21 flagship universities, Bowen et al. (2009) point out that "…the association between SES [socioeconomic status] and test scores is not spurious or an artifact but rather reflects a real 'learning' advantage enjoyed by the children of high-SES families" (pg. 127). In the interest of full disclosure, the authors found that high school GPA is also a correlate of SES; albeit, weaker than the correlation of standardized tests to SES.

Rather than a rebuke of all standardized testing, Bowen et al. (2009) call attention to the subtle distinction between tests of "general reasoning" (e.g., SAT and GRE) and tests of "achievement" (e.g., SAT II Subject Tests or Advanced Placement Exams). According to their research, "achievement test score was a far better incremental predictor of graduation rates than "were scores on the regular SAT/ACT and, as in the case of SAT IIs, including this…variable…removed any positive relationship between SAT/ACT scores and graduation rates" (pg. 130).

In an ironic twist, according to Atkinson and Geiser (2009), when the ACT first emerged as an alternative to the SAT, its core distinction was that it aligned with high school curricula.

The ACT's founder, E. F. Lindquist, recognized that for his test to have "maximum motivating value for the high school student" his test "must make [students] feel [they] earned the right to go to college by [their] efforts," as opposed to some other innate quality for which they were not personally responsible (Atkinson & Geiser, 2009, pg. 668). However, the ACT by 2009, "lack[-ed] the depth of subject matter coverage that one [found in]…SAT Subject Tests or AP exams" (Atkinson and Geiser, 2009). For this reason, the ACT and SAT have become practically interchangeable for undergraduate admissions purposes since the curriculum alignment of the former has declined over the years.

In general, validity studies supporting standardized tests often emphasize that they be used to supplement high school GPA in predicting first-year college GPA only; this in contrast to, say, predicting beyond a student's first year, or excluding high school GPA as an independent variable from the regression equation (Kobrin et al., 2008; Shaw et al., 2016). On the other hand, standardized test opponents have noted that validity studies will often exclude socioeconomic variables from their data. Therefore, they argue, test-makers often "overstate the predictive power of the SAT by 150 [percent]" (Atkinson & Geiser, 2009, pg. 666; Rothstein, 2004).

The Operationalization of Standardized Tests in Research on Opportunity Program Students

Bryson et al. (2002) looked at standardized test scores of 937 students. The demographic breakdown of the participants in their study reveals that students' racial compositions were: 492 white (53 percent); 397 African-American (42 percent); 25 Hispanic (3 percent); and 21 Asian (2 percent). Meanwhile, their first-year overall GPAs averaged 2.08 and ranged from 0 to 3.9. They asked: how well do traditional variables of high school grade point average, rank, ACT scores, and responses on the *Bryson Instrument for Non-Cognitive Assessment* test predict first-year

student grades of ‘non-traditional’ student success as measured by retention, performance, and graduation (pp. 76-77)?

Their findings suggest that, in the aggregate, the independent variables of high school rank, GPA, ACT English, and ACT science scores are statistically significant and positively correlated with first-year GPA. Alternatively, they found that noncognitive factors, including self-confidence, racial- and gender-sensitivity (i.e., the propensity of racism or sexism to disturb a student emotionally) were statistically significant and inversely correlated with GPA. However, when they disaggregated the data controlling for race, a different perspective emerged. In sum, Bryson et al. (2002) found in these subtleties “empirical evidence to support the position that college admissions decisions, particularly those involving selected admissions students, should be holistic and consider more than composite scores on standardized tests” (pg. 77). Also underscoring the need for holistic appraisals, Bryson et al. (2002) argue, “[w]hen racial background is examined, ACT reading and ACT math subscales are effective predictors for the White students…[n]either the ACT composite nor any ACT subscale is an effective predictor for Black students” (pg. 77).

For Hodara and Lewis (2017), standardized test variables were a pivotal element to their inquiry. They found that “[c]olleges typically use a single measure to place [a] student in developmental education: standardized exam scores on the SAT, ACT, ACCUPLACER, or ACT Compass” and that “research suggests…this reliance on standardized exam scores may result in misplacement of students in developmental coursework when they could have succeeded in college-level coursework, or less frequently, misplacement of students in college-level coursework when they could have benefited from developmental coursework” (Fields & Parsad,

2012; Hodara & Lewis, 2017; Scott-Clayton, Crosta, & Belfield, 2014). The implications of this are two-fold: First, the "misplacement of students results in a cost and time burden on students that impedes steady “academic momentum” (Adelman, 1999; Attewell et al., 2012). Second, the finding that use of multiple measures (i.e., using standardized test scores in conjunction with high school GPA) results in better predictions on a course-by-course basis does align with standardized test validity studies that argue the same (Kobrin et al., 2008; Shaw et al., 2016).

Some researchers, however, have noted that colleges have been slow to adopt multiple measure approaches when requiring students to undergo remedial coursework because it is labor-intensive and expensive to implement. For example, Barnett et al. (2018) heard grievances from colleges participating in their study, including but not limited to: compilation and entering the extensive amounts of high school transcript data is labor-intensive, costly, and threatens staff morale; and that the reprogramming of classroom and faculty assignments risks irritating faculty whose support is critical to the implementation of the multiple measures approach.

Lastly, Hodara and Lewis (2017) also found that high school GPA predicted college performance better than standardized test scores for students that entered the University of Alaska within a year of high school completion. On the other hand, those results did not hold for students who delayed entry to the University of Alaska by more than a year.

Additionally, high school GPA remained a more powerful predictor than the SAT and ACT scores in predicting college-level grades in English; however, ACCUPLACER scores were virtually as good as high school GPA (i.e., grades explained one percent more of the variance) in predicting post-secondary English class grades. Meanwhile, for students that delayed entry by more than a year, the ACCUPLACER and the ACT were better predictors of college-level math

grades than high school GPA. Similarly, for students who delayed entry to the University of Alaska by more than a year, high school GPA explained only one percent more of the variance than the SAT in predicting college-level math grades.

Kevin B. Murphy (2008) studied the differences in outcomes of immigrant students and used their SAT-verbal test scores to test whether race, ethnicity, and SAT-verbal scores act as proxies for immigration status and the use of a home language other than English. Using restricted data from the National Postsecondary Student Aid Study of 2000 (NPSAS:2000) and the Beginning Postsecondary Students Longitudinal Study (BPS:96/01) for first-time, frosh students he performs a two-tailed t-test that found, among other things, that "students who lived with family had lower Verbal SAT scores than those with other living arrangements and a pattern of low income also" (pg. 16). He suggests that this finding points to a conflict between retention theory and assimilation/acculturation theory insofar as, "…maintain[-ance] of contact, goals, and values with parents is more likely to lead to a positive acculturation experience that avoids intergenerational conflict and…[affords] a better chance of social and economic mobility" (Murphy, 2008, pp. 16-17; Portes, 1995; Portes and Rumbaut, 2001).

Contrary to Murphy (2008), there are models of student retention theory that rather than conflict with assimilation theory explicate the subtlety that he and others have overlooked; i.e., students' induction into the culture fostered by their postsecondary institution for the sake of improving retention. Of course, there is a greater chance of assimilation on a residential college campus, where the effects of the competing environment can be muted. For this reason, institutions of higher education often have student unions and student affairs offices that aim to promote student engagement and ultimately increase student retention.

Contribution to the Field

Theory helps to drive the conceptual understanding of how something works; however, this quantitative research aims to compute the impact of key demographic variables, academic preparedness, and socioeconomic background has on the time it takes for Black and Hispanic college students to earn a bachelor's degree. As indicated earlier in the last chapter, earning a bachelor's degree has the potential to increase students' earning potential and decrease future economic costs associated with social safety net programs (Carnevale, 2016; Carroll & Erkut, 2009). Hence, this research will provide researchers, policymakers, college administrators, and students with a quantification of the relative impact key demographics, academic preparedness and financial background have on the time to graduation of Black and Hispanic, SEEK and non-SEEK students. In the next chapter, a discussion of the data and the methods that guide the current study are presented in detail.

Chapter Three: Methods

This chapter presents the design methodology used to conduct the present evaluation. This section will introduce the university's senior colleges, discuss the dataset, analytic samples, the measures, and explain the analytical strategy used to guide the present study.

Senior Colleges of the City University of New York

The following paragraphs present a brief account of the integration of each of CUNY's eleven senior colleges into the larger university, from City College of New York in 1847 to the College of Staten Island in 1976. Additionally, the college's most recent student enrollment is provided to contextualize the Black and Hispanic, SEEK and non-SEEK student populations.

City College of New York.

City College of New York was originally founded as the Free Academy in 1847. The oldest of all of its sister institutions in CUNY, City College has a rich history as one of the first institutions of higher education in the City of New York. There were only two other institutions of higher learning in New York City at the time; Columbia College (now Columbia University) and the University of the City of New York (now New York University) (Roff, Cucchiara, & Dunlap, 2000). According to Roff et al. (2000), "Columbia…was 'aristocratic in social attitude and resolutely classical in curriculum," and "…the University of the City of New York was struggling financially and educationally" (p. 2). The founding of the Free Academy, best articulated by Dr. Horace Webster, the school's first president, was premised on "…whether the children of the people, the children of the whole people, can be educated; and whether an institution of the highest grade, can be successfully controlled by the popular will, not by the privileged few" (City College, 2019). Essentially, what set apart the neighboring private

institutions from this newly founded public institution, then, was its goal to cast aside differences in social status in the name of higher learning.

Today, City College is comprised of the following eight schools: (1) The Bernard and Anne Spitzer School of Architecture; (2) CUNY School of Medicine; (3) Colin Powell School for Civic and Global Leadership; (4) School of Education; (5) The Grove School of Engineering; (6) Division of Interdisciplinary Studies at Center for Worker Education; (7) Division of Humanities and the Arts; and (8) Division of Science. These eight schools offer approximately forty-five undergraduate majors (City College, 2019).

Undergraduate enrollment at City in the fall of 2018 totaled 13,186 degree and non-degree-seeking students (CUNY Office of Institutional Research and Assessment, 2019d). Of that amount, the total number of Black students enrolled at the college in the fall of 2018 was 2,419 (18.3 percent); the total number of Hispanics enrolled over that same period was 4,549 (34.5 percent) (CUNY Office of Institutional Research and Assessment, 2019e). There were 830 SEEK students enrolled in the fall of 2018. Of that, 122 (14.7 percent) were Black SEEK students, and 363 (43.7 percent) were Hispanic SEEK students (CUNY Office of Institutional Research and Assessment, 2019a).

Hunter College.

Hunter College, originally founded as a Normal School for women in 1869, was an extension of the Free Academy (the forerunner of City College) (Roff et al., 2000). The College's mission in the nineteenth-century was to provide a supply of teachers for New York City's schools. Most nobly of all, the Normal School offered admissions to Black and White

women, alike, who aspired to teach; this item noteworthy given the racial strife of the time as evidenced in landmark cases like *Plessy v. Ferguson* (1896) some three decades later. Hunter College was one of the four inaugural colleges at CUNY's founding in 1961.

Presently, Hunter College is comprised of the following six schools: (1) School of Arts & Sciences; (2) School of Education; (3) School of Health Professions; (4) School of Urban Public Health; (5) Hunter-Bellevue School of Nursing; and (6) Silberman School of Social Work. These six schools offer approximately eighty-four undergraduate majors and sixty minors (Roff et al., 2000).

Undergraduate enrollment at the Hunter College in the fall of 2018 totaled 17,212 degree and non-degree-seeking students (CUNY Office of Institutional Research and Assessment, 2019d). The number of Black students enrolled at Hunter College in the fall of 2018 was 2,108 (12.2 percent); the number of Hispanics enrolled over that same period was 4,093 (23.8 percent) (CUNY Office of Institutional Research and Assessment, 2019e). There were 513 SEEK students enrolled in the fall of 2018. Of that amount, 83 (16.2 percent) were Black SEEK students and 203 (39.6 percent) Hispanic SEEK students (CUNY Office of Institutional Research and Assessment, 2019a).

Bernard M. Baruch College.

Baruch College has roots as a school within the Free Academy (the forerunner of City College). According to Baruch's Master Plan Amendment, the college was founded as the School of Business and Civic Administration in 1919 by the Trustees of City College (Fxfowle Architects, LLP, 2008). The name was changed in 1953, "…in honor of a distinguished alumnus and former trustee of City College," to the Bernard M. Baruch School of Business and Public

Administration. The location of the main campus building on 17 Lexington Avenue in Manhattan is the original site of the Free Academy before it moved uptown in 1907 (Roff, Cucchiara, & Dunlap, 2000). The school became a college when, in 1968, the CUNY Board of Trustees transferred administrative control of the campus to its own dedicated administration (Church, 1990).

As of 2019, Baruch consists of three schools: the Zicklin School of Business, the Mildred and George Weissman School of Arts and Sciences, and the School of Public Affairs. Each of these schools offer undergraduate and graduate degrees. At present, Baruch offers approximately thirty-seven majors and fifty-five minors at the undergraduate level (Baruch, 2019).

Undergraduate enrollment at Baruch College in the fall of 2018 totaled 15,024 degree and non-degree-seeking students (CUNY Office of Institutional Research and Assessment, 2019d). The total number of Black students enrolled at Baruch in the fall of 2018 was 1,643 (10.9 percent), and Hispanic students enrolled in the fall of 2018 was 2,758 (17.2 percent) (CUNY Office of Institutional Research and Assessment, 2019e). A total of 772 SEEK students were enrolled at Baruch in the fall of 2018. Of that, 121 (15.6 percent) were Black SEEK students and 383 (49.6 percent) Hispanic SEEK students (CUNY Office of Institutional Research and Assessment, 2019a).

Brooklyn College.

Brooklyn College was founded in 1930 as the City of New York's first public coeducational liberal arts college (Brooklyn College, 2019a). The campus was originally located in temporary space in downtown Brooklyn but was soon resettled in its current home on Bedford

Avenue by 1937. By 1961, Brooklyn College was one of the four inaugural colleges incorporated into the City University of New York system (Brooklyn College, 2019a).

At present, Brooklyn College is comprised of the following five schools: (1) School of Business; (2) School of Education; (3) School of Humanities and Social Sciences; (4) School of Natural and Behavioral Sciences; and (5) the School of Visual Media and Performing Arts. These five schools offer approximately eighty-two undergraduate majors and ninety-four minors (Brooklyn College, 2019b).

Undergraduate enrollment at Brooklyn College in the fall of 2018 totaled 14,978 degree and non-degree-seeking students (CUNY Office of Institutional Research and Assessment, 2019d). Of that amount, the total number of Black students enrolled at Brooklyn in the fall of 2018 was 3,846 (25.7 percent); and the total number of Hispanics enrolled in the fall of 2018 was 2,557 (17.1 percent) (CUNY Office of Institutional Research and Assessment, 2019e). There were 835 SEEK students enrolled at Brooklyn in the fall of 2018. Of that amount, 199 (23.8 percent) were Black SEEK students, and 291 (34.9 percent) were Hispanic SEEK students (CUNY Office of Institutional Research and Assessment, 2019a).

Queens College.

Queens College, founded in 1937, is located on the site of the failed New York Parental School in Flushing Queens. According to Roff et al. (2000), "public higher education first came to Queens in 1924, when City College established a Queens Center on the top floor of William Cullen Bryant High School, then in Long Island City" (pg. 46). Dr. Paul Klapper, the first president of Queens College and a City College alumnus, said of the school's establishment, "we must build more than a college for young people; we must develop a great cultural center for the

Borough of Queens" (pg. 47). Finally, Queens College became the primary institution of public higher education in Queens and was an inaugural school within the CUNY system at its founding in 1961.

At present, Queens College is comprised of the following four divisions: (1) Division of Arts and Humanities; (2) Division of Mathematics and the Natural Sciences; (3) Division of Education; and (4) Division of Social Sciences. These four divisions offer approximately sixty undergraduate majors (Queens College, 2019).

