Social Class and Elite University Education: A Bourdieusian Analysis

by

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March 23, 2010

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Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor
of Philosophy in the Department of
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ABSTRACT

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Abstract

The United States experienced a tremendous expansion of higher education after the Second World War. However, this expansion has not led to a substantial reduction to class inequalities at elite universities, where the admissions process is growing even more selective. In his classic studies of French education and society, Pierre Bourdieu explains how schools can contribute to the maintenance and reproduction of class inequalities. Bourdieu's concepts have stimulated much research in American sociology. However, quantitative applications have underappreciated important concepts and aspects of Bourdieu's theory and have generally ignored college life and achievement. With detailed survey and institutional data of students at elite, private universities, this dissertation addresses a gap in the literature with an underexplored theoretical approach.

First, I examine the class structure of elite universities. I argue that latent clustering analysis improves on Bourdieu's statistical approach, as well as locates class fractions that conventional schemas fail to appreciate. Nearly half of students have dominant class origins, including three fractions – professionals, executives and precarious professionals – that are distinguishable by the volume and composition of cultural and economic capital. Working class students remain severely underrepresented at elite, private universities. Second, I explore two types of social capital on an elite university campus. In its practical or immediate state, social capital exists as the resources embedded in networks. I explore the effects of extensive campus networks, and find that investments in social capital facilitate college achievement and pathways to professional careers. As an example of institutionalized social capital, legacies benefit

from an admissions preference for applicants with family alumni ties. Legacies show a distinct profile of high levels of economic and cultural capital, but lower than expected achievement. Legacies activate their social capital across the college years, from college admissions to the prevalent use of personal contacts for plans after graduation.

Third, I examine how social class affects achievement and campus life across the college years, and the extent to which cultural capital mediates the link between class and academic outcomes. From first semester grades to graduation honors, professional and middle class students have higher levels of achievement in comparison to executive or subordinate class students. The enduring executive-professional gap suggests contrasting academic orientations for two dominant class fractions, while the underperformance of subordinate class students is due to differences in financial support, a human capital deficit early in college, and unequal access to "collegiate" cultural capital. Collegiate capital includes the implicit knowledge that facilitates academic success and encourages a satisfying college experience. Subordinate class students are less likely to participate in many popular aspects of elite campus life, including fraternity or sorority membership, study abroad, and drinking alcohol. Additionally, two common activities among postsecondary students – participating in social and recreational activities and changing a major field early in college – are uniquely troublesome for subordinate class students. Overall, I conclude that Bourdieu provides a unique and useful perspective for understanding educational inequalities at elite universities in the United States.

In memory of Ethel Marie Cseh Urbano

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Acknowledgements

The *Campus Life and Learning* data were collected by A.Y. Bryant, Claudia Buchmann, and Kenneth I. Spenner (Principal Investigators), with support provided by the Andrew W. Mellon Foundation and Duke University. The *Cooperative Institutional Research Program* data were collected by the Higher Education Research Institute, University of California, Los Angeles. I gratefully acknowledge fellowship support from the Center for Child and Family Policy and the Social Science Research Institute at Duke University. The author bears full responsibility for the contents herein.

I have benefited from the advice and encouragement of many friends and colleagues. In particular, two mentors have nurtured my professional development and guided my work on this project from its initial, shaky formulations to the present form. I am grateful to Ken Spenner for being so generous with his time and resources. Working on the *Campus Life and Learning* project has been a wonderful opportunity, and has greatly enhanced my graduate training and this dissertation's potential. Dave Brady has allowed me to accumulate a mountain of debt, credited largely as coffee and invaluable comments throughout the margins of draft statements and manuscripts. I have been very fortunate to have such tremendous support over the past several years, and am thankful for the encouragement during a trying jobs search process.

I would like to acknowledge Sarah Mustillo for assistance with the data and for providing help with the statistical analysis. Ken Land's guidance with my proposal and suggestion to incorporate latent clustering analysis has proven to be productive and worthwhile. Nan Lin's social capital seminar and other insights have been indispensable

to the analysis and discussion contained in the fourth chapter. I am lucky to count Ryan Denniston, Jess Sautter, and Allison Wisecup among good friends. Special thanks are due to Adriana Samper for refreshing my spirit and maintaining my senses during an often-solitary endeavor. This dissertation would not be possible without the continued support of my parents, who have patiently encouraged me throughout my school career.

Many other friends and colleagues provided me with valuable suggestions, comments and support as I completed this dissertation. In particular, I want to thank John Aldrich, Nazli Avdan, Bart Bonikowski, Claudia Buchmann, Rebekah Burroway, Tom Carsey, Alexandra Cooper, Alex Dalton, Christian Ferney, Patrick Gallagher, Kieran Healy, Katelin Isaacs, Yunus Kaya, Lisa Keister, Steve McDonald, Angie O'Rand, Jill Powers, Megan Reynolds, Suzanne Shanahan, Joonmo Son, Lijun Song, Becky Tippett, Ed Tiryakian, Bill Tobin, Will Tyson, and Justin Valacek. I have enjoyed the wonderful support of Jessica Ellington, Bob Jackson, Rob Marks, Tammy McLamb, Claudette Parker, Jesse Riggan, Theresa Shouse, and Lisa Young.

Earlier versions of portions of this manuscript benefited from the comments of John C. Smart and anonymous reviewers at *Research in Higher Education*; Charles Powers, Marilyn Fernandez, and anonymous reviewers at *Sociological Perspectives*; and Karen Robson, Chris Sanders, and fellow contributors to *Quantifying Theory: Pierre Bourdieu*. Rejection letters from *American Sociological Review, Research in Social Stratification and Mobility, Sociology of Education,* and *Social Science Research* provided valuable suggestions for improving upon initial results and discussion. While completing this dissertation, I had the opportunity to present my results and ideas to

various audiences, which helped me immensely as I developed and refined my argument. Professional audiences include the annual meetings of the American Sociological Association (2008) and Southern Sociological Society (2005-2008), and the Duke University Program for Advanced Research in the Social Sciences seminar series (2009). I am grateful for invitations to present my research the University of South Carolina's Department of Sociology and Utah State University's Department of Sociology, Anthropology and Social Work.

1. Introduction

The American postsecondary system can trace its origins to the colonial era as a collection of small local colleges that enrolled few students and maintained close ties to churches and religious institutions (Jencks and Reisman 2002 [1968]). In the late-eighteenth century, less than two percent of young adults were attending college. As late as the early-twentieth century, a college education remained an option for only a fortunate few. By 1940, fewer than five percent of adults had earned a bachelor's degree (Bok 2006: 11). The decades following the Second World War witnessed a tremendous expansion of higher education, fueled by the Servicemen's Readjustment Act of 1944 – by 1950, roughly eight million returning veterans made use of the GI Bill's provisions of college or vocational training (Humes 2006) – and the need for a highly-skilled workforce to support an increasingly sophisticated economy.

From 1945 to 2000, the number of bachelor's degrees awarded annually increased nearly eightfold, from 157,349 to roughly 1.2 million (Bok 2006: 18). The college enrollment rate of high school graduates increased from about 45 to 70 percent in the last fifty years, and the number of postsecondary institutions more than doubled in the same period (Alon 2009: 733). Prior to the Civil War, colleges considered their primary purpose to be preparing young men for the clergy and instilling mental discipline through a rigid classical curriculum (Bok 2006). As student bodies grew larger and more diverse, the standard curriculum developed to give more emphasis to practical training for a range of careers and professions. These changes were accompanied by substantial increases in

the number of faculty, research activity in the natural and social sciences, and academic specialization (Bowen, Kurzweil and Tobin 2005).

This tremendous expansion of higher education brought great promise for broadening social opportunity and fostering upward mobility. A college diploma has been commonly viewed as a ticket to middle class prosperity, and it has been thought that a college education can overcome the effects of disadvantaged origins (Attwell and Lavin 2007). Early trends support this view, and the link between social origins and occupational outcomes weakened from the 1960s into the early-1980s due to rising college attainment (Hout 1984; 1988). College and university campuses are more diverse than ever before, and there have been substantial gains to address a range of gaps and inequalities. For example, the gender gap in college completion has reversed in recent decades and women now far outnumber men among new college graduates (Buchmann and DiPrete 2006). The proportion of black students at private colleges and universities has increased by more than sixty percent in the past three decades (NCES 2008a). While working class students have experienced increasing postsecondary attendance rates, these gains have been modest relative to declining educational inequalities along dimensions of gender and race and ethnicity (Gamoran 2001; Karen 2002; Trow 1992).

There is good reason for skepticism that the expansion of higher education has substantially reduced class inequalities, especially during the most recent decades. By the late-1990s, income inequality had reached levels not experienced since before the Great Depression, making the United States the most unequal developed country in the world (Massey 2007; Piketty and Saez 2003). Working class students continue to face

limited postsecondary opportunities, and remain underrepresented at four-year institutions (Bowen, Kurzweil and Tobin 2005: 85-87). The informal cultural knowledge and educational resources that are common to middle and upper class households play an important role in facilitating success during the college application process (Lareau and Weininger 2008; McDonough 1997). In recent decades, 11 percent of students at four-year colleges and universities report working or lower class origins, and 53 percent report upper or upper-middle class backgrounds. Working and lower class students comprise 10 percent of applicants to selective colleges and universities, and have somewhat lower acceptance rates in comparison to upper or upper-middle class students (Espenshade and Radford 2009: 80, 74, 132, 153).

The growth of American higher education during the past half century has been uneven, and most working and lower class students are tracked into the lower tiers of the postsecondary system or do not continue beyond the high school level. The bulk of the expansion of postsecondary education has occurred at the community college level, and enrollments at four-year universities have risen only slightly during the period (NCES 2008a). Working and lower class students are much more likely to attend community colleges (Goldrick-Rab and Pfeffer 2009; Rosenbaum 2004), and considerably less likely to attend the most prestigious schools and private universities relative to their middle and upper class peers (Hearn 1984; 1990; Stevens, Armstrong and Arum 2008). Due to a rising demand for college education, the admission process at four-year colleges and universities has become more competitive since the mid-1980s, especially at the most selective institutions (Alon 2009; Alon and Tienda 2007).

Elite colleges and universities have a disproportionate influence on the field of higher education, despite comparatively small enrollments (Kingston and Lewis 1990). These prestigious and highly selective institutions foster cohesion among high status groups, maintain connections with the top echelons of the occupational structure, and channel students into lucrative careers (Astin 1993; Katchadourian and Boli 1994; Useem and Karabel 1990; Zweigenhaft 1993). Receiving a degree from an elite college or university is associated with higher future earnings and occupational status (Bowen and Bok 1998; Gerber and Cheung 2008).

Elite postsecondary institutions face the competing pressures of enrolling students who are capable of academic excellence and meeting financial goals and objectives (Bok 2006; Bowen et al. 2005; Kirp 2003). Students from wealthy and well-connected families enjoy an advantage during the admissions process at the most selective colleges and universities. This class advantage extends from the use of private SAT tutors to the lobbying efforts of guidance counselors, and from the support of educational consultants to explicit admissions preferences for legacies and students from wealthy families who can be expected to make substantial financial contributions (Bowen et al. 2005; Cookson and Persell 1985a; Golden 2006; Karabel 2005; Karen 1991a; Stevens 2007).

Social class inequalities in higher education and socioeconomic diversity on campus are becoming increasingly prominent issues. These issues are of central concern to an emerging sociology of higher education that views colleges and universities less as "ladders" for social mobility, and more as "hubs" connecting multiple social domains and "sieves" regulating access to elite occupations (Gumport 2007; Stevens et al. 2008).

Locally, Duke University recently announced the start of a Socioeconomic Diversity Initiative to gain a better understanding of the college experiences of students who receive financial aid (Rupp 2009). Modeled after an earlier Women's Initiative, this project will first conduct focus group interviews of current students in order to frame the discussion and to start a conversation about socioeconomic diversity on campus. In response to this announcement, the editorial board of the campus newspaper voiced skepticism that such an initiative will lead to meaningful change, but agreed that this is a topic worthy of further exploration (The Chronicle 2009):

> Class is a seemingly taboo subject of conversation at Duke, but for many students, its impact is felt on a daily basis, influencing decisions on everything from joining a selective living group, choosing to live in a cheaper Central campus apartment and going off campus to eat on the weekend. For these reasons, it is not surprising that many social circles on campus contain people of similar socioeconomic backgrounds.

In many respects, elite universities are best positioned to promote greater equity in higher education and to provide social opportunity for students from disadvantaged backgrounds (Duffy and Goldberg 1998; Bowen and Bok 1998). As current admissions policies and practices at selective colleges and universities come under increased scrutiny for failing to address socioeconomic inequalities (Bowen et al. 2005: 161-193), it would be valuable to gain a better understanding of how social class shapes college education.

This dissertation adds to this ongoing discussion and emerging research literature by providing an in-depth analysis of how social class affects educational experiences and achievement at elite, private universities. With detailed survey and institutional data, I follow students across the college career, from the summer before matriculation to the spring of the senior year and into immediate post-graduation plans. My primary data

source is the *Campus Life & Learning* project, a four-wave prospective panel study of two recent cohorts of Duke University undergraduate students (Principal Investigators: A.Y. Bryant, Claudia Buchmann, and Kenneth I. Spenner). When possible, I supplement my analysis with a national sample of students attending highly selective, private universities from the *Cooperative Institutional Research Program* conducted by the Higher Education Research Institute at the University of California, Los Angeles. Together, these data provide an opportunity to consider the forms of capital that students bring to campus, and to explain how class background and pre-college resources influence campus social life, academic achievement, and career plans and aspirations. In this way, I add to recent studies of the factors influencing academic performance and campus life of different racial ethnic groups at selective colleges and universities (e.g., Bowen and Bok 1998; Charles et al. 2009; Espenshade and Radford 2009; Massey et al. 2003; Spenner, Buchmann and Landerman 2005).

1.1 Pierre Bourdieu and American Sociology

I draw heavily on the work of Pierre Bourdieu, especially his pioneering studies of French higher education (Bourdieu 1988a [1984]; 1996 [1989]; Bourdieu and Passeron 1979 [1964]; 1990 [1970]; Bourdieu, Passeron and de Saint Martin 1994 [1965]). At the time of his death in 2002, Bourdieu was the most prominent sociologist in the world (Calhoun and Wacquant 2002; Grenfell 2004; Reed-Danahay 2005). The author of nearly 40 books and more than 400 articles (Wacquant 2007), Bourdieu has had a considerable influence on American sociology across several key subfields, including the sociology of education as well as economic, cultural and political sociology. Since the

early-1980s, as his works began to appear in English translations, Bourdieu's ideas have diffused steadily into American sociology. In the past quarter century, citations of Bourdieu in leading American sociology journals have increased from two to eleven percent of all articles (Figure 1.1; Sallaz and Zavisca 2007).

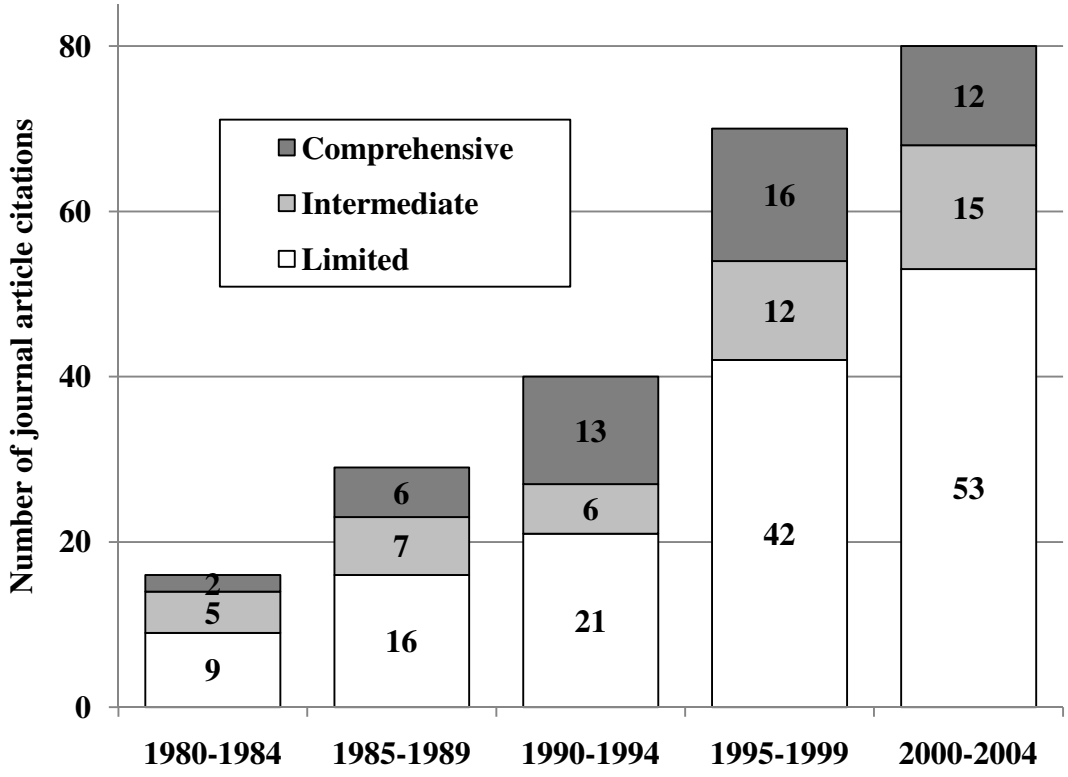

Figure 1.1: Number of articles citing Bourdieu in American sociology journals, by time period and citation depth (Sallaz and Zavisca 2007)

Several of Bourdieu's core concepts now support research across a range of areas and disciplinary subfields. However, much of the treatment in the secondary literature continues to be limited or superficial. Figure 1.1, taken from a recent review of Bourdieu and American sociology (Sallaz and Zavisca 2007), describes trends in the number of citations to Bourdieu's work in four leading journals – *American Sociological Review*,

American Journal of Sociology, *Social Forces*, and *Social Problems* – as well as how deeply these articles engage his ideas. From 1980 to 1984, "comprehensive" applications account for one-eighth of all articles and make a clear effort to extend or challenge Bourdieu's theory and concepts. By the early-1990s, the total number of citations has more than doubled, and one-third of articles comprehensively engage Bourdieu. Across the most recent decade, the number of citations has increased further, but the share of comprehensive articles has declined. From 2000 to 2004, only fifteen percent of citations thoroughly interrogate Bourdieu's ideas, and the majority of citations remain more ceremonious in nature.

This overall pattern of growing popularity but rather superficial use of Bourdieu's concepts also characterizes his influence on the sociology of education. *Reproduction*, first translated to English in 1977, quickly became a citation classic and was the most popular of Bourdieu's major works in American sociology throughout the next decade (Sallaz and Zavisca 2007). More recently, the forms of capital have become Bourdieu's most popular conceptual export. Bourdieu (2001 [1983]) defines capital broadly as all power that is capable of being deployed, accumulated and converted as both material and symbolic resources. Most prominently, Bourdieu identifies three fundamental species of capital: economic, social and cultural capital. Bourdieu's concept of cultural capital – or the tastes, styles, cultural goods and credentials that are rewarded in particular institutional settings – is now firmly entrenched in the mainstream lexicon of education research (Lamont and Lareau 1988; Kingston 2001).

However, many early applications of cultural capital stayed close to Bourdieu's own empirical examples and equated cultural capital to "highbrow" cultural activities and knowledge. As Lareau and Weininger (2003) point out, such a narrow definition of cultural capital is not an essential feature of Bourdieu's broader theoretical framework and limits cultural capital's explanatory potential. Bourdieu has suggested a shift in terminology to "information capital" to distance cultural capital from strong "highbrow" connotations (Bourdieu and Wacquant 1992: 19; Swartz 1997: 75). *Reproduction* and other early translations (e.g., Bourdieu 1973a [1971]) have had a waning influence since the early-1990s, and it remains to be seen if Bourdieu's other major studies of French higher education will receive sustained, serious attention in American sociology. To date, *State Nobility* (1996 [1989]), Bourdieu's final major study of French universities, has received very little and only cursory attention in top journals (e.g., Lareau 2002; Lizardo 2006; Sikkink 1999).

Through his studies of French universities and society, Bourdieu outlines a theory of cultural reproduction (Jenkins 2002: 103-127; Lamont and Lareau 1988; Harker 1984; Swartz 1997: 189-217; Willis 1981). To simplify, Bourdieu argues that class position is associated with unequal access to forms of cultural capital. Educational institutions fulfill an important social function by rewarding the cultural capital associated with dominant class backgrounds and, as a result, preserve social hierarchies and power relations across time and over generations. During childhood and adolescence, experiences in the family and in the school are especially important for the development of the habitus, or the internalization of a group's culture into a durable set of embodied

dispositions. For dominant class students, the types of cultural capital valued by educational institutions come more or less as second nature, leading to cumulative advantage and greater educational success. For working class students, who are less likely to possess elite forms of cultural capital, lower success rates lead to lowered expectations by both the student and the teacher. This cycle reinforces the habitus, and exacerbates initial capital gaps and deficits.

Bourdieu argues that the educational system values the cultural capital of dominant groups as if it were a natural marker of individual ability, and treats all students as if they had equal access to elite forms of cultural capital. However, schools can appear to uphold meritocratic principles and hide any implicit class-bias because cultural capital is not necessarily caused by economic capital, even if cultural capital is highly associated with economic capital. Thus, within a particular educational setting, cultural capital should mediate the relationship between social origins and academic outcomes. Dominant class students are predicted not only to have greater access to cultural capital, but also to achieve greater returns from the cultural capital they do possess. Without the prerequisite habitus, working and lower class students are less able to profit from cultural capital even if they gain access to elite types of cultural capital.

Bourdieu's theory of cultural reproduction has been the subject of much recent criticism. Some have argued that Bourdieu overstates the role of the educational system in preserving social inequalities (Halsey 1980; Robinson and Garnier 1985), and that his theoretical reach extends too far beyond his supporting evidence (DiMaggio 1979; Goldthorpe 1980: 58; Jenkins 2002). *Reproduction*, in particular, has been criticized for

presenting an overly deterministic model of social reproduction (Bohman 1999; Sharp 1980: 66-76). Additionally, Bourdieu's work has been criticized for its overly complex – if not intentionally difficult and opaque – writing style, and his explanation through elementary or descriptive statistical methods (Jenkins 2002: 162-172; Sullivan 2002).

In a recent essay, John Goldthorpe (2007) argues that researchers have applied the concept of cultural capital with two different understandings, which he labels "Bourdieu domesticated" and "Bourdieu wild." On the one hand, studies applying a domesticated understanding of cultural capital have consistently found moderate but qualified empirical support. Research in this tradition often focuses on the effects of "highbrow" activities, such as visiting an art museum or attending the opera or ballet, on educational outcomes. In this view, there is less concern for how cultural capital contributes to social reproduction, and the concept is detached from the broader theory.

A considerable literature shows that socioeconomic background is associated with access to cultural capital, and that cultural capital encourages academic success (e.g., Aschaffenburg and Maas 1996; De Graaf 1986; De Graaf, De Graaf, and Kraaykamp 2000; DiMaggio 1982; DiMaggio and Mohr 1985; Dumais 2002; Eitle and Eitle 2002; Ganzeboom, De Graaf, and Robert 1990; Katsillis and Rubinson 1990; Mohr and DiMaggio 1995; Roscigno and Ainsworth-Darnell 1999; Sullivan 2001). However, the returns to cultural capital appear to be consistent across social groups, and may even yield greater returns for students from lower-status backgrounds. Thus, as first described by Paul DiMaggio (1982), a domesticated use of Bourdieu's concepts reveals that schools

can transmit cultural capital and encourage social mobility, rather than only supporting social reproduction.

On the other hand, Goldthorpe (2007: 18) argues that a "wild" or more authentic reading of Bourdieu's theory has received too little empirical support. Further, Bourdieu's theory is challenged by real gains in educational opportunity and upward mobility experienced in many advanced societies across the postwar period:

> While in its domesticated understanding Bourdieu's work might be regarded as tolerably sound, at least for its time, even if not very original, in its wild understanding it is certainly original but as regards its centerpiece, the theory of social reproduction, must by now be adjudged as quite unsound.

In most quantitative applications of Bourdieu's ideas (e.g., DiMaggio 1982; De Graaf 1986), the concept of cultural capital is considered in isolation of other important concepts, namely class habitus and other forms of capital. Thus, by using cultural capital variables to build upon the conventional status-attainment model, a domesticated understanding ignores a crucial element of Bourdieu's theory: the role of schools and educational institutions to social reproduction and the transmission of resource advantages across generations (Savage, Warde, and Devine 2005).

Goldthorpe's review is largely in accord with other recent comments of the uneven and inconsistent use of Bourdieu's concepts in the quantitative education literature (e.g., Kingston 2001; Lareau and Weininger 2003). However, Goldthorpe fails to note qualitative studies that incorporate a "wild" understanding to examine primary and secondary schooling (e.g., Blackledge 2001; Carter 2003; Lareau 2000 [1989]; 2003; Reay 1998) and the transition into postsecondary education (e.g., Devine 2004; Lareau and Weinginger 2008; McDonough 1997; Reay, David and Ball 2005).

In response to such criticisms, Bourdieu's supporters note the pitfalls and challenges of such an ambitious theoretical project, and suggest that "wild" and "domesticated" understandings can each complement the analysis of power structures and relations (e.g., Breuer 2008; DiMaggio 2007). Partisan voices challenge that critics base judgments on a narrow reading, if not a misrepresentation, of Bourdieu's work (e.g., Lizardo 2008). For example, Wacquant (1989: 31) charges Bourdieu's critics with practicing "intellectual ethnocentrism" and possessing only a limited understanding of his works and ideas:

> The idiolect he has created in order to break with the common-sense understandings embedded in common language, the nested and convoluted configuration of his sentences designed to convey the essentially relational and recursive character of social processes, the density of his argumentation have not facilitated his introduction into the discourse of Anglo-American social science.

With this dissertation, I take seriously the arguments of Bourdieu's critics and the lofty standards of his most ardent supporters. This project is presented as an effort to build upon and extend earlier quantitative applications of Bourdieu's ideas, and to provide a more complete appreciation of Bourdieu's broader theoretical model.

To date, few studies have applied Bourdieu's theory and ideas to postsecondary education in the United States (e.g., Hearn and Olzak 1981; Useem and Karabel 1986; Walpole 2003). This is surprising considering that Bourdieu focuses almost exclusively on French colleges and universities. The conventional, "domesticated" approach in the quantitative research literature has been to focus on high school student achievement and to use a narrow definition of cultural capital. Consequently, and despite Bourdieu's growing popularity in American sociology during the past few decades, it remains

unclear how useful Bourdieu's theory is to understand inequalities at colleges and universities. My aim is to clarify Bourdieu's concepts and to incorporate a Bourdieusian framework within the prevailing discourse of the sociology of education

1.2 Plan and Organization

In the chapters to follow, I conduct a detailed examination of how class background shapes student experiences and achievement at elite, private universities. By analyzing representative surveys of students and data collected across the college years, I add to an emerging sociology of higher education and recent studies addressing excellence and equity in higher education. Although a considerable and productive literature has applied Bourdieu's concept of cultural capital to primary and secondary schooling, few studies have applied Bourdieu's ideas to American postsecondary education. Further, quantitative applications have underemphasized the role of social class, which has a central role to Bourdieu's broader theory of cultural reproduction. To address this gap, I explore how forms of symbolic capital – including "highbrow" cultural capital, but also social capital and other informational resources – mediate the relationship between class origins and academic success at elite, private universities.

This dissertation is organized as follows: In Chapter 2, I first review Bourdieu's major studies of French higher education and describe his theoretical model and most important concepts. To date, more attention has been given to Bourdieu's earlier publications and studies, notably the classic treatise *Reproduction.* Yet, Bourdieu continued to develop and refine his theoretical framework in further studies conducted throughout the next few decades. Second, I describe my study design. I analyze recent

survey and institutional data from a highly detailed prospective panel study of students attending a single elite university, and a national sample of students attending highly selective, private universities. This chapter concludes with an outline of my primary research questions.

Chapter 3, the first of three empirical chapters, begins with a discussion of classical and contemporary sociological perspectives to social class. Bourdieu borrows widely from classical perspectives to offer a characteristic model of social class based on the distribution of forms of capital. Next, I develop a method for examining the class structure of educational institutions (Martin 2009a). I argue that the use of latent clustering analysis is an improvement to Bourdieu's use of statistics, and can help distinguish underlying class fractions that conventional schemas fail to appreciate. My analysis reveals four to five social classes among students at elite, private universities. Consistent with Bourdieu's model, nearly half of students have dominant class origins, including distinct fractions that are distinguishable in terms of the volume and composition of cultural and economic capital. "Professional" households possess high levels of all resources, while "executive" households have the highest levels of income but fewer academic credentials. In contrast, upon matriculation "middle" and especially "subordinate" class students have fewer economic and cultural resources.

In Chapter 4, I explore two types of social capital at Duke University. Social capital has become a popular notion in sociology, although conceptual ambiguity has hampered recent developments. The sociology of education has largely responded to James Coleman's (1988) early insights and studies of high school students, but other

subfields use social capital in a manner consistent with Bourdieu's conceptualization. I provide a detailed examination of social capital on a university campus, and show the usefulness of the latter perspective for studies of education. First, I consider social capital in its practical or immediate state: the resources embedded in social networks (Martin 2009b). I explore the effects of extensive campus networks, and find that investments in social capital facilitate college achievement and pathways to professional careers. Second, I describe an example of social capital in its institutionalized state with a "social portrait" of legacies across the college years (Martin and Spenner 2009). Legacies constitute an affluent group that benefits from an admissions preference for applicants with family ties to the university. Legacies show a distinct profile of high levels of economic and cultural capital, but lower than expected high school achievement, human capital, and early college grades. Across the college years, legacies activate their social capital: first, by gaining admission to an elite university despite less than spectacular academic records, and finally through the prevalent use of personal or family contacts for plans after graduation.

Chapter 5 builds upon the results and conceptual framework developed in the previous two chapters to consider the interaction between social class and forms of cultural capital. Although Bourdieu finds that "highbrow" activities are good markers of cultural capital among French students, he defines embodied cultural capital broadly as a more or less unconscious understanding of how to navigate various fields successfully. "Collegiate" cultural capital includes the implicit knowledge, resources, and experiences that facilitate academic success and a satisfying college experience. I test predictions

from cultural reproduction, cultural mobility and human capital perspectives concerning the effects of campus involvement on academic achievement and overall satisfaction. From first semester grades to final graduation honors, professional and middle class students have higher levels of achievement in comparison to executive and subordinate class students. Additionally, across the college years, class background shapes patterns of social life. At the start of college, subordinate and middle class students place more emphasis on personal growth and development, while professional and executive class students assign greater importance to social activities and interpersonal relationships. Subordinate class students are less likely to participate in three popular aspects of elite campus life: joining a fraternity or sorority, studying abroad, and drinking alcohol.

Across the college years, human capital has consistent, reliable effects on average semester grades for all students. Net of other factors, students who report higher levels of academic skills, motivation, or self-esteem earn higher grades. In contrast, collegiate capital is strongly associated with dominant class origins. Subordinate class students spend relatively less time in campus social activities, but this limited involvement leads to lower grades for subordinate class students only. Upon matriculation, subordinate class students underestimate the likelihood of changing majors – a common event for postsecondary students – and overestimate the likelihood of success in challenging natural science and engineering majors.

I conclude that Bourdieu's theory of cultural reproduction receives more support than his critics maintain, but this support is more ambiguous and qualified than many of his supporters allow. First, class matters. Class background is associated with access to

important family and educational resources during high school and adolescence. Across the college years, class shapes patterns of achievement, social networks, and campus social life. Second, forms of capital matter. Forms of campus social, cultural and human capital have effects on academic achievement across the college years, although these effects vary by type of capital and by class background. Third, both cultural mobility and cultural reproduction matter. Bourdieu "wild" and "domesticated" are not mutually exclusive perspectives, and together provide a more complete understanding of the factors predicting college success. While some resources are beneficial for all students (e.g., immediate social capital and dimensions of human capital), others are controlled by dominant class students (e.g., legacy status and collegiate cultural capital). A task of the sociologist is to untangle which elements of higher education are inconsistent with goals of excellence and fairness, and to assess how well our leading postsecondary institutions fulfill their academic and social missions. To aid this endeavor, Bourdieu provides a unique and useful perspective for understanding educational inequalities in the United States, and at elite universities in particular.

2. The Field of Elite University Education

> Those who dismiss my analyses on account of their "Frenchness" (every time I visit the United States, there is somebody to tell me that "in the mass culture of America, taste does not differentiate between class positions") fail to see that what is truly important in them is not so much the substantive results as the process through which they are obtained. "Theories" are research programs that call not for "theoretical debate" but for a practical utilization.
>
> Pierre Bourdieu, *Invitation to Reflexive Sociology*

The post-war period in France was marked by the widespread expansion of higher education (Kedward 2007: 413-431; Sowerwine 2009: 328-343). University enrollments increased more than fourfold from the late-1950s to late-1960s. However, this rapid growth quickly exhausted the education budget and threatened central control. The organizing structure of French higher education had persisted mostly unchanged since the late nineteenth century, with the state exercising sole responsibility over the educational system since the Napoleonic era. The Ministry of National Education was unable to launch an adequate response to such dramatic changes throughout Paris and the provinces. Universities faced over-crowded facilities and a shortage of qualified instructors, leading to the recruitment of secondary school teachers to fill demand. This rapid expansion, along with the associated challenges, was largely isolated to the *facultés*, the system of local arts and science colleges. Although working class students increased their overall representation at the postsecondary level, few entered the most elite tier of postsecondary institutions. During this period of rising social and student unrest, the *grand écoles* were relatively isolated from these changes, and took on an increasingly important role in the preservation of power relations (Bourdieu 1988a: 159-193).

A growing population of college students intensified generational rifts in French society, and fueled clashes over cultural and social issues between the the younger, rising cohorts and the older, declining generations who were more wedded to tradition (Agulhon 1993: 420-432). Students grew increasingly resentful of over-crowded lecture halls, poor residential accommodations, impersonal teaching methods, and a lack of campus amenities and social life. By the late-1960s, unemployment figures had doubled, and the de Gaulle administration had begun to take steps to stave off threats from growing numbers of increasingly confrontational, jobless college students. Universities adopted more selective admissions policies and encouraged higher failure rates to allow for the dismissal of particularly troublesome students. The rapid expansion of higher education led to a devaluation of diplomas from the *facultés,* although admission to the *grand écoles* became even more competitive (Bourdieu and Passeron 1979).

In May 1968, a series of student strikes escalated to violent confrontations with police officers throughout the Latin Quarter. Photographs would capture images of the indiscriminate use of batons and tear gas against students, with students responding with stones, bottles, and Molotov cocktails. Appearing in national newspapers, these images would help turn public sentiment in support of the student protestors. These student protests were but the first act of a tumultuous month of activity, culminating in the largest general strike ever to take place in an advanced industrial country. At times, de Gaulle's government appeared on the verge of collapse.

Pierre Bourdieu, as director of a research center within the École des Hautes Études en Sciences Socialies (EHESS) in central Paris, conducted his first major studies

of French higher education in the years leading up to this month of student strikes and protests. However, Bourdieu's ruminations on class, culture and education had begun years earlier, when he was a student at elite boarding schools and the most prestigious French universities who felt out of place for being the son of a peasant turned rural postal clerk (Bourdieu 2008; Grenfell 2004). Instead of expanding democratic opportunity and social liberation, Bourdieu describes an educational system that acts as a "conservative" force and enables the reproduction of dominant class privilege across generations and throughout important institutional fields. Bourdieu's early studies and observations anticipate a far-reaching analysis of many facets of French society and an ambitious sociological project that continues to influence many key disciplinary subfields.

Starting with the first English translation of *Reproduction* in 1977, Bourdieu's concepts and theory of cultural reproduction have inspired much research within American sociology. Since DiMaggio's early studies on status group membership and high school achievement, the concept of cultural capital has enjoyed a secure position in the regular lexicon of the sociology of education (Lamont and Lareau 1988). Exemplary qualitative studies have incorporated Bourdieu's concepts into studies of primary schooling (e.g., Lareau 2000; 2003), high school education (e.g., MacLeod 2008), and the college and university admissions process (e.g., McDonough 1997; Stevens 2007). In 2009, the American Sociological Association announced the first annual Pierre Bourdieu Award for best book in the sociology of education, and citations of Bourdieu's work continue to increase steadily in leading journals (Sallaz and Zavisca 2007).

However, despite this popularity, much of Bourdieu's potential contribution remains underappreciated and underexplored. More specifically, the quantitative literature has relied on a narrow interpretation of the concept of cultural capital and has given too little attention to the role of social class (Lareau and Weininger 2003). Most quantitative studies have focused on the achievement of high school students (e.g., DiMaggio 1982; Roscigno and Ainsworth-Darnel 1999; Teachman 1987). Few studies have applied Bourdieu's concepts to postsecondary education and college student achievement in the United States.

This dissertation provides a Bourdieusian analysis of how social class shapes students' experiences across the college years at elite private universities. In this chapter, I first review Bourdieu's studies of French higher education. Most attention has focused on Bourdieu's early studies from the early-1960s that culminated in the publication of *Reproduction,* but Bourdieu continued to develop his sociology of education and study French elite universities across the next few decades. Second, I describe my study design. With recent survey data of students attending highly selective, private universities, I consider the effects of social class on college preparation, academic achievement and post-graduation plans. I give particular attention to the relationship between class and forms of cultural and social capital. This chapter concludes with a summary of my primary research questions and a brief description of the analyses contained in the next three chapters.

2.1 From Boarding School to Boardroom

In research that spans nearly three decades, Bourdieu provides a rich, multi-method analysis of French higher education that forms the foundation to his broader theory of power and social change. Bourdieu's analyses of the French educational system can be divided into two periods. First, in studies conducted in the early-1960s and culminating in the publication of *Reproduction*, Bourdieu explores changes in higher education during a period of rapid expansion and rising educational attainment. Despite great promise for the triumph of meritocracy, Bourdieu finds that working class students remain underrepresented at the postsecondary level and especially at the most prestigious institutions. Further, the prevailing discourse of French universities bears a strong resemblance to the cultural upbringing of the upper and dominant classes. In the initial formulations of his theory of cultural reproduction, Bourdieu describes how schools can appear to reward individual talent and academic skill but in fact reproduce initial status distinctions based on social origin. Due to an imperfect but reliable association between the distribution of economic and cultural resources, the educational system reproduces the economic order by rewarding the cultural capital of social elites, but still maintains an appearance of independence and legitimacy.

In his later studies, including *Homo Academicus* and *State Nobility,* Bourdieu clarifies his concepts of habitus, field, and forms of capital, and explores the connections from the educational system to the occupational structure and elite institutions. Bourdieu's major studies from this period provide a detailed examination of the organization of forms of capital within French society and education. In a pattern

repeated throughout his studies, Bourdieu finds that positions within independent fields are distributed first by the overall volume of symbolic and material resources, and second by the ratio of cultural to economic capital. Further, these "structural homologies" lead to classificatory schemata that are embodied as part of the habitus, guiding practice and perceptions of the social world. To date, most studies applying Bourdieu's ideas have focused on his earlier work, and thus have failed to appreciate important adjustments from two decades of further observations. As a result, Bourdieu's potential contribution to the sociology of education remains unclear.

2.2 Early Bourdieu, Academic Discourse to Reproduction

Originally published in 1965, *Academic Discourse* (with Passeron and de Saint Martin; first English translation, 1994) builds from the initial observation that linguistic misunderstanding dominates university life. University students remain committed to traditional teaching methods, even as they appear to comprehend surprisingly little information conveyed during lectures. Conducting surveys of French university students during the early 1960s, Bourdieu and associates examine vocabulary test scores and other measures of linguistic behavior across social origins.[1] Supplementing this analysis are an in-depth examination of a set of student essays and instructor comments (Baudelot 1994); a survey of lecture audiences about the use of various teaching methods (Vincent 1994);

[1] The primary analysis contained in *Academic Discourse* draws on a questionnaire administered during the 1962-1963 academic year to about 500 students at French universities that were attending lectures in the arts or social sciences. This survey serves as a principal data source for Bourdieu and Passeron (1979) and is referenced extensively by Bourdieu and Passeron (1990).. Sections of *Academic Discourse* (pp. 40-51) reappear in slightly revised and updated form in *Reproduction* (pp. 72-90). Bourdieu and associates (1994: 56-72) show that this sample is representative of French university students in terms of social background characteristics, although these early studies do not include students attending the most elite tier of postsecondary institutions, notably the prestigious engineering schools and *grand écoles.*

and a survey of users of the Lille University library (Bourdieu and de Saint Martin 1994). This work presents evidence of class-based differences in linguistic skills that would later form part of the empirical foundation to *Reproduction* and Bourdieu's other studies of French higher education.

Students consistently confuse and appear to have a poor understanding of words and phrases common to university lectures (Bourdieu et al. 1994: 37-38; 69-72). Bourdieu and associates (1994: 15) find both students and instructors to be complicit in maintaining the "semantic fog" of academic discourse:

> [The] illusion of being understood, the illusion of understanding and the illusion of having always understood are mutually reinforcing, and supply alibis to each other.

For many students, much of daily life appears to be devoted to a parody of scholastic work as carefree, unstructured intellectual activity.[2] Only a few years prior to the May 1968 protests, French university students show a high level of commitment to the lecture format and traditional instruction methods, even as they appear to be quite ineffective as a method of knowledge transfer from speaker to the audience (Vincent 1994). In essays and examinations, instructors reward students for mimicking "professorial language" and the rhetorical style of academic discourse (Baudelot 1994). By feigning comprehension and imitating their professors, students can hide their misunderstanding. Alternatively,

[2] For example, Bourdieu and de Saint Martin (1994: 123) conclude their study of users of the Lille University library by noting that "students in their great majority do nothing at the Library which they cannot do as well or better at home because, by unanimous consent, the Library is an unfavorable site for scholarly reflection. This finding bears out the impression, if any confirmation were needed, that most [library users] *only appear to be working rather than actually getting anything done*" (emphasis added).

instructors' use of academic discourse maintains a level of distance from the student and preserves the power dynamic between lecturer and audience.[3]

Bourdieu and associates (1994) document several achievement gaps with tests of verbal ability, vocabulary and expression (see Bourdieu and Passeron [1990: 72-90] for a related discussion of these results). Results from a battery of five tests, designed to mimic typical examination conditions, are compared along four dimensions: family residence, academic background, sex, and class origins. Graduates of elite secondary schools, Parisians (versus provincials), and students with pre-university training in classical languages consistently show higher scores on tests of linguistic ability (Bourdieu et al. 1994: 38-39). Female students have consistently lower test scores than male students, but this is attributable to differences in school background and unequal selection into the arts disciplines. Female students are less likely to have graduated from elite schools or to have studied Latin or Greek. As a result, by the early 1960s "girls are condemned to enrolling in [in these less prestigious] arts faculties twice as often as boys" (Bourdieu et al. 1994: 44). Notably, the relatively few female students with training in classical languages have among the highest test scores (Bourdieu et al. 1994: 43-46).

Compared to students from upper class households, working class students show lower levels of verbal ability. Although, working class students, and especially Parisian

[3] Academic discourse, with its unnecessarily elevated style and frequent use of technical jargon, maintains the status and distinction of both the professor and the profession. Thus, there is little motivation to adopt a more straightforward, ordinary presentation: "The lecturer who forgoes the marvels of professorial language and gives methodical and explicit presentations risks appearing as a primary school teacher who has strayed into higher education or as a non-conformist who will also find the institution turned against him, even though he has answered real needs and unacknowledged expectations" (Bourdieu et al. 1994: 14). As Jenkins (2002: 162-172) points out, many of these same criticisms of academic discourse can, perhaps ironically, be applied to Bourdieu's own use of language.

working class students, have higher scores than their middle class counterparts (Bourdieu et al. 1994: 43).[4] Working class students are considerably less likely to have completed secondary coursework in Latin, but those that do have classical training score comparably to – and in some instances, slightly outperform – upper class students on vocabulary tests (Bourdieu et al. 1994: 52-55, 78). Working class students that attend the arts faculties – like the exceptional female student with classical training – comprise a highly selected group. Having persisted to higher education despite a "higher rate of scholastic mortality", working class students have shown success in the "project of acculturation" that facilitates academic discourse (Bourdieu et al. 1994:41).

The Inheritors, originally published in 1964 (with Passeron; first English translation, 1979), takes up the issue of class inequalities in higher education more directly. Bourdieu and Passeron (1979) analyze enrollment data at French universities from the turn of the twentieth century until the early 1960s and conduct further analysis of a survey of recent college students (e.g., Bourdieu et al. 1994: 57-58). *The Inheritors* seeks to explain working class students' persistently uneven access to university education. Several important concepts to Bourdieu's theory of cultural reproduction, notably habitus and cultural capital, have roots in *The Inheritors*, which introduces a stronger indictment of the education system for failing to uphold democratic principles.

Bourdieu and Passeron (1979) present the objective probabilities of entering higher education by social class, as well as the conditional probabilities of studying in a

[4] Categories for students' class background are defined by father's occupation, collected from the survey questionnaire. "Working class" includes farm workers, industrial workers and office workers; "middle class" combines artisans, shopkeepers and middle management occupations; senior management and professional occupations comprise the "upper class" (Bourdieu et al. 1994: 56-57).

particular discipline. Results show strong, enduring class-based inequalities of access to higher education, and an underrepresentation of working class students within the most prestigious institutions and disciplines. While more than two-thirds of students from senior executive households enter higher education, less than two percent of children of industrial workers attend a university. Children of senior executives are about 80 times more likely to attend a university than are farm workers' children, 40 times more likely than are industrial workers' children, and twice as likely as lower-rank executives' children (Bourdieu and Passeron 1979: 2-6).

Class background is associated with distinctive relationships to university life (Bourdieu and Passeron 1979: 16). Working and upper class students arrive on campus with unequal levels of academic training and opportunities to engage elite cultural milieus. The children of business managers and professionals are more likely to have strong family support for their education and to show broader academic interests that extend beyond the prescribed curriculum. Working class students are more likely to live at home and work part-time while completing university coursework, and as a result are less a part of student discussions and campus social activities. Additionally, students from dominant class backgrounds show richer knowledge of cultural works, artists and directors. During adolescence, upper class students were more likely to attend the theater, go to concerts, visit art galleries and museums, play a musical instrument, and live in homes containing many books and works of art.