Undergraduate enrollment at Queens College in the fall of 2018 totaled 16,620 degree and non-degree-seeking students (CUNY Office of Institutional Research and Assessment, 2019d). Of that amount, the total number of Black students enrolled at the college in the fall of 2018 was 1,670 (10 percent); Hispanics enrolled over that same period was 3,794 (22.8 percent) (CUNY Office of Institutional Research and Assessment, 2019e). There were 1,016 SEEK students enrolled in the fall of 2018. Of that, 95 (9.4 percent) were Black SEEK students, and 367 (36.1 percent) were Hispanic SEEK students(CUNY Office of Institutional Research and Assessment, 2019a).

New York City College of Technology.

The New York City College of Technology is the merger of the former New York Trade School and the New York State Institute of Applied Arts and Sciences. The older of the two institutions, the New York Trade School, was founded in 1881 (CUNY Academic Works, 2019). The New York State Institute of Applied Arts and Sciences was founded in 1946 in response to the economic shifts of business and industry in the wake of World War II (NYC College of Technology, 2019b). Meanwhile, the New York State Institute of Applied Arts and Sciences is

renamed New York City Community College, becoming the city's first community college. In 1961, the New York Trade School decided to refashion itself as a technical institute and changed its name to the Vorhees Technical Institute to benefit from the growth in business and industry. Declining enrollments and rising costs beset the Vorhees Technical Institute, and by 1971, CUNY incorporated the failing Voorhees Technical Institute into New York City Community College which itself came under CUNY's jurisdiction in 1964 (NYC College of Technology, 2019b). Subsequently, the New York City Community college was renamed the New York City Technical College in 1980, which led many to refer to the school by its colloquial moniker, City Tech.

Presently, City Tech is comprised of three schools: (1) Technology & Design; (2) Professional Studies; and (3) Arts & Sciences. These three schools offer approximately twenty-six undergraduate majors (NYC College of Technology, 2019a).

Undergraduate enrollment at City Tech in the fall of 2018 totaled 17,269 degree and non-degree-seeking students (CUNY Office of Institutional Research and Assessment, 2019d). The number of Black students enrolled at the college in the fall of 2018 was 5,714 (33.1 percent) (*ibid*.); Hispanic enrollment over that same period was 5,392 (31.2 percent) (CUNY Office of Institutional Research and Assessment, 2019e). There were 927 SEEK students enrolled in the fall of 2018, with 248 (26.8 percent) Black SEEK students and 403 (43.5 percent) Hispanic SEEK students (CUNY Office of Institutional Research and Assessment, 2019a).

John Jay College of Criminal Justice.

John Jay College of Criminal Justice is named after the first Chief Justice of the United States Supreme Court (John Jay College, 2015). Civic leaders in the 1950s recognized that the complexity of conducting police work was increasing. More specifically, relations between the New York City Police Department and the community were growing in sophistication. To address this need, City College established the Police Science program in its Baruch School of Business and Public Administration in 1954. As the popularity of the program flourished, a committee was convened by the Board of Higher Education to establish a school of police science, and the College of Police Science of the City University of New York was founded in 1964. The name was changed to John Jay College of Criminal Justice because the mission and curricula had expanded beyond that of policing.

Unlike the other CUNY senior colleges, John Jay is not organized into schools of related disciplines. Instead, there are almost thirty fields of study that offer approximately forty-six undergraduate majors and forty-nine minors (John Jay College, 2019).

Undergraduate enrollment at John Jay in the fall of 2018 totaled 13,319 degree and non-degree-seeking students (CUNY Office of Institutional Research and Assessment, 2019d). The number of Black students enrolled at the college in the fall of 2018 was 2,632 (19.8 percent); Hispanics enrolled over that same period were 6,130 (46 percent) (CUNY Office of Institutional Research and Assessment, 2019e). There was a total of 1,072 SEEK students enrolled in the fall of 2018. Of that amount, 155 (14.5 percent) were Black SEEK students, and 724 (67.5 percent) were Hispanic SEEK students(CUNY Office of Institutional Research and Assessment, 2019a).

York College.

York College, originally known as Alpha College at its founding in 1966, welcomed its inaugural class of students in 1967 in Bayside, Queens (York College, 2019a). Initially, rooms were rented from the Oakland Jewish Center in Bayside and temporary facilities at Queensborough Community College (Picciano & Jordan, 2018). Advocacy from the community, business, and religious leaders, spurred CUNY's Board to name Jamaica, Queens the future site of the new college. As the city slid into recession during the 1970s, plans to build the physical campus were put off until December 1980). With construction on the campus's academic core substantially complete in 1986, classes were held on the new campus for the first time (York College, 2019a).

Today's York College is comprised of three schools: (1) School of Arts and Sciences; (2) School of Business and Information Systems; and (3) School of Health Sciences and Professional Programs. These three schools offer approximately sixty-four undergraduate majors and sixty minors (York College, 2019b).

Undergraduate enrollment at York College in the fall of 2018 totaled 8,495 degree and non-degree-seeking students (CUNY Office of Institutional Research and Assessment, 2019d). Black student enrollment at York College in the fall of 2018 was 3,666 (43.2 percent); Hispanics enrolled over that same period was 1,927 (22.7 percent) (CUNY Office of Institutional Research and Assessment, 2019e). There were 693 SEEK students enrolled in the fall of 2018. Of that, 257 (37.1 percent) were Black SEEK students, and 227 (32.8 percent) were Hispanic SEEK students (CUNY Office of Institutional Research and Assessment, 2019a).

Lehman College.

Groundbreaking for college began in 1931 when it was then the Bronx campus of Hunter College (Roff et al., 2000). Completed in 1936, the campus served as the prerequisite two-year component of Hunter College's teacher education programs in Manhattan (*ibid*.). The college was incorporated into CUNY in 1961 as part of Hunter College, but it was given a dedicated curriculum, faculty, and administration in 1968 by the University's Board of Trustees. Lehman College is named after former New York State Governor Herbert H. Lehman and has the distinction of being the lone senior college in the borough (Lehman College, 2019a).

As of this writing, four schools comprise the undergraduate academic program at Lehman: (1) School of Arts and Humanities; (2) School of Education; (3) School of Health Sciences, Human Services, and Nursing; and (4) School of Natural and Social Sciences. These four schools offer approximately seventy-seven undergraduate majors and just over eighty-five minors (Lehman College, 2019b).

Undergraduate enrollment at Lehman in the fall of 2018 totaled 12,639 degree and non-degree-seeking students (CUNY Office of Institutional Research and Assessment, 2019d). Black students enrolled at the College in the fall of 2018 were 3,937 (31.1 percent); Hispanics enrolled over that same period were 6,858 (54.3 percent) (CUNY Office of Institutional Research and Assessment, 2019e). There were 971 SEEK students enrolled in the fall of 2018. Of that, 209 (21.5 percent) were Black SEEK students and 657 (67.7 percent) Hispanic SEEK students (CUNY Office of Institutional Research and Assessment, 2019a).

Medgar Evers College.

Originally known as Community College Number Seven in 1967, Medgar Evers College was the result of the central Brooklyn community's endeavors to establish a local public college (Medgar Evers College, 2019). Founded in 1969, college's name was changed by resolution of the Board of Higher Education (now known as CUNY Board of Trustees) in 1970. The college was located on the grounds of a former Jesuit high school (Berger, 2012), and welcomed its first class of students in 1971 (Medgar Evers College, 2019).

Today, the following four schools comprise the undergraduate academic program at Medgar: (1) School Business; (2) School of Education; (3) School of Science, Health & Technology; and (4) School of Liberal Arts. These four schools offer approximately twenty undergraduate majors and fifteen minors (Medgar Evers College, 2018).

Undergraduate enrollment at Medgar Evers in the fall of 2018 totaled 6,638 degree and non-degree-seeking students (CUNY Office of Institutional Research and Assessment, 2019d). Of that, Black students enrolled at the college in the fall of 2018 were 5,447 (82.1 percent); Hispanic enrollment over that same period was 828 (12.5 percent) (CUNY Office of Institutional Research and Assessment, 2019e). There were 437 SEEK students enrolled in the fall of 2018. Of that, 333 (76.2 percent) were Black SEEK students, and 82 (18.8 percent) were Hispanic SEEK students (CUNY Office of Institutional Research and Assessment, 2019a).

College of Staten Island.

The emergence of the College of Staten Island is in part due to the interest of residents who desired higher education. Demand was boosted by the completion of the Outerbridge

Crossing and Goethals Bridges in 1928 and 1931, respectively. However, consideration of building out a campus stalled due to the economic circumstances brought on by the Great Depression of the 1930s (College of Staten Island, 2019b). In the waning days of the Great Depression, in 1937, approximately 2,700 residents petitioned again for the construction of an institution of public higher education on the island; that number grew to about 45,000 signatures by the end of the campaign and led to the establishment of a committee to explore the potential. The City of New York, however, was still hamstrung by "dire financial straits," and it put off establishing a college for almost two decades. Finally, resident efforts paid off when the Staten Island Community College opened its doors to the public in 1957. A little over a decade later, Richmond College opened its doors in 1967 as, "an upper-division college that offered undergraduate and graduate degrees to students who had successfully completed the first two years of college study elsewhere" (College of Staten Island, 2019b). Then, in 1976 when Richmond College was almost shuttered due to the City's financial crisis, the two schools were merged into the College of Staten Island (College of Staten Island, 2019b).

Today, the College of Staten Island is comprised of five schools: (1) The Lucille and Jay Chazanoff School of Business; (2) School of Education; (3) School of Humanities Health Sciences; (4) Division Science and Technology; and (5) the Division of Humanities and Social Sciences. The five schools offer approximately forty-nine undergraduate majors and fifty-four minors (College of Staten Island, 2019a).

Undergraduate enrollment at the College of Staten Island in the fall of 2018 totaled 12,211 degree and non-degree-seeking students (CUNY Office of Institutional Research and Assessment, 2019d). Black student enrollment at the College of Staten Island in the fall of 2018 was 1,927 (15.8 percent); Hispanic enrollment over that same period was 2,420 (19.8 percent)

(CUNY Office of Institutional Research and Assessment, 2019e). There were 503 SEEK students enrolled in the fall of 2018. Of that, 162 (32.2 percent) were Black SEEK students, and 135 (26.8 percent) were Hispanic SEEK students (CUNY Office of Institutional Research and Assessment, 2019a).

Dataset

This study employs data derived from CUNY applicants that go on to matriculate at one of the senior colleges in the university's system. That data is the basis for CUNY's Policy Tracking Cohort (PTC) longitudinal database, which contains student records for over 700,000 first-time, full-time students who matriculated at the university. The Office of Institutional Research (OIRA) compiles demographic information including race, gender, age, citizenship status, academic performance including weighted high school grades, SAT scores, and financial background info from students' Free Application for Federal Student Aid (FAFSA) records, financial aid data. For this study, OIRA shared an anonymized snapshot of the PTC for students who matriculated between the fall 2000 and fall 2016 semesters.

The PTC data is used in this study because it contains the relevant variables used to measure students' demographics, academic preparedness, and finances, which are the key elements of this study's domains. Furthermore, the data set includes the entire population of first-time, full-time students at an urban university consisting of 25 colleges and professional schools. Moreover, this data set includes observations for the University's population of SEEK students. As discussed in the background section, special opportunity program students are a testament to the remarkable fortitude and perseverance in the face of less than ideal circumstances in their personal and academic lives.

Analytic Samples.

This dissertation will analyze and interpret the data recorded in CUNY's PTC for students enrolled in CUNY's four-year schools (also referred to as senior colleges) because SEEK is limited to the senior colleges. I will avoid confounding my analysis with programs of a similar nature in CUNY's two-year schools. Furthermore, this dissertation is concerned not only with students from disadvantaged backgrounds but also with identifying time-to-graduation gaps for the two largest minority groups, Black and Hispanic students, stratified by students' SEEK status. For this reason, the data are limited to exclude all other races (e.g., White, Asian, Native American, Alaskan, and Pacific Islanders) and narrow the N to 175,296 degree-seeking students.

Measures.

In this section, an introduction to the dependent variable (time-to-graduation), and the independent variables used in this study, is given to define and justify their inclusion by connecting them to the literature review.

Dependent variable.

As mentioned in Chapter Two, the time it takes a student to earn a bachelor's degree represents an investment of time, which is often made at the expense of earning a wage or salary, especially in the case of first-time, full-time students. Therefore, the number of years it takes a student to earn a bachelor's degree is the outcome (or dependent variable) will be measured against the independent variables described in the section that follows.

Time-to-degree (*years_to_ba*) is a continuous variable and calculated in CUNY's PTC by subtracting the number of days between a student's degree award date from the date of their matriculation; that result is then divided by 365.25 to convert the number of days into years. The range for this variable runs from 1.42 to 15.75.

Independent variables.

There are eleven independent variables selected for analysis: (1) gender (using female as the reference group), (2) citizenship (using U.S.-born as the reference group), (3) language spoken exclusively at home (using English as the reference group), (4) high school location (using New York City high schools as the reference group), (5) high school type (using New York City public school as the reference group), (6) high school GPA, (7) SAT Verbal, (8) SAT Math, (9) English Regents score, (10) Biology Regents score, and (11) financial background. Meanwhile, the SEEK status variable is counted separately as a control variable to allow for stratification between special opportunity program and traditional students.

The demographic elements include gender (female), whether a student is a citizen (U.S.-born), whether they exclusively speak English at home (English), whether they attended a New York City high school, and whether that school is a public school located in the five boroughs of New York City (NYC public school). These variables are included because theory suggests that natives and those that conform, embrace, and emulate the dominant hegemonic practices in society. They usually exhibit better academic or social outcomes than those who subvert the dominant social order (Scott, 2000). Hence, what follows is a high-level description of each variable's contents and a brief discussion of what the literature says about it in relation to how it is operationalized in the present study.

As discussed in Chapter Two, Tinto (1987) was one of the earliest researchers to coherently articulate a foundational theory of student retention for undergraduates at U.S. postsecondary institutions. In his book, *Leaving College*, he profiled students in the National Longitudinal Study of the High School Class of 1972 and found that "…[d]epartures are equal for females and males, and are more prominent among [B]lacks and Hispanics" (Tinto, 1987). More recently, however, the National Student Clearinghouse found, "…men and women had similar average [enrollment] time suggesting little gender differences in time-to-degree" (Shapiro et al., 2015). Conversely, Bowen et al. (2009) found, "[d]ifferences in six-year graduation rates by SES, race/ethnicity, and gender are substantial" (pg. 56). Therefore, given the mixed observations made with respect to time-to-graduation by gender, this dissertation will include a dummy variable to test the impact gender has on the time-to-graduation performance of Black and Hispanic students.

Correspondingly, the dummy variable female in the dataset denotes gender wherein females are coded 1 and males are coded 0. This variable is based on the gender selected on a student's application to the university.

Similarly, Bean and Metzner's (1985) research into non-traditional student retention went further to emphasize and establish how students' social environments outside the university can affect their decisions to complete college. Their research explicates how a student's background affects the chance a student will drop-out by carefully examining the circumstances that lead to their departure from a college or university. Students having one or more of the following attributes in their estimation are typically considered non-traditional: (1) commute rather than live on-campus; (2) students older than 25; or attend school part-time. Their research highlights

that retention theory at the time did not distinguish between traditional and non-traditional students and that "…the likelihood of nontraditional students finishing a degree program is much less than for traditional students" (pg. 487-488). On the other hand, sociological assimilation theory argues that students who maintain close ties with their community and family do better academically (Murphy, 2008; Portes & Rumbaut, 2001). Although there is a wealth of scholarship on the unique challenges faced by immigrants (Murphy, 2008; Portes, 1995; Portes & Rumbaut, 2001), few outside of Nazon (2010) have tested the relative impact nativity (i.e., U.S.-born versus non-U.S.-born) has on students' time-to-graduation performance.

Therefore, to add to the literature on this subject, the dummy variable U.S.-born was constructed to distinguish between U.S.-born (coded 1) and non-U.S.-born (coded 0) students.

As mentioned in the literature review, the language students speak at home has a bearing on their academic performance and loosely approximates whether a student or family is newly settled in the U.S. (Murphy, 2008; Nazon, 2010). Also, Natalia Sylvester's (2019) insight that "…the constant act of interpreting…the journeying back and forth…[between] language[s] …[allows the interpreter to] find truths in the in-between spaces of language." Perhaps students who speak languages other than English at home, like the immigrants known to Murphy (2008) and Portes and Rumbaut (2001), tap into a level of understanding about a particular subject when they have to "interpret" the lesson being taught?

For this reason, the variable English was constructed to distinguish whether students speak English exclusively at home (coded 1) or whether they speak more than English at home (coded 0).

In 1999, Benno Schmidt, chair of the Mayor's Advisory Task Force on CUNY, published a report that argued, "CUNY's…admissions policies…suffer from grades and degrees conferred by the New York City public schools, or other schools, when in many cases these degrees and grades are unreliable" (Mayor's Advisory Task Force on the City University of New York & Schmidt, pg. 48). The report highlights that the City of New York's Black, Hispanic, and immigrant populations were growing, which positioned CUNY as a vital catalyst since "…so many low-income and minority students look to [it] for their college opportunit[y]" (pg. 13).

For this reason, the dummy variable New York City High School was constructed to examine the impact a high school located in New York City student has on time-to-graduation. The variable distinguishes whether a student graduated from a high school located in New York City (coded 1) or graduated from a high school that was not located in New York City (coded 0). Additionally, another variable, NYC Public School, was constructed to denote whether a student graduated from a New York City public school (coded 1) versus a school that is not an NYC public high school (coded 0).

Whereas the variable New York City High School (i.e., high school located in New York) aims to categorize students' high schools by their geographic location, NYC Public School refines the perspective by including whether schools are NYC public or not NYC public (e.g., private parochial, private non-secular, GED, or a school located outside of NYC altogether).

The academic preparedness domain examines five manifest variables included in the PTC. These variables include measures of weighted overall high school grade point averages (GPA), SAT Verbal and Math scores (re-centered to control for differences in scoring during the

intervening years), and Regents test scores in English and biology to add a dimension of assessment diversity to the academic preparedness domain.

High school grades are a fundamental measure of academic performance. As discussed in Chapter Two, GPAs are essentially a quantification of assessments that measure both cognitive and non-cognitive processes (Duckworth and Seligman, 2005; Dweck et al., 2014). CUNY's University Application Processing Center (UAPC) calculates each student's college admissions average (or Caa_total) as it is known in the PTC. Therefore, high school GPA is used in this analysis because it is a fundamental quantification of students' cognitive and non-cognitive performance, which makes it a vital element of academic preparedness. The range for this continuous variable runs from 52 to 99.4.

Another metric used to measure student performance is the standardized exam. More specifically, standardized exams are used to assess a students' readiness for college-level work (City University of New York, 2019; Fields & Parsad, 2012; Hodara & Lewis, 2017; Scott-Clayton, Crosta, & Belfield, 2014;). Within the framework of standardized exams, Robert Glaser (1963) coined the terms "norm-referenced" and "criterion-referenced" to distinguish what is being measured. Tests like the SAT and ACT are norm-referenced exams as opposed to the State of New York Regents exams which are criterion-referenced. More specifically, the criterion standard of measurement "…measures…student achievement in terms of a criterion standard…[providing] information as to the degree of competence attained" with the students' underlying educational content. Whereas norm-referenced tests, on the other hand, evaluate "[students'] performance [against] other members of the group," with "…little or no information about the degree of proficiency exhibited by the tested" learning (Glaser, 1963, pg. 520). In other

words, the SAT measures students against each other given a normative reference designed to distribute students along a continuum of achievement in spite of what they know; whereas the Regents assesses mastery of academic content learned in a particular subject while ignoring the performance of others on the exam. Therefore, I measure both types of standardized exams to gauge the relative impact each has on Black and Hispanic students' time-to-graduation performance. What follows is a description of the SAT and New York State Regents variables in CUNY's PTC database.

The continuous variable labeled cas_sat_verbal_recntrd in the PTC data reflects scores on the verbal portion of the College Board's standardized SAT exam. The range for this variable runs from 200 to 800; and although the data spans the period wherein the SAT scoring was revised, CUNY's OIRA re-centered the revised test scores to align with the previous SAT format to preserve the congruence between formats across time.

Similarly, the continuous variable labeled Cas_sat_math_recntrd in the dataset reflects performance on the math portion of the College Board's standardized SAT exam. To account for revisions to the test over time, the data were re-centered by CUNY's OIRA so that the new scoring format aligns with the older format. The range for this variable runs from 200 to 800.

The continuous variable, English Regents Score, measures performance on high school English Regents exams. Labeled R2_cas_regents_english in the dataset, this variable captures the proficiency in the core high school subject of English Language Arts. The range for this continuous variable runs from 0 to 100.

Next, the variable labeled R_cas_regents_biology in the PTC data is a continuous variable that measures performance on high school Biology Regents exam. The range for this continuous variable runs from 1 to 100.

Further, student socioeconomic status facilitates access to resources to accelerate time to graduation (Bean, 1980; Bowen et al., 2009; Kendi, 2016). For this reason, FAFSA data available in the PTC were selected to demonstrate the relative importance of household finances in pursuit of a baccalaureate degree.

To approximate socioeconomic status, three manifest variables from FAFSA applications are used to construct a latent variable via SPSS 25 statistical software. Since the PTC dataset lacks the income, education, and occupation of students' parents to construct a viable socioeconomic composite variable, the following variables will be used to approximate the status: expected family contribution (EFC), parents' adjusted gross income (AGI), and the wage of students' parents. The resulting scale, Financial Background ($\alpha = .86$), is the product of all manifest variables of the exploratory factor analysis. As mentioned earlier, traditionally socioeconomic status is measured through income, occupation, and education, here, because of data limitations, it is measured using the EFC, AGI, and the wage of a student's parents.

Analytic Strategy

The analytic strategy calls for using T-tests, Pearson's correlations, and regression analyses to evaluate the CUNY PTC data.

T-tests.

According to Bowen et al. (2009), "[d]ifferences in six-year graduation rates by SES, race/ethnicity, and gender are substantial" (pg. 56). Therefore, T-tests will be conducted to compare the gaps in time-to-graduation by comparing the mean time-to-graduation based on students' SEEK status, gender, citizenship (via the U.S. born variable), language spoken at home (via the English variable), high school location (via the NYC high school variable), and high school control (via the NYC public variable).

Pearson's correlations.

The linear correlation of interval-ratio variables in this dissertation will be measured by calculating a Pearson's r. The bivariate Pearson's r analysis will be used to investigate the relationship between students' time-to-graduation and six independent continuous variables, including students' high school GPA, SAT Verbal and Math scores, English and Biology Regents scores, and financial background.

Regression Analyses.

Following the univariate and bivariate analysis, hierarchical regression modeling will consist of three distinct multi-level analyses resulting in a total of eighteen models. The first three regression analyses (Models I through III) will compare Black students in the aggregate, and the next six models (Models IV through IX) stratify the Black students by their SEEK status. The next three regression analyses (Models X through XII) examine Hispanic students as a whole; then they are stratified by their SEEK status (Models XIII through XVIII), resulting in eighteen distinct models. Each of the multilevel analyses for Black and Hispanic students is

nested to allow comparison between students' time-to-graduation across each domain: demographic, academic preparedness, and financial background.

In other words, the first regression examines the effect of being Black on time-to-graduation by the following eleven nested independent variables: gender, citizenship (via the U.S.-born variable), language spoken at home (via the English variable), high school location (via the NYC high school variable), and high school control (via the NYC public variable) school, GPA, SAT Verbal, SAT Math, Regents scores in English and biology, and students' financial background. The second regression will examine the effect of being a Black SEEK student on time-to-graduation by those same preceding eleven independent variables in the preceding regression. The third regression will examine the effect of being a Black non-SEEK student on time-to-graduation by those same preceding eleven independent variables in the preceding regression.

The fourth regression will examine the effect of being Hispanic on time-to-graduation by those same preceding eleven independent variables in the third regression. The fifth regression will examine the effect of being a Hispanic SEEK student on time-to-graduation by those same eleven independent variables in the preceding regression. Lastly, the sixth regression will examine the effect of being a Hispanic non-SEEK student on time-to-graduation by those same eleven independent variables in the preceding regression.

Each of the hierarchical regressions includes three models that sequentially add each domain in this study. The result is eighteen regression models that examine time-to-graduation across eleven independent variables stratified by the main independent variable – student SEEK status. In the next chapter, the results of the analysis are presented in greater detail.

Figure 3.1: Research Model

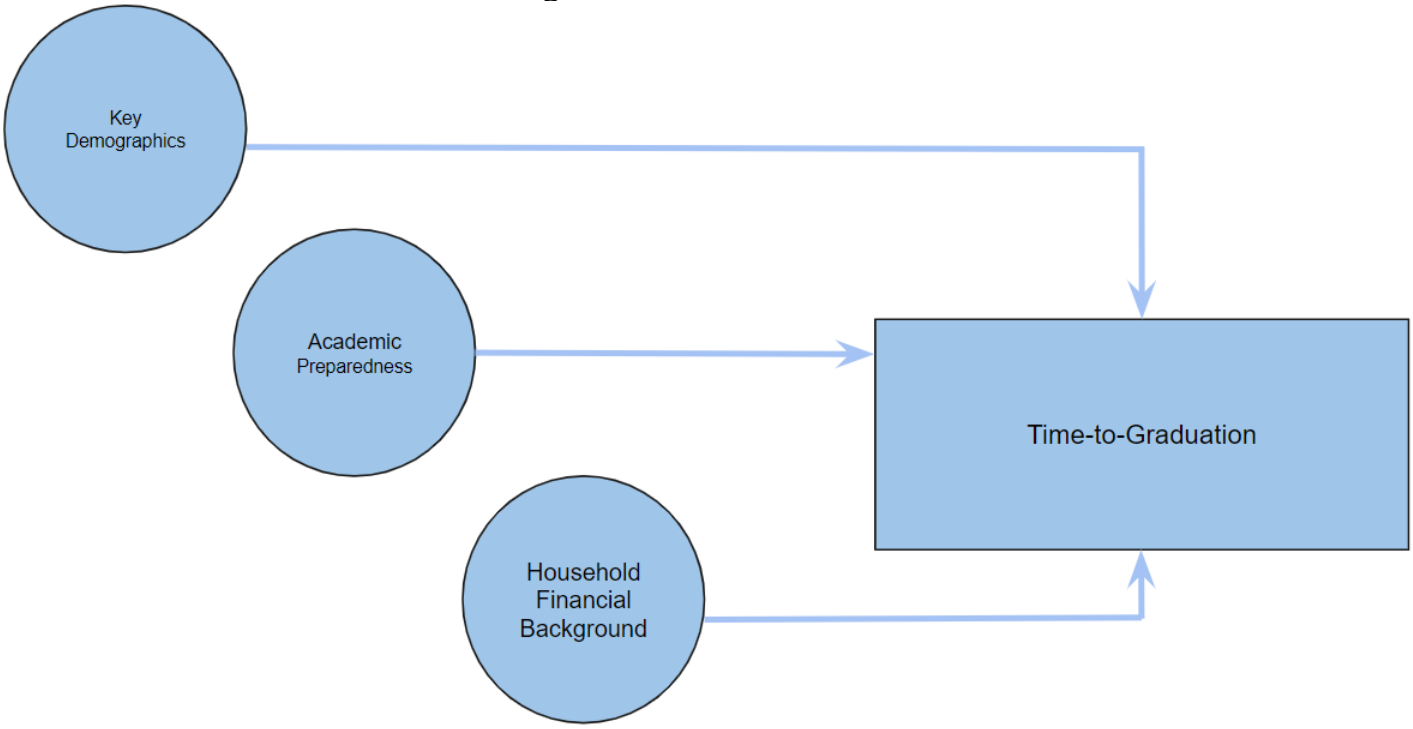


Figure 3.2: Hierarchical Regression Model Contents

Time to Graduation for **Black** Students

Model:	I	II	III	IV	V	VI	VII	VIII	IX
	ALL			SEEK STUDENTS			NON-SEEK STUDENTS		
Key Demographic Variables	✓	✓	✓	✓	✓	✓	✓	✓	✓
Academic Preparedness		✓	✓		✓	✓		✓	✓
Financial Background			✓			✓			✓

Time to Graduation for **Hispanic** Students

Model:	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII
	ALL			SEEK STUDENTS			NON-SEEK STUDENTS		
Key Demographic Variables	✓	✓	✓	✓	✓	✓	✓	✓	✓
Academic Preparedness		✓	✓		✓	✓		✓	✓
Financial Background			✓			✓			✓

Chapter Four: Results

This chapter reports the results to my research question: what is the relative impact of demographics, academic preparedness, and financial background on time-to-graduation for SEEK and non-SEEK, Black and Hispanic students?

This dissertation uses data from the City University of New York's Office of Institutional Research and Assessment Policy Tracking Cohort database to evaluate these questions. CUNY's Policy Tracking Cohort (PTC) longitudinal database contains student records for over 700,000 first-time, full-time students who matriculated at the university. The data in this study spans CUNY's fall 2000 to fall 2016 semesters. Demographic information including race; gender; age; citizenship status; academic performance, including weighted high school grades; SAT scores; and financial background info from students' Free Application for Federal Student Aid (FAFSA) records are used to assess their impact on Black and Hispanic students' time-to-graduation at the City University of New York.

Univariate Analysis

Descriptive statistics of means, standard deviations, ranges, and descriptions of variables for the entire sample of students in this study are presented in Table 4.1. The univariate table is presented to illustrate the distribution of single variables. Furthermore, it provides a summary of the Black and Hispanic first-time, full-time undergraduates who matriculated at CUNY from fall 2000 to the fall 2016 semester.

Dependent variable: Time-to-graduation.

Time-to-degree (years_to_ba) is measured in years, i.e., the amount of days between a student's degree award date and their CUNY matriculation divided by 365.25, which converts days into years.

Essentially, time-to-degree (N = 43,689) is a scale variable that runs from 1.42 to 15.75. The mean of 5.06 indicates that on average, students graduate in approximately five years; a standard deviation of 1.84 suggests that there is a high level of variance in the number of years it takes students to earn a bachelor's degree. Note that the number is lower than all other "N's" because it contains only students the students from the sample who have graduated.

Independent variables.

Excluding SEEK status, which is used as a control variable for stratification purposes, a total of eleven independent variables were selected for analysis in this study. These variables are grouped into three domains: demographic, academic preparedness, and financial background.

Demographic Variables

I selected five demographic variables affecting the time it takes students to earn a degree, using the review of the literature as a guide, to measure time-to-graduation characteristics.

The range for the dummy variable created for student gender runs from 0 to 1. The mean for females was .58 and implies that 58% of the population are females, and males represent 42% of the Black and Hispanic student population (N = 175,296).

The range for the dummy variable created for citizenship status (U.S.-born) runs from 0 to 1. The mean for U.S.-born citizens is .81 and implies that the non-U.S.-born citizens represent 19% of the student population (N = 172,533).

The range for the dummy variable created for language spoken at home, labeled English, runs from 0 to 1. The mean for English speakers is .43, which implies that 43% of the Black and Hispanic student population speaks English exclusively at home versus 57% of the student population consisting of non-exclusive English-speaking students (N = 113,840).

The range for the dummy variable NYC high school ranges from 0 to 1. The mean for NYC high school is .94, which implies that non-NYC high school graduates make up about 6% of the student population (N = 133,613).

The dummy variable, New York City Public School, ranges from 0 to 1 and bifurcates between NYC public schools and non-NYC public schools in the immediate region and beyond. The mean for this variable is .75, which implies that 75% of students in this study attended an NYC public school, while 25% of the student population is not from an NYC public school (N = 150,964).

Academic preparedness variables.

The continuous variable in Table 4.1, High School GPA, measures students' weighted overall high school average. The range for this variable runs 52 to 99.4 (N = 147,201). The mean average of the student population contained in this study is 78.75. The standard deviation of 7.43 for this variable suggests a high degree of variability between the high school grades of the Black and Hispanic students in the data.

Next, the continuous variable, SAT Verbal, in Table 4.1 reflects students' scores on the verbal portion of the College Board's standardized SAT exam. The range for this variable runs from 200 to 800 (N = 116,899). The mean for this variable is 446.76 and has a standard deviation of 88.48, which suggests a wide degree of variability between students' SAT Verbal scores.