The educational system serves to eliminate most working class students before the postsecondary level. University admission is only the most recent of a series of

eliminations and selections, and represents the cumulative effect of many small, nearly imperceptible disadvantages and inequalities. Social origins strongly influence the use of language (e.g., Bernstein 1958; 1960), and academic discourse is relatively distant to working class students' family upbringing. Foreshadowing the concepts of habitus and cultural capital, Bourdieu and Passeron (1979) note the subtle and imperfect linkages from social origins to cultural lifestyles and the scholarly dispositions rewarded in French universities. A student's relationship to culture develops steadily but imperceptibly, discreetly and more or less indirectly; this "inherited cultural capital" is acquired, like a bequest, without conscious effort (Bourdieu and Passeron 1979: 20-23). In this way, working class students are "doubly disadvantaged" by the educational system. Not only are working class students largely excluded from advanced secondary training and the most prestigious disciplines, but they lack the "inherited cultural capital" to participate fully in academic discourse and enjoy high returns on their investments in the "scholastic market" (Bourdieu and Passeron 1979: 82).[5]

In opposition to a view of the educational system as a "liberating force" for social mobility, Bourdieu (1974) argues that schools act primarily as a "conservative force" that legitimizes elite cultural practices. Bourdieu and Passeron (1979: 75-76) provide a normative definition of democratic education, and argue for a school system that enables:

[5] Bourdieu drops the label "inherited cultural capital" in future studies, but develops and refines this notion across subsequent publications. Within a few years of *The Inheritors*, Bourdieu (1974 [1966]) has begun to distinguish cultural capital from a scholastic "ethos" that is cultivated during childhood and adolescence. Cultural capital and this ethos interact to shape attitudes toward schooling, and help explain why so few students of working class origins persist to higher education. This "ethos" soon evolves to become "a habit-forming force … [and] general dispositions, generating particular patterns that can be applied in different areas of thought and action, which may be termed cultured *habitus*" (Bourdieu 1967: 344). "Inherited cultural capital" ultimately returns as "embodied cultural capital" (Bourdieu 2001 [1983]; see Chapter 4). With these preliminary labels, Bourdieu emphasizes the important socialization that occurs in the family, and how these early experiences serve as a sort of guiding principle for future interactions.

> … the greatest possible number of individuals to appropriate, in the shortest possible time, as completely and as perfectly as possible, the greatest number of abilities which constitute school culture at a given moment.

Contemporary French education falls short of this standard on two main counts. First, academic discourse appears to be ineffective as a teaching method and an inefficient mode of training and skill acquisition. Second, there are enduring class-based inequalities of access to the most prestigious institutions and disciplines, and these disparities are reinforced by cultural distinctions. While Durkheim (1961) considers schools to provide moral integration, Bourdieu (1966) emphasizes that the educational system supports cultural integration but also reinforces social divisions. Social interactions outside of the lecture hall are infrequent, especially for working class students, and there is little evidence that students comprise an "integrated social group" (Bourdieu and Passeron 1979: 35-38). An expansion of higher education has led not to a growth in meritocracy, but instead a shift by the dominant classes to more indirect reproduction strategies. For example, business owners, who previously could transmit financial wealth directly to family members and across generations, now also invest in academic credentials to legitimize privilege and ensure social reproduction.[6]

Reproduction, first published in 1970 (with Passeron; second English edition, 1990) elaborates on the main themes from *Academic Discourse* and *The Inheritors*. First,

[6] Because of the non-deterministic link from class origins to outcomes, wealthy and high status families who fail to invest in education face a small but real risk of squandering their "inheritance," which would be more or less guaranteed under direct transmission (Bourdieu and Passeron 1979: 25). However, an advantage of indirect reproduction strategies is that they appear less conspicuous and thus more legitimate (Bourdieu and Passeron 1979: 79). Further, the limited mobility of the most exceptional members of the working class can provide the educational system with credibility and support the dominant school ideology (Bourdieu and Passeron 1990: 167).

to the uninitiated, academic discourse is inaccessible and wrought with confusion. There is only an imperfect association between the use of language in the home and in the school, but dominant class student are more able to transfer cultural experiences from the family to the educational system (Bourdieu and Passeron 1990: 115):

> University French has never been anyone's mother tongue, even for the children of the privileged class, but this timeless amalgam of former states of the history of the language is very unequally removed from the languages actually spoken by the different social classes.

Second, working class students remain largely excluded from the most prestigious institutions and disciplines. Relative to the children of business executives and professionals, working class students enter university education with less rigorous secondary training, less familiarity with elite status cultures – including "highbrow" art – and lower levels of rhetorical skill and verbal ability. Yet, as working class students comprise a more highly selected group, they perform at least well as – and in several instances outperform – middle class students. Rather than acting primarily as an avenue for social mobility, the educational system encourages social reproduction by indirectly rewarding the cultural experiences, dispositions, and talents of the dominant classes.

Compared to Bourdieu's other major studies of French higher education, *Reproduction* is more heavily theoretical and is organized in such a way that presumes familiarity with the studies that preceded it (i.e., Bourdieu and Passeron 1964; 1979; Bourdieu et al. 1994). Bourdieu and Passeron (1990) explicate the notions of pedagogic action, the cultural arbitrary and symbolic violence, and construct a model of the educational system with a primary role in social reproduction. Even as *Reproduction* quickly became a citation classic (Bourdieu 1989), much of its conceptual terminology

was not retained in Bourdieu's later studies of education, due in part to noted ambiguities and imprecise connotations (Bourdieu 1990b).[7]

Bourdieu and Passeron (1990: 3-68) explain that pedagogic activity – namely teaching and school instruction, but also any activity that involves socialization or cultural inculcation – takes place within a system of power relations that has a strong association to, but only indirect correspondence with, the underlying class structure. Further, pedagogic activity is arbitrary, both in the sense of not being deduced from universal, objective principles, as well as connoting the wanton exercise of power. Thus, pedagogic activity leads to "symbolic violence" by misrecognizing the dominant culture as natural and legitimate (Bourdieu and Passeron 1990: 23):

> In any given social formation, legitimate culture, i.e. the culture endowed with dominant legitimacy, is nothing more than the dominant cultural arbitrary insofar as it is misrecognized in its objective truth as a cultural arbitrary and as the dominant cultural arbitrary.

Due to many subtle, largely indirect connections from the class structure to pedagogic action and dominant culture, the educational system is able to mask its arbitrary character and contribute to the reproduction of power relations.

The educational system, particularly during childhood and adolescence, is secondary only to the family as an important site for pedagogic activity. Bourdieu argues that the educational system performs three internal functions that facilitate its primary external function of social reproduction (Bourdieu 1969; Bourdieu and Passeron 1990: 177-219; Swartz 1997: 189-217). First, schooling serves a technical function of

[7] As Sallaz and Zavisca (2007: 29) note, *Reproduction* was cited quite frequently in American sociology journals – accounting for roughly 40 percent of all citations of Bourdieu's work throughout the 1980s – but in more recent years it has received considerably less attention, and presently accounts for less than 10 percent of references to Bourdieu.

providing skills and training for positions in the labor market. However, Bourdieu and Passeron (1990: 179-186) emphasize that this technical function should not be considered in isolation of other functions. In other words, an exclusive focus on technical functions "has the function of preventing analysis of the educational system's system of functions" (Bourdieu and Passeron 1990: 184). The educational system's second, "essential" function is to conserve and consecrate a particular cultural heritage and socialize students into an elite cultural tradition. Like the Church, schools are institutions authorized to "to conserve, transmit and inculcate the cultural canons of a society" (Bourdieu 1969: 110). In this way, the educational system contributes to cultural reproduction.

A third internal function, maintaining legitimacy, is accomplished by concealing and deflecting attention from the educational system's external function: social reproduction. The educational system is more effective at reproducing structures when its role in social reproduction remains obscured or hidden. To illustrate this self-reinforcing cycle and the educational system's role in cultural consecration, Bourdieu and Passeron (1990: 37) draw parallels with religion:

> A paradigmatic image of this paradox is seen in the circle of baptism and confirmation: the profession of faith made at the age of reason is supposed to validate retrospectively the undertaking given at the time of baptism, which committed the infant to an education necessary leading up this profession of faith.

Schools, in effect, sanctify the same cultural tradition they transmit. The learning and socialization that begins in the family and that is reinforced in the classroom is important for the development of the habitus. The habitus – the product of "durable training" and the "internalization of the principles of a cultural arbitrary" (Bourdieu and Passeron 1990:

31) – forms the basis for the reception of cultural messages during primary and secondary schooling and, later, academic discourse in the university lecture hall.

Thus, the educational system accomplishes its external function of social reproduction while maintaining an independent relationship to the distribution of economic power and material resources. The dominant cultural arbitrary obfuscates this social function, and allows the educational system to appear to be legitimate and encouraging of social mobility. This is facilitated by the many, subtle links between a student's early experiences in the family and later experiences in the classroom. In short, the educational system accomplishes "dependence through independence." Bourdieu's subsequent studies of French education begin to extend this process of cultural reproduction across generations.

Chronologically, for English-speaking audiences an essay entitled "Cultural Reproduction and Social Reproduction" (original publication, 1971; first English translation, 1973) was the first comprehensive introduction of Bourdieu's theory and perspective on education. With *Reproduction*, this article would serve as the customary citation for prominent early applications of Bourdieu's concepts appearing in American sociology journals.[8] In this way, many sociologists became acquainted with Bourdieu's earlier studies in the reverse order in which they were completed. Inviting further confusion, students' school experiences were only a secondary concern of this article.

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[8] For example, DiMaggio (1982) cites *Reproduction* and "Cultural Reproduction," while De Graaf (1986) also includes reference to *Distinction* (first English translation, 1984). More recently, and despite the availability of English translations of Bourdieu's other studies of French higher education, Kalmijn and Kraaykamp (1996), Roscigno and Ainsworth-Darnell (1999), and Eitle and Eitle (2002) continue this trend and only cite "Cultural Reproduction."

Instead, Bourdieu (1973a) considers trends in intergenerational class mobility with an analysis of cultural lifestyles that would anticipate his later work, notably *Distinction*.

Bourdieu (1973a) presents survey data of French adults that was collected throughout the 1950s and 1960s, and includes preliminary results of a study of students attending the elite, highly selective *grandes écoles*, the top tier the French university system. In comparisons that cover a wide range of cultural activities, from reading habits to musical tastes, Bourdieu (1973a) shows a strong association or "homology" between class background and cultural lifestyles. The dominant classes are more likely to attend the theater, cinema, and the symphony than the middle and working classes (Bourdieu 1973a: 72-78). Even as art museums typically present no financial obstacles to attend, the working classes are considerably less likely to visit museums (Bourideu 1973a: 73, 76; Bourdieu and Darbel 1991 [1969]).

By fulfilling its essential function and valorizing certain styles and behaviors, the educational system can reward a dominant class background. While appearing to reward skill and merit, and not students' class backgrounds or other ascribed characteristics, schools still privilege certain styles and dispositions that bear a strong resemblance to the culture of the dominant class (Bourdieu 1974: 39):

> The culture of the elite is so near to that of the school that children from the [working classes] can only acquire with great effort something which is given to the children of the cultivated classes – style, taste, wit – in short, those attitudes and aptitudes which seem natural in members of the cultivated classes and naturally expected of them precisely because (in an ethnological sense) they are the culture of that class.

Dominant class students have more opportunities to acquire valued forms of cultural capital in the home, during childhood, and through active participation in elite cultural

activities (Bourdieu 1973a: 99). Schools are able to mask this function because the distribution of cultural capital does not correspond perfectly to the distribution of economic capital (Bourdieu 1973a: 86-94).

Further, cultural capital is distributed unevenly across the dominant class, which is marked by competing class "fractions." Professionals, public administrators, and teachers attend the theater and visit art galleries more regularly, and read literary magazines and listen to classical music more frequently than do business managers or executives. Teachers are the least likely to possess a television, demonstrating both an elite cultural asceticism and relative disdain for popular culture as well as lower levels of economic capital (Bourdieu 1973a: 87-88). Accordingly, dominant class fractions differ in their relationship to the educational system and their strategies of social reproduction. Those richest in cultural capital, such as artists and teachers, are more inclined to invest in their children's education and support elite cultural practices. Those richest in economic capital, such as business executives, are more concerned with financial investments, while professionals – notably doctors and lawyers – invest heavily in objective cultural goods and social connections (Bourdieu 1973a: 92-93).

In sum, Bourdieu's early investigations of French universities introduce his model of the educational system with the key functions of cultural and social reproduction. Important concepts are introduced, notably cultural capital and habitus, although much terminology undergoes considerable revision or is excised from subsequent studies. Bourdieu starts with the observations that working class students attend universities at a much lower rate than do middle or upper class students (Bourdieu and Passeron 1979),

and that academic discourse bears a stronger association with the cultural upbringing of the dominant classes (Bourdieu et al. 1994). As a result, Bourdieu criticizes the French educational system – and institutions of higher learning, in particular – for falsely supporting a meritocratic ideology (Bourdieu 1973a; 1974; Bourdieu and Passeron 1990). Due to an imperfect but reliable correspondence between the distribution of cultural capital – in practice, elements of elite status cultures that are associated with competing dominant class fractions – and the distribution of other forms of power, the educational system effectively reproduces the existing social hierarchy.

2.3 Late Bourdieu, Distinction to State Nobility

Bourdieu considers educational institutions to have a central role in the allocation of status and privilege in advanced, highly differentiated societies (Swartz 1997: 189-217; Wacquant 2005). To Bourdieu, schools offer a key institutional setting for the transmission and accumulation of cultural capital, secondary in importance only to the socialization that occurs within the family during childhood and early adolescence. In this way, Bourdieu's subsequent investigations of French education and society build from his earlier studies of higher education to offer a broad theory of symbolic power and social reproduction (Bourdieu 1996: 5):

> Thus the sociology of education is a chapter, and not a minor one at that, in the sociology of knowledge and the sociology of power … [Given that] the structure of social space as observed in advanced societies is the product of two fundamental principles of differentiation – economic capital and cultural capital – the educational institution, which plays a critical role in the reproduction of the distribution of cultural capital and thus in the reproduction of the structure of social space, has become a central stake in the struggle for the monopoly on dominant positions.

Bourdieu's major works from the late-1970s and 1980s clarify and redeploy an impressive array of theoretical concepts to support the critical analysis of social inequality and institutions (e.g. Bourdieu 1984 [1979]; 1988a [1984]; 1990a [1980]; 1996 [1989]; 2001 [1983]). As the popularity of *Reproduction* continues to wane, more studies in American sociology have begun to engage Bourdieu's later works and offer a more complete appreciation of his theoretical project (Sallaz and Zavisca 2007). However, Bourdieu's final major studies of French higher education continue to receive only limited attention in the research literature.

The State Nobility: Elite Schools in the Field of Power, first published in 1989 on the bicentennial of the French Revolution, acts as Bourdieu's personal challenge to the ruling elite and Socialist government during a time of national celebration (Wacquant 2005: 146). Bourdieu (1996 [1989]) presents a rich, critical analysis of the uppermost tiers of the French postsecondary system and its linkages to top corporations and other positions of authority. The events of May 1968 triggered reform and led to greater access to French public universities (the *facultés)*. However, these developments also led to increasing competition for spots at the *grand écoles*, an elite group of highly selective professional schools, roughly equivalent to the most prestigious business, law and graduate schools in the United States (Swartz 1997: 192-197). Entrance to the *grand écoles* typically follows two years of rigorous postsecondary coursework and a grueling series of examinations. The *grand écoles* require a clear demonstration of achievement at admission, and thus "represent the institutional embodiment of the French meritocracy"

(Swartz 1997: 193). Yet, Bourdieu (1996) finds that by the late-1980s the *grand écoles* have even stronger links to dominant class origins than in prior decades.

In an attempt to reconcile opposing structuralist and individualist perspectives, Bourdieu develops a model for social action that is neither fully determined by external factors nor completely autonomous (Bouveresse 1999; Wacquant 2005). Central to this model is the concept of habitus, or the enduring attitudes and unconscious understandings of the social world that are common to a class or group. With habitus – a set of embodied dispositions that is both highly durable and finely attuned to changes in the social landscape – Bourdieu attempts to bridge the gap between structural determinism and individual free will (Bourdieu 1990a: 52-65). On the one hand, habitus acts as a "structuring structure" that guides individuals across institutional settings. Almost instinctively, individuals draw on the collective attitudes and experiences of those of similar social origin in order to organize perceptions and develop strategies for future action. On the other hand, habitus is a "structured structure" that serves to reproduce initial status distinctions and hierarchies (Bourdieu 1984: 170). Given an unequal distribution of resources, an individual's habitus will develop to reflect specific material conditions, and subjective aspirations will come to mirror objective chances and probabilities. Although it is possible for any individual, for example, to adopt the styles and preferences of social elites, in practice the habitus supports a high degree of conformity across social positions (Bourdieu 1990a: 54):

> The most improbable practices are therefore excluded, as unthinkable, by a kind of immediate submission to order that inclines agents to make a virtue of necessity, to refuse what is anyway denied and to will the inevitable.

To Bourdieu (1996: 57), agency is itself socially structured, and the habitus compels individuals to orient action with "the objective structures inherited from history."

As I will discuss in more detail in Chapter 3, the concept of habitus is important to Bourdieu's approach to class analysis. Bourdieu (1985a; 1987) defines classes as positions within social space that are located in terms of the volume and composition of economic and cultural capital. In this way, Bourdieu posits a fundamental relationship between objective material conditions and personal tastes and lifestyles. In *Distinction*, Bourdieu (1984: 260-317) finds that the dominant class habitus implies a "sense of distinction," marked by aesthetic sensibility, while the working class habitus is associated with a "taste for necessity" that favors function over form. Further, within the dominant classes, different fractions express distinction based on the relative composition of economic and cultural capital. For example, business executives and industrialists, whose dominant class position arises primarily from economic resources, express distinction through the purchase of luxury goods. Artists, who possess an abundance of cultural capital but fewer material resources, show distinction by participating in less expensive but intellectually more demanding activities, such as avant-garde theater.

Within the context of education, the habitus is related to the use of language and other "acts of classification" (Bourdieu 1977; 1996). From an analysis of a survey of winners of a national high school academic competition (the *Concours Général*), an analysis of a philosophy instructor's grades and comments to students, and an analysis of obituaries of former university professors, Bourdieu (1996: 9-69) finds that students and

instructors rely on the same implicit categories to describe academic success.[9] Both students and teachers are more likely to attribute success in literature, classical languages, and philosophy to individual talent and innate ability, but attribute success in the sciences to hard work and determination.[10] Further, there is a high level of agreement between the qualities students attribute to themselves and the qualities attributed to them by their examiners. Thus, even before entering the postsecondary system, students have internalized a common "academic taxonomy" and can begin to articulate "an implicit definition of excellence" without any direct explication (Bourdieu 1996: 37).

The educational system not only propagates a system of common academic classifications, but also reinforces social classifications due to a correspondence between the hierarchy of academic disciplines and the unequal distribution of cultural capital (Swartz 1997: 202-204). A characteristic feature of French higher education is that institutions are organized along disciplinary lines, which serves to magnify rivalries between schools and preserve status hierarchies across disciplines (Swartz 1997: 192-197; Waquant 2005). Students from dominant class families are overrepresented among the most prestigious disciplines, such as literature, philosophy, and mathematics

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[9] Bourdieu and colleagues first administered surveys to all *Concours Général* prizewinners in 1966, 1967, and 1968, collecting information about students' social origins, future aspirations, academic interests and preparation, and cultural activities and preferences. An abbreviated version of this survey was administered at varying intervals from 1970 to 1986. Data for the analysis of instructor's grades and comments to students come from 154 individual reports from the mid-1960s at a women's elite preparatory academy (*khâgne*). These individual reports include information about students' grades, secondary schools attended, parents' occupation, and places of residence. Obituaries were taken from the 1962-1965 *Annuaire de l'Association des Élèves de l'École Normale Supérieure,* the alumni association yearbook at ENS, one of the most prestigious of the *grand écoles* (Bourdieu.1996: 30, 42, 54-69).

[10] In making these "acts of classification," students and teachers rely on a series of binary oppositions (brilliant vs. dull, gifted vs. motivated, distinguished vs. vulgar, original versus common, high versus low, refined vs. crude, eloquent vs. awkward, etc.). These dichotomies correspond to two images of academic success: individual talent (especially in literature, language, philosophy, and mathematics) and hard work and determination (in geography and the natural sciences) (Bourdieu 1996: 9-29; Swartz 1997: 202-204).

(Bourdieu 1996; Bourdieu and Passeron 1977; 1990). As students and teachers are inclined to attribute success in these disciplines to individual talent rather than effort, the shared system of academic classifications also expresses "euphemized social-class distinctions" (Swartz 1997: 203).[11] As part of the habitus, students internalize a system of academic classifications that bears a reliable but implicit affinity with the underlying class structure. These classifications valorize a scholastic ethos more common to dominant class households, and this process prompts lower class students to select away from the *grand écoles,* or leave the educational system entirely (cf. Lareau and Weininger 2008; McDonough 1997; Oakes 2005; Reay, David and Ball 2005).[12]

In "The Forms of Capital," originally published in 1983 (first English translation, 1986), Bourdieu clarifies his concept of cultural capital, which he had treated more ambiguously in his earlier studies (e.g., Bourdieu and Passeron 1979). As I will describe in Chapter 4, Bourdieu (2001 [1983]) identifies three fundamental species of capital that share key features and carry significance across many fields or institutional settings: economic, social and cultural capital. Additionally, these forms of capital can exist in different states (Bourdieu 2001; Bourdieu and Wacquant 1992). For example, in the immediate or practical state, social capital exists as the resources available in social

[11] In this way, Bourdieu describes a "classification" function of education that supports its social function of reproduction and internal function of maintaining legitimacy (cf. Bourdieu 1969; Bourdieu and Passeron 1990: 179-186). Educational institutions, "with no explicit instruction and [are] able to function like an immense cognitive machine, operating classifications that, although apparently completely neutral, reproduce existing social classifications" (Bourdieu 1996: 52).

[12] Bourdieu (1996: 39) stresses that students and instructors are unwitting participants in any endorsement of social classifications, and that this process can only operate without broad recognition: "Agents entrusted with acts of classification can fulfill their social function as social classifiers only because it is carried out in the guise of acts of academic classification. They only do well what they have to do (objectively) because they think they are doing something other than what they are doing, because they are doing something other than what they think they are doing, and because they believe in what they think they are doing. *As fools fooled, they are the primary victims of their own action*." (emphasis added).

networks. Social capital can be institutionalized as an official title or prominent surname. Similarly, objectified cultural capital includes books, instruments and art collections, and institutionalized cultural capital includes elite academic credentials. Examples of embodied cultural capital include tastes, aesthetic sensibilities, speaking styles, and manners. While Bourdieu's earlier studies of French education focus primarily on examples of objectified (Bourdieu 1973a) or embodied cultural capital (Bourdieu and Passeron 1990), *State Nobility* and other later projects would investigate a wider variety of capitals across different fields.

In an analysis of the preparatory academies that often lead to enrollment at the *grand écoles*, Bourdieu (1996: 73-127) considers several forms of symbolic capital that are accumulated within elite postsecondary institutions. Due to the competitive admissions process and harrowing academic requirements, students at the preparatory academies constitute a highly selected and homogenous group that shares similar experiences of educational success (Bourdieu 1996: 76-83; Wacquant 2005: 141).[13] While making claim to a meritocratic ideal, the preparatory schools and *grand écoles* confer types of institutionalized cultural and social capital (Bourdieu 1996: 79):

> [When] the process of social rupture and segregation that takes a set of carefully selected chosen people and forms them into a separate group is known and recognized as a legitimate form of election, it gives rise in and

[13] While he gives more attention in this analysis to how educational institutions contribute to social reproduction and the production of a class of modern "nobility," Bourdieu (1996: 91) is also skeptical that the top tiers of French higher education are adequately fulfilling a technical function of training the next generation of leaders, executives and professionals: "Given that this enterprise of hothouse cultivation is carried out on adolescents who have been selected and who have selected themselves according to their attitude toward the school … and who, shut up for three or four years in a protected universe with no material cares, know very little about the world other than what they have learned from books, it is bound to produce forced and somewhat immature minds that, more or less as Satre writes about some of his reading at age 20, *understand everything luminously and yet understand absolutely nothing*" (emphasis added).

> of itself to symbolic capital that increases the degree of restriction and exclusivity of the group so established … Each of the young people brought together becomes rich by proxy in all the current symbolic capital … as well as all the potential symbolic capital (exceptional jobs, famous works, etc.) brought in by each of his classmates as well as the entire society of alumni.

Students at elite schools not only share the embodied cultural capital common to the dominant classes, but also gain institutionalized cultural capital by earning a highly valued academic credential. Such credentials confer a range of positive designations – akin the bestowal of titles of nobility (Bourdieu 1996: 102-123) – and link to the symbolic resources of other classmates and alumni, a form of institutionalized social capital. In short, a prestigious alma mater entitles even the least successful graduate to share in the "exceptional properties accumulated by all of its members, and particularly by the most prestigious among them" (Bourdieu 1996: 114).

Across his later studies, Bourdieu develops his notion of field, or the social and institutional space in which struggles over material and symbolic resources take place (Thompson 2008). Many of Bourdieu's later studies are presented as investigations of specific fields, such as television (Bourdieu 1998a), literature (Bourdieu 1996b), art (Bourdieu 1983), and science (Bourdieu 2004). The concept of field denotes a space of positions, a network of relations, and especially an arena of struggle for conflict over valued forms of capital and symbolic power (Martin 2003; Sallaz and Zavisca 2007: 24). Although a potentially endless number of fields exist in social space, each with its own distribution of particular forms of capital, the "field of power" provides the organizing principle for all other fields. Fields transform in accordance to their own internal logic, but are influenced by their links to other fields and location relative to the field of power

(Bourdieu and Wacquant 1992: 104-105). As a result, all fields are homologous to a degree, a consequence of conflict over forms of economic and cultural capital (Calhoun 1993; cf. DiMaggio and Powell 1983; Fligstein 2001; Powell and DiMaggio 1991).[14]

Together, *Homo Academicus*, published in 1983 (English translation, 1988), and *State Nobility* provide a detailed examination of the field of French higher education. As mentioned above, two major competing principles shape the organization of the field of power and the social hierarchy of highly differentiated societies: the distribution of economic and cultural capital. Dominant class positions are associated with substantial possessions of both economic and cultural capital, although the relative distribution of these two forms of capital divides the dominant class into competing fractions (Bourdieu 1984; 1987). In *Homo Academicus,* Bourdieu (1988a) provides an analysis of university professors' social characteristics and professional activities and shows that the structure of the university field bears a strong correspondence to the organizing principles of the field of power.[15] Bourdieu (1988a: 48) finds reliable associations between the organization of disciplines and the distribution of forms of capital:

> Thus we discover that the university field is organized according to two antagonistic principles of hierarchization: the social hierarchy, corresponding to the capital inherited and the economic and political capital actually held, is in opposition to the specific, properly cultural

[14] Importantly, the many independent subfields that comprise the field of power can overlap and share relative positions of domination and subordination in social space. Thus, successful action in one field often translates to further successes in other domains: "The homology between the specialized fields and the overall social field means that many strategies function as *double play* which … operate in several fields at once" (Bourdieu 1996: 271).

[15] Bourdieu (1988a: 227-242) and his colleagues at EHESS drew on a wide range of sources to collect information of a random sample of 405 tenured professors in the Paris *facultés*, including biographical dictionaries, complementary enquiries, obituary notices, institutional and government records, informants, professional and scientific membership directories, newspaper articles, and direct interviews.

> hierarchy, corresponding to the capital of scientific authority or intellectual renown.

Compared to professors in the natural sciences and social sciences, the professors of law and medicine are more likely to have dominant class origins and to display forms of economic and political power by holding senior administrative positions or living in exclusive neighborhoods. At the other pole, the arts and science faculties are more likely to hold visiting appointments at prestigious institutions, and publish highly cited academic work, both examples of "scientific" cultural capital (Bourdieu 1988a: 40-62).

In *State Nobility,* Bourdieu (1996: 131-229) maps the structure of the uppermost tier of French higher education, the *grand écoles*, and charts its recent transformations. Bourdieu conducts multiple correspondence analyses with data from two waves of a common survey administered to students at 84 institutions (administered from 1965 to 1969 and 1984 to 1985).[16] These brief surveys collect information about students' social origins, academic background, concert and theater attendance, sports participation, reading habits, and political attitudes (Bourdieu 1996: 232-254). Homologous to the space of lifestyles (Bourdieu 1984) and of university faculty (Bourdieu 1988a), the field of the *grand écoles* is organized along two dimensions: the distribution of "inherited" capital, or political-economic power, and the distribution of "academic" or "intellectual" capital (Bourdieu 1996; Wacquant 2005). In the mid-1960s, the cultural fractions of the dominant class are overrepresented in the arts and sciences, while the economic fractions

[16] Correspondence analysis and related techniques were Bourdieu's preferred statistical approach in his later studies, and he argues that they capture his relational understanding of the social world (Lebaron 2009). Corresponence analysis, a generalization of principal component factor analysis, is a descriptive method for exploring relationships among categorical variables, and provides two-dimensional plots of information contained in frequency tables (Greenacre and Blasius 1994; see section 3.4).

of the dominant class are overrepresented at the top business schools. In other words, the habitus leads students to gravitate towards the institutions and disciplines that reward the dispositions they have acquired from the family and early schooling (Bourdieu 1996: 140-141). The link between social origins and the *grand écoles* remains remarkably stable through the mid-1980s, and may even have strengthened at elite business and management schools in recent years (Bourdieu 1996: 145-146, 191-192).

The intersection between habitus and fields has important implications for social change (Bourdieu 1990a: 52-65). In situations where opportunities and constraints match the expectations of the habitus, practices tend to encourage social reproduction.[17] The dominant classes continue to command an effective monopoly over the valued forms of capital, leading to a process of cumulative advantage (McClelland 1990). As fields evolve, the habitus will tend to adapt to meet new conditions, but at varying rates depending on the degree of mismatch. For example, middle class families were quicker than working class families to take advantage of expanding educational opportunities in the 1950s and 1960s (Swartz 1997: 211-214). Additionally, when there is a severe disruption between field and habitus, a "hysteresis" effect can lead to inertia and an inability to adapt to changing conditions (Hardy 2008).[18]

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[17] "Social reality exists, so to speak, twice, in things and in minds, in fields and in habitus, outside and inside of agents. And when habitus encounters a social world of which it is the product, it finds itself 'as a fish in water,' it does not feel the weight of the water and takes the world about itself for granted" (Bourdieu, quoted in Wacquant 1989: 43).

[18] For example, following the student protests of 1968, faculty recruitment practices were altered in order to meet growing demand, and many secondary instructors were recruited as junior lecturers. These changes were most harmful to senior lecturers (a position at the *facultés* below the rank of assistant professor), who saw a once secure path to a tenure-track position disrupted but had developed a durable academic habitus that was poorly equipped for a new academic landscape. In contrast, assistant and full professor's relatively dominant positions facilitated an easy transition and prevented loss of status, but recent graduates

Across recent decades, field transformations and changes to the relative value of economic and cultural capital have led the French social elite to adopt new strategies of reproduction (Bourdieu 1996: 272-281).[19] Bourdieu describes an increase in the relative weight assigned to academic titles and elite credentials, and a proliferation of bureaucratic positions. While these developments represent a challenge to the interests of some dominant class fractions, the overall structure of power is quite resilient and capable of reproducing advantages across generations (Wacquant 2005). For example, the business elite, although less predisposed than the cultural or professional elite for academic success at the *grand écoles*,

> are in a position to transfer a certain amount of cultural capital and also get the most out of the ever more numerous tailor-made educational institutions that guarantee a form of academic recognition to the dispositions they inculcate, dispositions that are relatively unpromising for success in the strictest academic competitions (Bourdieu 1996: 288).

In other words, Bourdieu finds that there has been a decline in "direct reproduction" strategies, or the uninterrupted transfer of wealth and power across generations, and an increase in "school-based reproduction" that is mediated by educational institutions. However, these transformations have served to tighten the grip of the ruling class (Bourdieu 1996). Due to the many homologies across fields, the upper classes command

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and other "newcomers were readiest to understand the new rules of the game to fill a good proportion of the newly created posts of professor" (Bourdieu 1988a: 156).

[19] These strategies, however, are the result of practice, not rational calculation, and are the outcome of the dialectical tensions between social structures (fields) and individual agency (habitus) (Swartz 1997: 57-59). Practice is accomplished without conscious deliberation, and is characteristically fluid and indeterminate: "To speak of strategies of reproduction is not to say that the strategies through which dominants manifest their tendency to maintain the status quo are the result of rational calculation or even strategic intent. It is merely to register that many practices that are phenomenally very different are objectively organized in such a way that they contribute to the reproduction of the capital at hand, without having been explicitly designed and instituted with that end in mind" (Bourdieu 1996: 272).

multiple avenues to future success, and an academic diploma remains "neither a necessary nor a sufficient condition for access to all dominant positions" (Bourdieu 1996: 288). Further, an increase in the number of management schools caters to the economically privileged but academically disinclined segments of the dominant classes (Bourdieu 1996: 320-327). The rise of school-based reproduction has merely diverted direct reproduction strategies, and educational institutions now exert more control over the allocation of status and privilege.

Building upon the earlier theme of "dependence through independence," Bourdieu (1996: 373-389) argues that these two diachronic reproduction strategies and conflicts between dominant class fractions conceal the educational system's role in social reproduction. The educational system exercises "a highly euphemized and sublimated form of power" that appears legitimate and thus avoids public challenges or dissent (Bourdieu 1996: 335). The many subtle but imperfect homologies that extend from the field of power to the *grand écoles*, and from the field of higher education to the embodied classification schemata of the habitus, serve to reproduce and legitimize the dominant status quo. As a response to criticisms and mischaracterizations of *Reproduction* and other early studies – namely, interpretations of a highly structurally deterministic model, and a narrow focus on student participation in high status cultural activities (Bourdieu 1990b; 1991b) – in his later studies Bourdieu elucidates the concepts of habitus and field, and develops a framework to consider potentially endless varieties of capital.

As will be discussed in Chapter 5, Bourdieu's theory of cultural reproduction has inspired a productive research tradition within the sociology of education. However, the

prevailing use of Bourdieu's concepts in the quantitative literature has been too "domesticated" and limited in three main respects. First, following DiMaggio's (1982) pioneering study and the initial burst of attention that followed the first English translation of *Reproduction* and other early studies (e.g., Bourdieu 1973a), most researchers have focused narrowly on the academic effects of "highbrow" activities. Second, most studies have examined the effects of cultural capital on high school student achievement, and there has been little attention to higher education. Third, quantitative applications of Bourdieu's concepts have underappreciated the role of class background, in contrast to recent qualitative applications (e.g., Lareau 2000; Lareau and Weininger 2008; McDonough 1997). A goal of this dissertation is to address these limitations in the secondary literature, and to provide a Bourdieusian analysis of student achievement at elite, private universities that can guide future research of education in the United States.

2.4 Study Design

Mindful of important differences with the French case, I consider which aspects of Bourdieu's theory and concepts can be incorporated into a critical analysis of social class at elite universities in the United States. After describing key differences in the organization of the French and US educational systems, I introduce my study design. I use two sources of existing survey data of recent university students: a highly detailed panel dataset of students attending a single elite university that includes four survey waves across the college years, and a national sample of students attending highly selective, private universities who were surveyed in their first and fourth college years.

The chapter concludes with a presentation of my analytic strategy and an outline of my primary research questions.

2.5 Social Class and Postsecondary Education

Bourdieu approaches the French educational system as a hierarchically structured field of institutions that serve to allocate talent as well as power, and legitimize certain types of knowledge and authority (e.g., Kamens 1974; Meyer 1977). The global spread of mass education throughout much of the twentieth-century, including the more recent higher education boom, has been associated with the diffusion of a particular, dominant Western ideology and organizing framework (Frank and Gabler 2006; Meyer, Ramirez and Soysal 1992; Schofer and Meyer 2005). Increasingly, the leading global universities compete within the same institutional field and engage in scientific collaborations that span national boundaries (De Wit 2002; Jones, Wuchty and Uzzi 2008). However, caution is appropriate when applying a model developed within a particular national context to postsecondary education in the United States (Bourdieu 1991b).

Advanced capitalist countries differ in the nature of academic credentials, the degree to which they track students into specialized programs, and the extent of centralized control (Kerckhoff 1995; Shavit, Arum and Gamoran 2007). Institutional configurations have important consequences for social mobility and the reproduction of inequality (Buchmann and Dalton 2002; Ganzeboom, Treiman and Ultee 1991; Paterson and Iannelli 2007; Shavit and Mueller 1998). National context has a large, enduring effect on educational outcomes and institutional strategies (Kraatz and Zajac 1996). Despite the increasing "internationalization" of higher education across recent decades,

the relationship between social origins and educational attainment has been stable within most industrialized nations (Shavit et al. 2007; Shavit and Blossfeld 1993).

Across broad measures of school enrollment and public spending on education, the French and US systems are fairly similar (Table 2.1). In both countries, there is near universal school enrollment at the primary level, which begins at six years of age. Secondary school attendance is higher in France, while the US has somewhat greater postsecondary enrollment.[20] The gender gap in college attendance and completion has reversed by recent decades in both countries, although female students remain underrepresented in some fields and disciplines (Buchmann and DiPrete 2006; Buchmann, DiPrete and McDaniel 2008; Deer 2002; Jacobs 1996). Both countries score below the international mean for secondary school graduates on tests of mathematics and science literacy (Mullis et al. 1998). In 1995, France ranked 23rd out of 28 other advanced capitalist democracies in science achievement, while the US ranked 24th (Harmon et al. 1997).

The French educational system is distinctive in several regards (Bourdieu 1996: 393; Deer 2002; Givord and Goux 2007; Stevens, Armstrong and Arum 2008: 140; Wacquant 1996). In comparison to the US, the French system is less reliant on private sources of funding and entails more formal tracking (Shavit et al. 2007). After five years of compulsory primary school and four years of secondary school (*collége)*, students

[20] The UNESCO International Standard Classification of Education changed in 1997. Before this change, information was collected periodically on gross school enrollment by level of education, or the ratio of total enrollment to the corresponding population age group. In 1971, the US had a gross primary enrollment of 87 percent, and a gross secondary enrollment of 84 percent. By 1990, these figures had risen to 104 percent and 92 percent, respectively. Corresponding figures for France are 97 percent gross primary enrollment and 73 percent gross secondary enrollment in the early-1970s, increasing to 109 percent and 95 percent by 1990.

continue along one of three tracks: *lycée général*, a college-preparatory curriculum, or *lycée technologique* and *professionnel*, which lead to vocational diplomas or direct employment. In the last month of secondary school, nearly all students sit for the *baccalauréat*, an exam that largely consists of essay questions related to specific curricula and fields of study.

Table 2.1: School enrollment and public spending on education, 1999-2000

	France	United States
Total enrollment:		
Primary education (% of age group)	99.1	94.5
Secondary education (% of age group)	93.5	86.7
Postsecondary education (% gross)	52.9	69.0
Ratio of female to male enrollment (females per 100 males):		
Primary/secondary education	99.8	99.5
Postsecondary education	123.5	131.9
Percent of labor force with (% of total):		
Primary education	28.6	13.7
Secondary education	46.0	51.5
Postsecondary education	25.4	34.8
School duration (years):		
Primary education	5	6
Secondary education	7	6
School starting age (years):		
Primary education	6	6
Secondary education	11	12
Public spending per postsecondary student (% of GDP per capita)	29.7	27.0
Public spending on education (% of GDP)	5.8	5.1
Public spending on education (% of government expenditures)	11.4	17.2

Source: UNESCO (2009)

French higher education has a strong binary structure, with an elite tier of smaller, highly selective institutions that sit outside of the public university system (Sowerwine 2009). As a political concession after the events of May 1968, attendance at local public universities (the *facultés*) is guaranteed for all students who pass the *baccalauréat*. Admission to the *grandes écoles* follows a set of competitive oral and written entrance

examinations and, for most students, two additional years of rigorous postsecondary coursework. The *grandes écoles* have traditionally produced a steady stream of high-ranking officials, civil servants, political leaders, and business executives (Bourdieu 1996). Fewer than five thousand students graduate from the *grandes écoles* each year, accounting for less than one percent of all French postsecondary students. As an example, the École Normale Supérieure – which is among the most prestigious French postsecondary institutions and counts as alumni Emile Durkheim (class of 1879) and Pierre Bourdieu (class of 1951) – has a student body of less than one thousand students (International Association of Universities 2007). Due in large part to the rigid, hierarchical character of the French university system, class inequalities in postsecondary education have strongly persisted throughout the period of expansion and may have increased slightly in recent decades. For example, the odds of attending a *grande école* for students of working class origins relative to the children of professionals and business executives were roughly the same in the early-1990s as they were in at midcentury (Givord and Goux 2007: 236-237).

Like France and other highly developed countries, the United States experienced a tremendous expansion of higher education in the years following the Second World War. By the early-1990s, about two-thirds of high school graduates would enroll in some form of postsecondary education soon after completing secondary school (Trow 1992: 593). More than three-quarters of adolescents, across all racial ethnic groups, now report aspirations to attend college soon after high school graduation (Kao and Thompson 2003). Total enrollment at degree granting institutions more than doubled from 1960 to

1970, and while the pace of growth has slowed in subsequent decades, enrollment has nearly doubled over the past twenty-five years (NCES 2008b). However, much of this expansion has occurred at the lower tiers of the postsecondary system (Cohen and Brawer 2005; Roska et al. 2007). The number of community colleges has increased by nearly 50 percent in the past thirty years, while the number of four-year institutions has increased by about 38 percent (NCES 2008c). During this same period, entrance to elite colleges and universities has become more competitive (Alon 2009; Soares 2007).

Despite great promise for social mobility and opportunity, the postwar expansion of higher education in the United States has done little to diminish class inequalities in higher education, and has had uneven consequences for social inequality and the mobility of disadvantaged groups (Trow 1992). Across the last several decades, studies have consistently shown that socioeconomic background and other ascribed characteristics predict college entrance and completion (e.g., Apple 1982; Boudon 1974; Featherman and Hauser 1978; Jencks 1972; Karen 2002; Lareau and Weininger 2008; Sewell and Shah 1968; Thomas, Alexander and Eckland 1979). Students from working class households have increased their representation at selective private colleges and universities, but persistent gaps remain and poor families experience far more limited postsecondary opportunities (Bowen, Kurzweil and Tobin 2005: 85-87; McPherson and Schapiro 1991; Roska et al. 2007). For all the successes of the academic revolution, Jencks and Reisman (2002) are skeptical that a bachelor's degree can serve as a ticket to middle-class prosperity for students of underprivileged backgrounds. From 1945 to 1962, Jencks and Reisman (2002: 71, 84-5) find no significant change in the national

income distribution or evidence of substantial social mobility. Higher education has acted less as a "ladder" for social mobility and more as a "sieve," regulating access to positions of privilege and authority (Stevens et al. 2008: 129-131).

Social class position and access to financial resources influence college choice and persistence (Paulsen and St. John 2002; Steelman and Powell 1989; Turley 2009). Socioeconomic background is strongly associated with attending elite colleges and universities in particular (Hearn 1984; 1990). The cost of undergraduate tuition and other fees has increased noticeably in recent decades. Since the mid-1970s, the average cost of attendance has increased by about 112 percent at private four-year colleges and universities, by 92 percent at public four-year institutions, and by 33 percent at two-year colleges, controlling for inflation (NCES 2008c). Additionally, higher education contributes to a widening of the class divide by facilitating educational homogamy among prospective marital partners and encouraging delays in childbirth (Buchmann and DiPrete 2006; DiPrete and Buchmann 2006; Mare 1991).

During this period of expansion, female and black students have substantially increased their representation at elite colleges and universities. Although working class students have experienced increases in postsecondary attendance rates, they have been less successful in gaining admission to the most selective institutions. Karen (1991b) argues that socioeconomic disparities in higher education are more intractable than gender or racial ethnic inequalities, a consequence of low levels of class-based political mobilization and the pervasiveness of an ideology of radical individualism (e.g., Trow 1992). Gamoran (2001) forecasts that educational inequalities based on socioeconomic

background will persist well into this century, due to further credentialing and processes of maximally maintained inequality (e.g., Raftery and Hout 1993). While no one group has come to monopolize the US educational system, credentials have essentially served particular advantaged groups (Collins 1979). As cultural constructs, academic credentials can serve as exclusionary tools and not simply symbols of technical mastery (Brown 2001). Even at near universally achieved levels of education, privileged groups work to protect their advantage across generations (Lucas 2001).

Elite colleges and universities have a disproportionate influence on the field of higher education, despite comparatively small enrollments (Kingston and Lewis 1990). These prestigious and highly selective institutions foster cohesion among high status groups, have strong connections with the top echelons of the occupational structure, and channel students into lucrative careers (Astin 1993; Cookson and Persell 1985b; DiMaggio and Useem 1982; Douthat 2005; Katchadourian and Boli 1994; Nathan 2005; Stevens 2007; Useem and Karabel 1990; Zweigenhaft 1993).[21] Net of individual student characteristics and other institutional characteristics, attending a selective college or university is positively associated with future earnings (Bowen and Bok 1998; Kingston and Smart 1990), and has a moderate positive association with occupational status

[21] Many scholars have emphasized the importance of social networking and other non-academic activities to college life, but it is debatable that "highbrow" cultural aesthetics and participation has a salient role on American college campuses. Hogan (1982) argues that schooling in the United States acts as a site of conflict between bourgeois aesthetics and working class sensibilities (e.g., Willis 1977), and has played an important role in class formation and politics. Similarly, DiMaggio and Useem (1982: 187) note that community colleges and other public institutions, especially those with large nonresidential, working class student populations, "cannot be expected to inculcate high cultural involvement to anywhere near the extent as have traditional liberal-arts institutions." While DiMaggio and Useem (1978a; b) argue that the consumption of highbrow art is an important form of cultural capital in the US that fosters class cohesion, more recent studies find a weaker link between class and traditional, "highbrow" markers of cultural capital (e.g., Bryson 1996; Halle1994; Peterson and Kern 1996; Peterson and Simkus 1992).

(Pascarella and Terenzini 2005: 467-476). Gerber and Cheung (2008) observe that the relationship between college quality and future earnings is strongly associated with a range of student background characteristics, and are skeptical that recent studies provide evidence for a direct, causal linkage (e.g., Behrman, Rosenzweig and Taubman 1996; Brewer and Ehrenberg 1996; Brewer, Eide and Ehrenberg 1999). Graduation from elite colleges and universities facilitates upward mobility for non-white students (Alon and Tienda 2007; Bowen and Bok 1998; Hout 1988), but there is less evidence that the expansion of higher education has substantially altered class-based inequalities.

Many of Bourdieu's criticisms of the French university system are germane to a critical assessment of higher education in the United States. Recently, Bok (2006) notes that recent college graduates report high levels of satisfaction with their undergraduate institution, but many show striking ability deficiencies, notably in written expression and critical thinking (cf. Bourdieu et al. 1996). Historically, elite colleges and universities played an important role in elite class formation and reproducing privileged status (Farnum 1990; Karabel 2005; Useem and Karabel 1986; cf. Bourdieu 1996). Exceptional qualitative studies have shown that the informal cultural knowledge common to middle class households plays an important role in facilitating success during the college application process (e.g., Lareau and Weininger 2008; McDonough 1997; Stevens 2007). The traditional objectives of providing the best possible education to students and maintaining an active community of scholars often appear to be secondary to more immediate concerns, such as attracting large numbers of applicants and maintaining financial sustainability (Bok 2006; Bowen et al. 2005; Hersh and Merrow 2005; Kirp

2003). Financial objectives have acquired greater prominence in recent years, as instruction and research costs have escalated steadily while government support has declined (Slaughter and Leslie 1997; Stevens et al. 2008: 138; Washburn 2005).

Figure 2.1 reproduces a set of comparisons that appear regularly in Bourdieu's investigations of French higher education (e.g., Bourdieu 1973: 102; Bourdieu 1996: 196; Bourdieu and Passeron 1979: 10-11). At the heart of Bourdieu's critical analysis is the observation that working class students are severely underrepresented at the most prestigious disciplines and educational institutions. This figure, using data from the mid-1960s, shows a strong association between the hierarchy of educational establishments and students' social origins, defined in terms of father's occupation. At the secondary level, working class students comprise nearly 70 percent of students enrolled in a general curriculum that typically precedes vocational training (*4e pratique*), but less than 30 percent of students enrolled in the advanced college preparatory track (*4e classique*). The few working class students that continue to the postsecondary level are largely relegated to the *facultés,* the system of public universities. Within this tier, working class students comprise about one quarter of students in the arts and science disciplines (*facultés des lettres* and *sciences*), one sixth of students in law (*facultés de droit*), and one twelfth of students in medicine (*facultés de médecine*). At the other end of the spectrum, upper class students account for the majority of students at elite preparatory schools (Taupe and Cagne) and the *grandes écoles*. Upper class students account for about two-thirds of students at the highly selective arts, sciences and engineering institutions (École Normale Supérieure d'Ulm and Polytechnique), and more than three-quarters of students at École

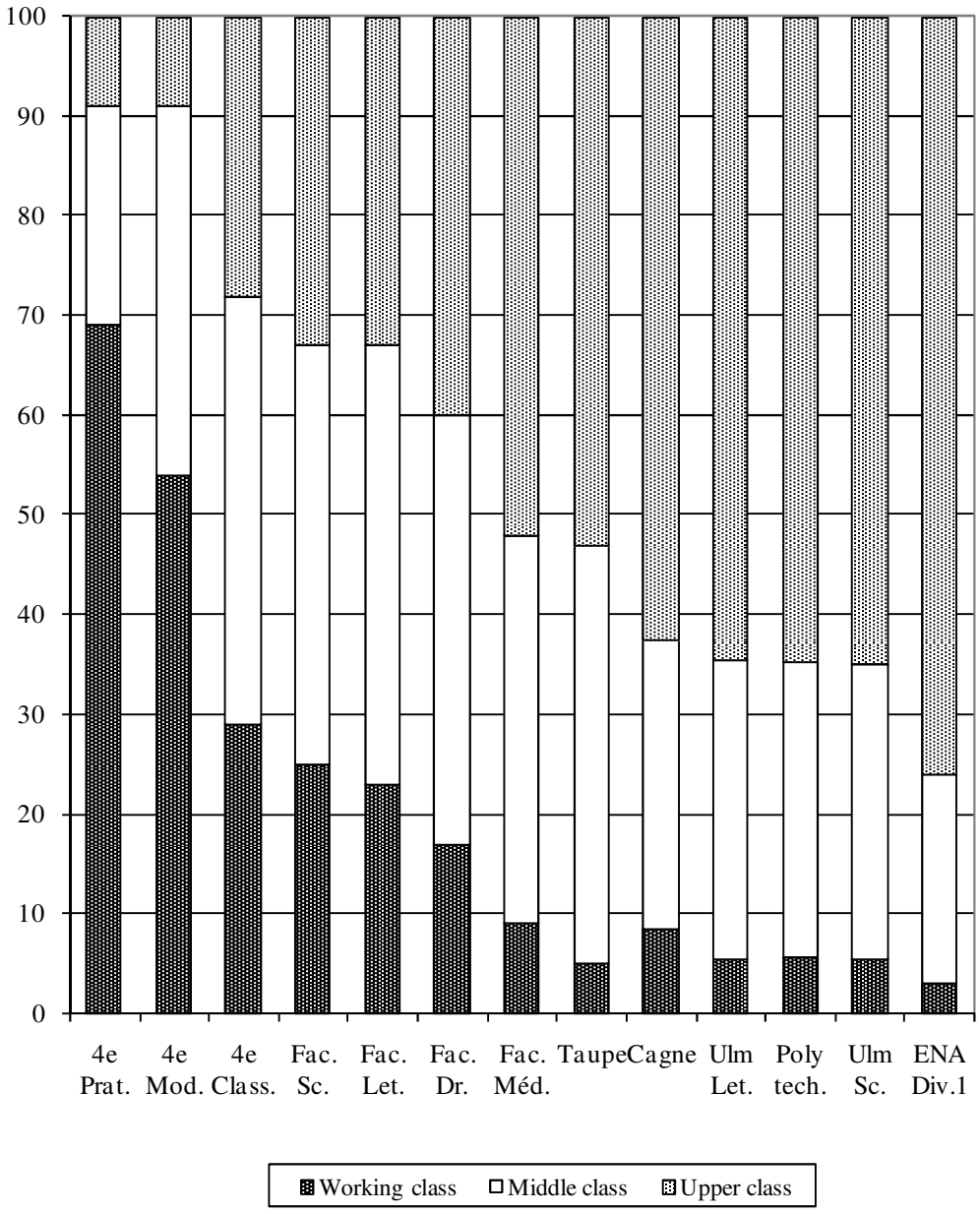

Figure 2.1: Social structure of different publics in the French academic world

Nationale d'Administration, the training ground for high-ranking government officials. In sum, Bourdieu finds a strong, inverse relationship between institutional prestige and the proportion of students from working class origins.

The structure of US higher education reveals a similar but weaker association between family origins and institutional selectivity and control (Figure 2.2).[22] Across all institutional types, the proportion of working class students declines with level of selectivity, defined in terms of average SAT scores of entering first year students, while the proportion of upper class students – and especially students from professional households – is greatest at the most selective colleges and universities. Across all levels of selectivity, working class students are more likely to attend public versus private colleges and universities, while upper class students are relatively less likely to attend public institutions. Working class students account for nearly one third of students at the least selective public universities. At the most selective private universities, about 7 percent of students have a father with a working class occupation, while 44 percent of students have a father with a professional occupation and 40 percent of fathers are business owners, managers or executives.

To date, American sociology has overlooked many important aspects of higher education, even as colleges and universities serve as important hubs connecting social domains and stratifying processes. This relative neglect is surprising considering that higher education touches upon many disciplinary subfields and popular areas of inquiry. This dissertation complements current studies of selective college and university students

[22] Data for this figure are from the Cooperative Institutional Research Program's survey of incoming freshmen at national four-year colleges and universities (Sax et al. 2001). Percentages are calculated after excluding missing responses (28 percent of students). To facilitate comparisons with Bourdieu's examples and Figure 2.1, class background is defined in terms of father's occupation, grouping 23 original occupational categories. "Business" occupations include accountants, business owners and executives. "Professionals" include clergy, college teachers, medical doctors, engineers, medical professionals, lawyers, and research scientists. The "middle class" includes artists, clerical workers, primary and secondary teachers, nurses, military, and social/welfare/recreational workers. "Working class" occupations include farmers, and skilled, semi-skilled and unskilled workers.

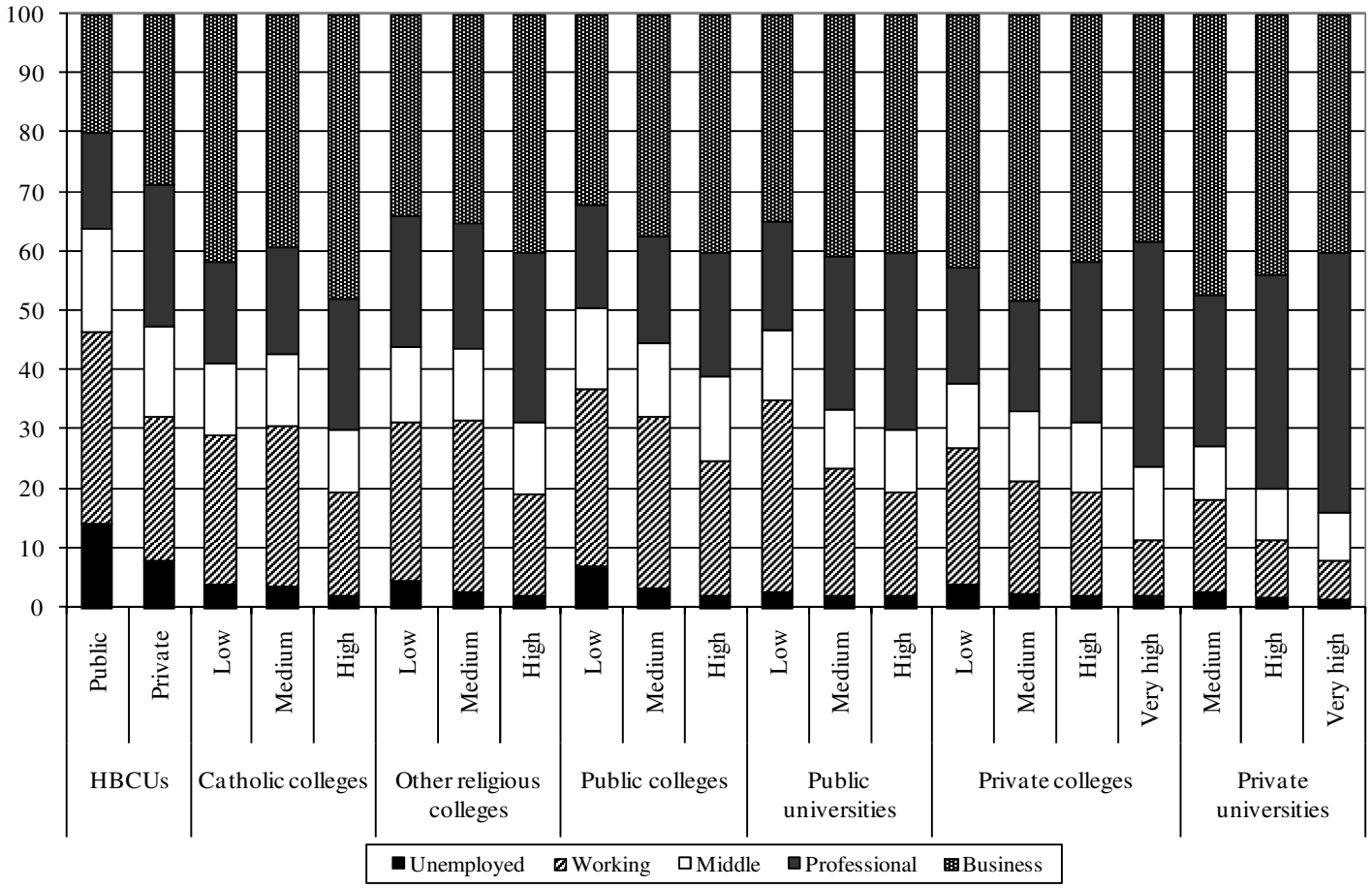

Figure 2.2: The social structure of US postsecondary institutions, by type, selectivity and control

that have investigated the experiences and achievement of different racial ethnic groups (e.g., Charles et al. 2009; Espenshade and Radford 2009; Fischer and Massey 2006; Massey et al. 2003; Spenner, Buchmann and Landerman 2005). In their review of recent developments in the sociology of higher education, Stevens, Armstrong and Arum (2008: 141) conclude that further research is needed into the accumulation and conversion of forms of cultural and social capital across at the postsecondary level. Additionally, relatively few studies have examined the conditional effects of college experiences on achievement and other postsecondary outcomes across socioeconomic backgrounds (Pascarella and Terenzini 2005: 619-625). By using detailed panel data of elite university students, this dissertation provides an opportunity to address a gap in the research literature with an underexplored theoretical approach.

2.6 Data Sources

This project uses recent survey data of students attending private, highly selective universities. While each data source has its relative strengths and weaknesses, together they provide an in-depth examination of an elite institutional field and support the study of social class at US postsecondary institutions. The primary data source is taken from the *Campus Life & Learning* project, a detailed panel study of students attending a single, private university (Principal Investigators: A.Y. Bryant, Claudia Buchmann, and Kenneth I. Spenner). When possible, I supplement this analysis with a national sample of students at selective, private colleges and universities.

The *Campus Life & Learning* project (CLL) is a multiyear prospective panel study of students who accepted admission to Duke University as part of the incoming

classes of 2001 and 2002 (Bryant, Spenner and Martin 2006; 2007; Spenner et al. 2005). Duke is a private research university located in Durham, North Carolina, with a total undergraduate enrollment of more than 6,000 students. It is important to note that the CLL was not designed to be representative of all postsecondary institutions, but Duke is similar to other selective colleges and universities. Comparisons with a sample of selective colleges and universities suggest that Duke is quite similar to other elite schools.[23] For example, the student-to-faculty ratio at Duke is 9.0:1, compared to 8.2:1 for Ivy League institutions and 10.7: 1 for other top-ranked universities. Duke was included as one of the most selective institutions in the College and Beyond 1989 entering cohort. Bowen and Bok (1998: 337) define this top tier of postsecondary institutions – a group that also includes Bryn Mawr, Swarthmore, and Williams colleges and Princeton, Rice, Stanford, and Yale universities – as having a combined (mathematics and verbal) mean SAT score of 1300 or above. The average SAT scores of Duke's incoming classes of 2001 and 2002 were 1392 and 1405, respectively.

Table 2.2 provides additional comparisons between Duke and three prominent elite universities. Compared to Harvard, Princeton and Yale – arguably the most prestigious US postsecondary institutions – Duke is somewhat less selective, as indicated by higher acceptance rates and the distribution of test scores, but similar in most aspects of undergraduate enrollment. The cost of attendance (tuition plus room and board) at Duke is slightly greater than at Harvard or Yale, but less than at Princeton. Among the

[23] These comparisons, reported in Bryant et al. (2007: 92-95), include information on Harvard, Princeton, Yale, Dartmouth, Brown, Stanford and Columbia Universities, and the University of Pennsylvania, and a group of "Top 50" universities, as determined by average SAT scores. At Duke, the 25th and 75th percentiles of SAT scores are about 1300 and 1500; for other "elite" universities, comparable figures are 1334 and 1522; and, for the broader sample of selective institutions, 1234 and 1424.

Table 2.2: Undergraduate enrollment and admission statistics, 2008-2009

	Duke	Harvard	Princeton	Yale
Undergraduate enrollment	6,394	6,678	4,845	5,247
Tuition/room and board	$47,534	$47,215	$49,190	$46,000
Students with scholarships/grants (%)	43	67	54	42
Racial/ethnic composition (%):				
Black	10.1	8.8	7.6	8.0
Hispanic/Latino	6.9	7.7	7.6	7.0
Asian	26.9	18.7	16.7	14.0
Native American/other	0.6	15.4	6.4	1.0
White (non-Hispanic)	55.5	49.4	61.7	--
White/other	--	--	--	70.0
International students (%)	10.0	10.0	11.3	12.0
Incoming class of 2008-2009:				
Applicants	20,400	27,462	21,370	22,817
Accepted (%)	20.6	7.9	9.9	9.0
Matriculants (%)	8.4	6.0	5.8	5.8
Yield (%)	41.0	76.0	58.6	69.0
Test scores – 25th to 75th percentiles				
SAT (max. 800)				
Mathematics	690-780	690-790	700-790	700-780
Verbal	680-770	700-790	690-790	700-800
Writing	660-760	--	690-780	700-790
ACT (max. 36)	29-33	--	--	30-34
Legacies (share of incoming class)	20-21	13	13-14	13
Legacy acceptance rate (%)	37	40	40	--
Current market value of endowment (US$ billions)	$6.1	$34.6	$15.8	$22.5
Early admissions programs:				
Applicants	1,067	4,008	2,286	5,556
Accepted (%)	38.3	21.8	26.1	13.4

Sources: With few exceptions, information is collected from institutional reports and publications for the 2008-2009 academic year (Duke University 2008a; 2008b; Harvard University 2008a; 2008b; 2008c; Princeton University 2008a; 2008b; Yale University 2008); endowment information is from the *2007 NACUBO Endowment Study* ; Duke legacy share of the incoming class is collected for the 2000-2001 and 2001-2002 incoming classes (CLL; see Chapter 4), and acceptance rate for the 2008-2009 incoming class, as reported in Wei (2009); estimates for Harvard legacies are reported in Golden (2006) and Karen (1991); early-admissions data for Harvard and Princeton is from the incoming class of 2007-2008, the last year of the programs at these institutions.

entering class of 2008-2009, about 45 percent of entering Duke students are racial ethnic minorities, compared to 51 percent of Harvard students, 38 percent of Princeton students,

and 30 percent of Yale students.[24] Similar to other elite, private universities, 10 percent of Duke undergraduates are international students or non-US citizens. Duke has a higher admission rate than does Harvard, Princeton, or Yale, a natural consequence of a lower yield rate. Less than 21 percent of applicants to Duke are accepted, and 41 percent of these students matriculate in the next fall. In contrast, Harvard rejected over 25,000 applications in 2008 and offered admission to less than 8 percent of applicants, while about three quarters of accepted students subsequently matriculated.

Given the low acceptance rates and highly competitive process, admissions procedures at selective colleges and universities appear prominently in debates regarding equity in higher education. In particular, special consideration for legacies, or students who have parents or relatives who graduated from the college or university, has been the subject of much recent public and policy discourse (Bowen et al. 2005). Admissions committees at selective colleges and universities regularly consider legacy status, along with a host of other factors. At Duke, all legacies' applications are subject to an additional round of review; in recent years, legacies have been accepted at nearly twice the rate of non-legacy applicants. Like Harvard, Duke does not release official legacy admission statistics. As will be shown in Chapter 4, legacies comprise about one-fifth of Duke students in the CLL. Alumni publications show that 37 percent of legacy applicants in the incoming class of 2008-2009 were accepted to Duke, a figure in line with recent years (Dagger 2006; Mao 2009). At Princeton and Yale, legacies comprise

[24] Figures for Harvard exclude international students. All four elite universities contain more racial ethnic diversity than is typical in the population of postsecondary institutions. At all US public and private four-year colleges and universities, about 75 percent of students are white, 11 percent are black, 7 percent are Hispanic and Asian, and about 1 percent are another race or race is unknown (Snyder 2002).

about 13 percent of students, and Princeton legacies have a nearly four times greater acceptance rate than do other applicants, according to Admissions Office bulletins.

As with legacy preferences, critics of early admissions policies argue that these programs disproportionately benefit students from wealthy, highly educated households. Under early admission, students apply and receive a decision earlier in the application season. In 2006, Harvard dropped its early decisions program, arguing that it put low-income and minority students at a disadvantage (Finder 2006; Finder and Arenson 2006). Other selective universities, including Princeton, the University of Virginia, and the University of North Carolina at Chapel Hill, soon followed Harvard's example and dropped early decisions programs (Liptak 2008). To date, Duke and Yale continue to offer an early admission option to applicants. The early decision program accounted for about five percent of all 2008-2009 applications to Duke, compared to 24 percent of all applications to Yale. At Duke, early decision acceptance rates were about 1.9 times greater than for applications submitted at the regular deadline. At Yale, early decision applicants were about 1.5 times more likely to receive notice of acceptance. In the last year of the program at Harvard and Princeton, early decision applicants were admitted at 2.5 and 2.7 times greater rates than regular applicants, respectively.

While now consistently ranked among the nation's top undergraduate institutions, Duke has a brief history as an elite university relative to the Ivy League universities. Duke traces its origins to 1838, although the Duke Endowment first established a university built around Trinity College, a small, local institution, in 1924 (King 2007). The School of Religion was first established in 1926, and was soon followed by the

Schools of Medicine and Law (established 1930), and Engineering (1939), and later the School of Business Administration (1969). Harvard, founded as an institution of higher learning in 1636, is the nation's oldest college or university, as well as the oldest corporation still in existence (Harvard University 2008d; Kaufman 2008: 406). The School of Medicine was established in 1782, and was followed by the foundation of other graduate and professional schools, including the Schools of Divinity (established 1816), Law (1817), and Business (1908). Yale was first chartered in 1701, and the School of Medicine was established in 1810, followed by the School of Divinity in 1822, and Law in 1824 (Pierson 1983). Princeton, initially chartered in 1746, reached university status with the establishment of the Graduate School in 1900 (Princeton University 2009).

In June 2007, Duke's endowment was valued at $6.1 billion, less than one-fifth the market value of Harvard's ($34.6 billion), about one-quarter the value of Yale's ($22.5 billion), and less than two-fifths of Princeton's ($15.8 billion), but over twelve times greater than the national average for postsecondary institutions (NACUBO 2007). As a result of the 2008 financial crisis, Duke's endowment contracted by over 20 percent by the end of 2008 (Duke University 2008a). From June 30 to October 31, 2008, Harvard's endowment lost over 22 percent of its market value (Marks and Wu 2008), and Princeton's endowment contracted by at least 11 percent (Marks 2009). Yale's president recently announced that the endowment fell by 25 percent by the end of December (Needham 2009). In sum, Duke is similar to other highly selective colleges and universities across many dimensions. Although, in comparison to Harvard, Princeton or

Yale, Duke has only recently entered the top ranks of elite postsecondary institutions, and has somewhat less competitive admissions programs.

By following a representative sample of Duke undergraduates across the college years, the CLL captures the rich details of students' experiences at a single elite university. Four survey waves examine many aspects of college life, including classroom experiences, university climate, campus diversity and discrimination, residential life, extracurricular activities, and academic and personal development. Additionally, nearly all respondents provided signed release to official records and institutional data that are often unavailable in studies of postsecondary students, including admissions files and grade transcripts.

A key focus of the CLL is to explain the black-white achievement gap at selective colleges and universities. The design randomly selected about one-third of white students, two-thirds of Asian students, all black and Latino students, and one-third of bi- and multi-racial students, based upon self-reported racial ethnic status as entered on the admission application form. The final sample for both cohorts included 1532 students. About 77 percent of sample members (n = 1181) completed the pre-college survey, and nearly all of these respondents provided signed release to their institutional records. Refusals were low at 1.8 percent of sample members. Of those that completed the pre-college survey, 77 percent also responded to the first year survey, 75 percent to the second year survey, and 67 percent to the fourth year survey. Overall response rates to the in-college waves were 71 percent for the first year, 65 percent for the second year, and 59 percent for the fourth year. Detailed comparisons of possible non-response and

dropout bias suggest that the effects are quite small (see Appendix A). By the end of the first year, fewer than one percent (n = 12) of students in the CLL were not enrolled, and only five percent (n = 81) of students were not enrolled at the end of the fourth year.[25]

The CLL study design follows a representative sample of Duke students from the summer before arriving on campus, across the college years, and into immediate post-graduation plans (see Table 2.3). Surveys were administered by mail in the summer preceding matriculation, and again during the spring semesters of their first, second and fourth college years.[26] The pre-college survey captures basic sociodemographic characteristics and information regarding students' family background, primary and secondary school background, social networks, attitudes, and college expectations. Additionally, the pre-college survey asks students about a wide range of high school experiences that are predicted to affect academic achievement by the status-attainment, human capital, and cultural capital research traditions (Spenner et al. 2005). Supporting the use of a Bourdieusian capital framework, the first survey wave collects information about a range of cultural activities and educational resources, from attending art museums or the opera to having a private tutor or using an education consultant to prepare for university admission. The college waves focus on academic development and campus experiences, including residential life, social life, major and career plans, and extracurricular activities. The fourth year survey also asks students to reflect on the

[25] Registrar's Office data provide enrollment information for students in the spring semester of each survey year. Non-enrollment might occur for multiple reasons, including academic or disciplinary probation, medical or personal leave of absence, dismissal, transfer, or involuntary withdrawal.

[26] Many Duke students participate in junior year study abroad programs, making a survey wave in third college year infeasible. The fourth wave included the option to complete either a written or online questionnaire. About 24 percent of first cohort respondents (n = 112) and 42 percent of second cohort respondents (n = 186) completed the online version of the fourth year survey.

Table 2.3: Summary of major design components, *Campus Life & Learning* project

Pre-college survey (W1)	*College surveys (W2-W4)*	*Senior year survey (W4)*
Sociodemographic characteristics:	Academic progress:	Satisfaction with the college
Racial ethnic identity	Human capital	Post-graduation plans:
Citizenship	Major field area	Graduate school
Religious affiliation	Major changes	Work full-time
Parents' education	Career plan changes	Expected income
Parents' occupation	Extracurricular memberships:	Other plans
Family income/wealth	Fraternity/sorority	
Family structure	Student government	
Family background:	Service and volunteering	
Cultural activities	Cultural or ethnic club	*Institutional records (SISS)*
High school type	College activities:	High school class rank
Educational resources	Coursework/studying	Test scores (SAT, ACT)
Social networks	Social life	Admission committee ratings
Admissions resources	Leisure/work activities	Financial aid
High school background:	Social capital:	Official grade transcripts
Human capital	Campus networks	
College expectations	Friendship networks	
Extracurricular activities	Family contacts	

Data collection timeline:	Summer 2001	Spring 2002	Summer 2002	Spring 2003	Spring 2004	Spring 2005	Spring 2006
Cohort 1 (Class of 2005)	W1	W2		W3		W4	
Cohort 2 (Class of 2006)			W1	W2	W3		W4

Note: Adapted from Bryant et al (2006: 10) and Bryant et al. (2007: 6)

college experience and to consider post-graduation plans. Appendix B provides descriptive statistics and measurement notes for all CLL variables used in this dissertation, by racial ethnic group.[27] All analysis with the CLL data uses probability weights to reflect the sampling of racial ethnic groups.

Overall, Duke students come from relatively privileged family backgrounds, across all racial ethnic groups. About 95 percent of white students and more than 75

[27] For the placement of respondents in racial ethnic categories, Census-type questions were used that first ask if the respondent is Hispanic and then elicit a racial category, including bi- and multiracial options. Virtually all "Hispanic" respondents also reported their race as white; this group was classified as Latino. If data were missing on these questions, information from the admission form was used when possible.

percent of black students have at least one parent with a college degree. The average pre-college annual household incomes for white students ($229,600) and for black students ($118,700) fall beyond the 95th and 90th percentiles, respectively, of the US household income distribution (DeNavas-Walt and Cleveland 2002).[28] The average socioeconomic status score for mothers and fathers in the CLL is more than one standard deviation above the national mean (Hauser and Warren 1997).

When possible, I conduct parallel analysis using a national sample of students attending private, selective colleges and universities. The *Cooperative Institutional Research Program* (CIRP), now managed by the Higher Education Research Institute at the University of California, Los Angeles, has collected extensive data of US higher education since 1966 (Astin et al. 1997). The annual Freshman Survey is administered during the first few weeks of classes to students at over 650 institutions of higher education, including community colleges and four-year colleges or universities (from a population of nearly 2,700 institutions). A smaller set of postsecondary institutions also administers the College Senior Survey to students in their fourth college year.

Unfortunately, the CIRP design and data agreement prevents the identification of individual institutions (HERI 2006). Instead, schools are combined into 26 different stratification groups based on race (predominately non-black vs. predominately black), type (two-year colleges, four-year colleges, and universities), control (public, private

[28] Family income is measured as student-reported, pre-tax household income during the student's senior year in high school, and has been recoded from eleven discrete categories to a linear scale by recoding each value to midpoint of the category range. As the uppermost category ($500.000 or more) contains no upper bound, these values are converted to $550,000, following linear interpolation. The sample is not uniformly affluent, however, and family income displays considerable variance. About 53 percent of students in the CLL reported interest in receiving financial aid on their application to Duke, and more than 40 percent of Duke students receive some sort of financial aid (Bryant et al. 2006: 20-21).

nonsectarian, Roman Catholic and other religious), and selectivity level (based on mean SAT scores) (Sax et al. 1999; Sax et al. 2001). Based on institutional participation history provided in Sax et al. (1999) and HERI (2009), I am able to infer which institutions participated in both the 1999 and 2003 surveys. Of these institutions, eleven private colleges and universities are included in the most selective category, which CIRP defines as having a combined (mathematics and verbal) average SAT score of more than 1175 for the entering freshman class. This group includes Bucknell University, Claremont McKenna College, Colorado College, Dartmouth College, Grinnell College, Illinois Wesleyan University, Kenyon College, Middlebury College, University of Notre Dame, University of Richmond, and Vanderbilt University.

To facilitate comparison with the CLL, I use a subset of the CIRP data for students attending highly selective, private colleges and universities in the graduating class of 2003. The sample is restricted to full-time students who: first entered college in1999, were attending the same institution in the spring of 2003, were enrolled at private institutions with an average SAT score of at least 1300 (Bowen and Bok 1998: 337), and completed both the Freshman Survey and, in their fourth year, the College Senior Survey (n = 3286). The CIRP data provide a large, broader sample of elite postsecondary students and can help reinforce conclusions from a single institution. However, unlike the CLL, the CIRP is limited to student-reported measures of college achievement and standardized test scores. With the CIRP, I am unable to thoroughly test for potential non-response or dropout bias or fully consider the representativeness of the sample.

This CIRP Freshman Year Survey collects information on basic demographic characteristics, including household income, parents' occupation and educational attainment, and students' high school achievement and academic preparation. Several sets of questions ask students about their plans for the college years and beyond. The College Senior Survey includes retrospective questions about college experiences and activities, including extracurricular participation, classroom environment, personal development, and academic achievement. Additionally, many items replicate questions from the Freshman Survey, including major field of study, educational goals and career plans. Appendix B provides descriptive statistics and measurement notes for all CIRP variables used in this dissertation.

While the two samples are generally comparable in terms of socioeconomic background, a few differences are notable (Table 2.4). The racial ethnic composition of the Duke University student body is more diverse than the broader sample of students at private postsecondary institutions, though it is similar to other selective colleges and universities (Bowen and Bok 1998; Massey et al. 2003).[29] On average, students in the CLL come from slightly more affluent households than the CIRP, and have somewhat higher admission test scores. Yet, students in both samples are from considerably more advantaged households than are students attending other, less selective postsecondary institutions.[30] For example, in the CLL and CIRP about 80 percent of students' mothers

[29] For the CIRP, students' racial ethnic group was determined from the responses to the Freshmen Year Survey, or College Senior Survey if missing. While the "other" category for the CLL includes students who identified as bi- or multiracial, the CIRP surveys do not provide this option.

[30] Other comparisons with selective colleges and universities included in a recent wave of the NCES (2003) Beginning Postsecondary Students study reinforce the conclusion that the CLL and CIRP are socioeconomically advantaged and elite samples. The NCES defines selective colleges and universities as

Table 2.4: Student background characteristics, Duke University and other elite private universities

	Duke University (CLL)	Other selective colleges and universities (CIRP)
Race/ethnicity (%)		
White	67.3	84.2
Black	7.8	2.9
Latino/a	8.1	4.7
Asian	13.7	6.3
Other	3.1	1.9
Sex (% female)	49.1	51.8
US Citizen (%)	93.0	97.0
Mother's education (%)		
Less than college degree	20.3	24.0
College degree	37.5	46.5
Graduate degree	42.2	29.5
Father's education (%):		
Less than college degree	11.6	15.3
College degree	26.1	33.3
Graduate degree	62.3	51.4
Household income ($US thousand):		
Mean	205.69	117.74
SAT score (max. 1600):		
Mean	1404.79	1343.40

Sources: Campus Life and Learning (n = 1181) and Cooperative Research Institute Program (n = 3286)

and about 85 percent of students' fathers have earned at least a college degree. Among students attending all national universities, about 56 percent of students' mothers and 62 percent of students' fathers are college graduates. More than two thirds of Duke students report pre-college household incomes greater than $100,000/year, compared to about 55

the top decile of four-year postsecondary institutions in terms of the most recent entering class' average SAT or ACT scores. The average combined (mathematics and verbal) SAT score for the NCES incoming class of 2003-2004 is 1183, nearly 223 points lower than the two cohorts of Duke students in the CLL. Nationally, more than one third of students are non-white, a similar degree of racial ethnic diversity as Duke but more than the CIRP sample. Students in the CLL and CIRP have more highly educated parents. The NCES data show that about 40 percent of students at national selective colleges and universities have a father who did not earn a college degree, while students' average parental income during the high school years is about $89,700/year.

percent of other selective, private university students, and 34-39 percent of all university students (Sax et al. 1999; Sax et al. 2001).

2.7 Research Questions and Strategy

Although my efforts are modest, I attempt to incorporate Bourdieu's often-stated concern for greater reflexivity in the practice of social science (e.g., Bourdieu and Wacquant 1992). The empirical analysis to follow is oriented less as a series of competing hypotheses, and more as a set of key research questions to guide exploration with a set of theoretical concepts. Presenting my analysis as a series of formal hypothesis tests would be an inaccurate portrayal of my own research process, and would risk reifying the explanatory potential of the statistical analysis of secondary data. Formal theorizing can mask an ignoble consequence of highly competitive academic fields: sociologists, for example, accumulate symbolic capital not just for arriving at a more "correct" or "objective" understanding but also for discrediting other views and the work of prominent figures (Swatz 1997: 271-275).

I conduct a systematic investigation of how class shapes college life and achievement with detailed longitudinal data of students attending highly selective, private universities. This statistical analysis is reinforced by nearly seven years of informal observations as a graduate student, teaching assistant, instructor and member of the Duke community. Notably, in the spring of 2006 – as the second CLL cohort was preparing for graduation – events and accusations involving the Duke varsity lacrosse team attracted widespread media attention and provoked campus discussion to issues of racism, sexism and class privilege on elite university campuses. I make a genuine attempt to orient my

results within American sociology and the education research literature. Most prominently, I contrast my approach and findings with the cultural capital research tradition that followed DiMaggio's pioneering studies of high school achievement.

Across his research, discussions and interviews, Bourdieu offers a critique of mainstream American sociology – namely its strong positivist orientation – that can appear paradoxical at first glance. On the one hand, Bourdieu shows a disdain for the dominant scientific control and influence that he attributes to American sociology.[31] While Bourdieu attacks French social theorists for lacking a sufficient empirical foundation, he argues that American sociology is not sufficiently theoretical in a misguided attempt to emulate the natural science paradigm (Wacquant 1989). Although Bourdieu infrequently makes direct reference to American sociologists, he identifies the Talcott Parsons, Robert Merton, and especially Paul Lazarsfeld as exemplifying an overemphasis on methodological sophistication that leads to a highly detailed but fundamentally distorted model of the social world (e.g., Bourdieu 2008: 72; Bourdieu and Wacquant 1992: 225). In short, an overly-positivist conception of science can lead to

[31] In a "self socio-analysis" completed only a month before his death, Bourdieu notes an attitude of rebellious posturing that weaves throughout his biography: first, as childhood rebellion that resulted in a long disciplinary record as a peasant's overachieving son at a regional boarding school; later, through clashes with the dominant philosophical currents as a student of Louis Althusser at École Normale Supérieure, and frequent quarrels with military authorities while conducting ethnographic research following his service in the Algerian War (Bourdieu 1962; Bourdieu 1977a); and finally, by antagonizing his professional colleagues with an unabashedly critical analysis French academia (Bourdieu 1988a). Bourdieu (2008: 89) attributes this pattern of rebellion to his class habitus and provincial upbringing: "Only slowly did I understand that if some of my most banal reactions were often misinterpreted, it was often because the manner – tone, voice, gestures, facial expressions, etc. – in which I sometimes manifested them, a mixture of aggressive shyness and a growling, even furious, bluntness, might be taken at face value … and that it contrasted so much with the distant assurance of well-born Parisians that it always threatened to give the appearance of uncontrolled, querulous violence to reflex and sometimes purely ritual transgressions of the conventions and commonplaces of academic or intellectual routine." In many respects, Bourdieu's critique of American sociology shows the same predilection towards rebellion against dominant status and authority.

confusing "scientific rigidity, which is the nemesis of intelligence and invention, for scientific rigor" (Bourdieu, quoted in Wacquant 1989: 54). This not only limits opportunities for innovation and understanding but also can lead to generating "empirical errors, sometimes of a completely elementary sort" (Bourdieu 1990c: 19).

One the other hand, in his own research and especially in his early studies of the French educational system, Bourdieu reveals a consistent preference for the use of statistics and survey data over qualitative accounts and observations (Jenkins 2002: 48-59). Bourdieu shows a commitment to the quantification of data and presentation through mathematical terminology (Lebaron 2009). Bourdieu collects and combines an impressive array of data for a detailed, mixed-methods analysis, although the bulk of his presentation relies on survey data.[32] Thus, Bourdieu is less critical of mainstream American sociology's proclivity for statistical analysis, and instead attacks the "methodological monotheism" that results from treating empirical and theoretical decisions as distinct stages in the research process. Both qualitative and quantitative methodological approaches are susceptible to the pitfalls of rigid adherence to a certain method of data collection or analysis (Bourdieu and Wacquant 1992: 224-235).[33]

To counter perceived limitations in mainstream American and Continental European sociology, Bourdieu (2008: 72-73) builds a research program that prioritizes

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[32] In a characteristic passage from *Distinction*, Bourdieu (1984: 183-200) intermingles an analysis of official consumer spending data and other national surveys with a deconstruction of working class eating habits – for example, working class men show an aversion to fish and fruit (except bananas) because they are "'fiddly' things which a man's hands cannot cope with and which make him childlike … [and have to be] eaten in a way which totally contradicts the masculine way of eating …" (190) – to an ethnographic analysis of typical working class and upper class meals.

[33] "Thus we find monomaniacs of log-linear modeling, of discourse analysis, of participant observation, of open-ended or in-depth interviewing, or of ethnographic description" (Bourdieu and Wacquant 1992: 226).

rigorous, sound analysis but also portrays the distinctiveness of the sociological enterprise to capture the complexity of the social world:

> American sociology … subjected social science to a whole series of reductions and impoverishments, from which … it had to be freed… [But] to combat this global orthodoxy, it was above all necessary to engage in theoretically grounded empirical research, by refusing both pure and simple submission to the dominant definition of science and the obscurantist refusal of everything that might be or seem associated with the United States, starting with statistical methods.

Bourdieu (1984: 103) argues that social causality involves the effects of a highly complex structure of interrelations, which is not fully reducible to "independent" and "dependent" variables. As a result, Bourdieu is critical of regression analysis and instead embraces geometric approaches to data analysis, namely correspondence analysis (Lebaron 2009). Correspondence analysis, a descriptive technique, provides a graphical representation of the associations among variables as pairs of coordinates in a two-dimensional space. A limitation of correspondence analysis is that model decisions are, to a considerable extent, based on the researcher's visual interpretations rather than thresholds of statistical significance or conventional measures of model fit (Cockerham and Hinote 2009).

Rather than "taking an oath of fealty, committing heart and soul to the entire package" (DiMaggio 2007: 3), my aim is to clarify Bourdieu's concepts and to incorporate a Bourdieusian framework within the prevailing discourse of the sociology of education. Although I am sympathetic to Bourdieu's criticisms of American sociology, I am not convinced that his favored statistical methods offer a clear improvement. In short, I conclude that a more or less "positivist" analytic approach provides a systematic and sufficiently rigorous test of various explanations, and more than counterbalances other deficiencies, weaknesses, and distortions. I draw on a variety of statistical methods and

models to provide a detailed empirical portrait of social class at elite private universities. Throughout the empirical chapters, I denote statistically significant coefficients and between-group differences at the $p < .05$ level with a single asterisk ("*").[34] Due to the small sample size of important comparison groups, I also mark marginally significant effects and differences at the $p < .10$ level with a dagger ("†"). My main conclusions rest on empirical findings that meet conventional criteria and fit robust patterns across tables, models, and analyses.

The next three chapters, presented in the order in which they were completed, address six primary research questions. The focus of Chapter 3 is to understand how class background is associated with different high school experiences, family resources and access to economic, social, and cultural capital. This initial empirical stage provides a descriptive portrait of elite university students when they first arrive on campus, and develops a measure for social class for use in the successive chapters and future studies.

1. *What is the class structure of the field of US elite university education?*
2. *How is class background associated with access to different pre-college resources and forms of capital?*

First, I consider how to measure social class in a way that is consistent with Bourdieu's understanding and treatment of the concept. I compare Bourdieu's multidimensional model of social classes – defined by the relative distribution of power, as well as household economic and cultural resources – to more conventional class schemas that more strictly relate class position to occupation categories and job

[34] Tests for significant interclass (between-group) differences are from global F-tests from one-way ANOVA for ordinal and interval dependent variables, and chi-square tests for categorical variables.

characteristics. Next, I develop a method for examining the class structure of educational institutions. I argue that latent clustering analysis is an improvement to Bourdieu's use of statistical methods, and can help distinguish underlying class fractions that conventional schemas fail to appreciate. Latent clustering analysis provides a systematic way to classify students into groups based on the observed associations among multiple measures of socioeconomic background, using variables that are routinely collected in surveys and educational records. Additionally, this method provides a test of Bourdieu's multidimensional model of social classes. Namely, are there identifiable class fractions distinguished by the relative composition of material and symbolic forms of capital?

Among the student bodies of selective private universities, I identify three distinct class fractions within the dominant class in addition to broad middle and subordinate class categories. Nearly half of students at elite universities have dominant class origins. For example, "professional" class students arrive on campus from households characterized by advanced academic credentials, high incomes, and frequent participation in a wide range of cultural activities. In comparison, "executive" class students enter college from households with very high incomes and an abundance of educational resources, but fewer graduate degrees and less occupational status. A third dominant class fraction, "precarious professionals," has the distinct pairing of relatively high levels of cultural capital with low levels of economic capital. Precarious professional students resemble professional class students in terms of high school achievement, but with lower household incomes and less secure material circumstances.

To date, few studies in American sociology have applied Bourdieu's theory and ideas to postsecondary education. The dominant approach in the quantitative research literature has been to focus on high school student achievement and to use a narrow interpretation of Bourdieu's concept of cultural capital. Bourdieu's concept of cultural capital stimulated much research, but these studies typically stayed close to Bourdieu's own empirical examples for the French case. Additionally, quantitative applications of Bourdieu's theory have underappreciated the concept of social class and other forms and species of capital. The next two chapters consider the role of class background to college achievement, campus experiences, and plans for after graduation, and give greater attention to a variety of forms of capital across the college years.

3. What are the valued forms of cultural and social capital that are present on elite universities?

In Chapter 4, I provide a detailed examination of social capital at Duke University. First, I consider social capital in its practical or immediate state: the resources embedded in social networks. I evaluate the effects of campus ties and peer networks, and find that investments in social capital facilitate final college achievement and pathways to professional careers. Second, as an example of social capital in its institutionalized state, I follow legacies across the college years. Legacies constitute an affluent group that benefits from an admissions preference for applicants with family ties to the university. Across the college years, legacies activate their social capital: initially, by gaining admission to an elite university despite less than spectacular academic

records, and finally, through the prevalent use of personal or family contacts for plans after graduation.

In Chapter 5, I build upon this examination of social capital to consider forms of cultural and human capital. Although Bourdieu finds that "highbrow" activities are good markers of cultural capital among French students, he defines embodied cultural capital broadly as an intuitive sense of how to capitalize on successes within elite institutional settings. "Collegiate" cultural capital includes the implicit knowledge, resources, and experiences that facilitate academic success and a satisfying college experience. I examine the effects of "highbrow" participation, active involvement in campus social life and extracurricular clubs, and several dimensions of human capital – including academic skills, effort, motivation and self-esteem – on overall college satisfaction and achievement across the college years. Among students in the national sample, "highbrow" activities – such as visiting an art museum or attending the ballet, opera or symphony – have significant, positive effects on achievement, but these effects are small in comparison to within-college human and social capital or involvement in campus life.

4. *How does social class influence achievement and campus social life across the college years?*

Relative to a representative cross-section of postsecondary students, students at selective colleges and universities report very high levels of satisfaction with college academic and social experiences (Bowen and Bok 1998: 194-205; Espenshade and Radford 2009: 317, 320). Existing studies that use student survey data to predict college satisfaction find positive effects of campus involvement, including active participation in

academic and recreational activities (Astin 1993; Pascarella and Smart 1991; Umbach and Porter 2002). I add to this literature by considering a broader range of college activities and by giver greater attention to how effects differ by class background.

Patterns of engagement with campus social life explain subordinate class students' lower levels of overall satisfaction at the end of college. Upon matriculation, subordinate and middle class students place more emphasis on personal growth, while dominant class students assign greater importance to social activities and interpersonal relationships. Subordinate class students are less likely to participate in three popular aspects of elite campus life: joining a fraternity or sorority, studying abroad, and drinking alcohol. Across the college years, dominant class students spend roughly four to five hours more each week socializing with friends, partying, and exercising or playing sports, in comparison to subordinate class students. Subordinate class students substitute time in social and recreational activities with part-time jobs to help pay for college expenses. Consistent with Bourdieu's observations of French higher education, subordinate and dominant class students maintain different relationships to campus life.

Studies of postsecondary achievement that rely on conventional class categories generally find weak, largely insignificant effects of socioeconomic background (e.g., Charles et al. 2009; Espenshade and Radford 2009). In contrast, I find enduring differences between professional and executive class students, the two primary dominant class fractions. This pattern would be obscured with class schema based on parent's occupation or traditional labels. From first semester grades to final graduation honors, professional and middle class students have higher levels of achievement in comparison

to executive and subordinate class students. These achievement gaps hold for all racial ethnic groups, both male and female students, and for all major areas except engineering.