Similarly, students' scores from the SAT Math standardized assessment are included in the PTC data. The range for this variable also runs from 200 to 800 (N = 116,904). The mean average for students' SAT Math scores is 451.66, with a standard deviation of 89.73 – indicative of a wide spread between students' SAT Math scores.

The mean average score for students who took the English Regents exam was 76.97 (N = 127,793). The range for this variable runs from 0 to 100 and has a standard deviation of 10.49, which indicates moderate dispersion about the mean average.

Meanwhile, students who took the Biology Regents exam had scores that ranged between 1 and 100 (N = 115,589). The mean average of students' Biology Regents test scores is 72.98, with a standard deviation of 10.9, which is indicative of moderate dispersion around the mean average.

Financial background.

Finally, the composite Financial Background variable used to approximate the impact of income on the time-to-graduation for students has a mean average of -.03 with higher values suggesting students' households are expected to provide greater financial resources toward a student's educational expenses (N = 74,786). The range for this variable runs from -1.08 to 24.87 and has a standard deviation of .86, which is indicative of minimal dispersion around the mean.

Table 4.1 - Univariate Descriptives for Black and Hispanic students from Fall 2000 to Fall 2016.

Variable	N	Mean	S.D.	Range	PTC Variable Label and Definition
				Dependent Variable	
Time-to-Graduation	43,689	5.06	1.84	1.42 - 15.75	years_to_ba. Duration in years spent to earn B.A.
				Main Independent Variable	
SEEK Status	175,296	0.15	0.36	0 – 1	SEEK. Dummy variable where SEEK students are coded 1; non-SEEK students are coded 0.
				Key Demographic Variables	
Female	175,296	0.58	0.49	0 – 1	female. Dummy variable where females coded 1; males are coded 0.
U.S. born	172,533	0.81	0.39	0 – 1	RB_citizenship_desc. Dummy variable where U.S. born citizens are coded 1; non-U.S. born citizens are coded 0.
English	113,840	0.43	0.49	0 – 1	RB_language_at_home_desc. Dummy variable where those who speak English exclusively at home are coded 1; non-exclusive English speakers are coded 0.
New York City High School	133,613	0.94	0.24	0 – 1	RB_hs_region_desc. Dummy variable where NYC schools are coded 1; non-NYC schools are coded 0.
NYC Public School	150,964	0.75	0.44	0 – 1	RB_cas_hs_type_desc. Dummy variable where NYC public schools are coded 1; non-NYC public schools are coded 0.
				Academic Preparedness	
High School GPA	147,201	78.75	7.43	52 – 99.4	caa_total. Weighted overall high school grade.
SAT Verbal	116,899	446.76	88.48	200 – 800	cas_sat_ver_recntrd. Students' verbal SAT score.
SAT Math	116,904	451.66	89.73	200 – 800	cas_sat_math_recntrd. Students' math SAT score.
English Regents Score	127,793	76.97	10.49	0 – 100	r2_cas_regents_english. Students' high school English regents score.
Biology Regents Score	115,589	72.98	10.90	1 – 100	r_cas_regents_biology. Students' high school biology regents score.
				Household Financial Background	
Financial Background	74,786	-0.03	0.86	-1.08 – 24.87	fin_bg_reboot. Product of 3 mainfest variables: the combined normalized values of *expected family contribution*, *parent adjusted gross income*, and *parental wage*.

Source: CUNY Office of Institutional Research and Assessment (PTC-DB)

Bivariate Analysis

Table 4.2 presents the T-test results of the six dummy variables that make up the student demographics domain.

SEEK status appears to have a significant influence on students' time-to-graduation. Black and Hispanic SEEK students, on average, take one-tenth of a year longer to graduate than their non-SEEK peers (5.15 vs. 5.04 years, respectively); this difference is statistically significant at the .001 level.

Gender also appears to have a significant impact on time-to-graduation performance. Overall, female Black and Hispanic students graduate almost two-tenths of a year faster than their male counterparts on average (5 vs. 5.18 years, respectively). This difference is statistically significant at the .001 level.

Next, whether a student was born in the U.S. seems to have a significant impact on the number of years students take to graduate. On average, U.S.-born Black and Hispanic students graduate two-tenths of a year earlier than their non-U.S.-born peers (5.01 vs. 5.19 years, respectively). The difference is also statistically significant at the .001 level.

The language students speak at home also appears to have a significant effect on time-to-graduation performance. Bilingual Black and Hispanic students graduate almost two-tenths of a year sooner than students who speak English exclusively (5.19 vs. 5.03, respectively).

Another dummy variable that appears to have a significant impact on Black and Hispanic students' time-to-graduation is whether a student attended a high school located in New York

City. On average, students who did not attend a high school located in New York City tend to graduate earlier than students who did (4.62 vs. 5.04, respectively).

Lastly, the dummy variable, New York City public school, also appears to have a significant impact on students' time-to-graduation. This variable, which distinguishes whether students attended a NYC public school from those who did not, shows that the former group graduate later on average than those in the latter group (5.07 vs. 4.97, respectively).

Table 4.2 - Comparison of Means on Cumulative Time-to-Grad for Black and Hispanic Students from Fall 2000 to Fall 2016.

Independent Variables	Time-to-Graduation in Years (N in parenthesis)
SEEK status	
Yes	5.15 ***
	(7,245)
No	5.04
	(36,444)
Gender	
Female	5.00 ***
	(29,573)
Male	5.18
	(14,116)
Citizenship	
U.S. born	5.01 ***
	(33,245)
Not U.S. born	5.19
	(10,186)
Language at Home	
English	5.19 ***
	(12,077)
Bilingual	5.03
	(18,123)
New York City High School	
NYC	5.04 ***
	(33,752)
Not NYC	4.62
	(2,397)
NYC Public School	
NYC Public	5.07 ***
	(29,463)
Not NYC Public	4.97
	(10,620)

* p = .05 **p = .01 *** p = .001

Note: Within each predictor on the dependent variable, the superscript of the level of significance is placed just on one of the two categories to indicate that the relative mean scores are statistically different from each other.

Source: CUNY Office of Institutional Research - Policy Tracking Cohort DB

Next, Table 4.3 provides the outcome of Pearson's correlations conducted to determine whether the continuous independent variables have a statistically significant association with the dependent variable – students' time-to-graduation. Correlation coefficients (Pearson's r) show the degree of linear statistical relationship between each of the non-dichotomous independent variables and the dependent variable. The scale used to weigh the bivariate relationships in this study counts correlations of 0 to .35 as weak, .36 to .75 as moderate, and .76 to 1 as strong. What follows are Pearson's correlations about the student population examined in the present study.

First, high school GPAs are positive and moderately correlated with all but financial background and time-to-graduation. High school GPAs are weakly correlated with the financial background (.16) and time-to-graduation (.27). Additionally, time-to-graduation appears to have an inverse correlation to high school GPA. High school GPAs are also statistically significant at the .001 level for all of the continuous variables compared.

Student SAT Verbal scores have a moderate positive correlation with every variable except financial background and time-to-graduation. In the case of financial background and time-to-graduation, the relationships are weak (.25 and -.15, respectively). Moreover, time-to-graduation appears to be inversely correlated with SAT Verbal scores. Students' SAT Verbal scores are statistically significant at the .001 level for all of the continuous variables as well.

Similarly, SAT Math scores have a moderate positive correlation with all but financial background and time-to-graduation variables. Like SAT Verbal scores, SAT Math is weakly correlated with financial background and the dependent variable, time-to-graduation (.22 and -.17, respectively). Additionally, students' SAT Math scores appear to be inversely correlated

with time-to-graduation. All of the continuous variables compared with the SAT math scores are significant at the .001 level.

English Regents scores are positive and moderately correlated with all of the non-dichotomous continuous variables except financial background and time-to-graduation. The latter two are weakly correlated at .17 and -.22, respectively. Conversely, however, there is an inverse correlation (-.22) of English Regents score to time-to-graduation. All of the continuous variables are significant at the .001 level when paired with the English Regents variable in the Pearson's correlation analysis.

The Biology Regents score has a weak positive correlation of .19 to financial background, and a weak inverse correlation of -.18. All of the continuous variables are significant at the .001 level when paired with the Biology Regents variable in the Pearson's correlation analysis.

There is a weak inverse correlation between financial background and time-to-graduation, and the pair's relationship is statistically significant at the .001 level.

Table 4.3 - Pearson's Correlation for Black and Hispanic Students from Fall 2000 to Fall 2016. (N = 16,953)[a]

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) High School GPA	**1**	---	---	---	---	---	---
(2) SAT Verbal	**.37*** **	**1**	---	---	---	---	---
(3) SAT Math	**.43*** **	**.64*** **	**1**	---	---	---	---
(4) English Regents	**.45*** **	**.56*** **	**.46*** **	**1**	---	---	---
(5) Biology Regents	**.49*** **	**.59*** **	**.58*** **	**.51*** **	**1**	---	---
(6) Financial Background	**.16*** **	**.25*** **	**.22*** **	**.17*** **	**.19*** **	**1**	---
(7) Time-to-graduation (in years)	**-.27*** **	**-.15*** **	**-.17*** **	**-.22*** **	**-.18*** **	**-.07*** **	**1**

(a) - Analysis is based on a listwise deletion of cases.

*** p <= .001

Source- CUNY Office of Institutional Research: PTC-DB

Multivariate Analysis

The primary aim of this dissertation involved examining the multivariate effect that several demographic, academic preparedness, and financial background variables have on Black and Hispanic students' time-to-graduation performance. Additionally, an important corollary of this aim is to identify what influence special opportunity programs like SEEK have on students.

Eighteen hierarchical regression models are used in this analysis. Models I through IX are limited to the population of Black students at CUNY's senior colleges. Model I, however, examines the impact of demographics alone on their time-to-graduation performance, Model II then adds the domain of academic preparedness, and Model III adds the financial background domain. Models IV through VI are a stratification of the domains nested hierarchically but limited to all Black SEEK students, while Models VII through IX are limited to all Black non-SEEK students.

Similarly, Models X through XVIII are limited to the population of Hispanic students at CUNY's Senior Colleges. Model X examines the impact of demographics alone on time-to-graduation performance, Model XI then adds the academic preparedness domain, and Model XII adds the financial background domain to the equation. Models XIII through XV are a stratification of those same domains nested hierarchically but limited to all Hispanic SEEK students, while Models XVI through XVIII nest the domains hierarchically but are limited to all Hispanic non-SEEK students.

Analysis and Interpretation of Time-to-Graduation for Black Students

Table 4.4a presents unstandardized regression coefficients for the dependent variable time-to-graduation for Black students. The nine models in Table 4.4a show the impact of entering each domain for all Black students (Models I through III), for SEEK students (Models IV through VI), and non-SEEK students (Models VII through IX).

Table 4.4a - Unstandardized Regression Coefficients (Beta in parentheses) for CUNY Baccalaureates' Time-to-Graduation

Variable	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII	Model VIII	Model IX
	BLACK STUDENTS (N = 4,059)			BLACK SEEK STUDENTS (N = 637)			BLACK NON-SEEK STUDENTS (N = 3,422)		
Key Demographics									
Female	-.220 ***	-.130 **	-.133 **	-.169	-.054	-.050	-.239 ***	-.139 **	-.143 **
	(-.074)	(-.044)	(-.045)	(-.052)	(-.017)	(-.015)	(-.081)	(-.048)	(-.049)
U.S. born	-.041	-.120 *	-.114	.183	.099	.102	-.087	-.168 **	-.160 *
	(-.011)	(-.031)	(-.030)	(.048)	(.026)	(.026)	(-.023)	(-.044)	(-.042)
English	.036	.000	-.001	.112	.051	.043	.025	-.018	-.015
	(.011)	(-.001)	(.000)	(.035)	(.016)	(.013)	(.008)	(-.006)	(-.005)
New York City High School	.389 ***	.286 *	.283 *	.495	.356	.356	.383 **	.279 *	.274 **
	(.066)	(.048)	(.048)	(.055)	(.039)	(.039)	(.068)	(.050)	(.049)
NYC Public School	-.084	-.229 **	-.240 **	-.412	-.431	-.426	-.090	-.210 **	-.221 **
	(-.020)	(-.056)	(-.059)	(-.061)	(-.063)	(-.062)	(-.023)	(-.054)	(-.057)
Academic Preparedness									
High School GPA	---	-.048 ***	-.048 ***	---	-.046 ***	-.046 ***	---	-.049 ***	-.049 ***
		(-.233)	(-.232)		(-.198)	(-.197)		(-.237)	(-.236)
SAT Verbal	---	.001	.001	---	.002 *	.002 *	---	.000	.000
		(.039)	(.040)		(.100)	(.100)		(.021)	(.023)
SAT Math	---	.000	.000	---	.000	.000	---	.000	.000
		(-.007)	(-.005)		(.017)	(.016)		(-.013)	(-.010)
English Regents	---	-.021 ***	-.021 ***	---	-.021 **	-.021 **	---	-.022 ***	-.022 ***
		(-.142)	(-.142)		(-.131)	(-.131)		(-.144)	(-.144)
Biology Regents	---	-.002	-.002	---	-.015 *	-.015 *	---	.000	.000
		(-.016)	(-.016)		(-.101)	(-.099)		(.003)	(.003)
Household Financial Background									
Financial Background	---	---	-.024	---	---	-.123	---	---	-.026
			(-.018)			(-.017)			(-.022)
Constant	4.585	10.397	10.358	4.686	10.060	9.981	4.625	10.568	10.538
Adjusted R^2	.008	.105	.105	.001	.079	.078	.009	.108	.108
F	7.32 ***	48.53 ***	44.25 ***	1.15	6.49 ***	5.91 ***	7.42 ***	42.50 ***	38.80 ***

[a] Information above is based on a listwise deletion of cases.

* p < .05 **p < .01 *** p < .001

Source: CUNY Office of Institutional Research - Policy Tracking Cohort DB

When examining the demographics domain, results show robust gender difference in Models I through III and Models VII through IX. It appears that Black females take less time-to-graduate than their male counterparts. Controlling for all other variables in each model, the time-to-graduation for female students is .22 years less than males in Model I, .13 less than males in Model II, .133 less than males in Model III, .239 less than males in Model VII, .139 less than males in Model VIII, and .143 less than males in Model IX. These relationships are moderately strong with statistical significance at the .01 level in Models II, III, VIII, and IX; and strong with statistical significance at the .001 level in Models I and VII.

The inclusion of academic preparedness and financial background domains in the evaluation of the time-to-graduation of non-SEEK, U.S. born Black students (Models VIII and IX) reveals they take less time to graduate than those students who were born outside the U.S. Controlling for all variables in each model, U.S.-born students graduate .168 years earlier than students who were not U.S.-born in Model VIII, and .16 years earlier than students who were not born in the U.S. in Model IX. The strength of Model VIII is moderate with significance at the .01 level; however, Model IX is weaker with statistical significance at the .05 level.

Black students overall (Models I through III) and those not enrolled in SEEK (Models VII and IX), who graduated from an NYC high school, take longer to graduate than students who did not graduate from an NYC high school. Controlling for all the variables in each model, NYC high school students took .389 years longer than non-NYC high school students in Model I, .286 years longer in Model II, .283 years longer in Model III, .383 years longer in Model VII, .279 years longer in Model VIII, and .274 years longer in Model IX. Furthermore, the analysis shows that the strength of this finding is mixed with three models significant at the .05 level (Models II, III, and VIII), two at the .01 level (Models VII and IX), and one at the .001 level (Model I); but

they are robust since significance is found for Black students overall and non-SEEK students alike.

In the presence of the academic preparedness and the financial background domain, Black students overall (Models II and III) and those not in SEEK (Models VIII and IX) who graduated from an NYC public high school take less time-to-graduate from CUNY than students who did not attend an NYC public high school. Controlling for all the other variables in each model, students who graduated from an NYC public school graduated .229 years earlier in Model II, .24 years earlier in Model III, .21 years earlier in Model VIII, and .221 years earlier than students who did not attend an NYC public high school in Model IX. Moreover, this finding is robust and has moderate statistical significance at the .01 level across those same models.