5. *To what extent is the link between class and college outcomes mediated by forms of cultural and social capital?*

An involvement perspective views participation in campus activities as a type of human capital, and predicts positive effects on achievement for all students. Students who spend more time in campus activities should receive higher grades, net of other factors. In contrast, cultural mobility and cultural reproduction perspectives draw on Bourdieu's theory and concepts, and argue that aspects of dominant class habitus (i.e., cultural capital) lead to rewards within the educational system. However, these perspectives make different claims in regards to the role of class background. A cultural mobility perspective stresses that even if subordinate class students are less likely to have cultural capital, dominant and subordinate class students should benefit equally from the cultural capital they do possess. A cultural reproduction perspective, on the other hand, predicts significant interactions between class background and cultural capital. Dominant class students are rewarded with higher grades for participating in elite status activities, but subordinate class students do not share these advantages and may even receive a grade penalty for failing to adhere to implicit expectations for college success.

The enduring executive-professional gap suggests opposing academic orientations for two dominant class fractions. Both executive and professional class students enter college from households with an abundance of economic capital and educational resources, but executive class students have relatively lower levels of achievement.

Additionally, executive class students assign less importance to being a good student, while valuing an active social life and maintaining personal contacts. In contrast, the underperformance of subordinate class students is due to differences in financial support for college, participation in social and recreational activities, and unequal access to collegiate cultural capital.

Some forms of capital facilitate college achievement for students from all class backgrounds. Across the college years, human capital has consistent, reliable effects on average semester grades for all students. Net of other factors, students who report higher levels of academic skills, motivation, or self-esteem earn higher grades. Similarly, extensive campus networks and participation in "highbrow" activities have positive associations with college grades for dominant, middle and subordinate class students. In contrast, collegiate capital – like legacy status – is strongly associated with dominant class origins. Subordinate class students spend relatively less time in campus social activities, but this limited involvement leads to lower grades for subordinate class students only. Upon matriculation, subordinate class students underestimate the likelihood of changing majors and overestimate the likelihood of success in challenging natural science and engineering majors, leading to lower early college grades.

6. *How useful is Bourdieu's theory and concepts to understanding inequalities at elite universities in the United States?*

Bourdieu's theory and concepts have stimulated considerable criticism and debate. Among the more prominent criticisms are that Bourdieu's conclusions lack sufficient empirical support (Sullivan 2002), that his theory and concepts are too specific

to the French case (Jenkins 2002), and that he overstates the role of the educational system to social reproduction (Halsey 1980; Robinson and Garnier 1985). Despite a growing influence across several areas and disciplinary subfields (Sallaz and Zavisca 2007), Bourdieu's potential contribution to the sociology of education remains an open question. In conclude by considering the implications of my results for Bourdieu's theory and a Bourdieusian research program. In short, Bourdieu's theory of cultural reproduction receives more support than his critics suggest, but this support is more ambiguous and qualified than Bourdieu or his most ardent supports allow, suggesting the need for important revisions or adaptations. After suggesting modifications to address noted ambiguities, I conclude that Bourdieu's theory of cultural reproduction offers unique and important insights about the factors shaping academic success and campus life at elite, private universities.

3. Quantifying Social Class

> For me, the question of allegiance to the founding fathers of the social sciences is reduced to the following: whether or not to be a Marxist or a Weberian is a religious alternative, not a scientific one. In fact, one may – and should – use Weber against Weber to go beyond Weber. In the same way, one should follow Marx's advice when he said 'I am not a Marxist,' and be an anti-Marxist Marxist. One may think with Weber or Durkheim, or both, against Marx to be beyond Marx and, sometimes, to do what Marx could have done, in his own logic. Each thinker offers the means to transcend the limitation of the others.
>
> Pierre Bourdieu, "Vive la crise!"

Bourdieu borrowed widely from classic sociological theory to develop his understanding of social class, although he was critical of conventional approaches (Bourdieu 1985; 1987; Brubaker 1985). Social class is a fundamental concept to Bourdieu's theoretical model. In particular, Bourdieu's approach to class analysis reflects his efforts to offer a model of social reality that is relational in character and transcends the subjectivist-objectivist divide (Bourdieu and Wacquant 1992). Social class serves as the foundation to habitus, or the socially constructed set of dispositions that orient thoughts and action. Class position influences the development of, for example, shared lifestyles and views of the opportunity structure.[1] Due in part to these varied inspirations, as well as Bourdieu's vague "anti-positivist" methodology, social class remains a murky, underexplored concept in recent applications of Bourdieu's concepts and theory (Crossley 2008; Swartz 1997: 142-188; Weininger 2005).

[1] For ease of presentation, this discussion necessarily simplifies the complex relationship between habitus and the more or less non-deterministic objective structures: "In short … the habitus tends to generate all the 'reasonable', 'common-sense', behaviors (and only these) which are possible within the limits of these regularities, and which are likely to be positively sanctioned … At the same time, 'without violence, art or argument', it tends to exclude all 'extravagances' ('not for the likes of us'), that is, all the behaviors that would be negatively sanctioned because they are incompatible with the objective conditions" (Bourdieu 1990a: 55-56).

Bourdieu (1985a: 724) conceptualizes social class in terms of positions within a multi-dimensional space based on the distribution of forms of capital:

> … agents are distributed within [fields] in the first dimension, according to the overall volume of the capital they possess and, in the second dimension, according to the composition of their capital.

In advanced capitalist societies, the economic dimension to class predominates, while cultural capital serves to reinforce class boundaries as well as define fractions within broad class categories (Bourdieu 1984: 114-125; Lamont and Fournier 1992). Building upon the classic sociological tradition, Bourdieu provides a nuanced, heterodox vision of social class that is well suited for the study of contemporary societies.

This chapter proceeds as follows: First, after describing key features of classic sociological approaches, I demonstrate that Bourdieu incorporates elements of the Marxist, Weberian and Durkheimian traditions to develop his characteristic approach to class. Next, I offer latent clustering analysis as a method that is consistent with a Bourdieusian approach to class as well as an improvement over conventional applications of his concepts. Results provide evidence for five distinct classes or class fractions within the field of elite universities. Finally, I examine how students' class background is associated with high school experiences, college plans, and pre-college forms of economic, social and cultural capital.

3.1 Class to Marx, Weber, Durkheim and Bourdieu

The concept of social class has a rich tradition in classic sociological theory and serves as an essential explanation for a range of social phenomenon. Current research continues to apply the foundational statements of Marx, Weber and, to a lesser extent,

Durkheim (Lareau and Conley 2008). Building upon – and working against – this classic sociological tradition, Bourdieu develops an approach to class that incorporates key features from Marxist, Weberian and Durkheimian traditions. Yet, more recently it has become common to claim that class is no longer a relevant force in shaping individual experiences (e.g., Clark and Lipset 2001; Hechter 2004; Inglehart 1997; Pakulski and Waters 1996). Much of this debate is attributable to long-standing theoretical disputes and inconsistent use of concepts and terminology (Wright 2005a). Further, developments in modern capitalism have represented serious challenges to the Marxist tradition (Sørensen 1996), within which class occupies an especially prominent role.

Classic sociological approaches share a general emphasis on how class position influences the relationship between individuals and resources, in contrast to gradational approaches to stratification and mobility. In the sociology of education, the status attainment tradition serves as a prominent example of a gradational approach (Hallinan 1988). Building upon the influential work of Blau and Duncan (1967), this approach considers individuals to be distributed along a continuous hierarchy of status positions, primarily with the use of regression analysis and linear modeling techniques (e.g., DiMaggio 1982; Featherman, Jones and Hauser 1975; Warren and Hauser 1997). The status attainment literature has been criticized for ignoring important structural constraints, institutional arrangements and allocation processes (Kerckhoff 1995). While Bourdieu conceptualizes the distribution of forms of capital along continuous dimensions, he adopts a relational view of social class characteristic of the classic approaches. Yet, conventional applications of his concepts continue to rely on the status

attainment framework (Lareau and Weininger 2003), and Bourdieu's concept of social class remains underappreciated (Weininger and Lareau 2003).

3.2 Classic Sociological Approaches to Class Analysis

The concept of social class plays a central role to Marxist perspectives, and serves as the theoretical foundation to a theory of historical materialism and commitments to radical egalitarianism (Wright 2005b).[2] While modern capitalism includes many contradictory class locations and a high degree of complexity (Wright 1985; 1997), to Marx three primary classes – capitalists, landlords, and workers – characterize the unequal distribution of control over productive resources.[3] In this model, capitalists' interests necessitate the alienation of workers and the appropriation of labor (Wright 2000). Similar to Weber, Marx's approach to class analysis establishes the capitalist system as important in shaping life conditions. Although, a defining feature of Marxist approaches is a particular concern for the exploitative nature of the worker-capitalist relationship (Wright 2002).

The Marxist perspective has not fared well when confronted with developments of modern capitalism (cf. Sørensen 1996; 2000), and recent scholars have modified or replaced some of Marx's core arguments (e.g., Burawoy 1990; Dahrendorf 1959;

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[2] Captured in Marx's famous dictum, "to each according to need, from each according to ability," radical egalitarianism seeks an ideal, "classless" society characterized by the distribution of productive resources (Tucker 1978: 531). While a highly productive economy makes such a utopian vision possible, the exploitative nature of capitalism blocks this possibility (Wright 2005b).

[3] As Marx explains in the final paragraphs of the third volume of *Capital*: "The owners merely of labor-power, owners of capital, and land-owners, whose respective sources of income are wages, profit and ground-rent, in other words, wage-laborers, capitalists and land-owners, constitute then three big classes of modern society, based upon the capitalist mode of production … These are three great social groups whose members … live on wages, profit and ground-rent respectively, on their realization of their labor-power, their capital, and their landed property" (Tucker 1978: 441-442).

Robinson and Kelley 1979). Current Marxist approaches to class expand the focus from control over productive resources to include workplace authority and skills or expertise. For example, Wright's (1997: 74-90) full schema sorts workers into twelve classes along three dimensions. First, owners and the self-employed are divided into three groups, based on control over productive resources (capitalists, small employers and petty bourgeoisie). Next, workers are distinguished in terms of workplace authority (managers, supervisors and employees). Finally, workers are further divided by skill and labor market position (expert or professional/managerial occupations, skilled or technical, semi-professional occupations and crafts, and non-skilled occupations). A limitation of such a Marxist approach to class analysis is that the full schema requires information that is not typically available in existing datasets or routinely collected in national surveys. At a minimum, Wright's (1997) measurement of class requires information about not just occupation but also business ownership, firm size, supervisory relations, and workplace skills or decision-making.

Similar to Marx, Weber understood that the market unequally distributes life chances according to control over productive resources. To Weber, social class indicates this shared well-being: "a class situation is one in which there is a shared typical probability of procuring goods, gaining a position in life, and finding inner satisfaction" (Weber 1978: 302). Importantly, Weber considers class to be a single aspect of power in society, along with status groups and parties (Breen 2005). In this way, Weberian approaches place less emphasis on elements of class struggle and move away from the worker-capitalist dichotomy to consider other influences on the distribution of life

chances.[4] Weber further differs from Marx by not linking patterns of historical change to an essential conflict over control of the means of production (Weber 1946; 2003). However, there is relatively little difference in the practical application of Marxist and Weberian approaches to class.[5]

The widely used Erikson-Goldthorpe-Portocarero class schema (hereafter EGP) is a prominent example of Weberian approaches to class analysis. In the EGP schema, a crucial dimension by which occupations are differentiated is "asset-specificity," or the extent of job-specific skills, expertise or knowledge (Breen 2005; Goldthorpe 2000). In addition, workers are distinguished by the presence of a labor contract or a service relationship. Work conducted under a labor contract involves a specific exchange of wages for effort and is closely monitored, unlike the more diffuse, long-term nature of the service relationship (Erikson and Goldthorpe 1992; Erikson, Goldthorpe and Portocarero 1979). An advantage of the EGP schema is that it can be applied to occupation data routinely collected in national surveys (e.g., Evans 1992; Morgan and McKerrow 2004). The full EGP schema identifies eleven classes, although three to seven class versions are more commonly used (e.g., Erikson and Goldthorpe 1992).[6] Evans and Mills (1998;

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[4] More specifically, Weber (1978: 928) distinguishes property owners, capitalists and workers, and then these groups are "further differentiated ... according to the kind of property ... and the kind of services that can be offered in the market." Thus, the four primary classes are "dominant entrepreneurial and propertied groups," petty bourgeoisie, the middle class (i.e., workers with formal credentials) and the working class (Breen 2005).

[5] A tongue-in-cheek exchange illustrates the practical similarities between Marxist and Weberian approaches. Parkin (1979: 24-25), in noting that contemporary Marxists have incorporated Weber's concept of authority relations, suggests, "inside every neo-Marxist there seems to be a Weberian struggling to get out." Wright (1997: 35) responds that Weberian approaches simply underemphasize a fundamental relationship based on exploitation: "One could just as easily say that inside every left-wing Weberian there is a Marxist struggling to stay hidden."

[6] Erikson and Goldthorpe (1992) feature the seven-class schema. In this version, Class I includes the "upper service class" and occupations that have high levels of asset specificity and are difficult to monitor.

2000), using latent clustering models to analyze British survey data, find that even the most aggregated versions preserve much of the EGP schema's key dimensions.[7] In comparison to Marxist approaches, a striking feature of the EGP schema is the lack of a large employer class; instead, these positions are considered as part of a rather heterogeneous class along with corporate executives and high-grade professionals.[8]

Weber draws an important distinction between class and other aspects of the distribution of power in society. Power is considered more broadly than in the Marxist tradition, and is defined as "the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance, regardless of the basis on which this probability rests" (Weber 1978: 53). Applications of Weberian concepts such as social closure and exclusion draw more influence from Weber's discussion of status groups than from classes (e.g., Giddens 1973; Lucas 2001; Murphy 1988; Parkin 1979; Raftery and Hout 1993). In short, Weber and Marx offer very similar definitions to class, although Marx emphasizes the exploitative nature of the worker-capitalist relationship and Weber considers the distribution of power and resources more broadly. The shared

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At the other extreme, Class VI and VII include skilled and unskilled manual workers who work primarily under a labor contract in jobs with low levels of asset specificity. Intermediate classes include the lower service class (Class II), routine non-manual workers (Class III), petty-bourgeoisie (Class IV), and technicians and supervisors (Class V). Typical four-class aggregations combine the service (Class I and II), intermediate (Class III and V), and working (VI and VII) classes (Breen 2005).

[7] Although, Evans and Mills (2000: 657) also conclude that there are some conceptual problems with the EGP schema. In particular, the majority of Class-II and much of Class-I appear to be without a service contract, suggesting that the EGP schema is less adequate in differentiating positions at the top of the occupational hierarchy.

[8] As Wright (2005b: 30) notes, "Goldthorpe merges [large capitalists, corporate executives and 'high grade' professionals] into a more heterogeneous Class I for largely pragmatic reasons … For the questions [he] wishes to address he feels that since there are so few proper capitalists in his samples anyway, nothing much is lost by merging them with professionals into a single class category." Similarly, Erickson and Goldthorpe (1992: 46) explain that the desired number of classes is simply "as many as it proves empirically useful to distinguish for the analytical purposes at hand."

features of Marxist and Weberian approaches are most apparent in the practical application of class schemas due to data limitations that lead to the use of highly aggregated versions.

The Marxist and Weberian traditions have been the primary influences on the classic sociological understanding of social class. Although featured less prominently, Durkheim too offers a distinct model of social class based on disaggregated occupational associations (Grusky and Galescu 2005). Rather than large, analytic groups, Durkheim defines class at the unit of the occupation. An emerging Durkheimian approach, arguing that conventional Marxist and Weberian class schemas are ill suited to explain local patterns of behavior, supports a disaggregated analysis pursued at the occupation level (e.g., Grusky and Weeden 2002; Grusky, Weeden, and Sørensen 2000). Reflecting Durkheim's emphasis on group solidarity and functions of social control, a Durkheimian approach to class – unlike Marxist and Weberian approaches – does not connect to a hierarchy of structured positions, capitalist production or class conflict. Instead, local occupational associations act as the main sites for the generation of distinctive, class-based attitudes and lifestyles (Grusky and Sørensen 1998).[9]

3.3 A Bourdieusian Approach to Class Analysis

In the classic sociological tradition, social class serves as an important analytic category to Bourdieu's theory and research. Yet, treatment of the concept in the

[9] Durkheim makes no explicit mention of social class in *Division of Labor.* Instead, to Durkheim specialized cultures arise due to increased social interaction and self-selection into occupations. The informal ties that are cultivated in occupational associations perform a variety of functions, including establishing a system of ethics, resolving conflict and serving as political representatives (Grusky and Galescu 2005).

secondary literature has been uneven and inconsistent (Kingston 2001; Lareau and Weininger 2003). In the sociology of education, exceptional qualitative studies have shown how social class affects schooling at the primary and secondary levels, and during the transition to postsecondary education (e.g., Devine 2004; Lareau and McNamara-Horvat 1999; Lareau and Weininger 2008; MacLeod 2009). Quantitative applications have been largely incorporated cultural capital variables in the status attainment framework, and as a result have given less attention to social class.

Much of the ambiguity surrounding Bourdieu's approach to social class is likely a result of his resistance to develop formal class schemas or delineate theoretical class boundaries. Instead, Bourdieu emphasizes class boundaries as the product of struggles within the various fields.[10] Class boundaries are sites of much political conflict, tension and mobilization; these classification struggles are a primary way to exercise symbolic power. The rules governing social classification cannot be detached from the particular empirical setting, and are not fully exportable across fields (Bourdieu 1991b). To Bourdieu, sociological inquiry should be engaged in debating the nature and existence of class boundaries rather than developing theoretical class schemas. Further, conventional approaches fail to appreciate an important social practice and risk conflating political and scientific aims.[11] In Bourdieu's multi-dimensional social space, there are no universal

[10] "The very existence of classes … is a stake in a struggle. And this fact undoubtedly constitutes the major obstacle to a scientific knowledge of the social world and to the resolution … of the problem of social classes. Denying the existence of classes, as the conservative tradition has persisted in doing for reasons not all of which are absurd (and all research done in good faith encounters them on the way), means in the final analysis denying the existence of differences and of principles of differentiation" (Bourdieu 1991a: 636-637).

[11] Bourdieu (1985a) is highly skeptical of a reliance on conventional class schemas: "Numerous studies of 'social classes'…merely elaborate the practical questions which are forced on those who hold political power. Political leaders are continually faced with the…practical imperatives which arise from the logic of

class categories – even if there are highly consistent regularities – so it is more critical to understand the nature and distribution of capital.

Bourdieu's conceptual apparatus borrows widely from classic perspectives, and his work is not readily identifiable with any particular sociological tradition (Brubaker 1985; Swartz 1997: 38-48; Wacquant 2008; Weininger 2005). Bourdieu's approach contains some affinities towards Marxist, Weberian and Durkheimian approaches to social class. Yet, Bourdieu's approach differs from these classic approaches in several respects. Bourdieu's model of social class includes the entirety of the occupational division of labor, or the "social space". In this way, class is divorced from the means of economic production and becomes "a metaphor for the total of social determinants" (Brubaker 1985a: 769). Further, Bourdieu's social space is organized along continuous dimensions, based primarily on the distribution and composition of cultural and economic capital, and thus lacks discrete class locations or thresholds.

Many Marxist themes are present in Bourdieu's theory of social reproduction and approach to class. Bourdieu employs a critical method to understand these inequalities, and is particularly concerned with the misrecognition of power relations. Like Marx, Bourdieu considers material interests to form the basis of social stratification in modern societies. To both, the economic dimension to class predominates. Additionally, Bourdieu incorporates Marxist terminology into his discussion of social class, although often with quite different implications or meanings. For example, Bourdieu expands

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the struggle within the political field, such as…the need to mobilize the greatest possible number of votes while at the same time asserting the irreducibility of their project to those of other leaders" (Bourdieu 1991a: 246). In other respects, Bourdieu considers defining precise class boundaries to be of only secondary importance and argues that the most important question is "that of the existence…and mode of existence of collectives" (Bourdieu 1991a: 250).

Marx's notion of capital to include all forms of power, in particular cultural and symbolic resources (Lin 2001: 1-18). Bourdieu (1984: 339-365) also gives the term "petty-bourgeois" broad meaning, using it to describe upwardly mobile middle class families and former upper-class families in decline, as well as occupations such as shopkeepers, teachers, medical technicians and junior executives. In a sense, Bourdieu reinstates Marxist philosophy without the rhetoric, propaganda and associated failures of communism (Bourdieu et al. 1999; Grenfell 2008).[12]

Despite these affinities, Bourdieu is highly critical of Marxist approaches. Bourdieu criticizes Marxist approaches for considering the symbolic dimension of social life to be only derivative of the economic dimension.[13] Bourdieu does not strictly relate social class to the means of economic production, and as a result grants the concept of social class considerably larger purview.[14] An advantage of Bourdieu's approach is that it is more capable of scrutinizing positions in the division of labor that do not fit neatly in the owner/worker dichotomy, such as the middle classes or other "contradictory" class locations. Further, Bourdieu's approach gives more attention to positions that stand at

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[12] "The historical success of Marxist theory … thus helps to bring about a paradoxical situation: the theory of the social world least capable of integrating the *theory effect* – which Marxism has exerted more than any other – nowadays no doubt represents the most powerful obstacle to the progress of the adequate theory of the social world, to which it has, in other times, contributed more than any other" (Bourdieu 1985: 742).

[13] Further, Bourdieu argues that Marxist perspectives present an oversimplified model of social reality by conflating theoretical classes ("classes on paper") with actual classes and inadequately develop the theoretical link between "class-in-itself" and "class-for-itself." By focusing solely on the economic dimension, Marxist approaches "thereby [secure] a one-dimensional social world" (Bourdieu 1985: 726).

[14] While far less emphasized in Marxist approaches to class analysis, Marx did make specific mention of distinct classes of professional and civil servants, for example: "… from this standpoint, physicians and officials … would also constitute two classes, for they belong to two distinct social groups, the members of each of these groups receiving their revenue from one and the same resource. The same would also be true of the infinite fragmentation of interest and rank into which the division of social labor splits laborers as well as capitalists and landlords – the latter, e.g., into owners of vineyards, farm owners, owners of forests, mine owners and owners of fisheries" (Tucker 1978: 442; note: at this point, the manuscript breaks off).

the fringes of conventional class schemas, such as artists and other cultural producers (Weininger 2005). Notably, rather than accepting intellectuals and social scientists as organic representatives of the working classes, Bourdieu (1988a) argues that these positions comprise a fraction of the dominant class by virtue of their cultural capital.

Bourdieu is more sympathetic to Weberian approaches to class and inequality.[15] By stressing the role of symbolic goods and practices, particularly through his studies of religion, Weber offers an alternative to the economic determinism and class reductionism that Bourdieu associates with Marxist approaches. Like Weber, Bourdieu (1985; 1987) argues that his social classes represent aggregates of life chances or probabilistic constructs. Additionally, there are similarities between Weber's notions of charismatic authority and social closure and Bourdieu's concept of cultural capital (Swartz 1997: 41-45). Just as charismatic leaders can gain power through their ability to convey and command legitimacy, cultural capital serves to justify the existing social order by legitimizing selected qualities of elites and members of the dominant classes. In this way, cultural capital serves as a method of social closure that includes subtle, informal exclusionary practices (cf. Collins 1977).

While Weber thinks of class and status as distinct ideal types, a defining feature of Bourdieu's approach to social class is a blending of the two dimensions.[16] Bourdieu

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[15] Reflecting upon his earlier anthropological research, Bourdieu (1990a: 17) notes that "my reading of Max Weber – who far from opposing Marx, as is generally thought … in fact carries the materialist mode of thought into areas which Marist materialism effectively abandons to spiritualism – helped me greatly in arriving at this kind of generalized materialism; this will be a paradox only to those who have an over-simple view of Weber's thought, owing to the combined effect of the rarity of translations, the one-sidedness of the early French and American interpretations, and the perfunctory anathemas pronounced by 'Marxist' orthodoxy."

[16] In *Distinction,* Bourdieu articulates this theory of an inextricable relationship between lifestyles and material conditions. As he states in the preface to the English-language edition: "The model of the

emphasizes that while there are distinct material and symbolic aspects to social class they are too interrelated to be considered as separate dimensions. Instead, Bourdieu views Weber's separation of class and status "purely as an analytical convenience – one which Bourdieu, moreover, is inclined to disallow" (Weininger 2005: 120). In an early article that anticipated *Distinction*, Bourdieu (1966: 212-213) argues against Weber's attempt to consider class and status as separate stratification systems that lead to different types of social collectivities:

> Everything seems to indicate that Weber opposes class and status groups as two types of *real* unities which would come together more or less frequently according to the type of society … [However,] to give Weberian analyses all of their force and impact, it is necessary to see them instead as *nominal* unities … which are always the result of a choice to accent the economic aspect or the symbolic aspect – aspects which always coexist in the same reality (in different proportions that vary by society and by class).[17]

In short, a Bourdieusian class analysis is not limited to an analysis of "market situation" but simultaneously includes attention to status distinctions and symbolic relations. Class position finds expression through differences in culture, taste and lifestyles, which often pass misrecognized as markers of individual talent, esteem or merit.[18]

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relationships between the universe of economic and social conditions and the universe of life-styles which is put forward here, based on an endeavor to rethink Max Weber's opposition between class and *Stand,* seems to me to be valid beyond the particular French case and, no doubt, for every stratified society, even if the system of distinctive features which express or reveal economic and social differences … varies considerably from one period, and one society, to another" (Bourdieu 1984: xi-xii).

[17] Together, Swartz (1997: 151) and Weininger (2005: 120) provide the English translation of this selection.

[18] "The very life-style of the holders of power contributes to the power that makes it possible, because its true conditions of possibility remain unrecognized, so that it can be perceived not only as the legitimate manifestation of power but as the foundation of its legitimacy. 'Status groups' based on 'life-style' … are not, as Weber thought, a different kind of group from classes, but dominant classes that have … so legitimated themselves" (Bourdieu 1990a: 139).

To Bourdieu, social space is an arena of conflict, built around the accumulation and conversion of forms of capital. Classification struggles – not just between the worker and capitalist but also among competing dominant class fractions – are critical in setting class boundaries and reproducing the class structure. Still, in his emphasis on symbolic classification, Bourdieu's approach bears more of a resemblance to Durkheim than to Marx.[19] Like Durkheim (e.g., *Suicide*), Bourdieu aims to reveal a sociological explanation for seemingly individual forms of behaviors, notably taste and cultural consumption.[20] Building upon Durkheim's ideas of collective representations and group solidarity, Bourdieu considers how symbolic systems provide a degree of social integration and cohesion within a social space characterized by conflict:

> If one takes seriously both the Durkheimian hypothesis of the social origins of schemes of thought, perception, appreciation, and action and the fact of class divisions, one is necessarily driven to the hypothesis that a correspondence exists between social … and mental structures. This correspondence obtains through the structure of symbolic systems, language, religion, art, and so forth (Bourdieu 1991c: 5).[21]

In his empirical work, Bourdieu's use of disaggregated occupational categories for indicators of class background bears some resemblance to recent Durkheimian

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[19] "Class, for Bourdieu, is both a Durkheimian category of groups sharing experiences and collective representations, and a Weberian notion of sets of actors attempting to monopolize markets for different goods and services. Marx's influence appears more in the argument's style than in its substance" (DiMaggio 1979: 1470).

[20] Yet, in contrast to Durkheim, Bourdieu is less concerned with the bases of social order and disorder (e.g., anomie) and places more emphasis on domination and differentiation (Swartz 1997: 45-48).

[21] Similarly, in *Distinction* Bourdieu (1984: 468) describes the correspondence between social class and lifestyles: "The practical knowledge of the social world that is presupposed by 'reasonable' behavior within it implements classificatory schemes (or 'forms of classification', 'mental structures' or 'symbolic forms' …), historical schemes of perception and appreciation which are the product of the objective division into classes … [These] principles of division are common to all the agents of the society and make possible the production of … a common-sense world."

approaches to social class (e.g., Grusky et al. 2000).[22] Although, Bourdieu's approach to social class highlights class conflict and reproduction as well as group integration through symbolic classifications (Weininger 2005). This revisionist, eclectic approach has led DiMaggio (1979: 1461) to conclude that Bourdieu represents "an effort, in some respects brilliant, to mate Durkheim and Marx."[23]

Thus, in borrowing widely and critically from classic sociological approaches – by using Marxist, Weberian and Durkheimian concepts "against" Marx, Weber and Durkheim – Bourdieu arrives at a characteristic view of social class. Wacquant (2008) argues that Bourdieu "both cuts across and overruns the conventional theoretical divisions," making it a rather fruitless exercise to categorize his theory within a framework of classic approaches (cf. Wright 2005a). The presentation of Bourdieu's approach to social class is quite complex and heavily nuanced, but it is important not to overstate its distinctiveness. A more apt description of a Bourdieusian approach stresses the incorporation of many of the strongest elements of the Marxist, Weberian and Durkheimian traditions in order to understand the struggles contained within the complex social space of highly differentiated societies.

In short, Bourdieu offers a "constructed" view of social class that emphasizes class boundaries as the product of struggles within the various fields that comprise social

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[22] "Occupation is generally a good and economical indicator of position in social space and, in addition, provides valuable information on occupational effects, i.e., effects of the nature of work, of the occupational milieu, with its cultural and organizational specificities, etc." (Bourdieu 1987: 4).

[23] Brubaker (1985: 747) offers qualified support for this view: "Bourdieu is indeed indebted to Marx and Durkheim for his theoretical program, which may be described as an attempt to unite the (sketchy) Marxist program for a sociology of reproduction with the Durkheimian program for a genetic sociology of symbolic forms. But if Bourdieu's programmatic aims are derived from Marx and Durkheim, the substance of his theory owes most to Max Weber."

space.[24] Social space is understood as being organized along several continuous dimensions (Bourdieu 1984: 106):

> Social class is not defined by a property (not even the most determinant one, such as the volume and composition of capital) nor by a collection of properties …, nor even by a chain of properties strung out from a fundamental property (position in the relations of production) … but by the structure of relations between all the pertinent properties which gives its specific value to each of them and to the effects they exert on practices.

Social space is organized along three primary orthogonal axes (Bourdieu 1987). First, the total volume of capital is the most important determinant of class position, and differentiates individuals into broad "dominant," "middle" and "working" or "subordinate" class categories. Second, composition of capital – especially the ratio of economic to cultural capital – identifies class fractions within these categories. A third axis considers mobility in terms of both the volume and composition of capital. For example, Bourdieu is particular concerned with identifying the "conversion" of one form of capital for another (Weininger 2005). Individuals simultaneously occupy positions within multiple fields, and Bourdieu (1985a) stresses that there exists no underlying "class logic," although the prevailing dimensions to class and hierarchy of capitals lead to a high degree of "homology" and isomorphism.[25]

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[24] "The individual or collective classification struggles aimed at transforming the categories of perception and appreciation of the social world and, through this, the social world itself, are indeed a forgotten dimension of the class struggle … Position in the classification struggle depends on position in the class structure; and social subjects … are perhaps never less likely to transcend 'the limits of their minds' than in the representation they have and give of their position" (Bourdieu 1984: 483-4).

[25] "One can thus construct a simplified model of the social field as a whole that makes it possible to conceptualize, for each agent, his or her position in all possible spaces of competition (it being understood that, while each field has its own logic and its own hierarchy, the hierarchy that prevails among the different kinds of capital and the statistical link between the different types of assets tends to impose its own logic on the other fields)" (Bourdieu 1985a: 724).

Social class is put into practice by way of the habitus. The habitus represents the set of cumulative life experiences that guide perceptions of and responses to the social world; the habitus simultaneously structures and is structured by social class divisions (Bourdieu 1984: 171). Sensitive to the political implications of defining class boundaries – and in an attempt to avoid the epistemological pitfalls of strict objectivism and subjectivism – Bourdieu (1987: 6) stresses the non-deterministic relationship between social class and habitus with probabilistic language:

> Constructed classes can be characterized in a certain way as sets of agents who, by virtue of the fact that they occupy similar positions in social space (that is, in the distribution of powers), are subject to similar conditions of existence and conditioning factors and, as a result, are endowed with similar dispositions which prompt them to develop similar practices.

It is possible for any individual, for example, to adopt the cultural practices of social elites, although individuals tend to conform to others of similar class backgrounds (Bourdieu and Wacquant 1992: 120-140). In this way, the habitus acts as a class "unconsciousness" that encourages the development of similar lifestyles, dispositions and a "tacit understanding of place" within the social world (Crossley 2008).

In *Distinction*, Bourdieu (1984: 504-524) incorporates a wide variety of data collected in the 1960s and 1970s – including survey questionnaires, secondary analysis and ethnographies – to explore the link between social class and lifestyles in contemporary French society. By examining multiple arenas of consumption – including "highbrow" forms (e.g., art, literature, music, theater) and more common aspects of culture (e.g., food, clothing, interior décor) – Bourdieu establishes a necessary relation between Weber's class and status.

Bourdieu (1980; 1984) finds that the dominant classes develop a "sense of distinction," marked by an aesthetic sensibility, while the working classes show a "taste for necessity" that favors function over form. Further, within the dominant class, different fractions express distinction through the relative composition of economic and cultural capital. For example, business executives and industrialists, whose dominant class position arises primarily from a wealth of economic capital, express distinction through the purchase of luxury goods. At the other pole, artistic producers and university professors participate frequently in less expensive, but intellectually more demanding activities, such as theater, literature and art.[26] In between, professionals show a more "cosmopolitan" lifestyle that avoids these two extremes. Less attention is given to locating fractions within the working class, an omission Bourdieu fully attributes to data limitations (Lane 2000; Weininger 2005).[27]

A similar theme of linking class positions to lifestyles is present in Bourdieu's early studies of French educational systems (e.g., *The Inheritors*) and development of his theory of cultural reproduction. Similar to other reproduction arguments (e.g., Bowles and Gintis 1976; Collins 1979), this perspective emphasizes how dispositions and traits

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[26] "The antagonism between the life-styles corresponding to the opposing poles of the field of the dominant class is clear-cut, total, and … is comparable to the gap between two 'cultures' in the anthropological sense. On one side … reading poetry, philosophy and political works, *Le Monde*, and the (generally leftish) literary or artistic magazines; on the other, hunting or betting, and, when there is reading, reading [*The Reader's Digest*]. On one side, classic or avant-garde theatre, … museums, classical music … on the other, business trips and expense account lunches, … [and] variety shows on TV … luxury cars and a boat, three-star hotels and spas …" (Bourdieu 1984: 283).

[27] "For the working classes, who are strongly ranked by overall capital volume, the data available do not enable one to grasp the differences in the second dimension (composition of capital). However, differences such as those between semi-skilled, educationally unqualified, provincial factory workers of rural origin, living in an inherited farmhouse, and skilled workers in the Paris region who have been in the working class for generations, who possess a 'trade' or technical qualifications, must be the source of differences in life-style and religious and political opinion" (Bourdieu 1984: 115).

cultivated from early childhood, are important for later educational and occupational attainment (Apple 1982; Farkas 2003).[28] Students from wealthy backgrounds appear more articulate to their teachers because the rewarded forms of cultural capital include the same knowledge, abilities and experiences typical of dominant class households (Bourdieu 1973a; Bourdieu and Passeron 1990). Thus, the educational system can unwittingly reward a dominant class position since cultural capital is often highly associated with but not necessarily caused by economic capital.[29] By rewarding cultural capital indicative of a dominant class habitus, schools reinforce and reproduce existing class divisions. While dominant class students receive encouragement as they pass through the educational system, students from the lower classes are systematically punished or discouraged (Bourdieu and Passeron 1979). This process serves to reproduce class positions across generations.

Although the research literature has focused primarily on "highbrow" activities, cultural capital can take a variety of forms (Lamont and Lareau 1988; Lareau and Weininger 2003). In regards to the French educational system, Bourdieu defines cultural capital as informal knowledge about school, linguistic competence, personal style, formal

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[28] In a similar vein, Bowles and Gintis (1976) argue that schools structure student development around the skills and attitudes required for alienated work. Major functions of educational institutions include validating the existence of economic disparities and instilling a degree of technical competence in students so that they may staff positions within the social hierarchy: "The educational system reproduces the capitalist social division of labor, in part, through a correspondence between its own social relationships and those of the workplace (Bowles and Gintis 1976: 147). While Bourdieu also considers educational institutions to legitimate disparities and perpetuate the existing economic order, he is clear not to relate social class to capitalist production.

[29] As an example of this process, Bourdieu considers degree candidacy examinations: "class bias is strongest in those tests which throw the examiner onto the implicit, diffuse criteria of the traditional art of grading, such as the dissertation or the oral, an occasion for passing total judgments, armed with unconscious criteria of social perception on total persons, whose moral and intellectual qualities are grasped through the infinitesimals of style or manners, accent or elocution, posture or mimicry, even clothing and cosmetics …" (Bourdieu and Passeron 1990: 162).

knowledge and diplomas (Bourdieu and Passeron 1979; 1990). Elsewhere, Bourdieu (1973a) conceptualizes cultural capital as art, reading and music tastes. In the American context, recent qualitative applications provide examples of class-based practices at the primary and secondary levels (Lareau 2000; 2003; McDonough 1997; Oakes 2005; Useem 1992). Dominant and middle class parents show an active involvement in education, strong ties to teachers and schools, and actively lobby on behalf of the student. Working class parents are more likely to see the school and family as separate spheres, and less likely to question teachers' authority or work to secure institutional advantages. Consequently, dominant and middle class students develop a sense of entitlement, while working class and poor children show more of a sense of constraint.

3.4 A Latent Clustering Approach

Much research has applied Bourdieu's theory to studies of academic achievement and attainment. However, quantitative applications have deviated from Bourdieu's own approach in a three important ways. First, existing studies have shown a disproportionate focus on the effects of cultural capital and have given less attention to other concepts, such as social class (Sallaz and Zavisca 2007). Second, quantitative studies of cultural capital have also ignored the important, related processes of social exclusion and domination and tend to over-emphasize "highbrow" experiences (Lamont and Lareau 1988; Lareau and Weininger 2003). Third, following DiMaggio (1982), the cultural capital tradition has shown a preference for regression methods and a reliance on the status attainment framework (e.g., De Graaf, De Graaf and Kraaykamp 2000; DiMaggio and Mohr 1985; Farkas et al. 1990; Kalmijn and Kraaykamp 1996; Roscigno and

Ainsworth-Darnell 1999). In his own work, Bourdieu eschewed regression analysis and linear modeling techniques, arguing that they failed to capture the complex system of relations characteristic of fields within social space (Bourdieu and Wacquant 1992: 94-115; Robson and Sanders 2009).

Overall, Bourdieu's own methodological approach shows an affinity for the visual representation of data and an emphasis on the relational properties of systems. Correspondence analysis, a descriptive technique similar to factor analysis that sorts variables into multidimensional plots, was Bourdieu's statistical standard method of choice (Swartz 1997: 61-64).[30] In *Distinction*, an iconic example of this approach, Bourdieu uses correspondence analysis to map the structure of taste along multiple stratifying dimensions based on the distribution of capital. Correspondence analysis is useful in providing graphical models of the distribution of capitals and structure of positions. However, the use of other methods is required for inductive hypothesis testing (Greenacre and Blasius 1994; 2006; Lebaron 2009).

Latent clustering analysis (hereafter LCA) is a statistical method that is consistent with Bourdieu's theoretical project and an improvement upon conventional quantitative applications. LCA is an appropriate method for incorporating Bourdieu's understanding of social class into quantitative research for three primary reasons. First, LCA is consistent with Bourdieu's research method and concern with relating theory and empirical data. Although he emphasizes the subjective nature of social processes, in his

[30] "… if I make extensive use of correspondence analysis, in preference to multivariate regression for instance, it is because correspondence analysis is a relational technique of data analysis whose philosophy corresponds exactly to what, in my view, the reality of the social world is. It is a technique which 'thinks' in terms of relation, as I try to do precisely with the notion of field" (Bourdieu and Wacquant 1992: 96).

research Bourdieu shows a preference for statistics over qualitative accounts (Jenkins 1992: 59-62; Swartz 1997: 52-64). LCA is probability-based, drawing inferences about the underlying structure through examination of manifest distributions. LCA provides a systematic method for classifying individuals into groups based on observed recruitment probabilities, and is less arbitrary than other clustering methods (Magidson and Vermunt 2002). Issues regarding the number, size or composition of classes are determined by the observed associations between variables, rather than by some predetermined criterion. Further, results from LCA are conducive to visual representations in the form of barycentric coordinates or tri-plot displays (Magidson and Vermunt 2001).

Second, LCA can differentiate meaningful fractions within the dominant classes by exploring associations across a range of socioeconomic characteristics. Bourdieu differs from classic sociological approaches by emphasizing amorphous class boundaries, and by emphasizing heterogeneity within the dominant class. While members of the dominant class are similar in respect to possessing large volumes of capital, within this broad category exist fractions distinguished by the relative distribution of economic and cultural capital (Bourdieu 1987). LCA can help distinguish class fractions positioned along cultural and economic axes that exist within broad occupational categories.

Third, LCA is well suited for answering research questions that seek to distinguish groups based on unobservable traits and characteristics (Land, McCall and Nagin 1996). In this way, LCA can begin to provide a quantification of one of Bourdieu's most important, and most nebulous, concepts: the habitus. Although the habitus serves a centerpiece to Bourdieu's broader theory, the concept poses a significant

challenge to researchers and resists easy quantification (Cockerham and Hinote 2009). By sharing a similar relationship to social structure – and a similar constellation of material and symbolic resources – individuals develop a shared class habitus. LCA can more adequately approximate the habitus by locating underlying class positions in social space through the relationships across various dimensions of capital.

Bourdieu is highly attentive to the symbolic formation and maintenance of social classes. In this view, class boundaries are the product of classification struggles and the field-specific sets of relations and distributions of capital (Weininger 2005). Yet, in his studies of the French educational system, Bourdieu considers students' social class in general categories based on parent's occupation (e.g., Bourdieu and Passeron 1979). The conventional application of Bourdieu's concepts largely ignores social class, relying instead on the gradational account of socioeconomic background implied by the status attainment framework. As an improvement, LCA can consider a broader range of student background characteristics and employ formal tests for the existence of two (or more) latent classes. LCA allows a thorough treatment of Bourdieu's key concepts with an advanced statistical method and can facilitate a Bourdieusian approach to social class – and its relation to cultural capital and habitus – with quantitative methods.

3.5 Methods

To identify the underlying class structure of US elite universities, I perform latent clustering analysis with indicators for student socioeconomic background. This technique is analogous to exploratory factor analysis (Clogg 1994; Lazarsfeld and Henry 1968). Latent class models are more capable of addressing persistent unobserved

heterogeneity than other methods (Goodman 1974a), and are particularly well suited for answering research questions that seek to distinguish groups based on unobservable characteristics (Ezell and Cohen 2005; Nagin and Land 1993). Additionally, latent class models do not rely on assumptions that are often violated in practice (e.g., linear relationship, normal distribution, population homogeneity), and are more able to accommodate missing data than other models (Vermunt and Magidson 2000).

To simplify, LCA explores if the association between a set of observed variables can be explained by an underlying latent variable.[31] Typically, one starts with an independence (one-class) model and, if this does not explain the association between the observed indicators, one then fits a model with $T = 2, \ldots, n$ classes until arriving at a solution that reveals adequate model fit. Conventional criteria, such as the chi-squared statistic or the Bayesian Information Criterion, are used to assess how well the model fits the data (Goodman 1974b; Nagin 1999). Finally, based on the preferred solution (i.e., the most parsimonious model with acceptable fit), one assigns each individual to the latent class to which they are observed to have the highest probability of belonging.

Recent applications of LCA in sociology have been wide-ranging. Aldersen, Junisbai and Heacock (2007) use LCA to map the structure of cultural consumption in the United States and to assess predictors from the cultural homology (e.g., Bourdieu 1984),

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[31] For further description of latent class models, see Birkelund, Goodman and Rose (1996: 105-109), Goodman (1974a), and Hagenaars and McCutcheon (2002). For three observed categorical variables *A, B,C* with *I, J* and *K* categories, respectively, a latent class with *T* classes can be expressed as follows:

$$\pi_{ijk}^{ABC} = \sum_{t=1}^{T} \pi_t^X \pi_{it}^{A|X} \pi_{jt}^{B|X} \pi_{kt}^{C|X}$$

where π_t^X is the probability that a person belongs to latent class t , $\pi_{it}^{A|X}$ is the probability that this person is found at level i of variable A and, given membership in latent class t, and so on.

individualization (e.g., Bauman 2000), and the omnivore/univore arguments (e.g., Lamont 1992; Peterson and Kearn 1996). Birkelund, Goodman and Rose (1996) use LCA to examine patterns of gender differences in job characteristics for British men and women. In a similar analysis, Evans and Mills (1998) test the validity of the EGP class schema among British workers by examining associations across a range of individual job characteristics. In studies of crime and criminal histories, LCA distinguishes, for example, chronic offenders from infrequent offenders and non-offenders (e.g., Eggleston, Laub and Sampson 2004; Ezell and Cohen 2005; Hamil-Luker, Land, and Blau 2004; Laub, Nagin and Sampson 1998).

The analysis proceeds in two-stages. First, I conduct LCA to determine whether the observed relationship among selected student background and socioeconomic characteristics can be explained in terms of an underlying latent variable. Next, I examine how these class variables are associated with pre-college forms of capital and student experiences. LCA was performed using *Latent Gold 4.0* (Statistical Innovations 2005), and other analysis was completed with *Stata/SE 10.1* (StataCorp 2008). For examples of related analytic strategies, see Alderson et al. (2007), Birkelund et al. (1996), Chan and Goldthorpe (2007), and Laub et al. (1998).

3.6 Variables

The *Campus Life and Learning* (hereafter CLL or Duke sample) and *Cooperative Institutional Research Program* (hereafter CIRP or national sample) datasets contain a range of equivalent measures of student demographic and socioeconomic characteristics.

For the analysis to follow, variables were coded to be consistent across the two samples.[32] *Academic credential* is the highest level of educational attainment of the student's more highly educated parent, with three categories: less than a college degree, (four-year) college degree and graduate degree. *Occupation status* is the occupational status score (TSEI; Hauser and Warren 1997), classified into three category ranges. "Average" occupations include status scores up to one standard deviation above the national mean, "high status" occupations are defined as within one and two standard deviations above the mean, and "very high status" occupations have scores more than two standard deviations above the mean. Occupation status is coded as the higher of the two scores, if available for both parents. For both samples, the modal occupation in the "average" status category is business executive. Popular "high status" occupations include engineers, bankers and accountants for fathers, and teachers and nurses for mothers. Physician and lawyer are the most frequent "very high status" occupations in each sample. *Household income* is the pre-tax household annual income from the student's senior year in high school, with four categories based on the national income distribution: below the median household income, between the 50th and 74th percentiles, between the 75th and 94th percentiles, and the 95th percentile threshold and above.[33]

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[32] For the Duke sample, original parent's education variables include nine categories, ranging from less than high school graduate to selected professional degrees (e.g., MD, JD, PhD); occupational status scores are applied to the three-digit 1990 US Census Classified Index of Occupations; the original household income variable includes eleven categories, ranging from less than $1,000 to $500,000/year or more. For the national sample, the original education variables include eight categories, ranging from grammar school or less to graduate degree; occupational status scores are applied to a list of 21 careers; and income is measured with fourteen categories, ranging from $6,000/year to $200,000/year or more. All estimates with the CLL data use probability weights to reflect the over-sampling of racial ethnic minority students.

[33] In 1999, the median household annual income was about $42,000, the 75th percentile was about $73,000, and the 95th percentile was about $150,000 (US Census Bureau 2005).

Table 3.1 describes patterns across the variable response categories for both samples. Students at Duke come from slightly more highly educated and more affluent households than students in the national sample. Yet, in comparison to the national population of postsecondary students, both samples are considerably advantaged. Most students attending elite, private universities have at least one parent with a graduate degree. About 71 percent of students in the Duke sample and about 59 percent of students in the national sample have at least one parent with a graduate or professional degree. Among the entering class of 1999 at all four-year US colleges and universities, about one quarter had a father and about one sixth had a mother with a graduate degree (Sax, Astin, Korn and Mahoney 1999: 26-27). About 76 percent of students at Duke and about 71 percent of students in the national sample are from households in the top quartile of the income distribution. For both samples, about two-thirds of students have

Table 3.1: Proportion of students in each response category

	Data Source	
Variable Name	Duke (CLL)	National (CIRP)
Academic credential		
No college degree	.08	.10
College degree	.21	.32
Graduate degree	.71	.59
Occupation status		
Average	.33	.34
High status	.33	.40
Very high status	.34	.26
Household income		
Below US median	.13	.08
50^{th}-74^{th} percentile	.11	.21
75^{th}-94^{th} percentile	.28	.45
95^{th} percentile or above	.48	.26
Observations	1181	3286

at least one parent with a high or very high status occupation. Further, few students at elite, private universities are from households that can be considered socioeconomically disadvantaged in an absolute sense. For both samples, only about four percent of students have parents with below average occupational status and less than one percent of parents have earned less than a high school diploma.

3.7 Results

Tables 3.2 and 3.3 provide summary statistics for LCA models with one to six classes for the Duke and national samples, respectively. Starting with the assumption that the three student background indicators will show a degree of association, the goal of LCA is to determine the number of underlying latent classes that are necessary to explain this association among the observed variables.[34] Global model fit is assessed through a variety of criteria. The chi-square statistic L^2 (and the associated *p*-value) provides a test of the null-hypothesis that the specified model is true. As a rule, models showing adequate fit have values of L^2 that are not substantially greater than the degrees of freedom. The log-likelihood BIC statistic (BIC_{LL}) provides another assessment of model fit, and may be more accurate in situations where data are sparse (Hagenaars and McCutcheon 2002). In general, reduction to values of L^2 and BIC_{LL} indicate improvement to model fit, and the most parsimonious model with adequate fit is deemed the preferred solution.

[34] The student background variables included in the LCA show a high degree of association. For the CLL, correlations between academic credentials and occupation status (r = .41), academic credentials and household income (r = .44) and occupation status and household income (r= .33) are all highly significant. For the CIRP, correlation coefficients are also significant but somewhat weaker than the CLL: academic credentials and occupation status (r = .42), academic credentials and household income (r = .32) and occupation status and household income (r= .19).

For the Duke sample (Table 3.2), the four- and five-class solutions each reveal adequate model fit by several criteria. The three-class solution has the lowest value of BIC_{LL}, but a significant *p*-value indicates that the model does not account for the association among indicators. The four- and five-class solutions show further reductions in L^2 and only marginal increases in BIC_{LL} compared to the three-class solution. Additionally, tests of local model fit – including an examination of factor loadings and bivariate residuals – show that each indicator in the four- and five-class solutions significantly contributes to the model and that the latent constructs explain much of the association between indicators (Magidson and Vermunt 2004: 184-185).[35] As a final test, the conditional bootstrap compares nested latent class models (Langeheine, Pannekoek and Van de Pol 1996), with a significant *p*-value indicating improved model fit. The four-class solution is preferred over the three-class solution ($p < .001$), and the five-class solution offers additional improvement to the four-class solution ($p = .006$).[36] Based on these criteria, I retain the four- and five-class solutions for further examination.

Table 3.2: Latent class models fitted to CLL student background variables

Models	BIC_{LL}	L^2	d.f.	*p*-value	% reduction in L^2
1. Class	7350.93	526.51	28	.000	0.0
2. Class	7023.56	163.75	23	.000	68.9
3. Class	6944.95	49.76	18	.000	90.5
4. Class	6954.25	23.68	13	.042	95.5
5. Class	6974.73	8.78	8	.656	98.3
6. Class	7006.96	5.64	3	.542	98.9

[35] More specifically, significant Wald tests indicate that each variable contributes to the ability to discriminate between latent clusters. Low bivariate residuals (BVRs) indicate that the model explains the associations between any pair of indicators. In general, if the model were true, BVRs should not be substantially greater than one. For the four- and five-class solutions, BVRs are all less than .10.

[36] Additionally, the conditional bootstrap test finds that the six-class solution does not offer additional improvement to model fit in comparison to the five-class solution ($p = .452$).

Results from LCA using the national sample also provide support for the four- and five-class solutions (Table 3.3).[37] The four- and five-class solutions are preferred by the BIC_{LL}, and both solutions show acceptable levels of local model fit.[38] The five-class model is the most parsimonious solution to meet the standard threshold for the L^2, and is also supported by the conditional bootstrap test.[39] Overall, results are highly consistent across the two samples and suggest that the class structure of elite universities includes at least four identifiable latent classes.

Table 3.3: Latent class models fitted to CIRP student background variables

Models	BIC_{LL}	L^2	d.f.	p-value	% reduction in L^2
1. Class	21252.20	1495.60	28	.000	0.0
2. Class	20254.41	457.33	23	.000	69.4
3. Class	19954.34	116.77	18	.000	92.2
4. Class	19938.44	60.38	13	.000	96.0
5. Class	19938.72	20.17	8	.078	98.7
6. Class	19967.99	8.96	3	.386	99.4

From these results, I use standard classification to assign students to the latent cluster for which they have the greatest posterior membership probability. Table 3.4

[37] Results remain robust across a variety of model specifications, including treating occupation status and household incomes as continuous variables. Preliminary LCA models reported in Martin (2009a) include a dummy variable for parents' business ownership. Including an indicator for business ownership yields highly consistent results, and provides additional support for a small precarious professional class fraction within the broader dominant class. I exclude this variable from the present analysis for two main reasons. First, the variables are not entirely comparable across the two datasets. Second, including the variables shows unacceptable measures of local model fit for the four-class solutions. Other preliminary models included indicators for family contribution for college expenses, family structure, financial aid and family wealth. The addition of these variables did not contribute to the ability to discriminate between clusters and appeared to introduce problems of local dependencies among indicators, as shown by high BVRs (Magidson and Vermunt 2004: 184-185).

[38] For both the four- and five-class solutions, significant Wald tests indicate that each variable contributes to the ability to discriminate between clusters. For the four-class solution, the BVR between parent's education and household income is 1.39. All other BVRs are less than .35, suggesting that the model explains the associations between pairs of indicators.

[39] The conditional bootstrap test shows that the five-class solution is preferred over the four-class solution ($p < .001$), but the six-class solution is not preferred over the five-class solution ($p = .320$).

presents the model profile for the Duke four-class solution, displaying the proportion of students in each response category. The first two classes – which I label "professionals" and "executives" – account for about 46 percent of students and correspond to two dominant class fractions. The executive class includes more than one-eighth of students, and has the highest household incomes but only average levels of occupational status. The professional class includes about one-third of students, and over 90 percent of professional households are in the top quartile of the income distribution. Yet, this group is distinctive in having the highest levels of parental educational attainment and occupational status. All students in the professional class have at least one parent with a graduate degree and a high status occupation. In other words, the executive and professional classes are similar in the overall volume of capital possessed but differ in the relative distribution of economic and cultural capital.

Compared to the two dominant class categories, the "middle" and "subordinate" classes are disadvantaged in terms of academic credentials, household income and occupational status.[40] For example, nearly half of subordinate class students do not have a parent with a college degree and nearly half have pre-college household incomes below the national median. While the parents of middle class students show high levels of occupational status and educational attainment, middle class household incomes are substantially lower than the executive class. Overall, the four-class model shows the

[40] I choose the label "subordinate" classes, rather than "lower" or "working" classes, because this group is disadvantaged relative to other student groups on campus but not uniformly disadvantaged in an absolute sense. Subordinate class students at elite, private universities are more affluent and of higher status social origins than is often implied by the labels of working or lower class. Further, few students at elite, private universities are from traditional, blue-collar working class households. For example, fewer than two percent of Duke students and less than four percent of students in the national sample have parents who work only as skilled or unskilled manual workers.

clearest distinctions between the two dominant class categories, with the middle and subordinate classes representing rather heterogeneous but generally less affluent groups.

Table 3.4: Proportion in each response category, CLL four-class model

	Professional	Executive	Middle classes	Subordinate classes
Class size	.33	.13	.37	.17
Academic credential				
No college degree	.00	.00	.00	.49
College degree	.00	.22	.31	.39
Graduate degree	1.00	.78	.69	.12
Occupation status				
Average	.00	.93	.14	.80
High status	.10	.07	.83	.20
Very high status	.90	.00	.03	.00
Household income				
Below US median	.04	.00	.10	.48
50^{th}-74^{th} percentile	.06	.00	.13	.25
75^{th}-94^{th} percentile	.24	.00	.44	.24
$\geq 95^{th}$ percentile	.67	1.00	.33	.03

Source: Campus Life and Learning (n = 1181)

Figure 3.1 provides support for a generic distinction between the dominant, middle and subordinate classes in the form of a tri-plot or barycentric coordinate display. In a barycentric coordinate display, the vertices of the triangle represent the three clusters. The centoid – indicated by a triangle near the center of the diagram – represents the mean observation. The lines that emanate from the centroid intersect at the corresponding class probabilities: .46 for dominant classes, .37 for middle classes, and .17 for subordinate classes. For each value of the student background variables (academic credential, occupation status and household income), the points that intersect the three cluster vectors by running parallel to the lines emanating from the centoid correspond to the cluster probability values. For example, 62 percent of students who

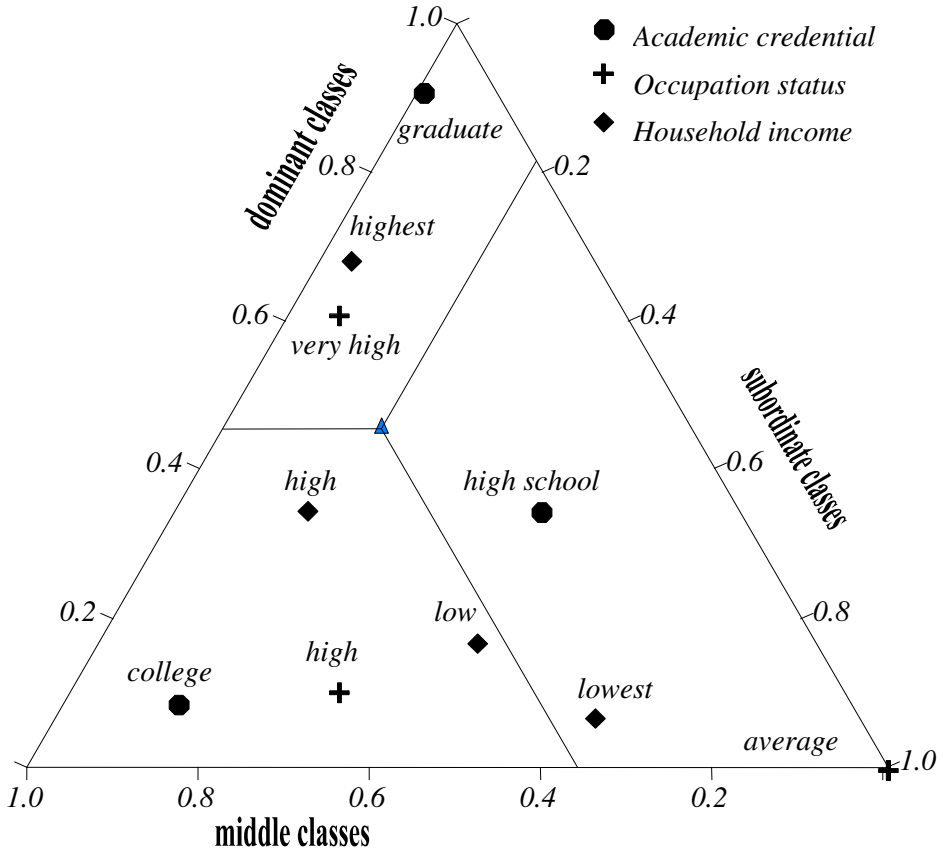

Figure 3.1: Barycentric coordinate display of the CLL four-class model

reported the lowest household incomes were classified in the subordinate classes, compared to 31 percent in the middle and seven percent in the dominant classes.

A few descriptive patterns are notable. First, the dominant classes comprise a disproportionally large share of the elite university campus, while the traditional working and lower classes are underrepresented. Second, each of the student background variables are highly associated with these broad class categories. Dominant class students enter college from households advantaged in terms of income as well as academic credentials and occupational status. Subordinate class students show relative

deficits on all three measures. Third, household academic credentials provide the clearest distinction between these class categories. More than 91 percent of dominant class students have at least one parent with a graduate degree, compared to less than ten percent of middle class and less than one percent of subordinate class students. While all middle or dominant class students have at least one parent with a college degree, nearly half of subordinate class students' parents have a high school degree or less.

Table 3.5 presents the five-class solution for the Duke sample. The five-class solution largely retains the executive and subordinate class categories, while locating an intermediate category that is similar to the professional class in regards to educational attainment but with lower household incomes than the middle classes. Nearly all students in this group, which I label "precarious professionals" (Kalleberg 2009), have at least one parent with a graduate degree and a high or very high status occupation. Yet, precarious professional households have the lowest incomes of the five classes. Further inspection of the precarious professional class reveals that the modal occupations are teacher for mothers, and physician and lawyer for fathers. This class bears some resemblance to Bourdieu's (1984: 59, 339-365) description of the petty bourgeois, a diverse group that includes teachers as well as small business owners, junior executives, technicians and clerical workers. This class is disadvantaged in regards to economic capital in comparison to the middle classes and especially the professional and executive classes. However, given the advanced credentials and high level of status, I classify precarious professionals as a smaller fraction within the dominant classes. With an abundance of cultural capital, in the form of academic credentials and professional occupations, this

group has a similar advantaged relationship to educational institutions. Together, the dominant classes comprise over half of students at Duke University.

Table 3.5: Proportion in each response category, CLL five-class model

	Professional	Executive	Precarious professional	Middle classes	Subordinate classes
Class size	.30	.14	.08	.30	.18
Academic credential					
No college degree	.00	.04	.01	.00	.41
College degree	.00	.22	.02	.34	.42
Graduate degree	1.00	.75	.97	.66	.18
Occupation status					
Average	.00	.91	.00	.13	.76
High status	.11	.09	.58	.84	.24
Very high status	.89	.00	.42	.04	.00
Household income					
Below US median	.00	.00	.49	.00	.49
50^{th}-74^{th} percentile	.00	.00	.51	.05	.29
75^{th}-94^{th} percentile	.26	.00	.00	.55	.22
$\geq 95^{th}$ percentile	.74	1.00	.00	.40	.00

Source: Campus Life and Learning (n = 1181)

Table 3.6 shows the corresponding five-class model profile for the national sample.[41] While there are subtle differences, these five classes map along the same dimensions as the CLL results. Compared to the class structure of Duke, this national sample of elite universities contains a somewhat greater proportion of students from the middle classes and lower proportion from the professional classes. About one-fifth of students in the national sample have professional and executive class backgrounds, and about three percent of students are from precarious professional households.

[41] The four-class model profile for the national sample is highly consistent with the CLL results. For the CIRP four-class model profile, 25 percent of students are in the professional, 14 percent are in executive, 47 percent are in middle and 14 percent are in subordinate classes. The four-class solution largely combines the professionals and precarious professional of the five-class model. For example, in the four-class profile, the professional class is somewhat less affluent and includes a few students with low academic credentials.

Table 3.6: Proportion in each response category, CIRP five-class model

	Professional	Executive	Precarious professional	Middle classes	Subordinate classes
Class size	.21	.19	.03	.41	.15
Academic credential					
No college degree	.00	.03	.11	.00	.58
College degree	.00	.49	.00	.41	.38
Graduate degree	1.00	.48	.89	.59	.04
Occupation status					
Average	.00	1.00	.00	.05	.91
High status	.00	.00	.00	.92	.09
Very high status	1.00	.00	1.00	.03	.00
Household income					
Below US median	.00	.00	.19	.07	.33
50^{th}-74^{th} percentile	.00	.00	.78	.27	.50
75^{th}-94^{th} percentile	.48	.58	.03	.51	.17
$\geq 95^{th}$ percentile	.52	.42	.00	.16	.00

Source: Cooperative Institutional Research Program (n = 3286)

Overall, results from LCA yield two primary conclusions. First, the Duke and national samples are highly comparable. Both samples are considerably more affluent than the student population at other four-year colleges and universities, although Duke contains a higher proportion of students from professional class backgrounds. The dominant classes comprise over half of students at Duke, and about 43 percent of students in the national sample. In contrast, only about one-sixth of students in both samples are from subordinate class backgrounds. About three-quarters of Duke students and 71 percent of students in the national sample are from households ranked in the top quarter of the income distribution. About one tenth of elite university students have parents with only a high school diploma or less.

Second, the preferred four- and five-class solutions provide support for Bourdieu's contention that the class structure maps along the distribution of economic

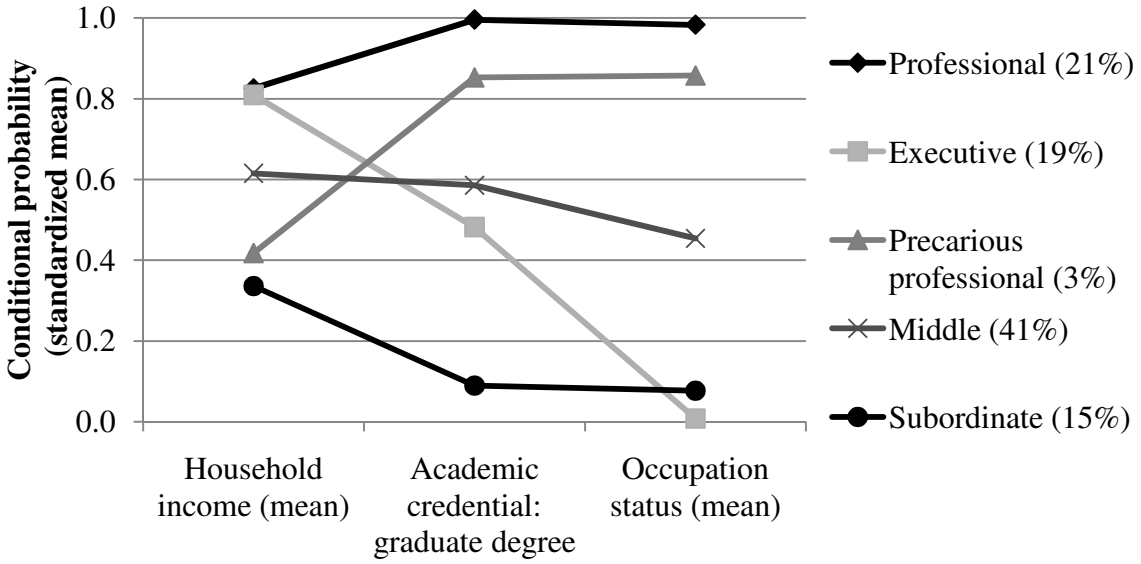

Figure 3.2: Profile plot of the CIRP five-class solution

and cultural capital. Figure 3.2 displays the profile plot for the five-class model using the national sample, constructed from the conditional probabilities for nominal variables (academic credentials) and standardized means for other variables.[42] The profile plot provides a visual representation of the distribution of forms of capital for the five class categories. The subordinate classes have the lowest scores on all three dimensions. Fractions within the dominant class exist, based on the relative contribution of cultural and economic capitals. Unlike professional and precarious professional students, executive class students are from households with less status and fewer advanced academic credentials. Precarious professional students show a distinctive configuration

[42] Prior to plotting the class-specific means, ordinal variables (occupation status and household income) are rescaled to lie within the range 0 to 1. By default, this is accomplished by subtracting the lowest observed value from the class-specific means and dividing the results by the range. An advantage of this method is that results are displayed on the same scale as the class-specific probabilities for nominal variables (Vermunt and Magidson 2005).

of high levels of cultural capital but relatively low levels of economic capital. Among this class, more than one-third of students in both the national and Duke samples have a mother who is a teacher, instructor or education professional.

3.8 Social Class and Pre-College Forms of Capital

How is social class associated with cultural lifestyles, educational resources and other forms of capital on these elite university campuses? To address this question, I use a broad range of survey items – collected in the summer preceding college matriculation for Duke students and during the first few weeks of first year classes for the national sample – that provide information about pre-college cultural, economic and social capital, and other family resources and educational experiences. Together, these comparisons provide a more complete portrait of students' class profiles as they enter the elite university campus. After presenting descriptive results for the Duke sample, I provide comparisons from the national sample when available. These comparisons provide additional support that the two samples are highly comparable in terms of students' class background. Additionally, by looking at a variety of forms of pre-college capital, there is further support for the generic distinction between the dominant, middle and subordinate classes, as well as evidence of important fractions within the dominant class.

3.9 Class Profiles of Duke University Students

Table 3.7 presents sociodemographic characteristics for professional, executive, middle and subordinate class students at Duke University.[43] Compared to middle and

[43] In this section, I base discussion on the four-class model and limit details of the five-class model to footnotes. The small sample of Duke precarious professionals (n = 96) prevents in-depth analysis. In

subordinate class students, dominant class students are more likely to be white and US citizens. The subordinate class is the most diverse class on campus. About 44 percent of subordinate class students are white, compared to two thirds of middle, three quarters of professional and 85 percent of executive class students. About 19 percent of subordinate class students are black, 14 percent are Latino and 18 percent are Asian. In contrast, only two percent of executive class students are black, four percent are Latino and six percent are Asian. Subordinate class students are also less likely to be US citizens than are other students. Nearly one quarter of subordinate class students are from households where English was not the primary language spoken. Dominant class students are more likely to be Jewish than middle and subordinate class students, and subordinate class students are most likely to be Catholic.[44]

A comparison with a conventional EGP class schema indicates a high degree of agreement with the results from LCA.[45] The four-class EGP schema used here is derived from the three-digit 1990 US Census Occupation code (Morgan and McKerrow 2004).

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general, results for the professional, executive, middle and subordinate classes are highly comparable between the four- and five-class models, although the professional class is somewhat more advantaged and affluent in the five-class model. Precarious professional students comprise a more racially ethnically diverse group than other dominant class students. About 64 percent of precarious professional students are white, eleven percent are black, seven percent are Latino, and fifteen percent are Asian. Precarious professional students and their parents are least likely to be US Citizens; about 80 percent of precarious professional students and 76 percent of parents are native born or naturalized citizens.

[44] In results not shown, there are no significant differences across social classes for Protestant affiliation, religious attendance, importance of religious affiliation to overall identity, or the importance of college expectations for spiritual development.

[45] Results with the five-class model provide further support for considering precarious professional students as a somewhat disadvantaged fraction within the dominant class. All precarious professional students would be classified in the two dominant classes of the EGP schema, and three quarters of precarious professional students would be classified as high grade professionals (Class I). An advantage of using this LCA schema compared to the conventional EGP schema is the ability to discriminate between existing fractions within elite status groups and dominant classes. About 72 percent of Duke students have a parent with a high grade (Class I) and 16 percent a lower grade professional (Class II) occupation.

Table 3.7: Sociodemographic and high school background (means), by social class

	Professional	Executive	Middle classes	Subordinate classes
Race/ethnicity:				
White *	.74	.85	.66	.44
Black *	.05	.02	.08	.19
Latino *	.07	.04	.08	.14
Asian *	.12	.06	.16	.18
Other	.02	.02	.04	.04
US Citizenship:				
Student *	.96	.94	.93	.86
Mother *	.94	.93	.91	.84
Father *	.95	.91	.89	.84
English in home *	.90	.93	.87	.78
Years of education:				
Mother *	17.71	16.71	16.65	14.29
Father *	19.58	17.97	17.42	14.68
Religious affiliation:				
Catholic *	.21	.14	.20	.28
Protestant	.36	.41	.42	.39
Jewish *	.17	.12	.07	.03
Other	.27	.33	.30	.30
EGP social class:				
Class I *	.98	.70	.52	.36
Class II *	.02	.17	.37	.25
Class III *	.00	.11	.03	.24
Class IV *	.00	.02	.01	.11
Missing *	.00	.00	.07	.03
Grade school attended:				
Public *	.67	.63	.78	.75
Private *	.19	.26	.12	.08
Religious	.14	.11	.10	.17
Middle school attended:				
Public *	.67	.56	.77	.79
Private *	.20	.29	.14	.09
Religious	.13	.15	.09	.12
High school attended:				
Public *	.64	.53	.73	.76
Private *	.24	.33	.17	.12
Religious	.12	.13	.10	.12

Source: Campus Life and Learning (n = 1181)

Note: Significant interclass differences are noted as * $p < .05$ (two-tailed tests); Class I = high grade professionals, Class II = lower grade professionals, Class III = other non-manual workers, Class IV = manual workers (Erikson, Goldthorpe and Portocarero 1979).

Nearly all dominant class students would be classified as Class I or II with this schema. These occupation categories are distinguished by having high asset-specificity and job autonomy (Erikson and Goldthorpe 1992). While most students in the dominant or middle classes have a parent with a high status occupation, more than one third of subordinate class students have parents employed in routine service or manual occupations. This EGP schema is somewhat deficient in a few regards. To Goldthorpe (1980; 2000), class position entails a broad range of market and work conditions, including income, expertise, employment relations, monitoring, and control. Unfortunately, the CLL does not collect information about parents' detailed job characteristics. However, these limitations do not lead to substantial differences with how the EGP schema is used in practice (Breen 2005).[46]

High schools are important contexts for shaping college plans, in particular the choice of a selective college or university (McDonough 1997). In earlier decades, elite private secondary schools served as important sites for dominant class cohesion and socialization.[47] Additionally, high school contexts influence access to educational resources important in the transition to postsecondary education (Ball and Vincent 1998;

[46] Erikson and Goldthorpe (1992: 40-1) classify large employers as high-grade professionals, even as they lack the service relationship that largely defines this class: "In so far as such large proprietors tend to be quite extensively involved in managerial as well as entrepreneurial activities, they may be regarded as having a yet greater affinity with those salaried managers to be found in class I who have a substantial share in the ownership of the enterprises in which they work."

[47] "As a selection and training place of the upper classes, both old and new, the private school is a unifying influence, a force for the nationalization of the upper classes. The less important the pedigreed family becomes in the careful transmission of moral and cultural traits, the more important the private school. The school – rather than the upper-class family – is the most important agency for transmitting the traditions of the upper social classes, and regulating the admission of new wealth and talent. It is the characterizing point in the upper-class experience" (Mills 1959: 64-65).

Reay, David and Ball 2005).[48] Compared to middle and subordinate class students at Duke, dominant class students are more likely to have attended private schools. About one third of executive and one quarter of professional class students attended private high schools, compared to about one sixth of middle and one eighth of subordinate class students. Executive class students are more likely to have attended private schools throughout their educational career. Over one fifth of executive class students attended private schools during the grade, middle and high school years.[49]

Economic capital – the most readily convertible form of capital –takes the primary form of money, assets and property rights (Bourdieu 2001). Results from LCA indicate that professional and executive households have considerably higher incomes than do middle and subordinate class households. Table 3.8 compares social classes across other indicators of economic capital and family resources. Dominant class parents are more likely to own a business and have substantially greater incomes than middle and subordinate class parents. The executive class stands out by having the highest levels of economic capital across all indicators. The average executive household has an annual income of more than $350,000, and only four percent of executive students experienced financial difficulties during the high school years. More than one-third of subordinate

[48] Less than one percent of US secondary students, overwhelmingly the children of the privileged classes, attend elite boarding schools (Cookson and Persell 1985a). These schools serve as important sites of elite reproduction and socialization, and provide access to many resources and social networks that facilitate the transition into selective colleges and universities (Cookson and Persell 1985b; Persell, Catsambis and Cookson 1992; Persell and Cookson 1985; 1987). In results not shown, there are no significant differences for attending a boarding school during the high school years. About six percent of Duke students attended a boarding school where they lived away from home during high school.

[49] Results from the five-class model show that, in terms of the type of schools attended, precarious professional students are more similar to middle and subordinate class students. About three quarters of precarious professional students attended public schools at each level of education, about ten percent attended private grade or middle schools, and 17 percent attended private high schools. Less than four percent of precarious professional students attended a boarding school.

Table 3.8: Economic capital and family resources (means), by social class

	Professional	Executive	Middle classes	Subordinate classes
Financial difficulties *	.10	.04	.15	.38
Financial aid interest *	.50	.37	.58	.65
Share of college expenses:				
Parents *	.50	.53	.38	.26
Grants *	.14	.11	.18	.32
Scholarships *	.12	.10	.15	.17
Loans *	.09	.08	.11	.10
Other family members *	.06	.06	.05	.03
Personal savings *	.03	.05	.04	.03
Work-study *	.02	.02	.03	.03
Other employment *	.02	.02	.03	.03
Other source	.02	.02	.03	.02
Household income ($US thousand)*	262.70	351.55	164.34	67.94
Family own home *	.85	.92	.81	.75
Family own second home *	.25	.33	.21	.08
Family own business *	.42	.37	.26	.30
Intact family *	.89	.93	.80	.71
Mother work full-time *	.42	.23	.52	.51
Number of siblings	1.14	1.24	1.18	1.26
Number of family moves *	.74	1.44	1.18	1.15
Parent-school involvement:				
Check homework	2.13	2.22	2.16	2.06
Help with homework *	1.85	1.93	1.85	1.67
Parent-teacher org. *	2.08	2.01	1.97	1.81
Other school activity*	2.20	2.18	2.12	1.93
Talk with friends *	2.15	2.25	2.07	1.96
Parent-child interaction:				
Discuss political issues *	2.20	2.16	2.07	1.88
Discuss books/films *	2.18	2.21	2.08	1.99
Listen to music together	1.74	1.78	1.74	1.73
Eat meals together *	2.66	2.75	2.55	2.39
Spend time talking *	2.62	2.70	2.54	2.49
Discuss school progress	1.96	1.94	1.98	1.87

Source: Campus Life and Learning (n = 1181)

Note: Significant interclass differences are noted as * $p < .05$ (two-tailed tests); parent-school involvement and parent-child interaction variables describe the frequency of participation during student's middle school years (1 = never, 3 = often).

class students experienced financial difficulties during the high school years. About 92 percent of executive families own their home, and one third own a second home.

Duke students in the CLL could expect a budget of at least $37,000 for first year tuition, board, fees and other expenses, and over 40 percent of undergraduate students receive some financial assistance.[50] Although the CLL does not include information about financial assistance received, about 37 percent of executive class students indicated that they were interested in receiving financial aid on their application form, compared to about half of professional and two thirds of subordinate class students. The pre-college survey asks students about expected contributions for college expenses. Professional and executive students expect to finance a private university education primarily with parent and family support. Middle and subordinate class students expect to receive less family support for their college expenses, and are more likely to expect to work during college than are dominant class students. Grants, loans and scholarships account for more than half of subordinate class students' expected college expenses.[51]

Following Coleman (1988), many studies have examined how stable family environments and family resources encourage educational attainment for primary and secondary students (e.g., Hagan, MacMillan and Wheaton 1996; McLanahan and

[50] As reported in the 2001-2002 Undergraduate Bulletin, estimated expenses for the 2001-2002 academic year – when CLL first cohort students were in their first year – included: tuition ($26,000), residential fee ($3,674 to $6,512, depending on number of roommates), fees ($1,534), and food plan ($3,838 to $3,298). Over 43 percent of the student body received some form of financial aid (Duke University 2001).

[51] Comparisons with the five-class model reveal that precarious professional students are least similar to other dominant class students in terms of economic capital and financial resources. The average precarious professional household annual income is about $46,000, and about one third of precarious professional students experienced financial difficulties during the high school years. About 85 percent of precarious professional families owned their home, 18 percent owned a second home, and about one quarter owned a business. Precarious professional students expected scholarships, grants and loans to cover about 57 percent of college expenses, and expected less assistance from parents and family members compared to other dominant class students.

Sandefur 1994; Pribesh and Downey 1999; Sandefur, Meier and Campbell 2006; Swanson and Schneider 1999). In particular, Coleman emphasized that quality interactions among students, parents, and school communities can enhance achievement. Some aspects of family structure can influence the amount of family resources available to each member of the household, such as having an intact, two-parent family or the number of siblings. Others may disrupt social relationships, including having a mother who works full-time and frequent moves during adolescence.

During the middle and high school years, dominant class students had access to more family resources. More than half of middle and subordinate class mothers worked full-time during the student's senior year of high school, compared to less than one quarter of executive class mothers. Dominant class parents participated more often in parent-school organizations and other school activities and more often helped students with their homework.[52] Compared to middle and subordinate class parents, professional and executive class parents spent more time talking with their child's friends. Dominant class households were sites to more frequent discussions about political issues, social events, books, films and television programs, as well as regular family meals.

Cultural capital includes embodied traits, such as tastes, dispositions and linguistic styles, and objective cultural goods and artifacts. Further, cultural capital can be institutionalized in the form of academic credentials (Bourdieu 2001). Table 3.9 describes patterns of cultural participation and experiences across class backgrounds

[52] During the high school years, students across class categories received similarly low levels of guidance from their parents for homework assignments. Professional and executive parents participated more frequently in parent-school organizations and more often talked with student's friends compared to middle and especially subordinate class students.

Table 3.9: Cultural capital and educational resources (means), by social class

	Professional	Executive	Middle classes	Subordinate classes
Parent's cultural capital:				
Museum/art gallery *	1.66	1.78	1.51	1.22
Opera/ballet *	1.75	1.80	1.52	1.28
Read for pleasure *	2.62	2.70	2.63	2.22
Student's cultural capital:				
Movie theater *	2.67	2.72	2.59	2.43
Museum/art gallery *	1.61	1.55	1.52	1.36
Music concert	1.18	1.22	1.14	1.13
Opera/ballet *	1.44	1.43	1.31	1.23
Sports event *	2.16	2.29	2.04	1.91
Zoo/science center	1.52	1.57	1.51	1.47
More than 200 books in home *	.76	.81	.71	.43
Strong college support *	.97	.96	.97	.88
Educational resources *	9.44	9.46	9.32	8.79
Quiet place to study *	.93	.97	.90	.86
College preparation activities:				
Taking AP course(s)	.96	.93	.95	.92
Receiving AP credit †	.86	.84	.86	.77
Having a private tutor †	.11	.14	.08	.05
SAT prep course *	.53	.48	.44	.37
SAT private tutor *	.21	.27	.15	.07
College course for credit	.27	.23	.20	.28
Educational consultant *	.30	.40	.26	.28

Source: Campus Life and Learning (n = 1181)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests); cultural capital variables describe the frequency of participation during student's middle school years (1 = never, 3 = often); educational resources is a scale (max. 10) of items present in the home during students high school years (e.g., encyclopedia, computer, study desk, internet access).

during the students' middle and high school years. Professional class students, who all have at least one parent with a graduate degree, are from households advantaged in terms of institutionalized cultural capital. Like other dominant class students, professional class students and their parents participate more frequently in a variety of cultural activities. Dominant class students participate more frequently in "highbrow" activities, such as visiting art museums or attending the opera and ballet, as well as popular activities, such

as going to the movie theater and attending sports events. Conversely, subordinate class students are the least likely to participate in each of the activities.[53] About 18 percent of subordinate class students never visited an art museum or gallery during middle school, compared to about five percent of dominant class students and eleven percent of middle class students. Nearly 42 percent of subordinate class students never attended an opera, play, ballet or symphony during middle school, compared to about one quarter of other students. Additionally, parents of subordinate class students were least likely to visit art museums, attend the opera or ballet, or read for pleasure.

These results provide suggestive evidence in support of a "homology" or correspondence between class origins and lifestyles (Bourdieu 1973; 1984) as well as arguments related to the cultural omnivore thesis (DiMaggio 1987; Peterson and Simkus 1992). The dominant classes act less like cultural "snobs" and more as "omnivores," participating in all cultural activities more frequently than middle and subordinate class students (Alderson et al. 2007; Bryson 1996; Chan and Goldthorpe 2007; Coulangeon and Lemel 2007; Lamont 1992; Peterson and Kern 1996). Middle and subordinate class students were less likely to participate in all types of activities, although subordinate class students showed considerably lower rates of participation in "highbrow" activities, such as visiting art museums or attending the opera. Subordinate class students enter college with somewhat less experience with activities traditionally linked to the concept of

[53] Similar results are found for high school cultural activities. During the high school years, dominant class students more frequently visited art museums, popular music concerts, the opera or ballet and sporting events. About 20 percent of subordinate class students never visited an art museum during high school, compared to about ten percent of dominant class students and fifteen percent of middle class students.

cultural capital (Sallaz and Zavisca 2007).[54] Even as financial barriers to visiting art museums are relatively low, class position strongly influences the preference to visit museums (Bourdieu and Darbel 1991; Prior 2005).[55]

As examples of objectified forms of cultural capital, dominant class homes contain more books and educational resources (Roscigno and Ainsworth-Darnell 1999; Teachman 1987). During students' high school years, about 81 percent of dominant class and 76 percent of professional class homes had enough books to fill roughly three bookcases or more, compared to about 43 percent of subordinate class students. Most Duke students are from households that contain an abundance of educational resources and are strongly supportive of college, although slightly less so for subordinate class students. Dominant class students have more resources to prepare for and apply to colleges and universities than middle and subordinate class students. Professional class students are most likely to take an Advanced Placement (AP) course, receive AP credit, and take an SAT course (e.g., Kaplan, Princeton Review). Executive class students are

[54] Results for five-class model show a distinct pattern of cultural participation for precarious professional class students. Likely attributable to lower levels of economic capital, precarious professional students were less likely than middle and subordinate class students to participate in popular activities, such as going to the movie theater or attending a music concert or sports event. While precarious professional students and their parents visited art museums and attended the opera or ballet somewhat less often than other dominant class students, they were more active in these "highbrow" activities than subordinate class students. Additionally, about 97 percent of precarious professional families were very supportive of college plans, and two thirds of precarious professional homes contained more than 200 books.

[55] "The museum, a consecrated building presenting objects withheld from private appropriation and predisposed by economic neutralization to undergo the 'neutralization' defining the 'pure' gaze, is opposed to the commercial art gallery which, like other luxury emporia ('boutiques', antique shops, etc.) offers objects which may be contemplated but also bought, just as the 'pure' aesthetic dispositions of the dominated fractions of the dominant class, especially teachers, who are strongly over-represented in museums, are opposed to those of the 'happily few' in the dominant fractions who have the means of materially appropriating works of art" (Bourdieu 1984: 273 278).

most likely to have a private tutor for high school classes and SAT preparation, and to use a college admissions or educational consultant.

Studies of selective university students have found a modest association between socioeconomic background and major and career selection (Bowen and Bok 1998; Katchadurian and Boli 1985; 1994; Pascarella and Terenzini 2005). Table 3.10 describes students' pre-college expectations for their major field of study and first career after graduation. Compared to measures of pre-college forms of capital, there are few significant differences for college plans and expectations. During the first semester on campus, executive class students are least likely to major in engineering and the natural sciences. While executive class students are most likely to plan on a business career, professional class students were most likely to plan to become a medical doctor. About 41 percent of executive class students were undecided about their first year major, compared to less than one third of other students. Further, executive class students were most likely to not report first career plans.

Admissions practices at American selective colleges and universities regularly consider a range of characteristics beyond academic merit (Fetter 1995). Affirmative action programs that favor underrepresented minority students are perhaps the most conspicuous preferential admissions policy, as highlighted by the June 2003 Supreme Court rulings (*Gratz v. Bollinger*; *Grutter v. Bollinger*). However, admissions officers routinely give extra consideration to other student traits, for example athletic ability, musical talent, alumni ties, unusual life experiences, and expected financial donations (Bowen, Kurzweil and Tobin 2005; Golden 2006; Shulman and Bowen 2001; Zwick

2002). In this way, the admissions process serves as a critical opportunity for students to convert their pre-college forms of capitals (Karabel 2005; Karen 1991a).

Table 3.10: Expected major and first career (means), by social class

	Professional	Executive	Middle classes	Subordinate classes
Major area:				
Engineering	.18	.14	.17	.21
Natural sciences *	.20	.14	.23	.19
Social sciences	.21	.26	.22	.20
Arts and humanities	.08	.05	.08	.08
Undecided †	.33	.41	.29	.32
First career:				
Business executive †	.04	.10	.06	.05
Engineer	.07	.08	.06	.10
Lawyer	.09	.07	.08	.08
Medical doctor *	.18	.09	.10	.11
Professor/scientist	.04	.02	.03	.04
Other occupation	.19	.11	.18	.22
Don't know/missing *	.40	.54	.50	.41

Source: Campus Life and Learning (n = 1181)
Note: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests).

Table 3.11 describes admission profiles and pre-college campus ties. The issue of admissions preferences at selective colleges and universities has featured prominently in public discourse and policy debates (Bowen et al. 2005). Recent studies have compared three of the most prominent examples of admissions preferences: underrepresented racial ethnic minorities, students with alumni connections ("legacies"), and intercollegiate athletes (Espenshade and Chung 2005; Espenshade, Chung and Walling 2004; Massey and Mooney 2007; Martin and Spenner 2009). As mentioned above, subordinate class students are more likely to be black or Latino than are other students. Subordinate class students are slightly more likely to be scholarship athletes during their first year on campus, although the interclass difference is not significant. Dominant class students are

more likely to be legacies than are middle and subordinate class students. Nearly one-third of executive and one-quarter of professional class students have a parent or close relative who graduated from Duke, compared to about one-fifth of middle class and one-tenth of subordinate class students.

The CLL includes questions about pre-college ties to Duke, as well as official admissions files and transcripts. Executive class students bear a closer resemblance in their admissions profiles to middle and subordinate class students than to other dominant class students. Professional class students enter campus with the highest SAT scores, and the highest evaluation scores for high school achievement, curriculum, essay and test scores. Middle class students have very similar evaluation scores to professional class students, and somewhat higher SAT scores than executive class students. Subordinate class students, who show the lowest levels of pre-college forms of capital, have the lowest average test scores but very similar evaluation scores to executive class students.[56]

Not only are dominant class students more likely to be Duke legacies, but they also have more contact with campus administrators, officers and faculty during the admissions process. Professional and executive class students were more likely to visit campus, speak with an Admissions Office representative, be in contact with recruiters in their hometown, high school and at Duke, and have other family ties to the university. Nearly 30 percent of dominant class students had a Duke recruiter visit their high school,

[56] Results from the five-class model reveal a distinct admissions profile for precarious professional students. Precarious professional students have slightly lower SAT scores (mean = 1395) than other dominant class students and had less contact with Duke during the admissions process. About 13 percent of precarious professional students are legacies. With the exception of test scores, precarious professional students are most similar to professional class students in terms of evaluation scores. For example, precarious professional students have the highest scores of all class backgrounds for high school achievement (4.34), curriculum (4.74) and recommendation (3.87).

Table 3.11: Admissions profiles and campus ties (means), by social class

	Professional	Executive	Middle classes	Subordinate classes
SAT (max. 1600) *	1423.80	1402.29	1410.61	1356.02
High school class rank (%)	95.40	94.54	95.36	95.10
Missing *	.44	.57	.46	.40
Admissions evaluation:				
Achievement *	4.28	3.85	4.27	4.27
Curriculum *	4.72	4.59	4.67	4.59
Essay †	3.44	3.38	3.42	3.32
Personal qualities	3.43	3.40	3.43	3.42
Recommendation	3.81	3.69	3.77	3.70
Test scores *	3.71	3.53	3.61	2.98
Scholarship athlete	.02	.04	.04	.07
Campus ties:				
Legacy *	.23	.30	.19	.09
Visit to campus *	.87	.89	.81	.75
Recruitment visit *	.19	.16	.26	.23
Speak with Admissions *	.65	.61	.58	.50
Recruiter at school *	.30	.27	.19	.19
Recruiter in hometown *	.23	.21	.18	.12
Recruiter at Duke *	.41	.40	.31	.27
Recruiter over phone	.14	.08	.15	.15
Speak with official	.21	.33	.25	.26
Speak with faculty *	.31	.48	.31	.30
Family ties *	.23	.27	.16	.07

Source: Campus Life and Learning (n = 1181)
Note: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests); campus ties were collected in the pre-college survey, and admissions profiles and evaluation scores are from institutional records.

compared to about 20 percent of middle and subordinate class students. About half of executive class students reported speaking with a faculty member during the admissions process, compared to less than one third of other students.

Overall, results from the CLL provide a detailed portrait of the associations between students' class background and a variety of pre-college forms of capital. During the middle and high school years, the typical professional and executive class student lived in a household with an abundance of economic and educational resources, a high

level of parental involvement in schooling, strong support for college plans, and an active interest in a rage of cultural activities. Professional and executive class students were more likely to attend private grade, middle and high schools. During the admissions process, professional and executive students were more likely to meet with university recruiters on campus, at their high schools and in their hometowns. While professional and executive class students have similar levels of pre-college economic and cultural capital, executive students have somewhat lower levels of high school achievement.