One of the most important findings, however, is that SEEK students appear to have a qualitatively different experience than their non-SEEK counterparts. Gender, citizenship, language spoken at home, high school location, and not attending an NYC public high school appears to impact students' time-to-graduation performance; none of these key demographic variables carry any statistical significance across Models IV through VI.

High school GPA, however, does seem to have a strong and robust relationship when evaluated against time-to-graduation. The higher one's high school GPA, the less time it takes to graduate from CUNY. Controlling for all the other variables in each model, for every unit increase in high school GPA, time-to-graduation decreases by .48 years in Model II and III, .46 years in Models V and VI, and .49 years in Models VIII and IX. This relationship is statistically significant at the .001 level for Models II and III, V and VI, and VIII and IX.

While the SAT Verbal score lacks statistical significance for Black students overall and non-SEEK students, it does seem to matter for SEEK students (Model V and VI). Controlling for all other variables in Models V and VI, for every unit increase in SAT score, students' time-to-graduation increases by two-thousandths of a unit. The strength of this relationship is anemic at best with statistical significance at the .05 level for Black SEEK students.

On the other hand, English Regents scores show a strong and robust relationship for Black students overall and non-SEEK students (Models II and III, V and VI, and VIII and IX). The higher one's English Regents score, the less time it takes students to graduate from CUNY. More specifically, controlling for all other variables in Models II, III, V and VI, for every unit increase in English Regents score, time-to-graduation decreases by .021 years. Further, controlling for all other variables in Models VIII and IX, for every unit increase in English Regents score, time-to-graduation decreases by .022 years. The relationship for Models II, III, VIII, and IX are strong at the .001 level; meanwhile, the statistical significance for Models V and VI is moderate at the .01 level.

Students' scores on the Biology Regents only matters for Black SEEK students. More specifically, the higher students score on their Biology Regents, the less time it takes them to graduate from CUNY on average. Controlling for all other variables in each model, for every unit increase in Biology Regents score, time-to-graduation decreases by .015 years in Models V and VI. This relationship is statistically significant at the .05 level in both models.

Another major finding presented in Table 4.4a is the lack of statistical significance of Black students' financial backgrounds (Models III, VI, and IX). Black students' financial

background within SEEK and non-SEEK has no discernible impact on time-to-graduation performance.

Analysis and Interpretation of Time-to-Graduation for Hispanic Students

Table 4.4b presents unstandardized regression coefficients for the dependent variable time-to-graduation for Hispanic students. The nine models in Table 4.4b show the impact of entering each domain for all Hispanic students (Models X through XII), for SEEK students (Models XIII through XV), and non-SEEK students (Models XVI through XVIII).

Table 4.4b - Unstandardized Regression Coefficients (Beta in parentheses) for CUNY Baccalaureates' Time-to-Graduation

Variable	Model X	Model XI	Model XII	Model XIII	Model XIV	Model XV	Model XVI	Model XVII	Model XVIII
	HISPANIC STUDENTS (N = 7,338)			HISPANIC SEEK STUDENTS (N = 1,722)			HISPANIC NON-SEEK STUDENTS (N = 5,616)		
Key Demographics									
Female	-.214 *** (-.082)	-.175 *** (-.067)	-.177 *** (-.068)	-.023 (-.009)	-.016 (-.006)	-.020 (-.008)	-.272 *** (-.103)	-.210 *** (-.080)	-.212 *** (-.080)
U.S. born	-.119 ** (-.033)	-.137 ** (-.038)	-.133 ** (-.037)	-.104 (-.033)	-.092 (-.029)	-.092 (.029)	-.126 * (-.033)	-.158 *** (-.042)	-.151 ** (-.040)
English	-.085 * (-.024)	-.038 (-.011)	-.028 (-.008)	.039 (.009)	.052 (.013)	.047 (.011)	-.096 * (-.028)	-.068 (-.020)	-.052 (-.015)
New York City High School	.161 * (.027)	.091 (.016)	.088 (.015)	.143 (.014)	.224 (.022)	.273 (.027)	.153 (.028)	.082 (.015)	.078 (.014)
NYC Public School	-.002 (-.001)	-.058 (-.017)	-.068 (-.020)	-.010 (-.002)	-.009 (-.002)	-.031 (-.007)	-.015 (-.004)	-.049 (-.015)	-.064 (-.019)
Academic Preparedness									
High School GPA	---	-.034 *** (-.172)	-.034 *** (-.171)	---	-.037 *** (-.189)	-.037 *** (-.187)	---	-.036 *** (-.170)	-.036 *** (-.169)
SAT Verbal	---	.001 * (.050)	.001 ** (.053)	---	.001 (.046)	.001 (.040)	---	.001 * (.044)	.001 * (.048)
SAT Math	---	-.001 *** (-.066)	-.001 *** (-.065)	---	-.002 *** (-.100)	-.002 *** (-.100)	---	-.001 *** (-.058)	-.001 *** (-.057)
English Regents	---	-.016 *** (-.116)	-.016 *** (-.116)	---	-.018 *** (-.136)	-.017 *** (-.131)	---	-.016 *** (-.113)	-.016 *** (-.113)
Biology Regents	---	-.004 (-.027)	-.004 (-.027)	---	.007 (.049)	.007 (.051)	---	-.007 ** (-.050)	-.007 ** (-.050)
Household Financial Background									
Financial Background	---	---	-.022 (-.016)	---	---	-.381 *** (-.074)	---	---	-.032 (-.025)
Constant	4.663	9.234	9.207	4.585	8.673	8.426	4.847	9.738	9.724
Adjusted R^2	.009	.082	.082	(-.001)	.071	.076	.012	.090	.090
F	13.84 ***	66.86 ***	60.96 ***	.50	14.19 ***	13.89 ***	15.21 ***	56.69 ***	51.87 ***

[a] Information above is based on a listwise deletion of cases.

* p < .05 **p < .01 *** p < .001

Source: CUNY Office of Institutional Research - Policy Tracking Cohort DB

As with Black students, results show robust gender difference in Models X through XII and Models XVI through XVIII. Hispanic females take less time-to-graduate than their male counterparts overall. Controlling for all the other variables in each model, the time-to-graduation for female students is .214 years less than males in Model X, .175 less than males in Model XI, .177 less than males in Model XII, .272 less than males in Model XVI, .21 less than males in Model XVII, and .212 less than males in Model XVIII. These relationships are strong with statistical significance at the .001 level across Models X through XII and XVI through XVIII.

Similarly, citizenship also appears to have a robust relationship insofar as U.S.-born students appear to graduate earlier than non-U.S.-born students. Controlling for all the variables in each model, Model X shows U.S.-born students graduate .119 years earlier than students who were not U.S.-born, Model XI shows .137 years, Model XII shows .133 years, Model XVI shows .126 years, Model XVII shows .158 years, and Model XVIII shows students born in the U.S. graduate .151 years earlier than their non-U.S.-born counterparts. Meanwhile, Model XVII shows strong statistical significance at the .001 level. The strengths of Models X through XII and XVIII are moderate with statistical significance at the .01 level. Model XVI has anemic strength given its statistical significance at the .05 level.

Unlike the results for the Black students, language spoken at home only seems to matter when academic preparedness and financial background are excluded from the evaluation, which is true for Hispanic students overall (Model X) and for those who are non-SEEK (Model XVI). Controlling for all the variables in each model, Model X shows that overall Hispanic students who speak English exclusively at home graduate .085 years earlier from CUNY than those who do not speak English exclusively at home. Similarly, Model XVI suggests Hispanic non-SEEK

students who speak English exclusively at home graduate .096 years earlier than those who do not speak English exclusively at home.

Conversely, SEEK students appear to have a qualitatively different experience than their non-SEEK counterparts, which is similar to the effect observed with Black students. Gender, citizenship, language spoken at home, high school location, and not attending an NYC public high school appears to impact students' time-to-graduation performance. Likewise, none of these key demographic variables carry any statistical significance across Models XIII through XV.

As with Black students, high school GPAs have a strong and robust relationship when evaluated against time-to-graduation. The higher one's high school GPA, the less time it takes students to graduate from CUNY. Controlling for all the other variables in each model, for every unit increase in high school GPA, time-to-graduation decreases by .34 years in Model XI and XII, .37 years in Models XIV and XV, and .36 years in Models XVII and XVIII. This relationship is statistically significant at the .001 level for Models X through XVIII.

While the SAT Verbal score matters for Hispanic students overall and Hispanic non-SEEK students in particular (Models XI, XII, XVII, and XVIII), it does not seem to matter for Hispanic SEEK students (Model XIV and XV). Controlling for all other variables in Models XI, XII, XVII, and XVIII, for every one-unit increase in SAT score, time-to-graduation increases by one-thousandth of a unit. The strength of this relationship is anemic at best with statistical significance at the .05 level for Hispanic students overall in Models XI, XVII, and XVIII; alternatively, Table 4.4b shows statistical significance at the .01 level for Hispanic students overall in the presence of the financial background domain (Model XII).

Conversely, SAT Math scores show a robust relationship for Hispanic students overall, and for SEEK and non-SEEK Hispanic students in particular (Models XI, XII, XIV, XV, XVII, and XVIII). In other words, the higher the students' SAT Math scores, the less time it takes for Hispanic students to graduate from CUNY. Controlling for all other variables in the models, for every unit increase in SAT Math score, time-to-graduation decreased by .001 years for Hispanic students overall (Models XI and XII) and non-SEEK students (Models XVII and XVIII); and by .002 years for SEEK students (Models XIV and XV). These relationships are statistically significant at the .001 level for each of the preceding models.

Similar to the observation of Black students, English Regents scores show a strong and robust relationship for Hispanic students overall, in SEEK, and non-SEEK (Models XI, XII, XIV, XV, XVII, and XVIII). The higher one's English Regents score, the less time it takes students to graduate from CUNY. More specifically, controlling for all other variables in Models XI, XII, XVII and XVIII, for every unit increase in English Regents score, time-to-graduation decreases by .016 years. Further, controlling for all other variables in Models XIV, for every unit increase in English Regents score, time-to-graduation decreases by .018 years. Lastly, controlling for all other variables in Model XV, for every unit increase in English Regents score, time-to-graduation decreases by .17 years. The relationship for Models II, III, VIII, and IX are strong at the .001 level; meanwhile, the statistical significance for Models V and VI is moderate at the .01 level. These relationships are statistically significant at the .001 level for each of the previous models just mentioned.

Contrary to the observation of Biology Regents scores on Black SEEK students' time-to-graduation, Hispanic non-SEEK student scores on the Biology Regents are the only ones that matter. The higher students score on their Biology Regents, the less time it takes them to

graduate from CUNY on average. Controlling for all other variables in each model, for every unit increase in Biology Regents score, time-to-graduation decreases by .007 years in Models XVII and XVIII. It appears this relationship is statistically significant at the .01 level in both models.

Lastly, another finding in Table 4.4b is that the financial background of Hispanic SEEK students does matter (Models XV), whereas it does not seem to matter overall for Hispanic students (Model X) or non-SEEK Hispanic students (Model XVIII). Specifically, the more financial resources a student has available, the less time-to-graduate they seem to take. Controlling for all other variables in Model XIV, for every unit increase in the financial background of Hispanic SEEK students, time-to-graduation decreases by .381 years. Furthermore, that relationship is statistically significant at the .001 level.

Summary of Results

A total of eighteen regression models were used to examine the relative impact of demographics, academic preparedness, and financial background on SEEK and non-SEEK Black and Hispanic students' time-to-graduation. In brief, the results suggest that: (1) the SEEK program appears to reduce time-to-graduation gaps for Black and Hispanic students, (2) high school GPA and the English Regents exam are better predictors of time-to-graduation than SAT Verbal and Math test scores, and (3) the financial background of a student's household as a predictor of time-to-graduation for Black students is no better than chance.

Chapter Five: Discussion

This chapter discusses the results of my research into: what is the relative impact of demographics, academic preparedness, and financial background on time-to-graduation for SEEK and non-SEEK, Black and Hispanic students?

Using ordinary least squares regression analysis to evaluate the time-to-graduation of Black and Hispanic, SEEK and non-SEEK students, the salient findings include that SEEK students, whether Black or Hispanic, have a qualitatively different experience than their non-SEEK counterparts insofar as the key demographic variables lose statistical significance. This likely suggests that SEEK has a mitigating effect on time-to-graduation across the demographic variables evaluated herein. The remainder of this chapter synthesizes the results presented in Chapter Four with the previous research and the theoretical framework presented in Chapter Two.

Domains

The choice of independent variables for this analysis was driven by a review of the literature on retention, academic performance, and a specific emphasis on unique student populations (e.g., opportunity programs, minorities, and non-traditional students). These variables were then grouped as demographics, academic preparedness, and financial background. The following sections will discuss the findings regarding each of the domains and their connection with the literature review and theory that inform this dissertation.

Demographic variables.

As presented in Table 4, five specific demographic variables of Black and Hispanic, SEEK and non-SEEK students were examined in this dissertation: student gender (female vs. male), language (English or other), high school location (NYC or other), and control type (NYC public or other). The findings from the current study, for the most part, corroborate previous research concerning demographics and time-to-graduation.

The models for Black students overall (Models I through III) and non-SEEK students in particular (Models VII through IX), for example, showed that there was a robust gender difference insofar as female students graduated more quickly than their male counterparts. This aligns with previous research on gender and graduation, which found that "females…outperform males of their race at every stage" on the path to graduation (Bowen et al., 2009, p. 29). Persistence being a necessary ingredient on the road to graduation also tips in favor of women. According to Chambers' (2011), females students at Indiana University had persistence rates on the main and regional campuses in 2009-2010 of 79% and 78%, respectively;" whereas for males, the ratio was 75% and 72%, respectively (p. 43).

The current study found that Black, non-SEEK, U.S.-born students (Model VIII and IX) and all Hispanic students except those enrolled in SEEK (Models X thru XII, and XVI thru XVIII) take less time to graduate than Black non-SEEK students who immigrated to the U.S. This finding is wholly consonant with the findings of other research including Murphy (2008), who argues "failure to have [a] positive acculturation experience…is likely to adversely affect the potential for retention, persistence, and graduation" (p. 6). Also, as discussed in Chapter Two, time-to-gradation is greatly influenced by retention, academic preparedness and

performance. For this reason, U.S.-born, Black, non-SEEK students are better positioned than their immigrant counterparts to avoid the "negative interactions and experiences [that] tend to impede integration and distance the individual from the academic and social communities of the institution" (Pascarella and Terenzini, 1991, pp. 54-56).

On the other hand, the current study found that Black students (Models I through III) and of those not enrolled in SEEK (Models VII through IX) who attended a high school located in New York City took more time to graduate than those who did not graduate from a high school located in New York City. Approximately 70% of CUNY's students come from the New York City public high school system (City University of New York, 2012). As such, the apparent slower time-to-graduation may be more a function of resources available to students who attended a CUNY senior college after moving to NYC from elsewhere insofar as the preponderance of New York City high school students drown out the influence of their alternate counterparts, Black non-NYC school students.

Moreover, the current study found that attending a New York City public high school was associated with faster time-to-graduation. This finding, given moderately strong statistical significance in Models II, III, VIII, and IX, was particularly pronounced for Black students overall and for Black non-SEEK students.

The current study noted the democratizing (i.e., gap closing) effect of the SEEK program on Black students insofar as the impact of time-to-graduation across gender (female), citizenship (U.S. born), language spoken exclusively at home (English), attendance and graduation from a New York City high school, and attendance and graduation from a pubic New York City high school becomes no better than chance. This result is likely attributable to the enhanced academic

and financial support bestowed on SEEK students as a way to mitigate their perceived disadvantage. Indeed, research conducted by Thomas (2016) that found a strong, statistically significant relationship between the response, "I see myself graduating from this college," and access to financial resources (pg. 144). Similarly, Mortenson (1998) and Thayer (2000) also link enhancing economic and academic support to increases in degree attainment.