Comparisons with the five-class model provide further evidence that precarious professional class students occupy an intermediary, "dominated" position within the dominant class. Precarious professional students are most disadvantaged in terms of economic capital and family resources, although they are more involved in high status cultural activities and have stronger admissions qualifications than middle and subordinate class students. Compared to other dominant class students, the middle and subordinate classes contain a larger proportion of underrepresented minority students. These heterogeneous categories are distinguished by having lower levels of all types of pre-college resources. Relative to the dominant class, middle and especially subordinate class students enter college with fewer forms of economic, cultural and social capital.

3.10 Class Profiles of Other Selective, Private University Students

The CIRP Freshman Survey, administered during the first few weeks of classes, includes many items related to pre-college resources, high school activities and plans for college. The CIRP, while including fewer items related to pre-college forms of capital

than the CLL, offers several related questions for a national sample of private university students. In general, these national class profiles are very similar to the Duke results.[57]

Table 3.12 describes sociodemographic characteristics and family resources for professional, executive, precarious professional, middle and subordinate class students. Although Duke contains more racial ethnic diversity than the national sample, results between the CLL and CIRP are quite consistent. Executive and professional class students are more likely to be white than other students. About seven percent of subordinate class students at selective, private universities are black and nine percent are Latino, while only one percent of executive class students are black and three percent are Latino. Precarious professional students are more likely to be black, Latino or Asian, and are less likely to be a US citizens, relative to other dominant class students. English was not the primary language spoken in about eleven percent of subordinate class and seven percent of precarious professional households.

With the EGP schema, all professional and precarious professional parents are classified as high status professionals (Class I), as well as 59 percent of executive class parents. While many subordinate class students at national private universities have a parent with a professional occupation, subordinate class parents are considerably more likely to work in routine service and manual occupations (Classes III and IV). While precarious professional households contain much institutionalized cultural capital

[57] In this section, I primarily discuss results for the national sample using the five-class model and limit discussion of other specifications to footnotes. Comparisons with the four-class model yield nearly identical profiles for the professional, executive, middle and subordinate classes. Nearly all students classified as low professional in the five-class model were placed in the professional class with the four-class model. As a result, in the four-class model the professional class has somewhat lower average household incomes, and is marginally more diverse.

Table 3.12: Sociodemographic and family background (means), by social class

	Professional	Executive	Precarious professional	Middle classes	Subordinate classes
Race/ethnicity:					
White *	.87	.91	.78	.85	.72
Black *	.02	.01	.04	.03	.07
Latino *	.04	.03	.07	.04	.10
Asian *	.05	.04	.10	.07	.09
Other	.02	.01	.02	.02	.01
Female	.51	.50	.61	.53	.50
US Citizen (student) *	.99	.97	.92	.97	.94
English primary language *	.99	.97	.93	.96	.89
Years of education:					
Mother *	18.91	16.53	18.36	17.73	13.81
Father *	21.70	18.45	20.20	18.83	14.08
EGP social class:					
Class I *	.97	.59	1.00	.52	.26
Class II *	.00	.27	.00	.39	.25
Class III *	.00	.08	.00	.00	.17
Class IV *	.00	.05	.00	.00	.15
Missing *	.03	.00	.00	.08	.18
Household income ($US thousand) *	167.19	150.13	55.06	105.26	52.94
Intact family *	.89	.90	.68	.86	.75
Financial aid: family *	.95	.93	.76	.82	.55
Financial aid: savings	.19	.19	.18	.22	.17
Financial aid: work *	.02	.02	.07	.07	.13
Financial aid: grant *	.19	.24	.62	.48	.75
Financial aid: loan *	.10	.14	.29	.25	.37

Source: Cooperative Institutional Research Program (n = 3286)
Note: Significant interclass differences are noted as: * $p < .05$ (two-tailed tests); Class I = high grade professionals, Class II = lower grade professionals, Class III = other non-manual workers, Class IV = manual workers (Erikson, Goldthorpe and Portocarero 1979); financial aid variables indicate whether the student expects to receive at least $3000 from the source.

– in the form of graduate degrees – annual incomes are more comparable to the subordinate classes than to other dominant class fractions. About one third of precarious professional students lived in a two-parent household during the high school years, compared to one quarter of subordinate class, one seventh of middle class, and one tenth

of professional and executive class students. Related to these economic and family resources, precarious professional, middle and subordinate class students require more financial assistance to finance an elite university education, such as grants, loans and work-study jobs. Professional and executive class students expect more financial support from family members, and are less likely to plan to work during the college years.

Across all class backgrounds, most students at Duke and other elite universities participate regularly in a range of high school and cultural activities. Yet, there are consistent class differences in how students spend their time during the high school years (Table 3.13). Compared to middle and subordinate class students, dominant class students spend more time studying, playing sports and partying. During the high school years, subordinate class students attended popular music concerts, played musical instruments, and visited art museums less frequently. Additionally, subordinate class students watched slightly more television during the typical week, and spent a few hours more each week in a job than did professional or executive class students. Dominant class students were more involved in high status activities, such as visiting the art museum or playing a musical instrument. Precarious professional students volunteered and checked out books from the school library most frequently, and subordinate class and precarious professional students more often tutored other students and participated in demonstrations.[58]

[58] During high school, students spent over two hours each week reading, less than two hours interacting with teachers, and more than one hour praying. Precarious professional class students spend slightly more time in each activity than other students (about a half hour more each week). However, these interclass differences are not significant. Additionally, there were no significant differences in the frequency of asking teachers for advice, being a guest in a teacher's home, studying in a group, being bored in class, feeling depressed or overwhelmed, discussing politics or religion, or socializing with people from diverse

Table 3.13: High school activities and achievement (means), by social class

	Professional	Executive	Precarious professional	Middle classes	Subordinate classes
High school activities:					
Music concert *	2.15	2.12	2.21	2.13	2.02
Musical instrument †	1.80	1.75	1.76	1.78	1.67
Visit art museum *	1.89	1.82	1.88	1.82	1.76
Read library books *	2.01	2.10	2.18	2.07	2.12
Tutor other students *	1.90	1.91	2.01	1.98	1.99
Demonstrations*	1.28	1.30	1.44	1.30	1.38
Volunteering *	2.28	2.35	2.47	2.31	2.33
Hours per week:					
Socializing *	12.26	12.16	11.17	10.99	11.17
Studying *	10.62	10.09	10.09	10.21	9.32
Sports *	10.48	10.21	9.38	9.80	9.07
Work *	3.70	4.71	5.19	4.96	6.48
Watching TV *	3.88	4.39	4.47	4.39	4.80
Clubs/groups	3.90	3.94	5.10	4.13	3.92
Party *	4.22	3.92	3.01	3.12	3.15
Volunteer	2.19	2.22	3.19	2.17	2.22
Housework †	1.39	1.38	1.82	1.54	1.68
SAT (max. 1600) *	1355.53	1345.57	1332.08	1347.78	1313.06
High school grades *	3.79	3.77	3.81	3.80	3.81
Took college course *	.11	.09	.20	.12	.14

Source: Cooperative Institutional Research Program (n = 3286)
Note: Significant interclass differences are noted as: * $p < .05$, † $p < .10$ (two-tailed tests); high school participation is measured by three-category variables (1=never, 3=frequently).

Across the five social class categories, students show similarly high levels of high school achievement. Professional class students have the highest standardized test scores, although the average subordinate class student score is not substantially lower (about 42 SAT points, or less than half of a standard deviation). Precarious professional and subordinate class students have slightly higher high school grades than executive class students. About one fifth of precarious professional students took a college course during high school, compared to one tenth of other dominant class students, and one

backgrounds. In other comparisons not shown, professional and executive class students were more likely to drink alcohol and smoke cigarettes during the high school years than other students.

eighth of middle and subordinate class students.[59] Unfortunately, the CIRP Freshman Survey does not collect information about the type of high school attended.

Dominant, middle and subordinate class students at elite universities largely report very ambitious career and educational plans (Table 3.14). More than four fifths of students at selective, private universities expect their first career to be a high status professional occupation (Class I of the EGP schema). Early in the first college year, about 86 percent of students expect to attain a Master's degree or higher. Professional and precarious professional students are more likely to major in the natural sciences. Middle and subordinate class students were more likely to plan to major in an engineering discipline. About one quarter of executive class students expect to major in business, compared to eight percent of precarious professional students and roughly one seventh of other students.[60] Related to major field expectations, executive class students were most likely to enter college with plans for a business career, professional and precarious professional class students were most likely to plan to become medical doctors, and subordinate class students were most likely to have plans for an engineering career. Executive class students were least likely to plan to attain a doctorate degree.

Overall, these class profiles of students attending selective, private universities are highly consistent with the results for Duke students. The Duke student body is somewhat more affluent and contains a larger proportion of racial ethnic minority students. Yet, the

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[59] In comparisons not shown, middle and subordinate class students were slightly less likely to have taken a remedial course ($p < .10$). There was no significant interclass difference in the number of colleges or universities to which the student applied (mean = 4.66).

[60] Business is not offered as a major option at Duke**.** Many students interested in the field of business major in the social sciences such as economics and sociology, which offer a certificate in "Markets and Management." As noted above (Table 3.10), executive class Duke students were somewhat more likely to plan on a social science major during college.

Table 3.14: Expected major, first career and highest degree (means), by social class

	Professional	Executive	Precarious professional	Middle classes	Subordinate classes
Major area:					
Engineering *	.07	.13	.13	.18	.20
Natural sciences *	.29	.24	.37	.26	.23
Social sciences	.14	.14	.18	.15	.18
Business *	.13	.25	.08	.15	.14
Humanities *	.18	.12	.17	.13	.14
Undecided *	.18	.12	.08	.13	.12
First career:					
Business executive *	.11	.20	.12	.15	.14
Engineer *	.05	.09	.10	.13	.16
Lawyer	.06	.07	.08	.07	.06
Medical doctor *	.22	.15	.24	.16	.16
Professor/scientist	.05	.04	.06	.05	.07
Other occupation	.16	.19	.18	.20	.20
Highest degree:					
Bachelor's †	.15	.14	.07	.12	.15
Master's *	.28	.48	.31	.42	.39
Medical *	.24	.15	.24	.16	.14
Law	.10	.07	.07	.09	.07
Doctorate *	.23	.16	.30	.20	.25

Source: Cooperative Institutional Research Program (n = 3286)
Note: Significant interclass differences are noted as: * $p < .05$, † $p < .10$ (two-tailed tests).

underlying class structure is very similar across the Duke and national samples. Dominant class students tend to arrive on campus from households with an abundance of economic and family resources, while subordinate class students are less active in a range of high school and cultural activities. Executive class students have slightly lower levels of high school achievement and academic ambitions than do professional or precarious professional class students. These comparisons reinforce Duke's standing as a representative, elite university that shares a similar underlying class structure with other elite academic institutions.

3.11 Conclusions

Bourdieu offers a distinctive, heterodox approach to social class that borrows generously from the classic sociological tradition. Bourdieu (1985a; 1987) locates class positions in a multi-dimensional social space by the distribution of forms of capital. Social class is important in the development of the habitus, or the set of dispositions that orient perceptions, thoughts and actions. Similar to classic approaches, social class occupies a central place to a Bourdieu's broader theory. Yet, Bourdieu argues against the use of predetermined class schemas. Instead, Bourdieu considers fluid class divisions that result from classification struggles within various fields. Like Marx, Bourdieu is concerned with issues of social justice and the misrecognition of power relations, although Bourdieu offers a more general account of class struggle that is not strictly linked to control over productive resources (e.g., Bourdieu et al. 1999; Bourdieu 1998b; 2003). Similar to Weber, Bourdieu expands the conception of power to include both material and symbolic dimensions. Although, Bourdieu argues that class and status are too interrelated to consider as separate entities. Class positions find expression through differences in culture, taste and lifestyle, which serve to reinforce class boundaries and legitimize the social hierarchy.

In the sociology of education, current applications of Bourdieu's concepts tend to underemphasize social class or adopt a gradational view characteristic of the status attainment framework. Results from this chapter show that latent clustering analysis (LCA) is an appropriate method for quantifying a Bourdieusian approach to class. LCA is consistent with Bourdieu's use of statistical methods, and can help distinguish

underlying class fractions that conventional schemas fail to appreciate. An advantage of this approach is that it incorporates socioeconomic background indicators regularly collected in studies of secondary and post-secondary students.

Additionally, the results from LCA provide a more detailed account of dominant or upper class students than do conventional class schemas. In its most disaggregated version, Class I of the EGP schema combines large employers, managers and high status professional occupations. Nearly two thirds of students at elite, private universities have at least one parent with a Class I occupation. LCA locates three distinct class fractions within the dominant class, characterized by configurations of economic and cultural capital. A limitation of this analysis is that middle and subordinate class students are considered as rather heterogeneous categories. With a more representative sample of postsecondary students, it could be possible to identify distinct fractions within the middle and subordinate classes (Bourdieu 1984: 115; Lamont 2000; MacLeod 2009; Willis 1977). However, students from the most disadvantaged social positions have been largely eliminated at earlier stages in the educational system, and elite universities are largely the purview of the dominant class (Bourdieu and Passeron 1979).

An examination of class profiles and pre-college forms of capital yields several conclusions regarding the field of elite university education. Reinforcing Duke's position as a representative elite university, the underlying class structure is highly consistent across the CLL and CIRP samples.[61] In general, results support a broad distinction

[61] Compared to the national sample, Duke contains a greater proportion of students from under-represented minority backgrounds. Additionally, across all class categories Duke students have somewhat greater pre-college household incomes. The CLL and CIRP income measures are similar but not identical (see note 35, this chapter). In particular, the highest income categories are "$500,000/year or more" and "$200,000/year

among the dominant, middle and subordinate classes, based on the overall volume of pre-college resources. Within the dominant class, there is evidence for three class fractions defined by the relative composition of economic and cultural capital: executives, professionals and precarious professionals. The three dominant class fractions comprise over half of Duke students and about 44 percent of students at other selective universities, while about one sixth of students have subordinate class backgrounds.

As a visual representation of the elite university class structure and distribution of forms of capital, Figure 3.3 presents results adapted from correspondence analysis for the Duke sample.[62] Correspondence analysis and related methods comprise Bourdieu's preferred statistical approach, and Bourdieu argues that they capture his relational understanding of the social world (Lebaron 2009). Correspondence analysis, a generalization of principal component factor analysis, is a descriptive method for exploring relationships among categorical variables (Greenacre and Blasius 1994). Importantly, correspondence analysis is an exploratory technique and other methods are required to reach inferential conclusions or test formal hypotheses (De Nooy 2003).

---

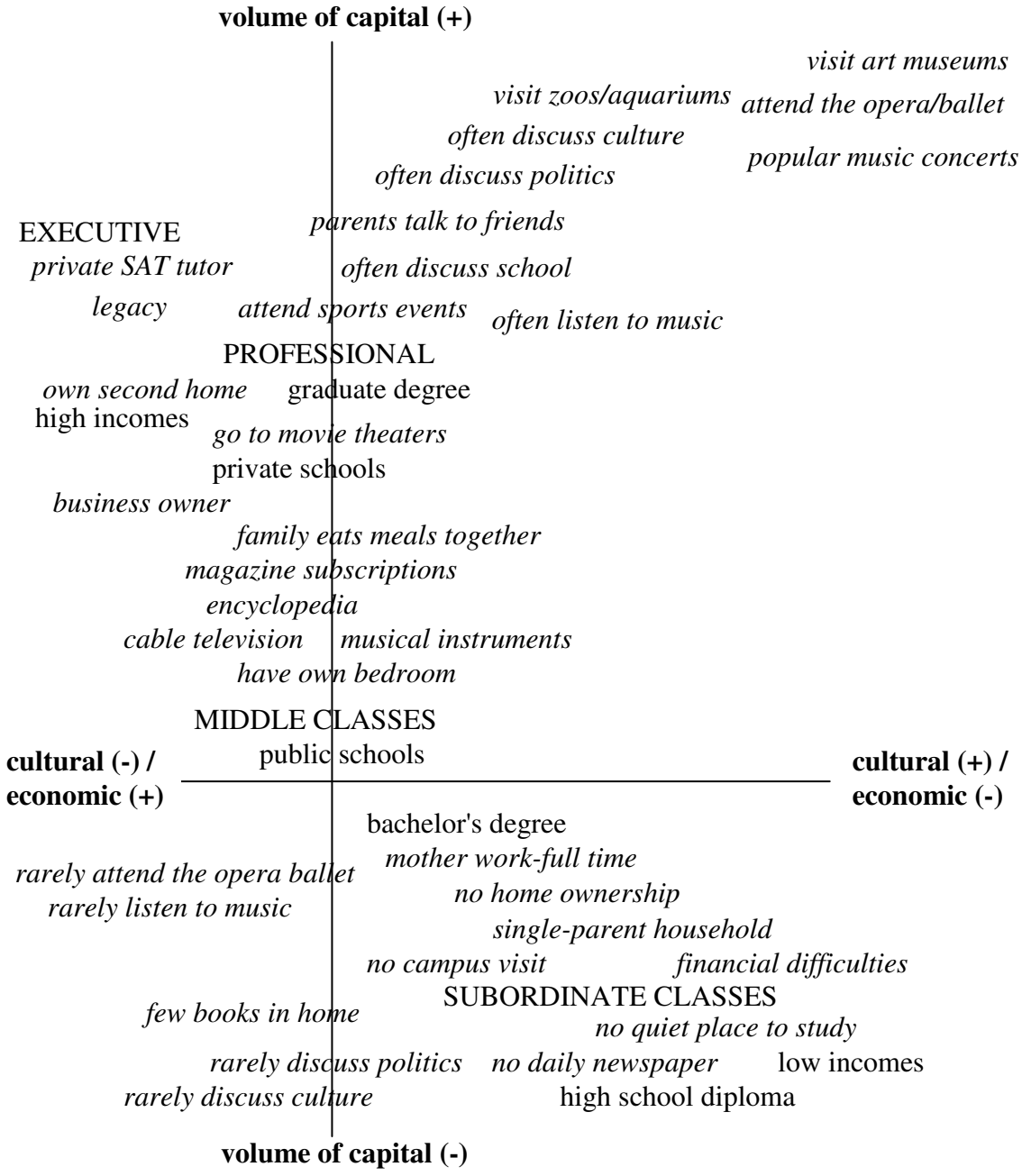
or more" for the CLL and CIRP, respectively. As a result, differences across samples in average household incomes (reported in Tables 3.8 and 3.12) are likely overstated. About 44 percent of Duke students report pre-college annual household incomes of at least $150,000 – approximately the 95th percentile of the US household income distribution – compared to about 29 percent of the national sample.

[62] More technically, Figure 3.3 presents results adapted from joint correspondence analysis. Joint correspondence analysis analyzes a variant of the Burt matrix and is considered to be an improvement over other multiple correspondence techniques (Greenacre 1988). Each orthogonal axis accounts for a separate part of the variance, similar to uncorrelated predictors in a regression model (Greenacre and Blasius 2006). The vertical dimension accounts for about 70 percent of the total variance among these indicators, and the horizontal axis nine percent; this is considered to be beyond satisfactory levels (Aktürk, Gün and Kumuk 2007). This graphical representation departs from the statistical results in a few respects. To increase legibility and facilitate interpretation, selected response categories – primarily clustered around the origin – are not included in this figure. Additionally, response labels are adjusted to avoid overlap. Items for parents and students cultural participation map along similar coordinates, so only responses for students activities are displayed. In short, positions should be viewed as close approximations of the principal coordinates from joint correspondence analysis, but still capture the essence of the observed relationships.

Tests for statistical significance are not customarily applied, and the main purpose is to create a two-dimensional representation of information contained in cross-tabular data and frequency tables. In order to facilitate interpretation, categories of supplemental variables are superimposed on the graphical display (Greenacre and Blasius 2006).

In this diagram, the vertical axis describes the overall volume of resources, and represents the most important stratifying dimension. The horizontal axis captures the relative composition of economic and cultural capital. Response categories are located in terms of scaled principal coordinates along these axes, and the origin represents the average observation. A clustering of positions away from the origin indicates strongly associated response categories. This analysis examines relationships among indicators of pre-college forms of capital and other educational resources; these principal variables are shown in italics. Social class and other background indicators are treated as supplemental variables, which do not influence the geometric orientation of the axes or the principal variable coordinates. For example, positions in the upper right-hand corner are indicative of a high volume of capital that is primarily composed of cultural capital. Within this space, Bourdieu (1984) locates a social class comprised of artists, intellectuals and other cultural producers. These positions are associated with frequent participation in activities such as visiting art museums, attending the opera, symphony or ballet and attending popular music concerts, and to a lesser extent discussing culture and politics in the home.

Occupying the space near the diagram's origin, the middle classes show moderate levels of resources along each dimension. Pre-college resources associated with this position include attending public schools, not sharing a bedroom, and household items



Note: adapted from the results of multiple correspondence analysis (principal variables in italics)

Figure 3.3: The social space of Duke University

such as cable television, magazine subscriptions, video cameras, musical instruments, and encyclopedias. Relative to other classes, middle class households have moderate levels of educational attainment, occupation status and income. All middle class students have at least one parent with a bachelor's degree or more, and middle class families are very supportive of college plans. Middle class students and parents are slightly less active in school and cultural activities than professional or executive class students. Yet, in comparison to executive class students, middle class students have slightly higher levels of high school achievement and admissions test scores.

The subordinate classes, represented near the diagram's bottom right-hand corner, occupy a position with a low total volume of capital composed largely of cultural capital resources. Differences with middle and especially dominant class households are most prominent in terms of the economic dimension. Response categories that are associated with the subordinate class position reflect this relative material deprivation: for example, no daily newspaper, no quiet place to study, experiencing financial difficulties, and no home ownership. To finance a private university education, subordinate class students rely more on grants, scholarship and loans than family contributions. Subordinate class students were the least likely to visit campus prior to matriculation. Additionally, subordinate class students are least likely to be white or US citizens. The gap between subordinate and dominant class students is less severe for forms of cultural capital and family resources. Subordinate class students and parents participate somewhat less frequently in both "highbrow" and popular activities. In their admissions profiles,

subordinate class students have somewhat lower test scores than other students but comparable ratings across other dimensions.

The professional class resembles the middle classes in terms of composition of pre-college resources, but – reflecting a greater total volume of capital – rests higher on the vertical axis. Professional class students arrive on campus from households with an abundance of cultural and economic capital. This class position is strongly related to advanced educational credentials, high incomes, and frequent participation in popular activities such as going to movie theaters and sports events, and listening to music. The professional class is the largest class fraction at Duke, and accounts for more than one fifth of students at other selective private universities. Professional class households, with the executive class, show the highest levels of cultural capital. Professional students participate frequently in a wide range of activities, and professional parents have high levels of involvement in schooling. Professional households contain bountiful family and educational resources, from books and private tutors to family dinners and political discussions. During the admissions process, the professional class has regular ties to campus and consistently achieves the highest evaluation scores.

Occupying a "dominated" position within the dominant class, the smaller precarious professional fraction is associated with relatively high levels of cultural capital but lower levels of economic capital. In this diagram, precarious professionals would be placed slightly below the middle class on the diagram's vertical axis and to the right of the subordinate class on the horizontal axis, indicating a moderate supply of resources primarily composed of cultural capital. Like the subordinate classes, precarious

professional students portray relatively unstable material circumstances, as suggested by lower household incomes, less home ownership, and a greater occurrence of financial difficulties during the high school years. Additionally, precarious professionals comprise a more diverse group, in terms of racial ethnic backgrounds and nationalities, than do other dominant class fractions. Yet, in terms of high school achievement and admissions evaluation scores, precarious professionals are most similar to professional class students.

The executive class has a somewhat higher total volume of capital than the professional class, but these resources are composed predominately of economic capital. This dominant class position, shown in the diagram's top left-hand corner, links to resources such legacy status, private tutors, high incomes, business ownership and financial assets. Executive class households have a distinctive configuration of the highest incomes paired with moderate levels of occupation status and educational attainment. Executive class students enter college with large amounts of economic resources, but in comparison to professional students place somewhat less emphasis on success in the academic field (Bourdieu 1973a). Upon matriculation, executive class students have lower levels of academic achievement than do middle class students, as well as the lowest final degree aspirations of any social class.

4. Social Capital at an Elite University

> The strategies that an institution may implement to ensure or improve its position depend on the overall amount of its specific (inseparably social and academic) capital as well as the structure of this capital, that is, on the relative weight of both its academic capital (measured in terms of the specific value of the competences guaranteed) and its strictly social capital (linked to the current or potential social value of its student body present and past – its alumni).
>
> Pierre Bourdieu, *The State Nobility*

Social capital has become one of sociology's most popular ideas, and serves as a useful concept to researchers and policymakers who are interested in improving schools and addressing persistent educational inequalities. A growing literature has examined the relationship of social capital to schooling and educational outcomes (Dika and Singh 2002). A moderate amount of evidence, largely at the high school level, shows that social capital is positively associated with academic achievement and educational attainment, as well as psychosocial and behavioral outcomes. However, conceptual ambiguity has hampered recent developments (Foley and Edwards 1999; Portes 1998). Some scholars emphasize social capital as the community norms and expectations that arise from close networks of personal ties (e.g., Coleman 1988; Putnam 2000). Others define social capital more precisely as the various resources embedded in networks that can be accessed by social actors (e.g., Bourdieu 2001; Lin 2001).

The current literature not only diverges at the conceptual level but empirical studies have focused on different substantive areas as well. Studies of educational outcomes have primarily used or responded to Coleman's definition (Dika and Singh 2002), and a resources-in-networks perspective has focused on occupational attainment and the job search process (Lin 1999). This chapter adds to the existing literature by

applying a Bourdieusian understanding of social capital to an analysis of an important linkage between educational institutions and labor markets: elite universities.

Following Coleman, the dominant trend in the sociology of education has been to emphasize social capital as a source of positive community norms and social control. Recent studies have shown positive effects of family resources on educational outcomes for secondary students (e.g., Hoffman and Dufur 2008; Kao and Rutherford 2007; Ream 2005; Sandefur, Meier and Campbell 2006). However, Coleman's perspective has received considerable criticism, largely stemming from its structural-functionalist foundation (e.g., Morgan and Sørensen 1999a; Portes 2000; Woolcock 1998). Growing dissatisfaction with Coleman's approach has led to the emergence of a competing perspective that considers social capital as resources embedded in networks (Dika and Singh 2002; Horvat, Weininger, and Lareau 2003).

To Bourdieu (2001 [1983]), social capital is the sum of resources accessible through social connections and institutional ties. Bourdieu points to social networks as sources of social capital and locates the family as key in providing students with resources that facilitate success in the educational system and future occupations (Devine 2004; Lareau 2003). Following Bourdieu, a resources-in-networks perspective is more attentive to inequalities in and access to social capital. A resources-in-networks perspective has been widely applied to studies of occupational attainment (Lin 1999; Lin, Cook and Burt 2005) and a few studies of educational outcomes (e.g., Grayson 2004; Horvat et al. 2003; Lee and Brinton 1996; Stanton-Salazar and Dornbusch 1995).

The college years represent an important stage for not only academic and personal development but also the accumulation of social capital. This chapter provides an examination of social capital across the college years at an elite, private university, and adds to and incorporates results from Martin (2009b) and Martin and Spenner (2009). First, I elaborate a Bourdieusian capital framework and review the associated research literature. Second, incorporating insights from the literature on social capital and occupational attainment, I consider how social capital embedded in campus networks influences academic achievement during the college years and education and plans for after graduation. More specifically, I examine the effects of extensive network ties to university positions such as administrators, faculty and other staff, peer networks in residential halls and extracurricular clubs, and the use of family and personal contacts. Third, I explore the effects of a controversial admissions policy that rewards a particular form of social capital. Duke University, like other elite colleges and universities, shows a preference for "legacy" applicants, or students with a parent or close family member who graduated from the university. While not considering the issue of admissions preference directly, I add to this debate by exploring the forms of capital legacies bring to campus, and how this influences college experiences, achievement and other outcomes.

4.1 Forms of Capital

Bourdieu (1984; 2001) offers a broad conception of capital that is divorced from conventional ideas of monetary exchange or a Marxist emphasis on economic production. To Bourdieu, capital involves all power and includes both material and symbolic resources. Economic capital is only one of a potentially endless variety of capital, albeit

the most fundamental type (Moore 2004; 2008). Capital is distributed throughout fields, which serve as arenas of conflict and competitive exchange over resources. In this way, identifying the important forms of capital that characterize a particular field is a key part of the research process (Bourdieu and Wacquant 1992: 107-108). As a metaphor for this competitive struggle within fields, Bourdieu describes a poker game where players differ in the strength of their hands, supply of betting chips, and their intuitive understanding of the rules of the game.[1]

Inequalities exist in terms of the ability to accumulate and convert forms of capital across fields, as well as the relative volume and composition of material and symbolic resources. Through his investigations of specific fields, Bourdieu identifies academic, artistic, educational, intellectual, juridical, linguistic, literary, philosophical, political, scholastic, and scientific forms of capital, as only a partial list (Bourdieu 1988a; 1993; 1996; Bourdieu and Passeron 1979; Bourdieu and Wacquant 1992). Most prominently, Bourdieu (2001) identifies three forms of capital that carry significance

[1] See Calhoun (1993: 77) and Lareau and Horvat (1999: 39) for further examples of this game metaphor. As Bourdieu describes, "We can indeed, with caution, compare a field to a game … although, unlike the latter, a field is not the product of a deliberate act of creation, and it follows rules, or better, regularities, that are not explicit and codified ... We also have *trump cards* … whose force varies depending on the game: just as the hierarchy of different species of capital (economic, social, cultural, symbolic) varies across the various fields. In other words, there are cards that are valid, efficacious in all fields … but their relative value as trump cards is determined by each field and even by the successive states of the same field … Two individuals endowed with an equivalent overall capital can differ, in their position as well as in their stances … in that one holds a lot of economic capital and little cultural capital while the other has little economic capital and large cultural assets. To be more precise, the strategies of a 'player' and everything that defines his 'game' are a function not only of the volume and structure of his capital … and of the game chances … they guarantee him, but also of … his social trajectory and of the dispositions (habitus) constituted in the prolonged relation to a definite distribution of objective chances" (Bourdieu and Wacquant 1992: 98-99).

across many fields and can inform an analysis of educational institutions: economic, social and cultural capital.[2]

4.2 Economic, Social, Cultural, and Human Capital

Bourdieu (2001) defines three primary forms of capital – economic, social and cultural – that share several common features. Each form of capital has an independent distribution and governing logic. Yet, all forms share a similar organization, or homology, and can facilitate the accumulation of other forms of capital (Bourdieu 1984; 2001). In certain instances, social and cultural capital can be converted into economic capital (and vice versa), contributing to the reproduction of social structures and power relations. An individual's location within social structure is associated with access to and acquisition of various resources and forms of capital (Lin 2001: 33-40). In short, a student from a privileged background likely enters college with not only an abundance of economic capital but also a wealth of social and cultural capital.

The characteristic exchange of economic capital is transparent, governed by narrow self-interest, and involves material resources that are directly convertible into quantifiable monetary profits (Bourdieu 2001: 97). Social and cultural capital may appear to operate in a more neutral fashion, but Bourdieu argues that it is incorrect to

[2] To his discussion of primary forms of capital, Bourdieu also adds symbolic capital, or "the form that one or another of these species takes when it is grasped through categories of perception that recognize its specific logic or, if you prefer, misrecognize the arbitrariness of its possession and accumulation" (Bourdieu and Wacquant 1992: 119). Persell and Cookson (1987) make a similar distinction between instrumental and symbolic species of cultural capital (cf. Weininger and Lareau 2003). Following Moore (2004), in the discussion to follow I use symbolic capital to refer broadly to non-material (i.e., not economic) forms of capital, with embodied cultural capital being the most prominent type.

consider noneconomic exchanges as impartial, unbiased, or disinterested.[3] While economic capital converts most readily into material advantages, it is often expressed by social and cultural capital, which leads to a misrecognition of the economic implications of symbolic exchanges (Grenfell and James 2004).

Additionally, these forms of capital can exist in different states or conditions (Bourdieu 2001; Bourdieu and Wacquant 1992). In the immediate or practical state, economic capital takes the form of money or income; an example of institutionalized economic capital is property rights. Social capital refers to the resources available within an individual's social networks and group memberships, and is institutionalized as official titles. Similarly, objectified cultural capital includes books, instruments and art collections, and also refers more generally to information (Bourdieu and Wacquant 1992: 119). Institutionalized cultural capital includes academic degrees and elite credentials.

Unlike economic or social capital, cultural capital also exists in an embodied state that is strongly related to class background and habitus (Bourdieu 2001). Embodied cultural capital includes durable, long-standing dispositions that an individual acquires unconsciously throughout adolescence. Examples of embodied cultural capital include tastes, styles and aesthetic sensibilities (Bourdieu 1984), as well as speaking ability, pronunciation, and manners (Bourdieu 2001; Bourdieu and Passeron 1979). Thus,

---

[3] In *Distinction,* Bourdieu develops this relationship between material and symbolic resources most fully and shows a strong correspondence between class background and cultural consumption. By restricting attention to inequalities in material resources, Bourdieu (2001: 97) argues that one can fail to appreciate an important process for legitimizing and maintaining dominant class positions: "It is remarkable that the practices and assets thus salvaged from the 'icy water of egotistical calculation' … are the virtual monopoly of the dominant class … If economics deals only with practices that have narrowly economic interest as their principle and only goods that are directly and immediately convertible into money (which makes them quantifiable), then the universe of bourgeois production and exchange becomes an exception can see itself and present itself as a realm of disinterestedness. As everyone knows, priceless things have their price..."

"cultural capital" takes on two meanings, which Bourdieu tends to interchange freely and secondary applications confuse frequently (DiMaggio 1979; Jenkins 2002; Lamont and Lareau 1988; Lareau and Weininger 2003). In the immediate and institutional states, cultural capital includes objective cultural goods, artifacts and academic credentials. The acquisition of embodied cultural capital is analogous to the development of the individual habitus. Consequently, embodied cultural capital takes the appearance of talent and an effortless familiarity with high status signals and cultural practices. In this way, cultural capital serves to elevate the practices and preferences of privileged groups and to legitimize existing inequalities and class boundaries. Just as the seemingly disinterested character of symbolic resources obfuscates a correspondence with the distribution of power, the ability to apply and convert cultural capital can pass misrecognized as natural ability (Bourdieu and Passeron 1977).

The notion of cultural capital is among Bourdieu's most popular contributions to American sociology (Sallaz and Zavisca 2007) and has been widely used in studies of primary and secondary school students (Lareau and Weininger 2003).[4] Fewer studies have examined cultural or social capital at the postsecondary level (e.g., Persell, Catsambis, and Cookson 1992; Spenner, Buchmann and Landerman 2005; Zweigenhaft 1993). During the college application process, students and their families draw on symbolic resources to make decisions about which schools to attend, and whether to

[4] In their review of recent applications of Bourdieu's key concepts in American sociology, Sallaz and Zavisca (2007) show that forms of capital has received considerably more attention than concepts of field, habitus or symbolic power. Capital was the focus of nearly half of all articles that "comprehensively engage Bourdieu" and appear in *American Journal of Sociology*, *American Sociological Review*, *Social Forces* or *Social Problems* from 1980 to 2004. While cultural capital has received considerable attention throughout the past two decades, there has been increasing scholarly interest in Bourdieu's definition of social capital in recent years.

apply to an elite college or university (McDonough 1997; Reay, David, and Ball 2005). Students from privileged backgrounds typically enter college from households where attainment of a college degree is not only encouraged but expected (Walpole 2003). Once on campus, these students can draw on this encouragement and successful educational experiences of parents and family members (McClelland 1990).

Following DiMaggio's (1982) pioneering study, the dominant interpretation of cultural capital in quantitative research has been to consider cultural capital as a familiarity with "highbrow" aesthetic culture, such as fine art and classical music (Lareau and Weininger 2003). Conventional applications of cultural capital to education research have focused largely on high school students, using samples from large, national surveys. Typically, these studies link cultural capital to the status attainment framework by adding terms for cultural participation to models predicting academic achievement (e.g., Aschaffenburg and Maas 1997; De Graaf 1988; DiMaggio and Mohr 1985; Katsillis and Rubinson 1990; Roscigno and Ainsworth-Darnell 1999) and educational attainment (e.g., De Graaf 1986; De Graaf, De Graaf and Kraaykamp 2000; Dumais 2002; Ganzeboom, De Graaf and Robert 1990; Kalmijn and Kraaykamp 1996; Lamb 1989; Sullivan 2001). Additionally, a few studies include educational resources as measures of cultural capital (e.g., Roscigno 1998; Roscigno and Ainsworth-Darnell 1999; Teachman 1987).[5]

Taken as a whole, this research shows slight to moderate effects of "highbrow" cultural experiences on educational outcomes for high school students. However, this literature is subject to two related criticisms. First, conventional applications define

[5] Robinson and Garnier (1985) measure cultural capital as academic credentials – consistent with Bourdieu's definition of institutionalized cultural capital – but maintain that preferable measures would have included involvement in art, music, and literature, and linguistic and interaction style.

cultural capital narrowly, and ignore aspects of embodied cultural capital in particular (Lamont and Lareau 1988; Lareau and Weininger 2003). In the dominant interpretation, cultural capital is conceptually distinct from academic skills and abilities, while Bourdieu (1991a; 2001) stresses that forms of knowledge constitute important symbolic resources. Although an emphasis on "highbrow" experiences is generally consistent with Bourdieu's own empirical examples, cultural capital should not necessarily operate in the same manner within the French and US educational systems (Bourdieu and Wacquant 1992: 107-108; Hogan 1982). Second, critics argue that this literature provides scant evidence that "highbrow" cultural practices lead to social exclusion or contribute to social reproduction more generally (Goldthorpe 2007; Halsey 1980; Kingston 2001).[6] This second line of criticism can be viewed as a corollary of the first. By relying on a narrow definition of cultural capital – derived from observations of the French educational system during the 1960s and 1970s – research applying the dominant interpretation has underappreciated other important Bourdieusian concepts. A more complete examination would consider not just "highbrow" cultural experiences, but also other forms of capital, including but not limited to embodied and symbolic resources (DiMaggio 2007).

Bourdieu's capital framework has its roots in the conflict tradition, and places particular emphasis on access to symbolic and institutional resources (Dika and Singh

[6] This critique is far more applicable to quantitative applications of Bourdieu's theory and concepts. Recent qualitative and ethnographic research has developed a broader understanding of cultural capital and places more emphasis on how social class background and forms of capital influence exclusion and inequality within the educational system. Studies at the primary (e.g., Alexander, Entwisle, and Thompson 1987; Blackledge 2001; Lareau 1987; 2000; 2003; Lareau and Horvat 1999; Reay 1998; Weininger and Lareau 2003) and secondary levels (e.g., Ball and Vincent 1998; Carter 2003; Cookson and Persell 1985; Love and Hamston 2003; McClelland 1990; Mickelson 1987; Persell and Cookson 1987) provide a greater degree of support for Bourdieu's broader theory of social reproduction.

2002; Swartz 1997). Working from a rational-choice perspective characteristic of neoclassical economics, Becker (1975) offers the concept of human capital as the knowledge, skills, health and values that people possess. Investments in human capital, specifically in regards to education, can lead to economic rewards and increased productivity (Becker 1975; Schultz 1961). Bourdieu is highly critical of the human capital perspective, and argues that it fails to recognize the role of educational institutions in reproducing existing inequalities. Instead, Bourdieu (2001) considers the academic skills, values and abilities typically viewed as examples of human capital to be embodied cultural capital.

Bourdieu (2001: 97) aims to provide a "general science of the economy of practices" that describes power as manifested through both symbolic and material forms of capital. Although the human capital perspective is an improvement over an exclusive focus on economic capital, it has still "left intact the asylum of the sacred, apart from a few sacrilegious incursions" (Bourdieu 2001: 108, fn. 2).[7] Bourdieu and Becker agree that abilities and skills, for example, constitute resources that are developed over time and convertible to other resources. However, in contrast to the human capital

[7] Bourdieu continues by directing his criticisms at Becker, who serves as the most prominent example of the human capital perspective: "Gary Becker, for example, who was one of the first to take explicit account of the types of capital that are usually ignored, never considers anything other than monetary costs and profits, forgetting the nonmonetary investments … and the material and symbolic profits that education provides in a deferred, indirect way." Elsewhere, Bourdieu (1996: 276) expands this critique: "We can see why Gary Becker, in his attempt to evaluate the profits of academic investment, could not get beyond individual monetary yield other than to investigate, following a typically functionalist logic, either the return on educational expenditures for society as a whole … or the contribution that education makes to 'national productivity' … This definition of the functions of education, which ignores the contribution that the educational system makes to the reproduction of social structure in sanctioning the hereditary transfer of cultural capital, is in fact implied from the outset in a definition of 'human capital' that… disregards the fact that the economic and social return on academic stock depends on the social capital (also inherited) that may be put to its service."

perspective, Bourdieu emphasizes a multiplicity of symbolic and material capitals that are "socially and historically constituted rather than universally given" (Bourdieu and Wacquant 1992: 118). In short, Bourdieu argues that Becker's concept of human capital is ill suited to offer a complete appraisal of the material and symbolic investments and profits associated with education.

As an alternative, an integrative approach considers human capital as part of a Bourdieusian capital framework.[8] In a study of seventh and eighth graders in an urban school district, Farkas and colleagues (1990) find that students' basic academic skills and work habits have a direct effect on grades, but also influence achievement through teachers' positive judgments. Like cultural capital, human capital involves a combination of purposive and relatively unconscious actions that are developed, modeled and reinforced through experiences in the family, schools and other institutions (Farkas 1996). Human and cultural capital both serve as resources within an individual's "toolkit" of skills, habits and styles that are important to stratification outcomes (Swidler 1987). An integrative approach considers human capital in relation to other forms of capital, and emphasizes that human capital shares many properties with embodied cultural capital in particular.[9]

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[8] Farkas (1996: 10-11) summarizes this integration of the human capital and cultural capital perspectives: "Such an integration is called for as a consequence of the partial inadequacy exhibited by each view when considered alone. Thus, on the one hand, human capital economists offer no realistic understanding of what appears to be extremely different educational 'investment' by poor and minority groups. That is, the economists' emphasis on individual choice is blind to patterns of cultural resources and influence as well as choices that are made for the individual by others. On the other hand, conflict sociologists appear to maintain that performance plays little role in stratification outcomes, so that social achievement is a shell game, and real skills embodied in individuals and developed through arduous educational efforts are considered to be largely irrelevant to productivity,"

[9] Bourdieu (1996: 118-119), in a discussion of academic degrees and titles, notes this important reinforcing link between symbolic power and technical qualifications: "The effect of misrecognition at the basis of …

Studies of college and university students identify three dimensions of human capital that are important to academic performance: academic skills and abilities, effort and performance, and self-esteem, confidence, and identity (Spenner, Mustillo and Martin 2008). Academic skills include understanding or applying theories or concepts, and written or oral expression (Pascarella and Terenzini 2005: 65-76). Additionally, college students vary in the levels of academic effort and these variations are positively associated with achievement and skill acquisition (Astin 1993; Pascarella and Terenzini 2005: 119-120; Rau and Durand 2000; Schuman et al. 1985). Global self-esteem, or an individual's assessment of their own worth, has a positive effect on the academic performance of postsecondary students (e.g., Massey, et al. 2003; Morgan and Mehta 2004). Although, Rosenberg and colleagues (1995) suggest that academic self-confidence is more closely related to achievement than global self-esteem. Closer identification with a good student identity could yield stronger academic performance and greater investments of time and energy (Burke 2004; Reitzes and Burke 1980). Like other forms of capital, these dimensions of human capital can be accumulated over time and are converted into material and symbolic profits.

An integrative Bourdieusian capital framework can be understood as a two-dimensional space that organizes resources in terms of how they are represented and

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the symbolic violence of all acts of nomination, is only possible because titles also certify the acquisition of technical skills (along with the properties we might call stylistic or symbolic). Titled individuals are legitimate titulars of exceptional positions, but to a certain extent they also possess uncommon technical competences, which provide a foundation to their monopoly. And we may also note that the market value of a title, however fully it may depend on the power of symbolic imposition, is always particularly determined by the scarcity of the concomitant technical skill in the market." To simplify, Bourdieu takes less issue with Becker defining academic skills and abilities as a distinct form of capital than with considering human capital in isolation of other symbolic or embodied resources.

maintained (Figure 4.1). First, forms of capital are classified by the degree of the transparency in typical exchanges for other resources, as indicated by the diagram's horizontal axis. Economic capital is the most material form of capital, and thus the most directly transferable to money. In exchanges of economic capital, self-interested calculation is readily apparent and generally accepted. Bourdieu's primary contribution is to demonstrate that social and cultural capital are also converted into material profits, but – due to their symbolic representation – exchanges of social and cultural capital appear more arbitrary than exchanges of economic capital. Symbolic resources are not as stable or universal a currency, are more subject to suspicion or challenges, and more difficult to calculate than is economic capital (Bourdieu 2001; Swartz 1997: 73-82).

Second, forms of capital exist in different states, as indicated by the diagram's vertical axis. The crucial distinction is between embodied and objectified resources. Embodied cultural capital takes the form of aptitudes, competencies, tastes and internalized dispositions, while objectified cultural capital exists as artifacts and other art forms. Institutionalized cultural capital – realized through an additional "objectification" – includes elite academic credentials, which can provide an individual an "officially recognized, guaranteed competence" (Bourdieu 2001: 102). Similarly, social capital obtains broader recognition and greater permanence when institutionalized as titles. Within this framework, human capital indicates embodied resources that individuals possess as intrinsic characteristics of themselves.[10]

[10] By referring to academic skills, abilities and efforts as human capital, it is likely that I reach an unsatisfactory compromise in the eyes of both Becker and Bourdieu. Effectively, I retain Becker's concept in name only, and separate human capital from neoclassical economic assumptions of rational action or utilitarian exchange. Bourdieu could argue that, by relying on a more conventional understanding of

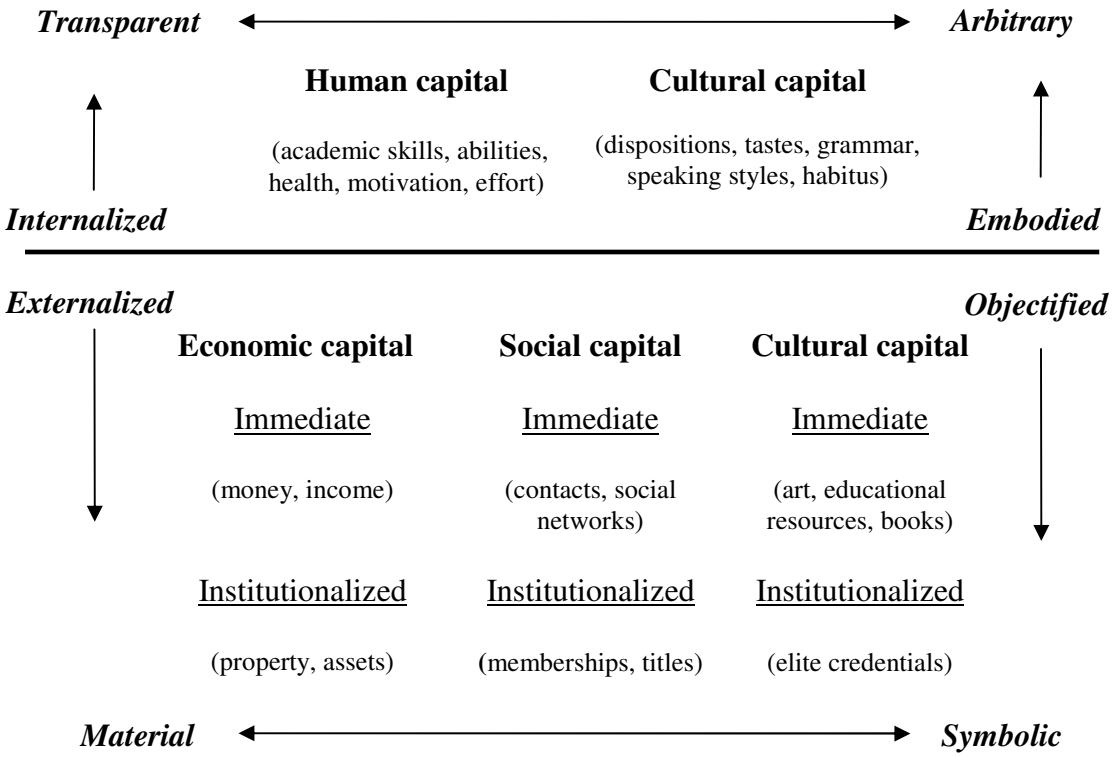

Figure 4.1: Forms of economic, social, cultural and human capital

Bourdieu (1985a; 1987) conceptualizes social classes and class fractions as distinct but rather amorphous social categories that emerge within social space along continuous dimensions related to the distribution and composition of resources. Similarly, the boundaries separating discrete forms of capital are relatively fluid and gain meaning through interactions within fields. In his writing, Bourdieu (1988a: 149)

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human capital, I underemphasize how embodied resources contribute to social exclusion and, in particular, the role of teachers and other education "gatekeepers" in consecrating and rewarding "human capital" as such. Following Farkas (1996), I am comfortable incorporating human capital into a Bourdieusian framework as an attempt to address ambiguities surrounding Bourdieu's concept of cultural capital. Through its dual connotations as both an aspect of habitus and a familiarity with high-status culture, Bourdieu's use of cultural capital is prone to ambiguity and misapplication (Jenkins 2002; Kingston 2001). Thus, in comparison to embodied cultural capital, conversions of human capital appear less arbitrary and more consistent with meritocratic principles.

emphasizes such intricate social and symbolic relationships in part through a long, complicated style, or "a permanent struggle against ordinary language." The merits of this stylistic technique are debatable (Jenkins 2002: 162-172). A risk of presenting forms of capital in a static framework is to underemphasize the concomitant relationships and frequent conversions across forms of capital. Education experiences and outcomes can involve multiple forms of capital simultaneously. For example, a graduate from an elite university obtains not only the skill gains and personal growth associated with four years of postsecondary instruction, but also institutionalized cultural capital in the form of an academic credential, which serves as a widely acknowledged signal of the possession of elite knowledge. Controlling for sociodemographic factors and achievement, students who attend elite colleges or universities have higher future incomes and are more likely to earn advanced graduate credentials within ten years after graduation (Kingston and Smart 1990). Further, graduates from elite universities have access to social capital and contacts provided by alumni networks, as well as "a share (at once subjective and objective) in the success" of prestigious alumni through the association of a common alma mater (Bourdieu 1996: 114).

4.3 Social Capital or Family Resources

As one of the first to introduce the concept of social capital to American sociology, Coleman (1988; 1990) was particularly concerned with how aspects of the family and the community influence the educational attainment of adolescents. Coleman (1988: S98) considers social capital to be the various family and community structures that encourage educational attainment:

> Social capital is defined by its function. It is not a single entity, but a variety of different entities, with two elements in common: they all consist of some aspect of social structure, and they facilitate certain actions of actors within the structure.

Coleman (1988) introduces social capital to explain the lower dropout rates of students attending Catholic high schools in the High School and Beyond study, and includes social capital as part of his broader project of bringing rational choice theorizing to the analysis of social systems (Coleman 1986; Coleman, Hoffer and Kiglore 1982). In particular, Coleman emphasizes intergenerational closure – when parents maintain close contacts with the parents of their children's friends and classmates – as a form of social capital that provides information channels, norms, trust and effective sanctioning. As parents share information about their children's school activities, communities can more effectively monitor and sanction students' behavior. Additionally, Coleman lists several family resources that are indicative of social capital, for example the presence of two parents in the household. In this way, Coleman's approach to social capital is associated with a particular vision of the community characterized by an adherence to traditional values and rigorous discipline.

Coleman's discussion of social capital stimulated much research as well as generated considerable criticism (Dika and Singh 2002; Perna and Titus 2005; Portes 2000). In particular, critics argue that Coleman displays circular reasoning by equating the sources of social capital with the benefits, and that he pays too little attention to how social capital is accessed (Morrow 1999; Portes 1998; Woolcock 1998). These criticisms have fueled the development of an alternative approach to social capital that defines social capital as resources contained within social networks. In the sociology of

education, this approach builds upon Bourdieu's work and theory, and incorporates insights from the literature on social capital in the job search process.

Bourdieu (2001: 102-103) defines social capital as resources contained within social networks, and explains that social capital depends on access to social networks, the quality of resources, and the maintenance of these social ties:

> Social capital is the aggregate of the actual or potential resources that are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectivity-owned capital … that entitles them to credit in the various senses of the word.

Bourdieu's definition and use of social capital relates to other forms of capital and emphasizes the role of networks and contacts.[11] More recently, Stanton-Salazar (1997) develops a conceptual framework that emphasizes the important role of social networks and pays particular attention to the factors constraining access to social opportunities and other resources. During the high school years, working-class and minority youth face challenges in constructing instrumental social networks and often lack the supportive ties to institutional agents more common in middle-class social networks. For many students, school personnel represent one of the few readily accessible forms of professional support and guidance (Stanton-Salazar and Dornbush 1995; Stanton-Salazar and Spina

[11] In stressing the role of social networks, including both close ties to family members and weaker ties to acquaintances, Bourdieu (2001: 103) continues by offering an operational definition of social capital: "The volume of the social capital possessed by a given network of connections he can effectively mobilize and on the volume of capital (economic, cultural, or symbolic) possessed in his own right by each of those to whom he is connected." Lin (2001: 24-25) offers a highly comparable operational definition of social capital: "In this conceptualization, social capital may be defined as the resources embedded in social networks accessed and used by actors for actions."

2003). A Bourdieusian perspective to social capital can consider inequalities in the distribution of and institutional barriers to resources in social networks.

Bourdieu's approach of social capital is very similar to that used in studies of labor market outcomes (Lin 1999; 2001). As an improvement to Coleman's definition, a resources-in-networks perspective has the advantage of considering the effects – both positive and negative – of different network structures (Portes 2000), including the role of weak ties (Granovetter 1973). Close or bonding ties can be important in some contexts, while weak and bridging ties can provide access to resources that are unavailable in personal networks (Burt 1992). In response to growing criticism of Coleman's approach to social capital, a resources-in-networks approach is beginning to emerge as the dominant perspective in the sociology of education (Horvat et al. 2003).

During the 1990s, the National Educational Longitudinal Study (NELS) emerged as a leading source for research linking social capital and educational outcomes. The NELS is a large-scale panel study of a nationally representative sample of eighth-graders first surveyed in the spring of 1988. Coleman was influential in the development of the NELS, which includes a range of questions consistent with his approach to social capital. McNeal (1999) provides a comprehensive example of this line of research. As indicators of social capital, McNeal includes measures of family structure, parent-child discussions, and involvement in parent-teacher organizations. Consistent with Coleman's predictions, social capital is a salient factor in explaining negative behavior outcomes at the high school level, such as truancy or dropping-out. However, results for achievement are

weaker and more ambiguous, as many of the benefits of social capital persist only for white, middle-class students from intact households.

Morgan and Sørensen (1999a) use the NELS to test Coleman's hypothesis that Catholic high school students have higher levels of achievement due to a high degree of intergenerational closure. Their results find little support for this argument.[12] While Catholic school students benefit from a more challenging curriculum, Morgan and Sørenson find little evidence that this is due to higher levels of social capital in the community. To the contrary, public school students benefit from horizon-expanding social networks. For these students, social closure among parents may actually limit information flows and prevent access to informal learning opportunities (Ainsworth 2002; Wilson 1996). In other words, public school students benefit more from parents' weak tie connections away from school than dense personal networks around the school (Mangino 2009; Morgan and Todd 2009).

Other studies that follow Coleman's approach to social capital find positive associations with educational achievement and attainment, but support is only moderate. This literature, based primarily on studies of high school students, typically uses data collected in large, nationally representative surveys such as the NELS (Dika and Singh 2002). Studies that emphasize close-ties among parents and intergenerational closure as forms of social capital find an association with lower dropout rates (Carbonaro 1998;

[12] Hallinan and Kubicek (1999) challenge Morgan and Sørensen on conceptual and methodological grounds. In particular, Hallinan and Kubicek argue that their measures of intergenerational closure – the within-school mean number of ties that the student's parent reports to the student's friends and to the friend's parents – are highly correlated and rather poor indicators for social capital. Morgan and Sørensen respond that their measurement and methodological approach are entirely consistent with Coleman's theory. Additionally, results remain robust under alternative specifications suggested by the critical reviewers (Morgan and Sørensen 1999b: 698).

Teachman, Paasch and Carver 1997), fewer maladaptive behaviors (Hoffman and Dufur 2008; Wright and Fitzpatrick 2006), and higher grades and test scores (Kao and Rutherford 2007). Other studies find the effects of social closure on achievement to be quite small (Carbonaro 1998; Portes 2000) if not spurious (Carbonaro 1999: 685).

Fewer studies at the secondary level have examined how students' broader social networks affect academic outcomes.[13] Stanton-Salazar and Dornbush (1995) examine the formation of instrumental ties in a study of Mexican-origin high school students. Results show that English language ability, socioeconomic status, achievement, occupational expectations and college plans are positively associated with access to institutional support in the form of network ties. Broh (2002) finds that some extracurricular activities have a positive impact on high school grades, and this is largely attributable to the social capital accessed through participation. Additionally, the resources available in students' peer networks (Ream 2005), parents' social contacts (Kim and Schneider 2005), and mentoring relationships (Erickson, McDonald and Elder 2009) positively affect academic outcomes for secondary students.

Little research has examined social capital at the postsecondary level. Further, it is unclear if social capital acquired during adolescence would be important for students' college experiences or postsecondary outcomes. Family resources, as emphasized by

[13] Horvat, Weininger and Lareau (2003), in an ethnographic study of class-based differences in the social networks of parents of third and fourth grade students, also find that the network structures emphasized by Coleman as forms of social capital are largely middle-class phenomena. Middle class parents, often through interactions at their child's organized activities, have social networks that contain more informal ties to educators and other professionals. Working-class networks were largely rooted in kinship groups, with fewer ties to other parents or professionals. Consequently, middle-class families have more resources available to them when dealing with problems at school or when handling any of the child's special educational needs (Lareau and Horvat 1999).

Coleman, are positively associated with the likelihood of entering postsecondary education, and attending selective colleges and universities in particular (Hofferth, Boisjoly and Duncan 1998; Kim and Schneider 2005; Perna and Titus 2005; Sandefur et al. 2006).[14] Lee and Brinton (1996) show that elite universities in South Korea provide graduates with social capital and advantages in the labor market through ties among prospective employers and professors, administrators, and alumni. Grayson (2004), in an analysis of recent graduates of a Canadian university, finds little effect of the use of contacts on job outcomes.

While not directly examining the effects of social capital, studies of college and university students suggest the beneficial resources accessed through various social networks (see Pascarella and Terenzini [2005] for review). Frequent interactions with peers provide opportunities to reinforce commitment to the academic program, and are associated with gains in knowledge and skill acquisition (Astin 1993). Participation in extracurricular activities, including service groups, fraternities/sororities and athletic teams, is associated with development of career-relevant skills, but evidence is mixed regarding the effects on skill acquisition and achievement (Pascarella and Terenzini 2005: 514-522). Participation in fraternities and sororities may contribute to the choice of pursuing a business or law career (Astin 1993). Out-of-class interaction with faculty is associated with gains in students' educational effort, vocational preparation and

[14] As a characteristic example of more recent applications of the NELS data, Kim and Schneider (2005) offer a slight refinement to Coleman's approach by assessing the role of bridging network ties. College or university students experienced higher levels of intergenerational closure during the high school years, as well as more frequent interactions with parents. Yet, these traditional social capital measures have little effect on college selectivity. Results show that "aligned" social capital – when parents connect their children to resources that further their ambitions – is a more important predictor of college attendance.

intellectual development (Kuh and Hu 2001). Additionally, greater student-faculty contact has a positive influence on students' plans to become college teachers (Cole and Barber 2003), research scientists and physicians (Astin 1993). Expansive campus social networks can provide students with access to a variety of resources that facilitate academic achievement and pathways to successful careers. Peer and faculty networks include resources, such as guidance, support, information and encouragement with coursework, and information and contacts for post-graduation endeavors.

Studies of occupational attainment have explored the benefits of social capital and the use of personal contacts during formal (Granovetter 1973) and informal (McDonald and Elder 2006) job searches. Research in this tradition draws attention to the instrumental use of resources and information that exist in social networks (Lin 1999). Not only does social capital facilitate occupational attainment when mobilized during the job search process (Bian 1997; De Graaf and Flap 1988; Lin, Ensel and Vaughn 1981; Marsden and Hulbert 1988; Wegener 1991), but also when accessed within an individual's general social networks (Burt 1992; Campbell, Marsden and Hulbert 1986; Erickson 1996; Lin and Dumin 1986).

Coleman's (1988) seminal article guided research for much of the next decade, most prominently with NELS modules designed expressly to test his hypotheses. However, growing theoretical and empirical criticism of Coleman's approach has led to the emergence of something of a new consensus that considers social capital as resources embedded in networks. Similar to Coleman, this perspective locates the family as an important source of social capital, especially for primary and secondary students. Yet, a

resources-in-networks perspective is more attentive to inequalities and factors constraining access to social capital. In future years, research of social capital and educational outcomes will likely continue to diverge from Coleman's approach (Dika and Singh 2002; Martin and Lin 2010). Recent trends in the literature suggest a growing interest in how social capital operates in immigrant communities, the use of qualitative methods and case studies, and a shift of focus from secondary to other levels of education (e.g., Horvat et al. 2003; Stanton-Salazar and Spina 2003; Teranishi and Briscoe 2006).

To address problems of conceptual ambiguity and clarify the concept of social capital in educational research, and to incorporate insights from studies of the job search process and occupational attainment to the sociology of education, I consider the household and community structures that Coleman emphasizes as social capital to be family resources. This is not to imply that these resources are not important in determining educational outcomes or trajectories, although it is not clear whether these family resources from adolescence would continue to exert effects on postsecondary outcomes. An impressive research literature has demonstrated the effects of stable family environments, family size, and parental expectations on educational attainment for primary and high school students (e.g., Astone and McLanahan 1991; Downey 1995; Hagan, MacMillan and Wheaton 1996; McLanahan and Sandefur 1994; Pribesh and Downey 1999; Swanson and Schneider 1999). However, given the lack of consistent support for intergenerational closure (e.g., Morgan and Sørensen 1999a; Morgan and Todd 2009) and other criticisms with Coleman's approach, it is helpful to distinguish these resources from an operational definition of social capital.

Borrowing from Bourdieu, Lin, and other promoters of a resources-in-networks approach, social capital is defined as the material and symbolic resources that can be accessed in social networks, accumulated over time, and converted into tangible profits. Like other forms of capital, social capital is unequally distributed within a hierarchical power structure (i.e., social space), and has the capacity to reproduce itself in both its present form and as other forms of capital (Bourdieu 2001; cf. Lin 2001: 33-38). The next section provides an examination of social capital in its practical or immediate state, and tests the effects of campus and peer networks on achievement during the college years and immediate post-graduation plans at an elite university. The section that follows considers the implications of an institutionalized form of capital: admissions preference for legacies at Duke and other selective colleges and universities.

4.4 Social Capital and Campus Networks

Selective colleges and universities serve as important links to elite occupations, and occupy a central role in the production of the dominant class (Karabel 2005; Katchadourian and Boli 1994; Kingston and Smart 1990; Stevens 2007; Useem and Karabel 1990). Elite universities provide an appropriate but underexplored setting to apply a resources-in-networks approach to social capital. While social capital has received considerable attention in regards to secondary student outcomes, few studies have examined social capital at the postsecondary level. As will be shown, Duke students make significant investments in social capital across the college years. Academic time use for students at US colleges and universities has declined steadily over the past half century, and today's students spend more time in leisure and social activities

than in prior decades.[15] Even as students spend less of their time in the classroom, library or lecture hall, there has been little attention to how campus social networks influence academic achievement and occupational attainment.

In this section, I apply a resources-in-networks approach and related methodology to understand the role of social capital at an elite university campus. I consider social resources within a Bourdieusian capital framework, including pre-college measures of class background, cultural capital and family resources, and several dimensions of human capital across the college years. In particular, I examine the effects of extensive campus networks that include ties to fellow students, university administrators, faculty, staff, clubs and organizations, as well as the use of family or personal contacts.

4.5 Measuring Social Capital

Two principal methodologies have been used to examine the social capital available in networks: the name-generator and the position-generator (Lin 1999). With the name-generator, an individual provides information about the nature, content and closeness of several of the respondent's contacts. This approach is especially useful for studying ego-centered networks (e.g., Burt 1992; Campbell et al. 1986). A limitation of the name-generator is that it restricts attention to specific content areas by focusing on close, personal ties. In contrast, the position-generator samples positions throughout the occupational structure. Typically, the position-generator asks respondents if they know

[15] Babcock and Marks (2009), examining six waves of data from four national surveys, find that the average time spent in class or studying by US college and university students has declined from about 40 hours a week in the early 1960s to about 26 hours a week in 2004. As a comparison, during a typical week first year Duke students spend about 24 hours in class or studying, and about 18 hours partying, socializing with friends or participating in extracurricular activities (Bryant, Spenner and Martin 2007: 26-35).

or associate with anyone in each of a sample of ordered positions that are salient in society (e.g., Erickson 1996). From these responses, it is possible to create indicators for the breadth and quality of resources contained in an individual's social networks. This methodology is well suited to capture an individual's access to social resources through extensive networks and weak ties (Van der Gaag, Snijders and Flap 2008).

Lin, Fu and Hsung (2001) and Li, Savage and Warde (2008) outline four social capital measures that can be derived from the position-generator. "Extensity" (or "volume") refers to the number of positions accessed, and describes the amount of heterogeneous resources available in networks. Other measures involve assigning prestige or status scores to each of the measured positions. "Upper-reach" denotes the prestige or status score of the highest position accessed; "range" is calculated as the difference between the highest and lowest status scores accessed; and "position" refers to the average prestige score of all reported contacts. Extensity and range describe the extent to which an individual has contacts that span different social groups and access throughout the occupation structure. Position and upper-reach express the quality of the social resources available through these contacts.

The results presented in this chapter include social capital measures adapted from a position-generator for an elite university campus (Figure 4.2). In the spring semester of the first, second and fourth college years, students were asked about their social ties to different members of the Duke community, including administrators, faculty, staff, and other students. From these responses, I define five indicators for social capital across the college years (Table 4.1). *Campus ties* (max. 12), or campus network extensity, is the

number of positions to which the student reports access by knowing at least one person. From the first to the fourth year, students add about two additional ties to campus positions. About sixteen percent of students report no ties to campus positions in the first year, declining to five percent of students by the fourth year. This position-generator

Now we would like to ask you some questions about your social ties to different members of the Duke community. 'Know' means the person in question knows you well enough to remember your first name. 'Associate with' means you meet or interact with this person on more than an occasional basis. (Include acquaintances, friends, relatives, and co-workers.) Please check all that apply.

Do you *know* or *associate with:*

1.	The president, the provost or a dean ☐	(51.3)
2.	An assistant or associate dean, program director or department chair ☐	(54.3)
3.	A student support professional ☐	(58.3)
4.	Another university administrator or professional staff (housing, admissions, etc.) ☐	(54.3)

Other than your class instructors, a faculty member in:

5.	The humanities ☐	(70.9)
6.	The social sciences ☐	(76.8)
7.	The natural sciences/mathematics ☐	(64.1)
8.	Engineering ☐	(61.2)
9.	An athletics coach, assistant coach or official ☐	(42.7)
10.	Medical Center faculty or staff ☐	(80.5)
11.	Some other staff member (clerical, housekeeping, dining services, etc.) ☐	(37.1)
12.	Graduate/professional student ☐	(47.0)

Source: Campus Life and Learning, college years surveys
Note: Socioeconomic indexes (in parentheses) are applied to three-digit 1990 US Census Occupation Codes (TSEI; Hauser and Warren 1997).

Figure 4.2: A position-generator for the university campus

samples salient positions and titles on the Duke campus, and was not intended to be representative of the broader occupational structure. Consequently, measures for *range*, *upper-reach*, and *position* have only limited applicability. Prestige scores for occupational categories may not capture relative status distinctions among positions on a university campus. For this sample, higher values for upper-reach and position suggest more contact with faculty members and medical professionals.

In addition to campus positions, the CLL position-generator asks students if they know other undergraduates living in various campus residences. Duke residential policy stipulates that first year students reside in one of thirteen dormitories on East Campus, while most second and fourth year students reside in one of eight West Campus quads. *Dorm ties* is the number of campus residence halls in which the student knows at least one other student. In the first year, students report ties to most East Campus dorms, and about 37 percent of students report connections to all thirteen dorms. By the fourth year, about 43 percent report ties to all eight West Campus quads.

Club ties (max. 8), another measure of extensive peer networks, is a count of extracurricular clubs to which the student reports membership (fraternity/sorority, religious club, cultural or ethnic club, community service club, student government, school publication, intramural club and intercollegiate athletic team). The fourth year survey asks students if they used personal or *family contacts* in preparing for their post-graduation plans. While there are few significant differences across class background for other social capital indicators, executive class students were most likely to report the use of family contacts and subordinate class students were least likely.

Table 4.1: Social capital across the college years (means), by social class

	Professional	Executive	Middle classes	Subordinate classes
Campus ties				
First year	2.89	2.69	3.08	2.92
Second year	3.75	3.97	4.16	3.99
Fourth year	5.05	4.93	4.83	5.04
Range				
First year	16.46	15.58	17.53	18.08
Second year	24.29	24.57	24.79	23.78
Fourth year	28.92	28.56	26.29	28.46
Upper-reach				
First year	52.32	50.42	54.66	57.06
Second year	65.47	67.53	67.45	64.23
Fourth year †	71.39	71.59	67.25	70.30
Position				
First year	43.85	42.63	45.33	47.43
Second year	53.21	55.32	54.78	52.29
Fourth year	56.59	57.05	53.73	55.45
Dorm ties				
First year	10.54	10.23	10.33	9.96
Second year †	7.39	7.45	7.25	6.95
Fourth year	5.45	5.10	5.60	5.32
Club ties				
First year	1.75	1.60	1.61	1.47
Second year	1.60	1.50	1.53	1.42
Fourth year †	1.60	1.51	1.36	1.39
Use family contacts				
Fourth year *	.50	.63	.56	.45

Source: Campus Life and Learning (n =793 to 910)
Note: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests); values for range, upper-range, and position are calculated from socioeconomic indexes applied to three-digit 1990 US Census Occupation Codes (TSEI; Hauser and Warren 1997).

The pre-college survey collects information about ties to the university, as well as family resources and forms of cultural and human capital. *Duke ties* (max. 5) is a count of pre-college ties that the student reports using to prepare for college (having a family member who graduated from Duke, other family ties to the university, and speaking with an Admissions Office representative, other university official, or faculty member). Several family resources can be expected to facilitate achievement and encourage

educational attainment, such as having a *two-parent household.* Additionally, *parent-school interaction* (max. 25) is a scale combining five items for parents' participation in certain activities during the student's middle school years (parent-school organizations, other school related activities, talking with student's friends, checking if student completed homework and helping student with homework). *Parent-child discussions* (max. 25) is a scale combining five items for the frequency of students and parents participating in certain activities together (discuss political or social events, discuss books, film or television programs, listen to music, eat the main meal around a table, and spend time talking). Other aspects of family structure may disrupt social relationships, including having a *mother work full-time*, number of *siblings*, and *family moves* and school changes during adolescence (Coleman 1988; Sandefur et al. 2006).

Following prior research of secondary students (e.g., DiMaggio 1982; Roscigno and Ainsworth-Darnell 1999), the pre-college survey collects information about participation in cultural activities during the middle and high school years. Items include student and parent participation in "highbrow" activities, such as visiting art museums or attending the opera, symphony or ballet, and student participation in popular activities, such as going to the movie theater or music concerts (Gans 1999). Multiple dimensions of human capital, assessed in each survey wave, are germane to academic performance *Academic skills* (max. 40) is an eight-item scale of self-assessed abilities, such as remembering factual knowledge, applying knowledge to specific situations, analyzing arguments, conducting research, and written and oral expression. *Self-assessed ability* refers to ability comparisons with others in the student's most challenging class of the

previous semester, and *academic self-confidence* refers to the student's confidence of succeeding in this course. A binary indicator, *success from hard work*, describes if the student attributed success in this course to individual effort, as opposed to ability, luck or task difficulty. Finally, *good student identity* describes how important being a good student is to overall self-identity, and *overall life satisfaction* refers to how satisfied students are with themselves (Astin 1993; Massey et al. 2003; Pascarella and Terenzini 2005; Reitzes and Burke 1980).[16]

4.6 Campus Networks and Academic Achievement

Most students in this study come from households with an abundance of educational, financial, and social resources. However, it is an open question whether these resources will have a significant impact into the college years (Spenner et al. 2005). Family resources are important in the transition into postsecondary education (Kim and Schneider 2005; Perna and Titus 2005; Sandefur et al. 2006). In applying to colleges and universities, students draw on the support, advice and recommendations of family members, friends, teachers and guidance counselors. Accordingly, socioeconomic and class background is associated with unequal access to information about postsecondary education (Cookson and Persell 1985; Devine 2004; Karen 1991a; McDonough 1997; Reay et al. 2005). Few students with absolute deficits of social and cultural capital

[16] Unless indicated, human capital variables are measured with five ordinal categories. *Self-assessed ability* asks students to compare their abilities to other students in their last challenging course (1 = very much below average, 5 = very much above average); *academic self-confidence* describes success of succeeding in this course (1 = not at all confident, 5 = extremely confident); *good student identity* asks students to consider how important it is to their overall identity to be a good student (1 = not at all important, 5 = extremely important); *overall life satisfaction* asks students how much they agree with the statement, "On the whole, I am satisfied with myself" (1 = strongly disagree, 5 = strongly agree). The pre-college survey refers separately to challenging mathematics and literature courses, while college year surveys ask students to consider the most challenging course of the previous (fall) semester.

matriculate to elite, private universities (see Chapter 3). Once arriving on campus, students may need to rebuild, redirect or refine their resources in order to have effects on achievement or other college-level outcomes.

During the college years, extensive ties to different peer networks could provide information that facilitates academic success, such as advice about which classes to take, course material and grading, and alerts to campus programs. At selective institutions, however, the effects of peer networks are likely small, as most students are academically motivated and aspire to high status positions in later adulthood (Bowen and Bok 1999: 91-154). Extensive ties to campus positions and offices could provide students with information about academic requirements and policies, as well as support services available on campus. Throughout the college years, broad campus networks could provide students with opportunities for professional mentors, which can foster intellectual development and a more rigorous synthesis of course material, leading to higher achievement (e.g., Cornwell and Cornwell 2008; Erickson et al. 2009).

Table 4.2 presents nested regression models predicting cumulative grades after two semesters of study with student background characteristics and pre-college resources and forms of capital. Each model includes controls for first year major field, racial ethnic background, sex, citizenship and social class. Compared to engineering majors, natural science majors score about one-tenth of a letter grade higher, social science majors score one-seventh of a letter grade higher, and arts or humanities majors score nearly one-quarter of a letter grade higher. Net of other ascribed characteristics, black students have first year GPAs that are.48 of a letter grade lower than white students, and Latino

students score .17 of a letter grade lower (Model 1). Including measures for SAT scores and AP credit reduces the black-white gap by over 40 percent, and the Latino-white gap by 57 percent (Model 2). Additionally, being female, a foreign citizen, and from professional or middle (versus executive) class household are all positively associated with first year grades.

For this sample of elite, university students, most family resources have insignificant effects on early college achievement (Model 3). Each family move during adolescence is associated with .02 of a letter grade lower cumulative first year GPA. Further inspection of this significant effect suggests that it is driven by about five percent of students who experienced four or more school changes.[17] However, active parent involvement in school activities, frequent family discussions, living in a two-parent household, and having a mother who worked full-time during the high school years all have effects on first year grades that are insignificant and not in the expected direction. Extensive pre-college ties to Duke also have an insignificant effect on first year grades. Notably, including variables for pre-college family resources reduces the effect of student class background to insignificance. As shown in Chapter 3, social class is more strongly associated with differences in economic capital and family resources than cultural capital or educational resources.

Student involvement in pre-college cultural activities does not have a substantial impact on college achievement (Model 4). Only attending popular music concerts has a small, negative effect on first year grades; a one standard deviation increase in the

[17] Replacing the count variable in Model 3 with binary indicators for few (1 to 3) or many (4 or more) moves, using no moves as the reference category, yields a significant, negative coefficient (-.179, $p < .01$), for many moves but no significant effect for few moves.

Table 4.2: OLS regression of first year GPA on cultural capital, family resources, and human capital

	Model 1		Model 2		Model 3	
	coeff.	(s.e)	coeff.	(s.e)	coeff.	(s.e)
Race/ethnicity (ref. white):						
Black	-.475 *	(.042)	-.280 *	(.045)	-.301 *	(.046)
Latino	-.168 *	(.041)	-.072 †	(.038)	-.080 *	(.039)
Asian	.070 †	(.042)	-.006	(.039)	-.010	(.040)
Other	-.090	(.067)	-.063	(.062)	-.070	(.062)
Female	.035	(.030)	.075 *	(.028)	.078 *	(.028)
US Citizen	-.013	(.053)	-.094 *	(.047)	-.101 *	(.050)
Social class (ref. executive):						
Professional	.132 *	(.052)	.101 *	(.048)	.072	(.046)
Middle	.114 *	(.050)	.094 *	(.046)	.061	(.044)
Subordinate	.037	(.058)	.072	(.053)	.028	(.052)
SAT score (total)			.001 *	(.000)	.001 *	(.000)
AP credit			.079 †	(.041)	.087 *	(.041)
Duke ties					-.007	(.012)
Family resources						
Two-parent household					-.055	(.038)
Number of siblings					-.019	(.013)
Mother work full-time					.045	(.028)
Number of family moves					-.021 *	(.010)
Parent-school interaction					-.003	(.004)
Parent-child discussion					-.002	(.003)
Cultural activities						
Go to movie theater						
Visit art museum						
Go to music concert						
Attend opera or ballet						
Attend sports event						
Go to zoo/science center						
Human capital						
Academic skills						
Ability (math.)						
Hard work (math.)						
Overall satisfaction						
Good student identity						
Constant	3.146 *	(.078)	1.039 *	(.205)	1.319 *	(.224)
R^2	.101		.205		.218	

Source: Campus Life and Learning (n = 1181)

Note: * $p < .05$, † $p < .10$ (two-tailed tests); all models control for major field area

Table 4.2 *continued*

	Model 4			Model 5			Model 6		
	coeff.		(s.e)	coeff.		(s.e)	coeff.		(s.e)
Race/ethnicity (ref. white):									
Black	-.309	*	(.045)	-.277	*	(.045)	-.323	*	(.047)
Latino	-.070	†	(.039)	-.079	*	(.038)	-.088	*	(.039)
Asian	-.028		(.040)	-.021		(.039)	-.046		(.040)
Other	-.058		(.063)	-.069		(.061)	-.069		(.062)
Female	.069	*	(.030)	.078	*	(.028)	.071	*	(.030)
US Citizen	-.087	†	(.047)	-.107	*	(.048)	-.110	*	(.051)
Social class (ref. executive):									
Professional	.097	*	(.048)	.089	†	(.047)	.057		(.046)
Middle	.082	†	(.046)	.101	*	(.045)	.060		(.044)
Subordinate	.058		(.053)	.068		(.052)	.013		(.052)
SAT score (total)	.001	*	(.000)	.002	*	(.000)	.001	*	(.000)
AP credit	.087	*	(.041)	.074	†	(.040)	.088	*	(.040)
Duke ties							-.006		(.012)
Family resources									
Two-parent household							-.064	†	(.037)
Number of siblings							-.018		(.013)
Mother work full-time							.042		(.028)
Number of family moves							-.021	*	(.009)
Parent-school interaction							-.003		(.004)
Parent-child discussion							-.003		(.003)
Cultural activities									
Go to movie theater	.010		(.023)				.019		(.024)
Visit art museum	-.019		(.021)				-.010		(.020)
Go to music concert	-.036	*	(.015)				-.031	*	(.016)
Attend opera or ballet	.018		(.016)				.020		(.016)
Attend sports event	-.013		(.015)				-.019		(.016)
Go to zoo/science center	-.017		(.021)				-.020		(.020)
Human capital									
Academic skills				-.003		(.004)	-.003		(.004)
Ability (math.)				.067	*	(.022)	.065	*	(.021)
Hard work (math.)				.064	*	(.031)	.077	*	(.031)
Overall satisfaction				.030		(.019)	.038	*	(.018)
Good student identity				.037	*	(.017)	.034	*	(.017)
Constant	1.241	*	(.226)	.492	*	(.237)	.916	*	(.262)
R^2	.214			.227			.249		

frequency of attending concerts during the high school years is associated with less than one-seventeenth of a letter grade decrease.[18] Alternative specifications using indicators for middle school participation in cultural activities also show little effect on achievement. Pre-college cultural activities, like family resources, do not influence college academic achievement for this sample of talented, ambitious, and largely affluent students. These resources could have been important during the middle and high school years and the college admissions process, but there is little evidence for a prolonged effect on postsecondary outcomes.

Pre-college human capital, in contrast, has consistent, positive effects on first year grades (Models 5 and 6). Self-assessed ability in challenging high school mathematics courses, attributing success to hard work, overall satisfaction with self, and importance of a good student identity all have significant, positive effects on first year grades. Under alternative specifications, academic skills also have a positive effect.[19] Compared to family resources and cultural capital, the addition of human capital variables provides greater improvement to model fit. While human capital resources from the high school

[18] Similar to these results, Spenner et al. (2005: 206-7), in an analysis of first semester grades using CLL data for the first cohort only, find a significant, negative coefficient (-0.23; $p < .01$) for being black, and a significant, negative effect for a scale of popular activity participation during the high school years. This scale, determined from factor analysis, combines responses for how often the student attends popular music concerts and sports events.

[19] Including a term for confidence in succeeding in a challenging high school mathematics course yields a significant, negative coefficient (-0.45; $p < .05$), while the effect of academic skills remains positive and is now significant. Other pre-college human capital various remain positive, but insignificant. One possible explanation for this negative effect of confidence is that students with high skill levels enroll in more challenging mathematics courses during high school. Although, nearly identical results are found for an alternative model specification that replaces variables for confidence and ability in a challenging high school mathematics course with corresponding items for a challenging English or literature course. Academic confidence is excluded from final models because it is strongly correlated with self-assessed ability (r = .61) and does not provide a clear interpretation. Net of the effects of self-assessed ability in a challenging high school mathematics course, there is a significant, negative effect of confidence in this same course.

years are directly transferable to postsecondary academic achievement, any potential benefits of family resources and other pre-college forms of capital appear to be confined to gaining admission at an elite university.[20]

Extensive campus social networks are not appreciably associated with early college achievement, although students who have few ties to campus residence halls have somewhat higher grades. In analysis not shown (see Martin 2009b), first year club memberships and ties to campus positions have insignificant effects on cumulative first year GPA, while ties to first year dormitories have a significant, negative effect. Relative to student background characteristics and human capital, the effect of dorm ties is small. Including a dummy variable for having ties to less than half of dorms (18 percent of students) yields a significant, positive coefficient (.140; $p < .001$). Compared to other students, these relatively isolated students spend about one hour less each week with friends and over two hours less partying during the first college year, but do not spend significantly more time in academic activities.

While campus networks do not predict first year college grades, extensive campus networks are positively associated with final college achievement. Table 4.3 presents results from logistic regression predicting graduation with honors (displaying odds-

[20] The results are robust across a variety of model specifications. Adding family resources, cultural capital, and human capital variables individually to separate models with controls for high school achievement, major field area and student background characteristics yields a similar pattern of effects. Most pre-college cultural capital and family resources variables have insignificant effects, and attending popular music concerts (t = -2.69) and family moves (t = -2.02) have effect sizes similar to those reported in Table 4.2. Contrary to predictions, having many books in the home is associated with one-tenth of a letter grade lower first year GPA (t = -2.69), and having a mother who worked full-time is associated with a .06 letter grade increase (t = 2.61). All terms for middle school cultural activities and parent's cultural activities and educational resources are insignificant. In these reduced models, pre-college academic skills (t = 3.18), self-assessed ability (t = 3.18), and good student identity (t = 2.39) have significant, positive effects on first year grades, while all other human capital coefficients are positively signed, but insignificant.

ratios).[21] Results for racial ethnic background, test scores and human capital largely parallel the results for first year grades. White students are most likely to graduate with honors. Net of other controls, the odds of a black student graduating with honors are over three and a half times lower than for white students, and the odds for Latino and Asian students are about one and two-thirds times lower. The odds of a female student graduating with honors are over one and a half times greater than for male students. SAT scores and several dimensions of human capital are strongly, positively associated with graduating with honors. For example, attributing success in a challenging course to hard work is associated with nearly doubling of the odds of graduating with honors.

There is little evidence of effects of extensive peer networks on college achievement, and both campus ties and dorm ties are insignificant. This could be attributable to a sample that is – like the population of students attending selective colleges and universities – exceptional in several regards. Most students at Duke are from highly educated families, and about half of students enter college from dominant class households. Attending an elite university, these students have demonstrated success at the high school level and an ability to navigate educational institutions successfully. The types of resources available in peer networks that could facilitate academic achievement – e.g., help with studying, advice about courses and instructors, information about campus services, policies, and events – are likely widely available throughout the student body. Having more extensive peer networks than the typical Duke student may only provide access to redundant information and other resources.

[21] Graduation honors (summa, magna or cum laude), taken from official transcripts, is determined as the top quartile threshold in final GPA for the previous year's graduating class, calculated separately for students in the schools of engineering and arts and sciences.

Table 4.3: Logistic regression of graduation honors on human and social capital

	Model 1		Model 2	
	odds-ratio	(t-score)	odds-ratio	(t-score)
Major field area:				
Natural sciences	1.075	(.24)	1.065	(.19)
Social sciences	1.036	(.13)	1.161	(.49)
Arts/humanities	1.178	(.52)	1.377	(.94)
Race/ethnicity (ref. white):				
Black	.396 *	(-2.75)	.264 *	(-3.47)
Latino	.729	(-1.11)	.591 †	(-1.68)
Asian	.807	(-.84)	.621 †	(-1.66)
Other	.431 *	(-2.00)	.362 *	(-2.14)
Female	1.728 *	(2.79)	1.587 *	(2.12)
US Citizen	1.175	(.41)	1.145	(.26)
Social class (ref. executive):				
Professional	1.616 †	(1.65)	1.542	(1.35)
Middle	1.215	(.66)	1.467	(1.15)
Subordinate	1.148	(.39)	1.306	(.68)
SAT score (total)	1.008 *	(7.28)	1.008 *	(6.95)
AP credit	1.531	(1.46)	1.494	(1.19)
Human capital				
Academic skills			.998	(-.07)
Ability			1.506 *	(2.93)
Hard work			1.989 *	(2.43)
Overall satisfaction			1.247 †	(1.94)
Good student identity			2.069 *	(4.97)
Social capital				
Campus ties			1.100 *	(2.35)
Dorm ties			.940	(-1.61)
Club ties			1.075	(.70)
Family contacts			.505 *	(-3.30)

Source: Campus Life and Learning (n = 795)
Note: * $p < .05$, † $p < .10$ (two-tailed tests); reference categories include white, engineering major, and executive class; human and social capital measures are from the fourth-year survey; honors distinction is collected from official transcripts.

Extensive campus networks with ties to a range of positions are associated with an increase in the likelihood of graduating with honors. Each additional tie to a campus position is associated with a ten percent increase in the odds of graduating with honors. While campus networks have a positive effect on final achievement, the use of family

contacts is associated with nearly two times lower odds of graduating with honors.[22] Rather than suggesting a negative causal effect of personal ties on achievement, a more plausible interpretation is that students who lack a valued academic credential, such as honors distinction, invest more heavily in personal connections for their plans after college. In this way, social capital could compensate for deficiencies in cultural capital (e.g., academic credentials) or human capital (e.g., academic abilities).

4.7 Campus Networks and Post-Graduation Plans

Campus networks could support students to enter pathways to professional careers, especially those represented on the university campus: administrators, doctors, professors and research scientists (Astin 1993; Cole and Barber 2003; Lee and Brinton 1996). Extensive campus ties could provide information and expertise concerning post-graduation opportunities (Cornwell and Cornwell 2008), as well as assistance with the application process and letters of recommendation. In contrast to these campus networks, family and personal contacts are likely to be more important during transitions to and from campus. The use of family contacts for post-graduation plans could be particularly beneficial for students who enter the workforce directly after graduation and for students pursuing careers with less connection to postsecondary institutions.

[22] Graduating with honors represents a valued and meaningful academic credential, and is not as susceptible to grade inflation and the skewed GPA distribution. Results from OLS regression predicting final (cumulative) GPA are highly consistent. Self-assessed ability (t = 5.37), overall satisfaction (t = 1.67), good student identity (t = 6.71) have significant effects on final college grades. campus ties (t = 1.89) and the use of family contacts (t = -3.73). The use of family contacts for post-graduation plans is associated with about one-twelfth of a letter grade lower final GPA (t = -3.73), and a one standard-deviation increase in campus ties is associated with one-twentieth of a letter grade increase (t = 1.89).

During the spring semester of the fourth college year, over one-third of students expect to attend graduate school during the next fall and more than half of students expect to work full-time. A few months before graduation, about ten percent of students are unsure of their immediate plans, or report activities other than school or work (e.g., military service, travel, Peace Corps). Table 4.4 provides results from logistic regression predicting the likelihood of attending graduate or professional school (versus full-time employment) in the fall immediately following graduation. Compared to engineering majors, social science majors are less likely to attend graduate school and natural science majors are more likely, although these effects are not significant. Net of major field and background characteristics, the odds of female students attending graduate school immediately after graduation are about 50 percent greater than for male students. College achievement and human capital are also positively associated with the likelihood of attending graduate school. Graduating with honors is associated with over 60 percent greater odds of attending graduate school. As with achievement, peer networks do not have a significant effect on post-graduation plans.

Extensive campus networks have a significant, positive effect on post-graduation plans. Each additional tie to a campus position is associated with a ten percent increase in the odds of planning to attend graduate or professional school the next fall. Under an alternative specification that decomposes the campus ties measure into separate dummy variables for each position, knowing a program director or department chair, medical center faculty or staff, and graduate or professional student all have significant, positive effects on graduate school plans. These network ties provide mentors in professional

Table 4.4: Logistic regression of attending graduate school (versus work) on human and social capital

	Model 1		Model 2	
	odds-ratio	(t-score)	odds-ratio	(t-score)
Major field area:				
Natural sciences	1.605	(1.62)	1.530	(1.40)
Social sciences	.626 †	(-1.79)	.657	(-1.51)
Arts/humanities	.808	(-.70)	.815	(-.65)
Race/ethnicity (ref. white):				
Black	1.518	(1.56)	1.157	(.51)
Latino	1.146	(.48)	1.046	(.15)
Asian	1.276	(.98)	1.153	(.53)
Other	.799	(-.57)	.685	(-.98)
Female	1.594 *	(2.39)	1.501 +	(1.93)
US Citizen	.775	(-.78)	.850	(-.46)
Social class (ref. executive):				
Professional	1.387	(1.05)	1.197	(.55)
Middle	1.477	(1.25)	1.447	(1.12)
Subordinate	1.364	(.90)	1.398	(.93)
SAT score (total)	1.000	(-.29)	1.000	(-.17)
Graduation honors	2.387 *	(4.40)	1.611 *	(2.19)
Human capital				
Academic skills			1.011	(.40)
Ability			1.225 †	(1.70)
Hard work			.932	(-.31)
Overall satisfaction			.892	(-1.09)
Good student identity			1.657 *	(4.23)
Social capital				
Campus ties			1.100 *	(2.55)
Dorm ties			1.021	(.59)
Club ties			.975	(-.28)
Family contacts			.693 †	(-1.93)

Source: Campus Life and Learning (n = 723)
Note: * $p < .05$, † $p < .10$ (two-tailed tests); excludes respondents with plans other than school or work; reference categories include white, engineering major, and executive class; human and social capital measures and immediate post-graduation plans are from the fourth-year survey.

occupations that typically involve advanced graduate training, as well as direct advice and information about graduate school opportunities, procedures and connections. The use of family contacts, in contrast, is associated with nearly one and a half times lower odds of immediately transitioning into graduate study. While extensive on-campus

networks facilitate the transition into graduate school, family and personal networks appear more important for students who plan to work immediately after graduation.