Similar to the findings presented on Black students, Hispanic females also outperform their male counterparts in time-to-graduation performance. These findings align with previous research that showed "Hispanic females have a higher college graduation rate than Hispanic males" (Bowen et al., 2009); Leinbach, Bailey, and Columbia University (2006) found that "Hispanic women are more successful relative to men at earning a bachelor's degree" (p. 26).

The current study also found that U.S.-born, Hispanic students overall (Models X through XII) and those not enrolled in SEEK (Models XVI through XVIII) take less time-to-graduate than their immigrant peers. Again, consistent with prior research regarding retention, failure to integrate or assimilate in the campus environment typically has adverse consequences on time-to-graduation (Bean, 1980; Murphy, 2008; Pascarella and Terenzini, 1991; Tinto, 1987). Conversely, Leinbach et al. (2006, p. 42) observed more broadly that "Hispanic immigrants exhibited absolutely identical percentages as native-born Hispanics over six and twelve years" to drop-out, earn a degree, or transfer to another school. Although their research was drawn from CUNY data, it differs with the current study in two important ways: (1) Leinbach et al. (2006) examined 1990 first-time students, whereas the current study uses more recent data; and (2) their study was not limited to completers at the senior colleges as was done in the current study. Both

of these differences make it likely that the divergent trends are due to differing samples, timing and methodologies used in each.

However, the findings of Leinbach et al. (2006) seem to mirror the findings of this study regarding Hispanic students who attended a high school located in New York City or a New York City public school. The current study found no statistically significant difference in Hispanic students' time-to-graduation overall (i.e., in the presence of academic preparedness and financial background; Models XI and XII), in SEEK (Models XIII through XV) or non-SEEK (Models XVI through XVIII). What this essentially means for Hispanic students is that no differences in time-to-graduation were observed as the result of attending high school in New York City or not or a New York City public school or not.

Similar to the findings above for Black students, the time-to-graduation for Hispanic students enrolled in SEEK become no better than chance across each of the five independent demographic variables examined in this study. The enhanced academic and economic support provided to SEEK students appears to close gaps that exist among non-SEEK counterparts.

Academic preparedness.

The current study found a strong and robust relationship between high school GPA and time-to-graduation. This finding is supported by research from Adelman (1999) and Attewell et al. (2012) that points to the fundamental importance of GPA affecting student completion. Other studies, like Sorrentino (2006), found that the GPA of SEEK students improved as a result of mentoring interventions. The work of Marie Nazon (2010) also documented how high school GPA is a key component in predicting SEEK student graduation at City College. Therefore, it is

without surprise that high school GPA would have a strong and robust relationship with student completion for Black and Hispanic, SEEK and non-SEEK students.

The current study found that the SAT Verbal score lacked statistical significance for Black students overall and non-SEEK students. It does appear, however, to matter for SEEK students (Models V and VI) despite its relatively small effect size. In contrast, Hispanic students' SAT Verbal scores seem to matter for the opposite camps: overall (Models X through XII) and non-SEEK students (Models XVI through XVIII). Moreover, the data suggests that for those particular groups, the better they did on the verbal portion of the SAT, the worse they seemed to fare in time-to-graduation performance. Consistent with the findings of previous research, high school GPA is shown to be a more powerful predictor in spite of the statistical significance found for the aforementioned Black and Hispanic groups. Hodara & Lewis (2017) found that "[h]igh school grade point average was a more powerful predictor of college performance among students who entered college within a year of high school graduation" (pg. 5). Similarly, Crouse and Trusheim (1988) found that the SAT "acts like a zero-validity supplement to high school grades that increase rejections of [B]lacks, and therefore has an adverse impact on them" (pg. 108). Further, Lemann (1999) points out that standardized tests like the SAT tend to assess "a very narrow range of mental activities," and has "a strong cultural handicap for pupils of the lower socioeconomic groups" (pg. 66).

Likewise, the current study found that the SAT Math test did not matter for Black students whatsoever. Meanwhile, it appears to have a robust, statistically significant effect for all Hispanic students. The effect size, however, is small like that found for the SAT Verbal exam. For this reason, standardized exams that test general reasoning are not good predictors of time-

to-graduation (Bowen et al., 2009). However, tests of achievement like the New York State Regents exams were found to be better predictors of graduation (p. 130).

Since the New York State Regents exams are standardized tests of achievement, this research looked at Regents exams for English and biology. The current study found a robust statistically significant effect across all eighteen models for Black and Hispanic students who sat for the English Regents exam. The higher a student scores on the English Regents, the faster they tend to graduate. Alternatively, the Biology Regents appears to matter for two groups: Black SEEK students (Models V and VI) and Hispanic non-SEEK students (Models XVII and XVIII).

Lastly, the current study found that financial background only seems to matter for Hispanic SEEK students. This finding is unusual considering that social science research consistently finds that economic endowments typically correlate with better academic performance. Those with greater financial resources perform better academically (Bowen et al., 2009; Tinto, 1975; 1982; 1987). Indeed, inherent in the SEEK program's design is economic support, which is an invaluable component to its success; so it is surprising that the financial background variable lacks robust statistical significance. One possible reason this result occurred is that the classical components necessary to establish a true measure of socioeconomic status (i.e., income, education, and occupation data) were not available from CUNY's PTC data. Instead, the composite used was made up of parents' income, adjusted gross income, and the students expected family contribution.

Theoretical Discussion

Creswell (2014) argued that theoretical frameworks "surround and inform" a study, while Lather (1986) emphasizes the importance of not allowing theory to become "the container into which the data must be poured." What they mean is that theoretical frameworks provide the scaffolding, structure, and contextualization of the complexities at play. They influence the choice of variables examined in connection with the current study; but not so much that they do not allow for new and unexpected results.

The current study confirms the utility of employing intersectional lenses that uncovered a major finding regarding attributes of the SEEK program that would otherwise have been hidden in the data. Further, the theoretical tenets elaborated by Marx, Rawls, and Bourdieu are relevant to how we are to understand the findings.

Macro-level analysis.

Crenshaw (1989) coined the term "intersectionality" in her explication of why courts needed to consider more than simple one-dimensional demographic indices when presiding over cases of discrimination. Her insight led to a methodological design that prioritized females in the selection of the gender variable used in the current study. Intersectionality was also the principal inspiration behind dichotomizing SEEK from non-SEEK counterparts for both Black and Hispanic students. Doing so led to the most important finding of this dissertation – the SEEK program appears to yield a democratizing, gap-closing effect in the time-to-graduation for Black and Hispanic students for each of the five demographic variables because they all lacked any statistical significance: gender (female), citizenship (U.S.-born), language spoken at home

exclusively (English), graduate of a New York City high school, and graduate of a New York City public high school.

On the other hand, Marx's conception of economic or class struggle cuts across multiple levels in this analysis. First, the SEEK program is designed to permit access to the university for those that would typically be shut-out for academic and economic reasons. For this reason, students enrolled in SEEK, by definition, are children of the proletariat; precisely, the same types of students that Townsend Harris had in mind when he established the Free Academy back in 1847. Their pursuit of a degree is motivated in part by that class struggle described by Marx. As such, their time-to-graduation is of immense importance because of the opportunity cost associated with the pursuit of a bachelor's degree.

Although it appears that the SEEK program generates equity across multiple demographic categories heretofore explored for Black and Hispanic students, it is noted that financial background seems to have no bearing on time-to-graduation for all but Hispanic SEEK students. It is not clear why this result emerged given the consistent findings in research that suggest a connection between academic achievement and socioeconomic status (Bowen et al., 2009; Tinto, 1975; 1982; 1987). One could argue that most Black and Hispanic students who attend CUNY are generally from the same economic classes, so the statistical significance of financial background on time-to-graduation might be muted. However, the results of the current study do appear to show that money does matter for Hispanic SEEK students insofar as the more financial resources available within their household the faster students graduate.

Nonetheless, Marx's insights regarding class formation and class struggle contextualize the capitalist economic environment that influences student decision-making. Students seeking

higher education do so to qualify for the advanced jobs in a given industry, market, or sector. The current study found that being born a U.S. citizen (U.S.-born) is insignificant for most of the Black student models. Conversely, it appears to matter for the majority of Hispanic student models; both overall and for the non-SEEK students. Moreover, where statistical significance is found, it suggests that, on average, native-born students outperform their Black and Hispanic immigrant counterparts. This finding disagrees with the body of literature that suggests immigrants are often "…individuals with an exceptional internal drive for material success and/or they possess exceptional external resources," which translates into better economic and educational attainment outcomes than their native counterparts (Kendi, 2019; Model, 2016).

Although immigrants may benefit from a so-called "migrant advantage," those gains may not necessarily translate into faster time to graduation. Indeed, the results of the current study suggest that students who are U.S.-born graduate faster than non-U.S.-born students. Perhaps this is due, in part, to Black and Hispanic students, who although first-generation college students are the children of immigrants (i.e., second-generation citizens). They mirror a similar internal drive and aspirational tendency as their parents. Alternatively, native-born students might be better rooted in their community and find it easier to take advantage of the resources than, say, newly arrived immigrants. This supposition comports, in part, with Murphy (2008), who argues "one factor that might cause the immigrant students to make somewhat slower progress [in their studies] is English as Second Language Coursework" (pg. 24). Perhaps language barriers slow students' connection with resources in a community where academic (e.g., tutoring and mentoring) and financial (e.g., scholarships and internships) help is available.

Another key finding attributable to the intersectional design used in the current study is that the statistically significant cases where students graduated from high schools located in New York City suggest that they take longer to graduate than students who graduated from high school elsewhere. However, this should not be conflated with the statistically significant cases where students who graduated from New York City public schools take less time-to-graduation than those who did not attend a New York City public school.

Finally, across the academic preparedness domain, the intersectional design of the OLS regression (see Table 4a and 4b) also reveals that high school GPA and criterion-referenced standardized exams (i.e., the New York State English Regents exam) appear to matter more to a students' time-to-graduation than norm-referenced standardized exams (i.e., SAT). This finding will be revisited in the following section for a more nuanced synthesis within the context of meso-level theory.

Meso-level analysis.

Rawls' *A Theory of Justice* (1971) claims a society in which "social and economic inequities are…arranged…to the greatest benefit of the least advantaged" will have the minimalist condition for the formation of a just society (pg. 60). Opportunity programs that create an opening for the underserved to access higher education are an example of this principle in action. As discussed in Chapter One, SEEK provides access to senior colleges in the CUNY system for students who would ordinarily not be admitted. In other words, SEEK acts as a justice dispensing force since its aim is to stem inequity by virtue of opening access to an otherwise closed path of higher education and opportunity for academically and economically vulnerable students.

Rawls (1971) also points to inequity being the most significant barrier to achieving just outcomes. He notes, for example, in *A Theory of Justice*, that "the…larger difference between rich and poor makes the latter even worse off, and this violates the principle of mutual advantage as well as democratic equality" (pg. 79). Although Rawls makes the case for economic justice here, a similar line of reasoning can extend into academia. The following paragraphs detail findings where inequity meets equity, which is the essence of Rawls' theory.

First, the OLS regression analysis reveals that Black and Hispanic women have faster time-to-graduation performances than males. This finding aligns with the *Crossing the Finish Line* (Bowen et al., 2009, p. 29), a National Education Longitudinal Study of 1988/2000 data in which the authors found "…[B]lack and Hispanic [females] outperform males of their race at every stage. Particularly notable are the differences between [B]lack males and [B]lack females…in overall bachelor's degree attainment." So it is no surprise that Table 4 reflects the statistically significant, faster time-to-graduation of females over males (see Models I through III, VII through XII, and XVI through XVIII). Yet, as discussed above, the gap closing effect of students in SEEK is precisely the type of gender-based justice that embodies the essence of Rawls' theory.

Similarly, the findings of the current study suggest that the citizenship (i.e., U.S.-born) matters in the time-to-graduation of Hispanic students. The result seems particularly pronounced across the models examining Hispanic students relative to the models of Black students in the current study. This is no surprise given the findings of Murphy (2008) discussed above. However, the SEEK program, once again, appears to mute the inequity. More specifically, students who are not U.S.-born graduate at a speed that makes their time-to-graduation relative to that of their U.S.-born counterparts no better than chance.

Next, it appears students who attended a high school located in New York City – on average – take longer to graduate than students from elsewhere. Indeed, the result seems particularly pronounced across the models examining Black students relative to those models that examine Hispanic students in the current study. Might this be a result of a miniature "migrant advantage?" Could the students who did not graduate from high schools located in New York City have access to advantages and resources that students who presumably live in New York City lack? Whatever the reason, SEEK seems to act like a Rawlsian tool for muting the time-to-graduation gap between those who attended school in New York City and those who did not.

As discussed in the prior section, students who graduated from New York City public schools appear to have faster time-to-graduation relative to students who did not graduate from the New York City public school system. This finding is particularly interesting because urban public schools are known to lack the same resources as suburban schools (Shapiro, 2015). Additionally, a report from the Mayor's Advisory Task Force (Mayor's Advisory Task Force on the City University of New York & Schmidt, 1999) argued that CUNY was "inundated by graduates of the New York Public Schools who lack basic academic skills" (pg. 11). In fairness, however, it is important to note that the scope of the Task Force generalizes on a basis much wider in scope and time than is concerned with in the present analysis. Nonetheless, in the cases where graduating from a New York City public school is statistically significant, SEEK closes the time-to-graduation gap, which achieves justice in a Rawlsian framework.

In sum, the above paragraphs discuss how the SEEK program aligns with the ontological project of Rawls' *A Theory of Justice* across demographic considerations. The following

paragraphs discuss the remaining domains of academic preparedness and financial background, and how they contrast with Rawls' theory of justice.

Academic Preparedness and financial background domains consist of continuous variables that emphasize how the scale of an independent variable affects the dependent variable. For example, continuous variables allow for the comparative statement "for every unit increase in x, y increases by z." Therefore, the ontological project to actualize justice here consists of evaluating how to implement policy that will eliminate instances where the continuous variables appear to result in statistically significant differences in time-to-graduation across gender, race, or other demographic conditions.

As mentioned in Chapter Four, high school GPA has a robust relationship to time-to-graduation for Black and Hispanic and SEEK and non-SEEK students. SAT scores, meanwhile, appear to lack the robustness that GPA has across all models. Similarly, the OLS regression suggests that the SAT Verbal and the SAT Math scores of Black and Hispanic students lack the robustness found with English Regents test-takers. The Biology Regents, however, appears to matter only for Black SEEK students and Hispanic non-SEEK students. It, too, lacks the robustness of students' GPA and English Regents test scores on time-to-graduation.

From a justice point of view then, given the racial inequities that appear to be present in the normative-referenced standardized exam outcomes for Black and Hispanic students (Bowen et al., 2009; Crouse & Trusheim, 1988; Hagopian, 2014; Kendi, 2016; 2019; and Lemann, 1999), it would seem that use of criterion-referenced exams would accomplish the Rawlsian goal of arranging admissions practice to "the greatest benefit of the least advantaged" (Rawls, 1971).

An unexpected finding of the current study concerns the lack of statistical significance for household financial background domain. As in most social science research, measures of socioeconomic status generally link higher socioeconomic status to better outcomes in standardized tests (Kendi, 2016) and high school GPA (Bowen et al., 2009). Conversely, controlling for all the variables in each of the models, the OLS regression suggests financial background matters for Hispanic SEEK students alone (Model XV). Thus, the objective, given a Rawlsian approach to equity, would be to identify the factors that lead to statistical significance so that an effort can be designed that leads to a more equitable outcome for Hispanic SEEK students with respect to socioeconomic status and time-to-graduation performance.

Whereas Marx writes a theory of reality premised on an economic point of departure, Bourdieu's (1977) *Outline of a Theory of Practice* is premised on a point of departure much more social in origin (Burawoy, 2018). Bourdieu argues that social, cultural, economic, and symbolic capital and fields and habitus form the basis for why society takes the form it does and its durability over time (Iellatchitch et al., 2003). Essentially, Bourdieu's theory provides a framework to understand the underlying reasons through which inequity emerges. Those results, however, do not preclude acts that lead to "symbolic revolutions…capable of shaking the deepest structures of the social order" (Burawoy, 2018). The following paragraphs will examine those independent variables implicated in inequity as suggested by the results of the OLS regression and discuss how the underlying social factors might be mediated using a Bourdieusian lens.

The results of the OLS regression suggest that Black and Hispanic non-SEEK female students graduate faster than males, which aligns with research by others (Bowen et al., 2009; Chambers, 2011). Meanwhile, as mentioned before, the SEEK program appears to close the gap

between men and women with respect to their time-to-graduation performances. As mentioned in Chapter One, SEEK is a policy intervention designed to provide intensive advisement, academic, and financial support to its students. In this sense, counselors, tutors, and stipends are dispensing social, cultural, and economic capital in ways that mitigate the disparities that appear evident in the non-SEEK populations. Perhaps these supports combine to create an intrinsic value in being admitted to the SEEK program, i.e., the symbolic capital bestowed upon students fortunate to enter the university inspires those who would ordinarily graduate later (e.g., men) to graduate at the same statistical pace as women.

Research by Murphy (2008), Pascarella and Terenzini (1991), and others argue that social environments affect student retention, persistence, and graduation in higher education. Bourdieu's articulation of the habitus suggests that students who were not born in the U.S. may have cultural and social capital that is not in sync with those forms that are dominant in the U.S., which leads to the diminution of the forms of capital that they bring with them. Perhaps this explains the time-to-graduation advantage Black, non-SEEK, U.S.-born students (Model VIII and IX), and all Hispanic students except those enrolled in SEEK (Models X thru XII, and XVI thru XVIII), appear to have over their peers who immigrated to the U.S. from elsewhere. Similar to the recommendation I have made for gender, the SEEK program seems to be the democratizing, gap-closing answer to leveling the playing field between U.S.-born students and immigrants.

Turning to the next demographic variable, NYC public school, Black students overall and Black non-SEEK students who graduated from an NYC public high school appear to graduate faster on average than those who did not graduate from a NYC public high school. This effect does not appear to be present across Hispanic students in the sample. Nonetheless, perhaps the inverse

relationship being a NYC public student has on time-to-graduation and its statistical significance, is a reflection of efforts by CUNY to engage early and often with Black students in NYC's public schools? For example, CUNY programs, including College Now, GEAR UP, and the Early College Initiative, are vehicles that the University could use to recruit and retain Black students (Task Force on the City University of New York Black Male Initiative, 2005). In this light, CUNY's engagement can be likened to that part of the habitus that seeks to improve the academic performance, retention, and graduation of students by availing students in New York City public schools with the opportunity to accrue specific currency – social and cultural capital through its pre-college mentorship and tutoring programs, economic capital through connecting students with financial aid resources, and the symbolic capital that is conferred by student matriculation as a result of those efforts. Still, the democratizing or gap-closing effect observed across the population of SEEK students is also maintained.

As mentioned above, the robust relationship of high school GPA and the Regents exam test scores on time-to-graduation in contrast to the SAT Verbal and Math tests speaks to the robustness of the former over the latter. What this means, as discussed in greater detail in Chapter Two, is that the fullness of what GPA or a criterion-referenced exam measures includes more than the narrow range of competencies measured by standardized tests (Lemann, 1999). Perhaps the finding that household financial background does not appear to matter (except for Hispanic SEEK students) might account for the lack of robust results that the SAT Verbal and Math tests have on time-to-graduation. Might this result be a manifestation of the "narrow range of mental activities" and "strong cultural handicap for pupils of the lower socioeconomic groups" discussed in *The Big Test* (Lemann, 1999) or Crouse and Trusheim's (1988) finding that for Black students "the

SAT…acts like a zero-validity supplement to high school grades that increases rejections of blacks, and therefore has an adverse impact on them" (pgs. 107-108)?

Whatever the cause, the theoretical connection between habitus and the store of Bourdieusian capital is clear. For example, the SAT is more of a proxy for socioeconomic status (i.e., economic capital) than it is a predictor of postsecondary graduation (Crouse and Trusheim, 1988; Hagopian, 2014; Kendi, 2016; Lemann, 1999). Furthermore, it is no secret that high school GPA tends to include emotional dimensions of a student's character (Duckworth and Seligman, 2005; Dweck et al., 2014; Thomas, 2016). Also, criterion-referenced tests, like the Regents, measure "…student achievement in terms of a criterion standard…[providing] information as to the degree of competence attained" with the underlying educational content (Glaser, 1963, pg. 520). Thus, high school GPA and students' Regents exams are not likely to mute the social and cultural capital of Black and Hispanic students and over-emphasize socioeconomic status (i.e., economic capital) in the way standardized tests do.

Summary

The purpose of this study was to examine the relative impact key demographic variables, academic preparedness, and financial background have on time-to-graduation for Black and Hispanic students at a large, urban, public university. Specifically, it endeavored to show how demographics, academic preparedness, and students' SEEK status promote or constrain academic momentum as measured by time-to-graduation. Indeed, the most noteworthy finding was the democratizing effect the SEEK program has on Black and Hispanic students across each of the demographic variables explored. Additionally, the findings suggest that time-to-graduation is more

strongly related to high school GPA and the English Regents exam than SAT Verbal or Math test scores.

These findings would have likely been missed if it were not for the employment of an intersectional design as inspired by the work of Kimberlé Crenshaw. Findings from this dissertation will contribute to the scant body of quantitative analyses concerning opportunity program students in large urban areas and the universities therein. The implications of these findings for students and their parents, institutional policymakers, government policymakers, including legislators and future research will be discussed in the following chapter.

Chapter Six: Conclusion

This dissertation examined the relative impact of key demographic, academic preparedness, and financial background variables on the time-to-graduation performance of Black and Hispanic, SEEK, and non-SEEK students. The preceding chapter synthesized the findings in conjunction with the theoretical framework and literature review. Among the major findings was: (1) the SEEK program appears to reduce time-to-graduation gaps for Black and Hispanic students, (2) high school GPA and the English Regents exam are better predictors of time-to-graduation than the SAT Verbal and Math test scores, and (3) financial background as a predictor of time-to-graduation for Black students is no better than chance.

The current study aimed to assess the relative impact demographics, academic preparation, and financial background has on time-to-graduation for Black and Hispanic students, both SEEK and non-SEEK. Carnevale (2016) found that lifetime earnings tend to increase as educational attainment increases. Since time is a valuable resource, its investment in the pursuit of a bachelor's degree was explored in this dissertation to inform students and their parents, institutional stakeholders in high schools and postsecondary institutions, legislators, and policymakers in government with an appraisal of the important facts surrounding time-to-graduation and the special opportunity program known as SEEK at CUNY.

Outside of large national studies like *Crossing the Finish Line* (Bowen et al., 2009), there is little research that examines time-to-graduation with a specific emphasis on special opportunity program students at large urban public universities. For this reason, the current study sought to explicate how policy can inform time-to-graduation. The current study focused on key demographic variables, academic preparedness, and financial background effects on time-to-

graduation. The review of the literature provided the framing for the selection of the eleven independent variables across the three domains, and the theoretical framework guided the design of the study and oriented the interpretation of the results.

This dissertation employed data from the City University of New York's Office of Institutional Research and Assessment. The data contains the full population of first-time, full-time students who enrolled at CUNY between the fall of 2000 and the fall semester of 2016. Known as the Policy Tracking Cohort database, the dataset contains de-identified records for over 700,000 students (N=704,034). However, to focus on the research question of the current study, I filtered the data to include only Black and Hispanic students at the university's senior colleges (because SEEK is a senior college-based program), which yielded an N of 175,296.

First, univariate analysis was used to characterize the variables selected for this dissertation. Next, bivariate analysis revealed the nature of the relationship between the dependent variable, time-to-graduation, and the eleven independent variables. Last, ordinary least squares (OLS) regression analysis was used to evaluate the impact of time-to-graduation across the demographic, academic preparedness, and the financial background domains. The analysis incorporated an intersectional design that explored the impact for Black students overall and then stratified by SEEK and non-SEEK status. Similarly, that same design explored the impact for Hispanic students overall, then stratified across SEEK and non-SEEK. The result was an OLS model comprised of eighteen hierarchical regression models.

Findings from the current study indicated that certain demographic variables mattered for some students more than others. For instance: being a Black or Hispanic female was associated with a lower time-to-graduation; U.S.-born Black and Hispanic students appear to take less time-

to-graduate than students who are not U.S.-born; students who graduated from a high school located in New York City appear to take longer to graduate than students who did not attend high school in New York City; students who graduate from NYC public schools appear to graduate faster than students who did not attend NYC public schools; high school GPA has a strong and robust inverse relationship to time-to-graduation for all Black and Hispanic students in the current study; the SAT Verbal is positively correlated with time-to-graduation, but only matters for Black SEEK students, Hispanic students overall, and their Hispanic non-SEEK peers; the SAT Math test has an inverse relationship to time-to-graduation, but only matters for Hispanic students; the English Regents has a robust and strong inverse relationship to time-to-graduation for Black and Hispanic, SEEK and non-SEEK students; and financial background only matters for Hispanic SEEK students.

The most significant finding was that the SEEK program appears to close the time-to-graduation gap around the demographic domain variables. Also, the lack of significance surrounding financial background for all but Hispanic SEEK students was not an expected result.

Five interrelated theories influenced the research design and shaped the interpretation of the results. First, Crenshaw's theory of intersectionality motivated the structure of the OLS regression, which was a key feature that made it possible to observe the egalitarian effect that the SEEK program appears to have on the time-to-graduation for Black and Hispanic students. The work of Patricia Hill Collins (2002) on oppression resistance and Marx's articulation of "class struggle" (Gregory & Stuart, 2013; Gilbert, 2018) made highlighting the SEEK program a priority in this research study. Rawls' *A Theory of Justice* (1971) provides the ethical framework that underscores the value of policies and programs aimed to achieve egalitarian ends. Lastly,

Bourdieu's *Theory of Practice* (1977) provided the theoretical framing to explain how individuals' capital accumulation (i.e., social, cultural, economic, and symbolic), and the complex interaction between them and the habitus, combine to create a durable version of society insofar as its reproduction allows for modest predictions about future outcomes and possibilities. His insights helped to explicate the underlying motivations for postsecondary degree attainment, provide interpretations for the empirical observations made in the current statistical analysis, and allow for the modest prognostications still to come.

The findings in this dissertation have several implications for students and their families or guardians, university administrators and faculty, legislators, and policymakers at all levels of government. Furthermore, this study provides the opening for research on several fronts, which will be discussed in the future research section below, but first, enumeration of the limitations of this dissertation is warranted.

Limitations

Although this dissertation includes several important findings regarding students' time-to-graduation across several variables, including results that confirm and add to the existing literature on special opportunity programs, in particular, there are limitations worthy of consideration and discussion before moving into the study's implications and opportunities for future research.

The most salient limitation of this study is its strictly quantitative methodology. Still, quantitative methods were needed to study the relative impact that certain variables have on students' time-to-graduation and serve as an opening to qualitative research to deepen the

understanding of the findings presented herein. More specifically, as pointed out by Creswell (2014), mixed-method approaches have the advantage of managing the most complex research problems. They position the research to be understood from multiple perspectives. The variables were selected based on what the review of the literature suggested was important to time-to-graduation; however, they are by no means exhaustive of the other factors that can affect student momentum toward completion (i.e., time-to-graduation). Moreover, the processes and decision making that comprise one student's time-to-graduation can be vastly different or closely resemble that of another. In either case, extending this research beyond quantitative analysis would provide greater insight into the mechanics of how or why one student's time-to-graduation differs from another in contrast to the broader view provided in this dissertation on what the study's domains say about time-to-graduation.

Next, as mentioned above, the operationalization of the variables used in this study prohibits extrapolations that can be generalized beyond the context of those examined. For example, binary variables like those within the demographics domain dichotomize between two groups that may contain much heterogeneity within. Indeed, the U.S.-born variable bifurcates between natural citizens and others; the latter includes students from a variety of different countries, some naturalized, some pending naturalization (e.g., DACA), or even visa-holding international students. Given the heterogeneity that lives on either side of the zeros and ones used to split the population of U.S.-born from non-U.S.-born students, additional research is needed to focus on time-to-graduation differences that may exist within (or between) more nuanced parsing of the U.S.-born versus non-U.S.-born group of Black and Hispanic students.

Another limitation of the current study is its laser-like focus on demographics, academic preparedness, and financial backgrounds. Other variables were excluded for examination, such as those involving credit accumulation and college GPA. This was done purposely given the research question under evaluation, which asked what is the relative impact of demographics, academic preparedness, and financial background on time-to-graduation for SEEK and non-SEEK, Black and Hispanic students? Thus, the results of this dissertation are necessarily limited due to the exclusion of several variables during students' years in college and other exogenous factors in the world beyond the classroom.

Special opportunity programs are in operation at two-year community colleges that lead to an associate degree. CUNY's two-year special opportunity program authorized under the same legislation as SEEK is known as College Discovery. Although College Discovery students can transfer to a senior college in the CUNY system and enter the SEEK program, such articulation is not accounted for within this study because the data are limited to students who are first-time students at the senior colleges between the fall 2000 and fall 2016 semesters. In other words, if a student started at a community college, then they are not captured within the data since only first-time students at senior colleges were selected for the study. Furthermore, the time-to-graduation outcomes of community college versus senior colleges in the CUNY system are distinct enough that an independent analysis of College Discovery is warranted.

Although the dataset contains variables tracked on a semester basis, the study's design is cross-sectional insofar as each of the variables explored are fixed through the period covered. For example, the NYC high school variable does not change as a student progresses through CUNY any more than their high school GPA, SAT, or Regents test scores. Although financial

aid information can change from year to year, the data only captures financial aid data from students' initial application to CUNY.

The findings are limited to Black and Hispanic students at CUNY's senior colleges between the fall 2000 and fall 2016 semesters. Other races were excluded since the principal investigator is primarily concerned with the time-to-graduation of Black and Hispanic students, given the marginalization they face at CUNY's senior colleges (Steinberg, 2018) and the discrimination Blacks and Hispanics have faced more generally (Collins, 2002; Kendi, 2019). Further, pursuit of a bachelor's degree to counter the forces of oppression that Black and Hispanic students face daily (Collins, 2002) makes the calculus of going to school full-time versus entering the labor market even more dramatic as research has found that Black and Hispanic aspiration is uniquely affected by perceptions of affordability (Cunningham, Santiago, & Institute for Higher Education Policy, 2008).

A consistent finding of social science research is a durable connection between student performance and socioeconomic status (Bowen et al., 2009; Tinto, 1975; 1982; 1987). Since the PTC dataset does not include a socioeconomic status variable, a proxy for socioeconomic status was constructed of a latent variable called Household Financial Background. Notwithstanding income, education, and occupation, which are the fundamental elements of a true socioeconomic variable that were unavailable in the PTC data, the Household Financial Background is the product of parents adjusted gross income, expected family contribution, and their parents' wages.

Lastly, the use of CUNY's PTC data limits the results of this dissertation to a single university system in a large urban setting. For this reason, as findings from this dissertation provide insight into how demographics, academic preparedness, and financial background

impact Black and Hispanic students' time-to-graduation, these results may be unique to CUNY in contrast with other university systems in the U.S. or abroad.

These limitations notwithstanding, this study produced several significant findings regarding student time-to-graduation given key demographic, academic preparedness, and the financial background variables. The following sections will discuss the important implications and recommendations for future research based on the results of this dissertation.

Implications

Again, the three major findings of this dissertation are: (1) the SEEK program appears to reduce time-to-graduation gaps for Black and Hispanic students, (2) high school GPA and the English Regents exam are better predictors of time-to-graduation than the SAT Verbal and Math test scores, and (3) household financial background as a predictor of time-to-graduation for Black students is no better than chance.

The longer it takes a traditional full-time student to complete a bachelor's degree program, the higher the costs to the individual (through tuition and forgoing employment) and community (labor pool that has deferred entry into the labor market). The investment of limited resources (i.e., time and money) students make as they pursue a degree requires discipline and dedication as they study, take courses, write papers, and take exams, all at the expense of forgoing whatever the market would pay for a wage during their college careers. Although it is not unusual for some students to work while attending college, it is still rare for the traditional college student (Bok, 2013). Still, a skilled workforce is needed as labor markets transition away

from low-skill production and physical work to high-skill service-oriented and knowledge-intensive professions (Pew Research Center, 2016).

For this reason, this dissertation explored the dynamic effects of critical variables implicated in time-to-graduation. By defining the specific attributes (i.e., demographics; academic preparedness; student finances), the theory has proved to be relevant for timely graduation for Black and Hispanic students. This yielded a few insights concerning time-to-graduation for these students; especially those enrolled in SEEK.

Demographic factors.

The most significant finding of the current study was the equity observed in the time-to-graduation associated with Black and Hispanic SEEK students. When examining all five of the variables that comprise the demographics domain – gender (female), citizenship (U.S.-born), language spoken exclusively at home (English), high school location (NYC high school), and whether that NYC high school was public (NYC public school) – it is clear that time-to-graduation gaps appear across many of them.

For gender, there is a strong and robust statistical difference for Black and Hispanic female students overall and those not enrolled in SEEK. In other words, Black and Hispanic women appear to graduate faster than Black and Hispanic men. Although Black and Hispanic female students may fare better in terms of their time-to-graduation, it also signals to male students that they should take full advantage of the resources offered to support student success at their respective colleges. This recommendation is premised upon the observation that the gender of Black and Hispanic SEEK students lacks statistical significance, which in turn

suggests that the supports provided to SEEK students do indeed matter for students' time-to-graduation performance.

The gender equity that appears for students enrolled in SEEK will resonate with college administrators and faculty because co-ed universities are engaged in promoting retention and graduation of their students (Astin, 1993; Bean, 1980; Pascarella and Terenzini, 1991; Tinto, 1987). Ideally, administrators and faculty should seek to identify the best practices of their special opportunity programs with an aim to scale-up the elements of the program that lead to equitable outcomes between men and women for all students, not just their Black and Hispanic students. This benefits the college because gender equity, concerning students' time-to-graduation, means that institutions of higher learning (notwithstanding single-gender campuses) can report outcomes (e.g., graduation and retention rates) that align with the democratic impartiality found within their mission statements.

Legislators and policymakers in government are the groups that appropriate funds for special opportunity programs. Legislators and policymakers control the purse that enables scaling the best practices learned from SEEK up to the traditional student population. Gender equity is a concept enshrined by the Equal Protection Clause of the Constitution and Title IX of the Education Amendments of 1972, which means that it is enshrined in the highest law of the land. States, which are labs of democracy, can fashion specific policies to address discrimination. For this reason, the federal government and states have not only a moral but legal imperative to seek equity for their constituents.

Similarly, citizenship appears to matter for Black and Hispanic students in this study. As shown in Table 4a and 4b, U.S.-born students time-to-graduation is – on average – faster than for

those who were not U.S.-born. The implications for students and parents of non-U.S. born students is that they are investing more time in the pursuit of a degree, which theoretically means they are getting to the labor market later than their U.S.-born counterparts. This, in turn, affects students' future earnings. At the intersection of SEEK and citizenship, however, there seems to be evidence that an alternative outcome is possible.

Administrators and faculty who strive to build equity can create spaces concerned with the academic or extra-curricular support of the non-U.S.-born students at their campus. Students themselves can seek to join student groups that promote bridging the gap between their institution and the needs of its student members through academic support (e.g., study groups and tutoring), or social programming that help students connect with resources outside the university to mitigate whatever factors are having deleterious effects on their studies. Student advisement is often underfunded and lacking at many public institutions of higher learning leading to higher student-to-counselor ratios that are not conducive to effective advisement (Anft, 2018; Petracca, 2014). Therefore, colleges may tap philanthropy aimed at serving non-U.S.-born students. Although the non-profit community may be of some assistance, there is still a role that can be filled by government policymakers and legislators.

As of this writing, government policymakers and legislators have engaged in a fierce political battle over public fiduciary support for Deferred Action for Childhood Arrivals (DACA) students. These students are – in part – representative of the students that comprise the population of students contained in the non-U.S.-born variable used in this dissertation. DACA students go on to become tax-paying members of the armed services (Korte, Gomez, & Johnson, 2017), teachers (Sanchez, 2018), and first-responders (Calams, 2017). For this reason, federal,

state, and local investments to mitigate the time-to-graduation gap observed for non-U.S.-born students is justified not just by the honorable commitment demonstrated by this population of students but also the potential return-on-investment that benefits all taxpayers (Carroll & Erkut, 2009).

Lastly, students who graduated from a high school located in NYC appear to take longer to graduate than students who did not attend a high school located in NYC. On the other hand, students who attended NYC public schools appear to graduate faster than students who did not graduate from an NYC public school. Although this may seem like a confounding result, when consideration is given to the fact that students that make up the population of NYC high school students in this study include not only NYC public schools but also graduates of NYC GED programs, NYC parochial, and NYC private schools, it stands to reason that the mixing-in of these other groups of students leads – on average – to longer time-to-graduation in contrast to students within the NYC public school variable, which excludes the more heterogeneous population of students.

The implication for students and their parents is that students who graduate from schools other than NYC public schools should seek out resources to strengthen their students' academic preparedness through improvements to their study and time management skills. Additionally, students from schools other than NYC public schools would do well to engage academic advisement as early and often as possible given the positive connection it has with time-to-graduation performance as discussed above for non-U.S.-born students.

Administrators and faculty at colleges – presupposing the internalization of the campuses' mission to raise the rate of completion at their institutions – would do well to expand

the availability of advisement, seek to organize study groups, or otherwise increase the number of tutors available for courses with the lowest pass rates; especially for those classes that are on the critical path to graduation. Administrators and faculty at CUNY, in particular, would do well to export SEEK's best practices to its non-SEEK operations. As detailed in Chapter One, though, this is dependent on the state providing additional resources such that non-SEEK students can receive similar academic support, advisement, and financial aid aimed at closing the time-to-graduation gaps for Black and Hispanic non-SEEK students.

Federal, state, and local legislators and policymakers have an opportunity to close time-to-graduation gaps that help students get to the labor market in proportions that are reflective of equitable distribution of its inputs as opposed to having more females than males or non-immigrants to immigrants. The example that CUNY's SEEK program presents, in particular, is that demography does not equal destiny insofar as its students appear to graduate in proportion to their admission to the SEEK program whether they graduated from an NYC high school or did not attend an NYC public school.

It is also noteworthy to mention that some Black and Hispanic students entering the SEEK program may feel stigmatized by their eligibility. Through this lens, one could argue that matriculation into a four-year college's SEEK program may force a student to recognize that she or he is socio-economically or academically inferior to her or his peers to the detriment of self-esteem. The extent to which any single student is affected by social stigma will vary; yet, just as there are stigmas, there are challenges to them, including equal opportunity laws, anti-discrimination policies, and surrounding one's self in living spaces. Since the pressure of social stigma is ever-present, then, presumably, students who manage to demonstrate some level of

academic ability despite their financial vulnerability have found ways to cope. Perhaps the SEEK program, then, offers a path for students to continue coping at the postsecondary level. However, not all SEEK programs are created equal because they are spread around the university system with a strong level of local control. For this reason, some programs are likely better at helping students cope than others because of variations in their administrations (i.e., the unlimited number of ways that personal contact affects the everyday lived experience).

As discussed in Chapter Two, Vincent Tinto's (1975; 1987) theory of student leaving argues that student drop-out, in part, is a failure to assimilate to a campus's social environment. Failure for a student to assimilate into a campus's social environment, then, might be the result of the stigma of being a SEEK student. Therefore, the implication for postsecondary administrators and faculty, given their mission to retain and graduate as many students as possible, is to create challenges to social stigma through the active pursuit of community-building programs at their campus to enhance inclusion and assimilation. Such programming might include the promotion of community-building activities like game nights, movie nights, intramural sports, fraternities, sororities, social clubs, student government, and student cultural clubs. Although some clubs are selective (e.g., a sorority), an element of diversity is achieved through their participation in committees organized to steer their collective efforts; notably, such collective activity is often in the name of community service.

Academic preparedness.

Black and Hispanic students' time-to-graduation has a strong and robust relationship across high school GPA and English Regents test scores. On the other hand, the SAT Math and SAT Verbal exams seem to matter for Hispanic students overall and Hispanic non-SEEK

students. However, the English Regents and high school GPA coefficients are at least ten times larger than the SAT Verbal and SAT Math coefficients, which means that in terms of time-to-graduation, they matter more for Black and Hispanic, SEEK and non-SEEK students alike.

As discussed in Chapter One, the SEEK program is designed to accept students who show academic promise (e.g., GPA, Regents test scores), but typically lack the standardized test scores (e.g., SAT Verbal, SAT Math) for admission. Students who aspire to attend college, and their parents, need not be discouraged by poor SAT results because the results herein suggest that they matter little in terms of time-to-graduation. Additionally, 58.9% of the system-wide fall 2012 cohort graduated with a bachelor's degree within six years, compared with 57.5 percent of CUNY's special opportunity program students (OIRA, 2019). Essentially, these two points suggest that students who presumably have a weaker performance on the SAT, for example, show the potential to graduate at nearly the same rate as those who met the cutoff for admission at their respective institution. Rather than having a below-average norm-referenced standardized test score like the SAT that discourages application to a four-year college, Black and Hispanic students with below-average results should consider their high school GPAs and Regents scores as more meaningful predictors of their time-to-graduation performance.

Given the findings of the current study and others (Crouse and Trusheim, 1988; Hagopian, 2014; Kendi, 2016; Lemann, 1999) that found the SAT is not useful predictor of college success, admissions personnel should consider becoming "test-optional" like Wake Forest or Bates College have (Simon, 2015). Although college admissions offices have a role in determining which students receive a letter of admission, wait-list, or rejection, more often, their work is shaped by senior-level administrators that strive to situate their particular institution at

the top of the rankings charts that often use SAT scores as a barometer of selectiveness otherwise known as the "rankings game" (Bowen et al., 2009). Colleges and universities should join with their "test-optional" colleagues in resisting the for-profit academic assessment industry's influence. Although colleges and university administrators have some degree of discretion in this matter, they are often beholden to governance structures that preclude taking such actions. Therefore, wholesale change may require grassroots activism, government intervention, or some combination of both.

One way that legislators and policymakers could intervene to challenge the standardized test industry would be to outright ban their use for admissions purposes at institutions of higher education. This radical measure is a possibility as evidenced by the schools that have adopted "test-optional" policies (Simon, 2015). Conversely, accreditation bodies like the Council for the Accreditation of Educator Preparation (CAEP) have developed standards that explicitly call for the use of standardized tests in teacher-educator program admissions to ensure teacher-educator program "quality" (Council for the Accreditation of Educator Preparation, 2019). CAEP's board of directors is a mix of institutional and government policymakers and administrators that work closely on developing Standard 3. Their adoption of CAEP's Standard 3 suggests that despite the research contending that norm-referenced exams do not ensure "quality" is an example of the gulf between theory and practice.

On the other hand, alternatives to CAEP accreditation have emerged, but it remains to be seen whether they will be recognized as equivalent accreditors by the U.S. Department of Education, which has jurisdiction over such matters. In short, so long as the standardized test industry continues to be validated by federal policymakers, then the perpetuation of disparate

impact remains a significant risk to Black and Hispanic college-going students. It is hoped that the findings herein add to the existing literature that calls for the elimination of the use and influence of norm-referenced standardized exams in academia.

Financial background.

The composite of Household Financial Background here is not a traditional measure of socioeconomic status. Instead, as discussed in chapter 3, the composite variable was constructed as a proxy of socioeconomic status since it included expected family contribution, parent adjusted gross income, and parental wages. The results of the current study indicated that household finance appears to matter for Hispanic SEEK students alone, which was an unexpected result given research elsewhere (Crouse and Trusheim, 1988; Hagopian, 2014; Kendi, 2016; Lemann, 1999) that indicates socioeconomic status matters for academic outcomes. As discussed in the limitations above, this result is not generalizable because a little more than half (54%) of CUNY's senior college students come from households earning less than $30,000 a year (CUNY Office of Institutional Research, 2016).

Nonetheless, Black and Hispanic students and their families should be encouraged by the lack of significance around household financial background since it signals that time-to-graduation does not matter as much as other variables studied herein. This is particularly true as research has found links between Black and Hispanic student college-going being adversely affected by perceptions of college affordability (Cunningham, Santiago, & Institute for Higher Education Policy, 2008).

Although household financial background may be of little value concerning time-to-graduation for students, certainly resources dedicated to intensive advisement, tutoring, and other academic support – the essential elements of SEEK – do require funds to operate effectively. Administrators at institutions of higher education must carefully balance their revenues against their operating expenses. Moreover, in large urban public universities like CUNY that serve a significant proportion of students that come from families that earn less than $30,000 a year (CUNY Office of Institutional Research, 2016), reductions in direct state support forces schools to choose between paying for quality academic support or paying for quality instruction. Given such constraints, the levers available to college administrators and faculty are to develop bases of philanthropic giving or raise tuition, with the latter further burdening students at the margins in the most expensive city in the United States (Goetz, 2019).

For this reason, direct investment in institutions of higher education from federal, state, and local government can be tailored to provide the kinds of academic support that not only matter for students' time-to-graduation performance but also can be used to address the equity issues between racial groups and across demographic, academic, and financial factors like those explored in this dissertation.

Future Research

This dissertation, being primarily quantitative, provides the foundation (the "what") to enhance a qualitative approach aimed at disentangling the "how" and "why" of the observed effects found in the current study. One-on-one interviews, followed by a focus group, can provide valuable insight into how students' experiences on- and off-campus affected their time-to-graduation performance. Such data would enable the researcher to investigate whether some non-U.S. born

students have time-to-graduation outcomes comparable to that of their U.S.-born peers, or perhaps glean granular insight into what makes NYC public school students perform better than their non-NYC public school counterparts.

The gap-closing equity observed in time-to-graduation across the demographic domain's variables for SEEK students deserves further study to identify which of its elements account for the effects. Furthermore, the findings from such a study could be used to scale-up and export those best practices to the greater university community at CUNY or the higher education community-at-large. Additionally, replication of this study to see whether the same gap-closing exists for students in the community college version of SEEK, the College Discovery program, as well is a worthwhile endeavor given the historical context in which both programs were founded.

Indeed, future research that extends the racial groups to include White and Asian students to see if the time-to-graduation findings in the current study also hold for each of those groups and their stratifications between SEEK and non-SEEK. Additionally, those findings would allow for contrasts with the current study and potentially identify opportunities for equity building at the university.

The current study was hampered by the lack of data to construct a socioeconomic status variable based on income, education, and occupation. A wealth of prior research confirms the relevance of socioeconomic status on academic performance (Bowen et al., 2009; Tinto, 1975; 1982; 1987). A future follow-up that contains these data would serve to affirm or reject the proxy (i.e., students' household financial backgrounds) used herein.

While the findings from this dissertation yielded important insights concerning the demographic equity effects of the SEEK program, the variables explored were found to explain up to 10 percent of students' variance in time-to-graduation. As discussed above, a qualitative focus on the how and why would yield insights into the other relevant variables that would emphasize where additional equity building opportunities might exist for Black and Hispanic students, including those enrolled in special opportunity programs like SEEK.

Historically, SEEK was viewed as the lowering of standards at CUNY, allowing the entry of the ineducable (Wallace, 1980). This sentiment is imbued social stigma often reserved for the marginalized, which includes students who typically fit the SEEK profile (i.e., Black or Hispanic with poor academic performance and financial vulnerability). Future research should interrogate the factors involved in the mitigation of stigma and bias as students navigate through the university, especially at predominately white institutions where the chance of facing such bias is highest.

An ethnographic approach aimed at identifying the sources of bias and how postsecondary-bound students manage when faced with such challenges would be particularly insightful here because the researcher would engage the tools of interviews and participant observation at home, school, or both to find out how bias manifests and students' response to it. However, given the research discussed in Chapter Two, the positive correlation between academic momentum, retention, and academic achievement implies that students do well academically have likely have found ways to cope with the challenges posed by bias and stigma. Peeling back the layers surrounding this issue would be of significant value to achieve social justice ends.

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