In the fourth year survey, students were asked about their expected occupation about five years after graduation. About two-thirds of students report high status job aspirations, as defined by Class I of the EGP schema (Erikson and Goldthorpe 1992).[23] Within this class, the most popular occupational categories are: lawyers (18 percent of students), business executives, managers and administrators (17 percent), medical doctors and other medical diagnosing occupations (16 percent), university professors and scientific researchers (10 percent), and engineers (5 percent).

Table 4.5 presents results from multinomial logistic regression predicting the likelihood of plans for each of these careers versus other occupational plans (displaying relative-risk ratios). Unsurprisingly, major field is strongly associated with career plans, and engineering majors are most likely to expect to have an executive, high-level managerial or engineering occupation. Engineering and natural science majors are more likely to aspire to careers as medical doctors than are social science and humanities majors.[24] White students are less likely than black, Latino, and especially Asian students to plan to become medical doctors. Female students are less than half as likely to plan on a career as a business executive or administrator. Students who graduated with honors are more likely to choose careers as medical and legal professionals.

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[23] As a comparison, during the late-1990s less than one-fifth of the white, adult male workforce is included in Class I of the EGP schema (Morgan and McKerrow 2004: 225).

[24] Alternative model specifications using different reference categories for major field reveal further distinctions. Social science majors, like engineering majors, are relatively more likely to plan on executive careers than are natural science majors. Additionally, majoring in a social science or humanities discipline (versus the natural sciences) is associated with a three times greater likelihood of aspiring to a career as a college professor, relative to other occupations.

Table 4.5: Multinomial logistic regression of plans for high status occupations on human and social capital

	Model 1 *Executive/manager vs. other career*			Model 2 *Medical doctor vs. other career*			Model 3 *Lawyer vs. other career*		
	RRR		(t-score)	RRR		(t-score)	RRR		(t-score)
Major field area:									
Natural sciences	.137	*	(-3.53)	1.220		(.44)	.396		(-1.47)
Social sciences	.801		(-.57)	.281	*	(-2.77)	1.698		(1.12)
Arts/humanities	.103	*	(-4.28)	.289	*	(-2.45)	1.373		(.62)
Race/ethnicity (ref. white):									
Black	.539		(-1.43)	2.149	†	(1.87)	1.591		(1.29)
Latino	.783		(-.68)	1.984	†	(1.67)	1.306		(.77)
Asian	1.230		(.50)	4.897	*	(4.10)	1.748		(1.44)
Other	1.398		(.47)	1.858		(1.02)	1.212		(.24)
Female	.455	*	(-2.87)	.881		(-.42)	.709		(-1.25)
US Citizen	.445		(-1.51)	.963		(-.06)	.991		(-.02)
Social class (ref. executive):									
Professional	1.260		(.54)	1.871		(1.23)	.900		(-.26)
Middle	1.566		(1.05)	1.639		(.96)	.765		(-.66)
Subordinate	1.243		(.44)	1.891		(1.16)	.893		(-.24)
Graduation honors	.958		(-.13)	1.811	†	(1.69)	1.736	†	(1.76)
Human capital									
Academic skills	1.001		(.03)	1.019		(.48)	1.032		(.81)
Ability	1.307		(1.59)	1.290		(1.34)	1.201		(1.16)
Hard work	.980		(-.06)	.803		(-.65)	1.023		(.07)
Overall satisfaction	1.088		(.61)	.785	†	(-1.73)	.908		(-.59)
Good student identity	1.013		(.09)	1.865	*	(3.73)	1.379	†	(1.88)
Social capital									
Campus ties	1.075		(1.41)	1.189	*	(3.37)	.982		(-.32)
Dorm ties	.979		(-.43)	.945		(-1.05)	1.064		(1.32)
Club ties	1.370	*	(2.43)	1.565	*	(3.34)	1.182		(1.36)
Family contacts	1.233		(.80)	.880		(-.45)	1.645	†	(1.86)
Pseudo-R^2	.202								
X^2(df)	1773.58 (115)								

Source: Campus Life and Learning (n = 795)

Note: * $p < .05$, † $p < .10$ (two-tailed tests); RRR = relative risk ratio; base category combines uncertain and other career plans for about five years after graduation; reference categories include engineering major, white, and executive class; human and social capital measures and expected occupation are from the fourth year survey.

Table 4.5 *continued*

	Model 4 *College professor vs. other career*			Model 5 *Engineer vs. other career*		
	RRR		(t-score)	RRR		(t-score)
Major field area:						
Natural sciences	1.260		(.40)	.000	*	(-54.71)
Social sciences	.891		(-.21)	.003	*	(-5.36)
Arts/humanities	.474		(-1.21)	.012	*	(-3.58)
Race/ethnicity:						
Black	.493		(-1.49)	.496		(-.66)
Latino	.857		(-.34)	1.116		(.14)
Asian	.419		(-1.56)	.221	†	(-1.95)
Other	1.337		(.47)	.811		(-.19)
Female	.954		(-.13)	.601		(-.69)
US Citizen	.615		(-.82)	.953		(-.04)
Social class:						
Professional	.998		(.00)	.388		(-1.12)
Middle	1.308		(.51)	.860		(-.17)
Subordinate	1.572		(.76)	2.348		(1.04)
Graduation honors	.853		(-.41)	.901		(-.17)
Human capital						
Academic skills	1.021		(.59)	.941		(-.73)
Ability	1.054		(.27)	.924		(-.25)
Hard work	.897		(-.28)	6.324	*	(2.21)
Overall satisfaction	.880		(-.71)	.569	*	(-2.05)
Good student identity	1.962	*	(3.70)	1.337		(.99)
Social capital						
Campus ties	1.111	*	(2.04)	1.258	*	(2.23)
Dorm ties	.974		(-.45)	.915		(-.95)
Club ties	1.126		(.76)	.659		(-1.54)
Family contacts	.485	*	(-2.20)	.588		(-.94)

In addition to college achievement, human capital and social capital are associated with distinct high status career pathways at the end of the college years.[25] Students who place greater importance on being a good student are more likely to expect to become medical doctors, lawyers and college professors. Students who plan to be engineers five years after graduation are more likely to attribute success in challenging courses to hard work rather than luck or other factors, but also have less overall satisfaction. In short, human capital is more strongly linked to career plans that typically require advanced degrees and post-graduate training.

Dorm ties have no significant effects on post-graduation plans, although ties to extracurricular clubs are associated with a greater likelihood of plans to be an executive or medical doctor. Each additional club membership is associated with a 37 percent increase in the likelihood of executive aspirations, relative to other career plans, and a 57 percent increase in the likelihood of plans to be a medical doctor. Using a national sample of college and university students, Astin (1993: 269-271) finds positive associations between: participating in fraternities or sororities and business or law career plans; participating in student government and law careers; and volunteering and medical careers. Further inspection generates highly consistent results for the Duke sample. In analysis not shown, I replace the variable for club ties with binary indicators describing

[25] In Martin (2009b), I report additional results from logistic regression predicting plans for any high status professional occupation (Class I of the EGP schema). At the end of college, Asian students have higher occupational aspirations than do white students. Extensive campus networks and extracurricular memberships have significant, positive effects on the odds of plans for a high status occupation. A one standard deviation increase in campus ties is associated with a 22 percent increase in the odds, and an additional extracurricular tie is associated with a 20 percent increase in the odds, while the use of family contacts is associated with a 61 percent increase. Thus, while social capital from the college years is linked to graduate school plans and high status occupational aspirations; campus networks have more specific effects on post-graduation pathways to careers as medical doctors, lawyers, and college professors.

membership in each of the eight extracurricular activities. Participation in a fraternity or sorority (t = 2.72) and student government (t = 2.67) in the fourth year is positively associated with executive career plans. Participation in service activities (t = 3.49) and cultural or ethnic organizations (t = 2.26) is positively associated with plans to be a medical doctor. Participation in student government predicts plans to be a lawyer (t = 2.35) and university professor (t = 2.09). Additionally, membership in a fraternity or sorority (t = -2.85) and participation in student government (t = -4.41) are negatively associated with engineering career plans.

Extensive campus ties are also positively associated with professional aspirations and plans to become a medical doctor, college professor, and engineer.[26] Consistent with the results for graduate school attendance, each additional campus tie is associated with a 26 percent increase in the likelihood of engineering career plans, a 19 increase for medical doctor aspirations, and a 10 percent increase for plans to become a college professor. This provides further support that extensive campus networks provide resources that are especially useful for students pursing professional careers in medicine, law, and engineering. The use of family contacts for post-graduation plans is associated with a 65 percent increase in the likelihood of law career plans, and a 51 percent decrease for plans to become a professor. Family and personal contacts appears to be more

[26] Replacing the campus tie measure with a series of dummy variables for each campus position, I find a positive association between: knowing an associate dean, program director or department chair and plans to become an executive (t = 2.08), college professor (t = 2.52) and lawyer (t = 2.26); knowing a natural sciences professor, not including course instructors, and plans to become an executive (t = 2.08), college professor (t = 3.19), medical doctor (t = 4.44), and engineer (t = 10.86); and knowing a graduate or professional student and plans to become a college professor (t = 2.65), medical doctor (t = 3.74), and engineer (t = 4.07). Additionally, knowing a medical center faculty or staff is positively associated with plans to become a medical doctor (t – 3.93).

important to post-graduation plans for aspiring lawyers than for medical doctors, professors, scientists or engineers.

Measures for campus social networks were collected in the spring semester of the fourth college year, and could invite problems with endogeneity bias. For example, the reported effects of social capital on achievement and post-graduation plans could be due to correlated unobserved variables, or the causal direction could be incorrectly specified (Mouw 2006). These are problems common to studies of the effects of peer networks and faculty interactions on postsecondary student outcomes, and the use of contacts in job searches (Lyle 2007; Mouw 2003; Pascarella and Terenzini 2005: 524). These issues speak to the need for further qualitative studies to examine the cultivation of campus social networks (Manski 1993). To address the possibility of spurious effects of personal characteristics on the relationship between networks and outcomes, I include a set of variables that are likely associated with the cultivation of campus network ties. Models that predict academic outcomes and post-graduation plans include controls for academic achievement and several dimensions of human capital.

Additionally, I examine the effects of lagged measures, replacing fourth year human capital and social capital variables with second year measures when possible. Results for fourth year outcomes are generally consistent with these alternative specifications, which use smaller samples (n = 638 to 700) due to the requirement of an additional wave of data. As an important exception, second year campus networks do not have a significant effect in models predicting the likelihood of graduating with honors or final college grades. Each additional second year campus tie is associated with a 12

percent increase in the odds of graduate school plans at the end of the fourth year (t = 2.90). Second year campus ties have positive effects on plans to become a college professor (t = 2.28) and medical doctor (t = 1.84), and club ties are positively associated with plans to become an executive (t = 1.87), medical doctor (t = 2.66) and lawyer (t = 2.63). With these limitations in mind, these results still suggest that extensive campus networks facilitate achievement and attainment along high status career pathways for elite university students.[27]

Overall, these results support two general conclusions. First, compared to dimensions of human capital – including ability, effort and motivation – other pre-college resources have little influence into the college years. Few students at Duke enter college with low absolute levels of economic, cultural and human capital, or other family resources. These resources likely had a more substantial impact during primary and secondary education, as well during the application process and transition to postsecondary education. However, there is little enduring effect on college achievement. Campus social capital has little influence on early achievement, although students with less expansive peer networks do have slightly higher first year grades.

[27] The campus ties measure used in this analysis is analogous to the extensity measure commonly derived from the position-generator (Lin et al. 2001). Results are highly consistent with other social capital indicators. Replacing the extensity variable with range yields a positive effect in models predicting honors distinction (t = 1.51) and graduate school attendance (t = 3.05). Status position has a positive effect on honors (t = 2.73), and upper-reach has a positive effect on honors (t = 2.83) and graduate school (t = 1.55). Additionally, range is positively associated with plans to become a college professor (t = 1.78) and medical doctor (t = 3.75); and both position and upper reach are positively associated with plans to become a medical doctor (t = 2.59 and 2.71, respectively) and engineering career plans (t = 2.11 and 2.09, respectively). In other specifications, campus ties variables fail to approach significance thresholds. As mentioned above, the extensity measure is preferable for greater ease of interpretation, to be consistent with other campus network measures, and because the CLL position-generator was not intended to sample the full occupational hierarchy.

Second, by the fourth college year, campus and family networks support two broad career trajectories. Extensive on-campus networks appears is more important for students pursuing careers that typically involve advanced graduate training, such as college professors and especially medical doctors. Conversely, the use of family or personal contacts for post-graduation plans is associated with directly entering the workforce, as well as plans to become a lawyer. The resources contained in campus networks appear more readily convertible into future advantages for students pursuing careers that have strong links to postsecondary institutions. Off-campus, personal networks have more immediate returns for students who plan to work full-time immediately after graduation, and for students with lower levels of achievement.

4.8 A Social Portrait of Legacies

In the practical or immediate state, social capital exists as resources available in networks of contacts, positions, family members, and other acquaintances. Like other forms of capital, social capital takes on broader recognition and greater permanence through institutionalization. Institutionalized social capital, such as a prominent surname or title of nobility, is often inherited and allows an individual to draw on the collective resources of a group in order to "exercise a power incommensurate with the agent's personal contribution" (Bourdieu 2001: 104-105).[28] An example of institutionalized

[28] Similarly, alumni organizations can serve provide a form of institutionalized social capital by celebrating – or, more cynically, co-opting – the successes of prominent alumni. Graduation from an elite university is associated with institutionalized cultural capital, in the form of an academic credential. Additionally, a prestigious alma mater "entitles one to a share … in this success or, more precisely, in the symbolic capital guaranteed to the group as a whole by all the exceptional properties accumulated by all of its members, and particularly by the most prestigious among them" (Bourdieu 1996: 114).

social capital at selective colleges and universities that has featured prominently in recent debates is an admissions preference for legacies, or students who have parents or relatives who graduation from the college or university (Golden 2006). In this section, I add to studies of the admissions process by providing a detailed portrait of Duke legacies across the college years.

Admissions committees at selective universities regularly consider a range of characteristics beyond academic merit, including racial ethnic background, athletic ability, musical talent, socioeconomic status, unusual life experiences, and expected financial donations (Fetter 1995; Golden 2006; Shulman and Bowen 2001; Zwick 2002). These practices can serve as challenges to goals of equity and fairness in higher education (Bowen, Kurzweil and Tobin 2005). A recent survey finds that three-quarters of Americans disagree with special consideration for legacies in the admissions process. As a comparison, less than half of these respondents disagree with preferences for underrepresented minority applicants (Selingo 2004).

The legacy tradition is most extensive at elite colleges and universities, and has been a fixture at Harvard, Princeton and Yale since their inception (Karabel 2005). However, preference for legacy applicants first became a contentious issue as new groups sought access to higher education: Jewish and public school graduates after the 1920s, followed by a lessening of racial/ethnic, gender and geographic barriers to postsecondary education after the Second World War. As the number of qualified applicants to these elite universities increased, so did the level of competition for admission. Legacy preferences served to counteract this encroachment of traditional advantage (Howell and

Turner 2004: 327-330). Acceptance rates during this period suggest accommodating standards for legacy applicants: by 1951, 73 percent of legacies were admitted at Yale, 79 percent at Princeton, and 94 percent at Harvard (Karabel 2005: 602).

Today, the campuses of these elite schools reflect much greater racial/ethnic, religious, and – to a lesser extent – socioeconomic diversity than during this period of exclusion and unabashed favoritism of alumni children. Yet, legacies continue to enjoy an admissions advantage at selective colleges and universities. For example, Karen (1991a: 359-362) finds that nearly 40 percent of legacies were admitted into the Harvard College incoming class of 1984, compared to about 14 percent non-legacies. Net of controls for race/ethnicity, sex, test scores and socioeconomic background, legacies are nearly 20 percent more likely to be admitted to selective colleges and universities than other students (Bowen et al. 2005: 101-108; Espenshade, Chung and Walling 2004: 1443). At Duke, legacies' applications are subject to an additional round of review during the admissions process. While legacy status is one of many factors taken into consideration by reviewers, legacies have nearly double the chances of admission compared to non-legacy applicants (Dagger 2006).[29]

Admissions committees can look favorably upon a legacy's application for a number of reasons, and not all legacies necessarily receive an admissions preference

[29] For the Duke incoming class of 2009, legacy applicants had a 37 percent admittance rate, compared to a overall admittance rate of 21 percent and an early-decision admittance rate of 36 percent (Wei 2009). Elite universities typically characterize these programs as acting only a "tipping factor" in admissions, providing a slight advantage to a legacy applicant relative to otherwise identical, qualified candidates (Bowen et al. 2005; Golden 2006). Dean of Undergraduate Admissions Christoph Guttentag describes the legacy admissions advantage: "Someone who is part of that large group of applicants who are on the bubble, where on the basis of their academic credentials alone is qualified for admission to Duke but is not part of that very small group of applicants whose admission was simple-that's where [being a legacy] comes into play" (quoted in Wei 2009).

(Bowen et al. 2005: 167-171). While many legacies likely received an admissions preference, others undoubtedly were admitted on their own academic merits. Colleges and universities have an interest in maintaining a sense of tradition, and legacies can help serve this goal (Bowen and Bok 1998: 24; Mao 2008). Taking from the experiences of their alumni parents and relatives, legacies are likely to arrive on campus with greater appreciation for these traditions and institutional loyalty (Bowen et al. 2005: 167-171). Further, the high rate of monetary support by legacies and their parents is viewed as crucial to elite schools' financial success and sustainability (Liptak 2008).

Duke is an appropriate setting to study the experiences of legacies at elite postsecondary institutions for several reasons. Duke is highly comparable to other selective colleges and universities in terms of student background and the legacy share of the student body. Duke has a documented history of admissions preference for wealthy students, notably "development cases" – students with parents or family members likely to make large future donations (Bowen et al. 2005: 169-71). As the university rose in national prominence in recent decades, so did its endowment, as successive presidents targeted children of wealthy families for admission (Golden 2006: 49-82). Most research to date concerning legacies has focused on admissions preference (e.g., Espenshade and Chung 2005; Espenshade et al. 2004; Howell and Turner 2004; Karabel 2005; Karen 1991a). Rather than comparing legacies with other university applicants, this analysis adds to the literature by following legacy matriculants at an elite university across the college years. The CLL contains a level of detail typically unavailable in studies of

postsecondary students, including four survey waves and merges of admissions records and transcripts, and permits a detailed examination of legacies across the college career.

While an admissions preference for underrepresented minority applicants has generated more controversy, selective colleges and universities host two other prominent "affirmative action" programs. In terms of the number of applicants who benefit, programs targeting legacies or recruited athletes are at least as large as programs that favor black or Latino students (Massey and Mooney 2007). Figure 4.3 illustrates the percentage share of the student body for three groups of "affirmative action" beneficiaries relative to other Duke students.[30] A majority of students in the entering classes of 2001 and 2002 did not benefit from an admissions preference. Similar to other private four-year universities, about 15 percent of Duke students are black or Latino (Bryant, Spenner and Martin 2006: 142). Unfortunately, I am not able to classify recruited athletes who might have received a preference during the admissions process (Bowen and Levin 2003). About 12 percent of students report membership on an intercollegiate team or received an athletic scholarship during the first college year. In total, eleven percent of Duke undergraduate men and seven percent of women participate on twenty-one varsity sports teams, including three percent of male students who are on high profile Division IA football and basketball teams (Shulman and Bowen 2001: 34, 127). [31]

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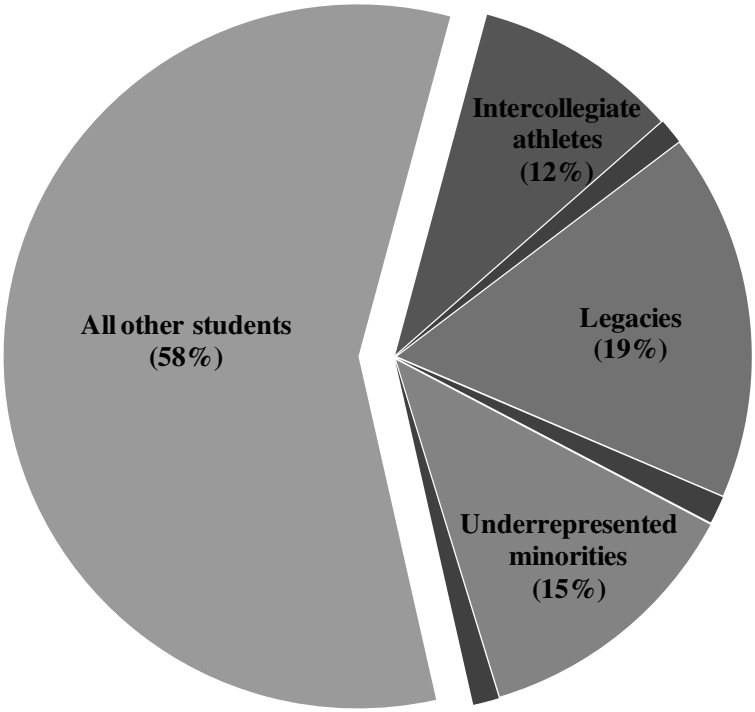
[30] There is little overlap across the three "affirmative action" programs, and less than two percent of students belong to more than one of these targeted groups. For example, about one percent of students were both legacies and underrepresented minorities.

[31] As a more select group, four percent of students are identified as scholarship intercollegiate athletes in their admissions files. Very few (n = 4) of these respondents were on high profile teams. Shulman and Bowen (2001) describe that athletes on lower profile teams are rather similar to other students at Division IA private universities – including Georgetown, Northwestern, Rice, Stanford, Tulane, Notre Dame and Vanderbilt – in terms of background characteristics and achievement.



Source: Campus Life and Learning (n = 924)
Notes: Percentages sum to greater than 100 due to overlap among the three groups (indicated as shaded regions); legacy status and racial ethnic background are collected from the pre-college survey, intercollegiate athletes combines information from institutional files and the first-year survey

Figure 4.3: Three affirmative action programs, Duke University

Legacies – defined as students who report having a family member who graduated from Duke – account for one fifth of students and represent the largest group of "affirmative action" beneficiaries on campus. This operational definition is consistent with others found in the literature on admissions preference (e.g., Bowen et al. 2005; Espenshade et al. 2004), but differs slightly from the official definition used by the Admissions Office. Duke University defines legacies as applicants that have a parent, grandparent or sibling who has attended or is attending the university. For comparison, Howell and Turner (2004: 333) find that about 15 percent of recent University of Virginia students were children or stepchildren of alumni. Children of alumni comprise about 11

percent of the incoming class of 2004 at the University of Pennsylvania (Massey and Mooney 2007: 100). Golden (2006: 117-144) describes that about 23 percent of Notre Dame freshman are alumni children, as well as 11-14 percent of students at Harvard, Penn and Princeton.

4.9 Admissions Profiles

To what extent do legacy students form a distinct status group on campus? By definition, legacies are expected to portray the history of elite colleges and universities and resemble the student bodies of earlier decades and generations. Further, graduating from a selective college or university has a positive impact on future earnings (Kingston and Smart 1990), as well as a modest positive effect on occupational status (Pascarella and Terenzini 2005: 467-476). In this way, legacies are more likely to be white, Protestant and US citizens, private high school graduates, and from affluent families. Several recent studies report admissions preference for legacies in terms of standardized test scores (e.g., Bowen et al. 2005; Espenshade et al. 2004; Howell and Turner 2004). Thus, legacies are expected to have somewhat lower test scores and pre-college achievement, as well as relative deficits along other dimensions of human capital.

Legacies are compared to three meaningful groups of students with non-alumni parents based on household academic credentials. *Advanced degree* students (31.5 percent of students) have at least one parent with an advanced degree (e.g., JD, MD, PhD), *college degree* students (40.6 percent) have at least one parent with a college degree (including Master's), and *no degree* students (7.6 percent) have parents with an Associate's degree, high school diploma or less. Legacies – exhibiting social capital

through an institutionalized tie to campus and cultural capital through an elite academic credential – are likely similar to other students with college graduate parents in terms of economic and cultural capital available in the household during the high school years.

Table 4.6 describes socioeconomic and high school background characteristics for the four student groups: legacies and students with non-alumni parents with an advanced degree, a college degree or no degree. Compared to other students, legacies are more likely to be white, US citizens and Protestant, and are more likely to have attended private high schools.[32] About 84 percent of Duke legacies are white. For comparison, Howell and Turner (2004: 341) find that 87 percent of legacies are white in a recent cohort at the University of Virginia, and Espenshade and Chung (2005: 301) report that 76 percent of legacies are white in a recent cohort of students attending selective colleges and universities. Of the four groups, legacies are least likely to be Catholic or Jewish and least likely to have attended a public high school. While legacies are most likely to be a member of the executive class, a significant proportion of legacies belong to the professional or middle classes.

Students with advanced degree parents are more likely than legacies to be black, Latino or Asian, but they are quite similar in terms of economic capital and family resources (Table 4.7). Legacies and students with advanced degree parents come from households that are considerably more affluent than other students. Legacies' annual pre-college household income (about $250,000/year) is over triple that of no degree

[32] Additionally, about 24 percent of legacies attended private grade and middle schools, compared to about 20 percent of students with an advanced degree parent, 12 percent of students with a college degree parent, and 6 percent of students with no degree parents.

Table 4.6: Sociodemographic and high school background (means), by legacy status and parent's degree

		Non-alumni parent(s) with:		
	Legacies	Advanced degree	College degree	No college degree
	n = 188	n = 628	n = 233	n = 132
Race/ethnicity:				
White *	.84	.67	.64	.42
Black *	.03	.06	.08	.26
Latino *	.04	.08	.09	.16
Asian *	.07	.17	.15	.13
Other	.02	.03	.04	.05
US Citizenship:				
Student *	.84	.67	.64	.42
Religious affiliation:				
Protestant *	.52	.26	.42	.41
Catholic *	.11	.23	.23	.31
Jewish *	.07	.18	.08	.02
Other	.30	.33	.27	.26
Social class:				
Executive *	.20	.07	.18	.00
Professional *	.38	.74	.05	.00
Middle *	.35	.18	.60	.01
Subordinate*	.07	.01	.17	.99
High school attended:				
Public *	.61	.64	.72	.80
Private *	.26	.25	.17	.09
Religious	.13	.10	.11	.11

Source: Campus Life and Learning (n = 1181)
Note: Significant intergroup differences are noted as * $p < .05$ (two-tailed tests).

households and is about 50 percent greater than the annual income of college degree households. About one-eighth of legacies report experiencing financial difficulties during the high school years, compared to one-sixth of students with college degree parents and more than one-third of students with no degree parents. Related to the

Table 4.7: Economic capital (means), by legacy status and parent's degree

		Non-alumni parent(s) with:		
	Legacies	Advanced degree	College degree	No college degree
Financial difficulties *	.13	.11	.17	.35
Financial aid interest *	.46	.50	.59	.65
Share of college expenses:				
Parents *	.47	.49	.39	.22
Grants *	.14	.15	.19	.34
Scholarships *	.13	.12	.15	.20
Loans	.09	.09	.10	.10
Other family members *	.07	.05	.05	.03
Personal savings *	.03	.04	.04	.03
Work-study *	.02	.02	.03	.04
Other employment *	.03	.02	.03	.03
Other source *	.03	.02	.02	.02
Household income ($US thousand)*	250.72	257.88	167.86	75.99
Family own home †	.84	.85	.82	.72
Family own second home *	.25	.27	.20	.04
Family own business *	.33	.42	.27	.34

Source: Campus Life and Learning (n = 1181)
Note: Significant intergroup differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests).

higher levels of household income, legacies and students with advanced degree parents expect family members to cover most of their college expenses.[33]

Table 4.8 describes measures of cultural capital and educational resources. During the pre-college years, legacies and students with advanced degree parents more often participate in "highbrow" (e.g., visiting art galleries and museums, attending the opera, ballet or symphony) and popular activities (e.g., going to the movie theater and music concerts, and attending sports events) than other students. Legacy and advanced degree households also contain more books and other educational resources, such as a

[33] During adolescence, legacies and students with advanced degree parents experienced an abundance of other family resources. These two groups were most likely to have an intact, two-parent family, least likely to move, and least likely to have a mother who worked full-time. During the middle school years, legacies' parents most often helped with homework assignments, participated in PTA and other school organizations, and spent time talking with the student's friends.

quiet place to study. When applying to colleges and universities, legacies and students with advanced degree parents were more likely to take a SAT prep course or have a private SAT tutor.

Table 4.8: Cultural capital and educational resources (means), by legacy status and parent's degree

		Non-alumni parent(s) with:		
	Legacies	Advanced degree	College degree	No college degree
Parent's cultural capital:				
Museum/art gallery *	1.66	1.68	1.45	1.19
Opera/ballet *	1.73	1.76	1.47	1.22
Read for pleasure *	2.72	2.63	2.54	2.11
Student's cultural capital:				
Movie theater *	2.69	2.67	2.56	2.38
Museum/art gallery *	1.62	1.60	1.48	1.27
Music concert *	1.18	1.18	1.15	1.07
Opera/ballet *	1.37	1.45	1.31	1.18
Sports event *	2.18	2.11	2.07	1.88
Zoo/science center	1.52	1.52	1.51	1.49
More than 200 books in home*	.80	.76	.66	.34
Strong college support *	.96	.98	.95	.84
Educational resources *	9.47	9.30	9.14	8.54
Quiet place to study *	.96	.91	.91	.82
College preparation activities:				
Taking AP course(s)	.95	.95	.95	.92
Receiving AP credit *	.87	.85	.84	.72
Having a private tutor	.07	.10	.11	.04
SAT prep course *	.51	.50	.44	.35
SAT private tutor *	.22	.19	.14	.09
College course for credit	.20	.27	.23	.25

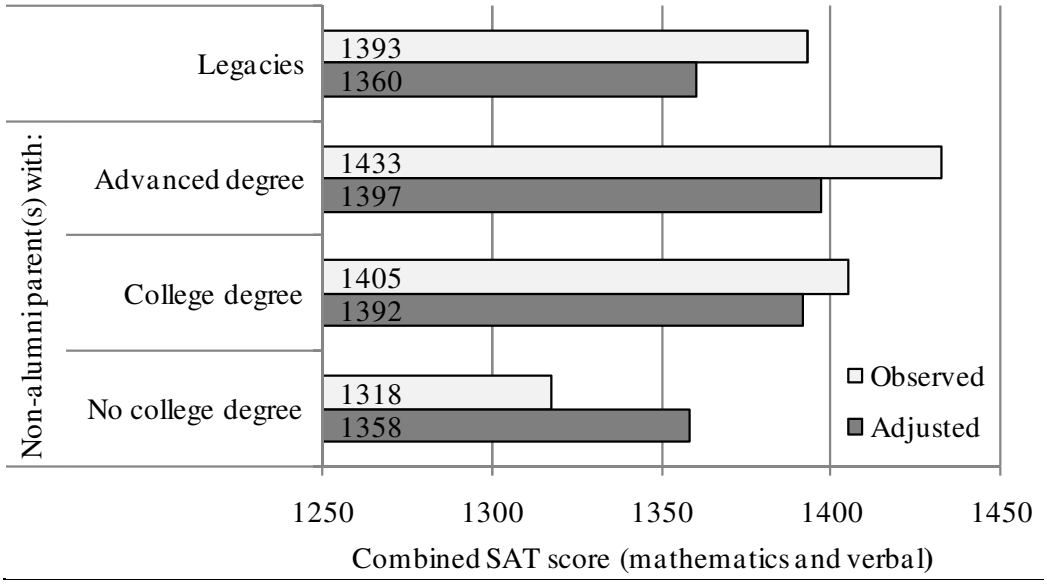
Source: Campus Life and Learning (n = 1181)
Note: Significant intergroup differences are noted as * $p < .05$ (two-tailed tests); cultural capital variables describe the frequency of participation during student's middle school years (1 = never, 3 = often); educational resources is a scale (max. 10) of items present in the home during students high school years (e.g., encyclopedia, computer, study desk, internet access).

Legacies and advanced degree households are characterized by an abundance of economic and cultural resources.[34] However, relative to other students with college graduate parents, legacies have somewhat lower standardized test and admission evaluation scores. Figure 4.4 displays observed and adjusted SAT scores for the four student groups, combining scores for the mathematics and verbal tests (max. 1600). Legacies have an observed achievement gap of 40 points relative to students with advanced degree parents, and 12 points relative to students with college degree parents. Adjusting for socioeconomic background and other controls increases the gap between legacies and students with college degree parents by about 50 percent. About 44 percent of legacies have SAT scores below their class average, compared to about 32 percent of students with advanced degree parents.

Although this test-score gap is significant, it is smaller than for other groups that benefit from admissions preference. Espenshade, Chung and Walling (2004: 1444) estimate the admissions preference for different applicant groups at selective colleges and universities in terms of SAT points on a 1600-point scale. Net of other factors, black applicants receive a 230 point advantage, Latino applicants get 185 points, recruited athletes get 200 points, and legacy applicants receive the equivalent of a 160 point boost. Among Duke matriculants included in the CLL, about 89 percent of black students, 69

[34] About 51 percent of legacies have at least one parent with an advanced degree, and about 11 percent of legacies have two parents with advanced degrees. To consider whether this could account for similarities between legacies and students with advanced degree parents, I separate legacies into two groups. Compared to other legacies, legacies with at least one advanced degree parent expect greater family contribution for college expenses, participate more frequently in cultural activities, and have access to more educational resources during adolescence.

percent of Latino students, and 56 percent of first year intercollegiate athletes have test scores below their class average.



Source: Campus Life and Learning (n = 1181)
Note: Adjusted scores are the linear predicted values from OLS regression including controls for racial ethnic background, sex, citizenship, household income, high school type, scholarship athlete, SAT prep course and private SAT tutor

Figure 4.4: Observed and adjusted SAT scores, by legacy status and parent's degree

Table 4.9 presents detailed admissions profiles – including evaluation committee scores collected from admissions records – and pre-college campus ties for legacies and other students. Of the four student groups, legacies have the lowest average evaluation scores for high school achievement and personal qualities. Additionally, legacies have lower scores than other students from college graduate households for high school curriculum, essay, recommendation, and test scores. Despite these underwhelming achievement profiles, legacies show extensive campus ties during the application process. Legacies are most likely to report a campus visit and contact with an admissions recruiter on campus or in the student's hometown.

Table 4.9: Admissions profiles and campus ties (means), by legacy status and parent's degree

		Non-alumni parent(s) with:		
	Legacies	Advanced degree	College degree	No college degree
SAT (max. 1600) *	1393.11	1432.85	1404.94	1317.65
SAT below class mean *	.44	.32	.41	.74
High school class rank (%)	94.25	95.25	95.59	95.56
Missing *	.54	.43	.46	.31
Admissions evaluation:				
Achievement *	3.92	4.35	4.26	4.21
Curriculum *	4.58	4.75	4.66	4.53
Essay *	3.31	3.48	3.43	3.22
Personal qualities *	3.30	3.42	3.49	3.40
Recommendation *	3.64	3.84	3.78	3.63
Test scores *	3.36	3.82	3.57	2.54
Scholarship athlete *	.01	.02	.05	.09
Campus ties:				
Visit to campus *	.92	.83	.81	.70
Recruitment visit	.21	.18	.23	.27
Speak with Admissions	.64	.60	.59	.48
Recruiter at school *	.25	.27	.22	.13
Recruiter in hometown *	.24	.20	.17	.12
Recruiter at Duke †	.39	.35	.34	.23
Recruiter over phone	.13	.14	.14	.13
Speak with official	.25	.21	.27	.28
Speak with faculty	.35	.29	.34	.34

Source: Campus Life and Learning (n = 1181)
Note: Significant intergroup differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests); campus ties were collected in the pre-college survey, and admissions profiles and evaluation scores are from institutional records.

To assess the relative associations across student groups for pre-college achievement and forms of capital, Table 4.10 presents results from multinomial logistic regression predicting the likelihood of being in the other student groups versus legacies.[35] Legacies are less likely to be black, Latino, Asian, or Catholic than other

[35] Due to likely problems of endogeneity, these results should not be interpreted as a causal model. For example, having a parent who graduated from an elite university likely predicts several of the independent variables, such as household income and experiences with cultural capital.

Table 4.10: Multinomial logistic regression of other student groups versus legacies on student background and pre-college achievement

	Model 1 *Advanced degree vs. legacies*			Model 2 *College degree vs. legacies*			Model 3 *No degree vs. legacies*		
	RRR		(z-score)	RRR		(z-score)	RRR		(z-score)
Race/ethnicity (ref. white):									
Black	11.770	*	(5.88)	3.885	*	(3.57)	3.752	*	(2.50)
Latino	3.343	*	(3.25)	2.101	†	(1.82)	1.451		(.64)
Asian	3.085	*	(2.97)	1.411		(.90)	.764		(-.41)
Other	2.213		(1.14)	2.164		(1.38)	2.351		(1.16)
US Citizen	.350	†	(-1.74)	.290	*	(-2.30)	.131	*	(-2.53)
Religious affiliation:									
Catholic	5.219	*	(4.79)	2.551	*	(3.02)	3.525	*	(2.66)
Jewish	5.622	*	(4.00)	1.733		(1.26)	.566		(-.61)
Other/none	2.021	*	(2.45)	.738		(-1.19)	.678		(-.90)
High school type:									
Public	.784		(1.88)	1.218		(.76)	1.727		(1.00)
Religious	.490	+	(-1.79)	.881		(-.32)	1.057		(.08)
Household income	1.001		(1.14)	.998	*	(-3.68)	.992	*	(-2.83)
Parent's occupation status	1.067	*	(6.16)	.944	*	(-5.92)	.888	*	(-7.89)
Parent's cultural activities	1.056		(.94)	.905	†	(-1.86)	.772	*	(-3.38)
More than 200 books	.803		(-.86)	.656	†	(-1.66)	.401	*	(-2.43)
SAT score (math. + verbal)	1.003	*	(2.71)	1.000		(.28)	.996	*	(-2.55)
Admissions evaluation	1.264	*	(3.40)	1.274	*	(3.83)	1.289	*	(-2.90)
Pseudo-R^2	.288								
X^2(df)	443.00		(48)						

Source: Campus Life and Learning (n = 1181)
Note: * $p < .05$, † $p < .10$ (two-tailed tests); RRR = relative risk ratio; reference categories include white, Protestant and private high school; parent's cultural activities scale combines responses for visiting an art museum, attending opera or ballet and reading for pleasure; admissions evaluation combines scores for achievement, curriculum, essay personal qualities, and recommendation.

student groups, particularly in comparison to students with advanced degree parents. While measures of economic and cultural capital do not distinguish between legacies and students with advanced degree parents (Model 1), household income is negatively associated with the likelihood of being a student with college degree (Model 2) or no degree parents versus a legacy (Model 3). Additionally, participation in cultural activities and the presence of many books in the home are negatively associated with the likelihood

of being a student with no degree parents relative to being a legacy. Legacies have significantly lower SAT scores than students with advanced degree parents, and lower achievement evaluations relative to each of the three groups.

Overall, these results confirm that legacies comprise a high status group on campus that is predominately white, Protestant and affluent. In this manner, legacies largely represent the constituencies that controlled elite postsecondary education prior to the expansion of higher education in the early- and mid-twentieth century (Jencks and Riesman 2002; Karabel 2005). In terms of cultural and economic capital, legacies largely resemble students from advanced degree households. Although, legacies show the distinct configuration of high levels of economic, cultural, and social capital, but lower levels of pre-college achievement relative to other students with college graduate parents.

4.10 Academic Achievement and Post-Graduation Plans

How do legacies compare with other students in terms of academic achievement across the college career? The few studies that have examined legacies' achievement suggest a degree of underperformance early in college (Massey and Mooney 2007; Spenner et al. 2005) but little underperformance by the end of college (Bowen et al. 2005: 171). Figure 4.5 displays semester grade point averages across the four college years, by legacy status and parent's degree. In the first semester, legacies score two tenths of a letter grade lower than students with advanced degree parents and nearly one tenth lower than students with college degree parents. By the second year, legacies largely close this gap with students from advanced degree households and in each subsequent semester have similar grades as students from college degree households.

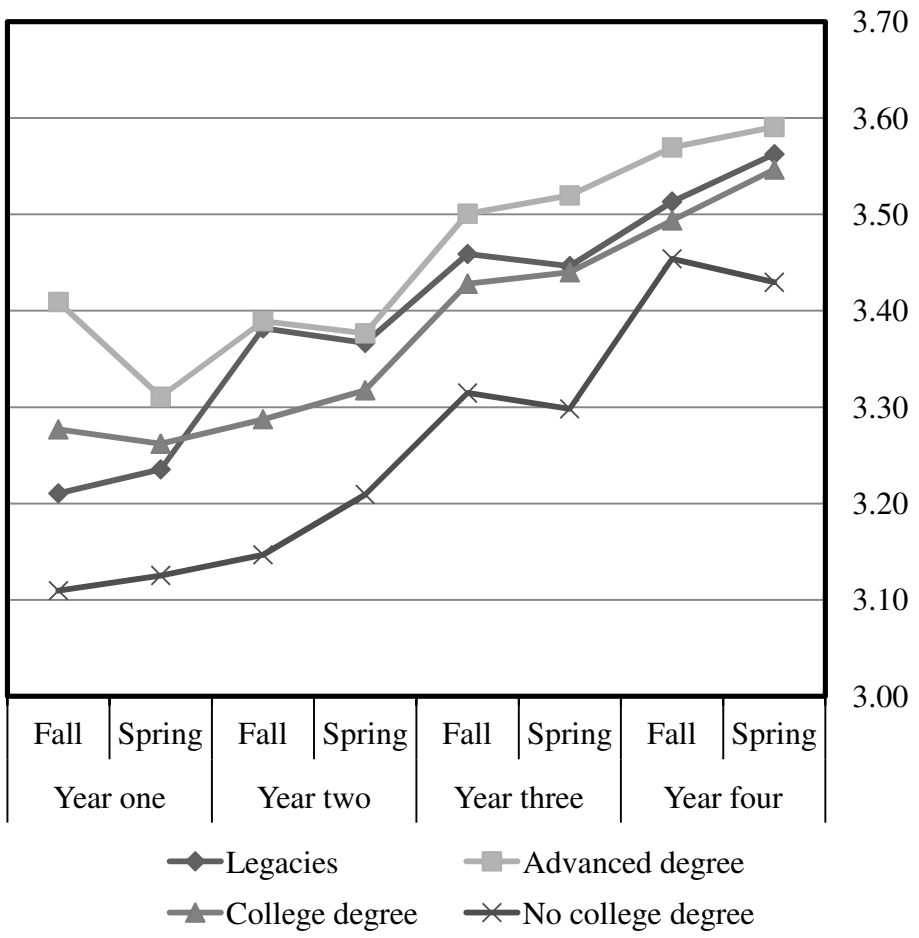


Figure 4.5: Semester grades across four college years, by legacy status and parent's degree

Legacies not only enter college with lower than expected test scores, but also lower levels across other dimensions of human capital (Table 4.11). Of the four student groups, legacies report the lowest pre-college levels of academic abilities and confidence, and overall life satisfaction. Across all four waves, legacies consider being a good student to be less important to their overall identity than do other students. Yet, by the fourth college year, there are few significant differences for other human capital measures. Corresponding to the steady rise in semester grades, each student group shows

an accumulation of human capital from the first to the fourth college year. By the end of college, legacies resemble other students from college graduate households in terms of achievement and dimensions of human capital.

Table 4.11: Human capital (means), by legacy status and parent's degree

		Non-alumni parent(s) with:		
	Legacies	Advanced degree	College degree	No college degree
Academic skills				
Pre-college *	31.39	32.46	32.30	31.40
First year *	28.73	29.48	29.13	27.78
Second year *	28.88	29.48	29.39	28.05
Fourth year	31.65	32.01	32.10	31.00
Self-assessed ability				
Pre-college (math.)	4.06	4.24	4.14	4.14
First year *	3.18	3.40	3.19	2.98
Second year *	3.25	3.42	3.16	3.11
Fourth year	3.31	3.48	3.35	3.37
Academic self confidence				
Pre-college (math.) *	3.45	3.83	3.62	3.59
First year *	2.48	2.70	2.44	2.25
Second year	2.55	2.60	2.51	2.37
Fourth year	2.76	2.74	2.79	2.78
Success from hard work				
Pre-college (math.)	.75	.68	.73	.74
First year †	.78	.83	.79	.67
Second year	.82	.84	.77	.76
Fourth year	.84	.81	.83	.83
Overall life satisfaction				
Pre-college *	4.13	4.38	4.20	4.18
First year	3.83	3.93	3.85	3.71
Second year	4.10	4.10	3.99	3.94
Fourth year	4.20	4.21	4.16	4.08
Good student identity				
Pre-college *	4.19	4.40	4.38	4.42
First year *	3.86	4.18	4.16	4.19
Second year *	3.81	4.06	4.02	3.81
Fourth year *	3.72	4.13	4.00	3.81

Source: Campus Life and Learning (n = 793 to 1181)
Note: Significant intergroup differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests)

Table 4.12 presents results from OLS regression predicting the effects of student background and college activities on first year cumulative GPA. After two semesters, students from advanced degree households score about one-eighth of a letter grade higher than legacies, about one-tenth of a letter grade higher than students with college degree parents, and about one-quarter of a letter grade higher than students with no degree parents (Model 1). Model 2 adds measures of student background and high school achievement to controls for major field area. Relative to engineering majors, natural science majors score about one-eighth of a letter grade higher, social science majors score more than one-seventh of a letter grade higher, and humanities majors score about one-quarter of a letter grade higher. Replicating national differences at selective colleges and universities (Bowen and Bok 1999; Massey et al. 2003), black students score about three-tenths of a letter grade lower than white students' GPA. Net of other controls, female students outperform male students by.07 of a letter grade. A one-standard deviation increase in SAT score is associated with about .17 of a letter grade increase, and having received AP credit is associated with about .08 of a letter grade increase. With the addition of these socioeconomic background and high school achievement variables, the effects of being a student from a college degree or no degree household become insignificant. However, net of student background characteristics, legacies still score nearly one-tenth of a letter grade lower than students from advanced degree households.

Including measures of pre-college human capital and admission evaluations reduces the effect of legacy status by over three-quarters and to insignificance (Model 3). While the achievement gap for students with college degree or no degree parents is

attributable to differences in socioeconomic background and high school achievement, legacies appear disadvantaged by their pre-college human capital deficit. Few students in

Table 4.12: OLS regression of first year cumulative GPA on legacy status, student background and pre-college human capital

	Model 1		Model 2		Model 3	
	coefficient	(s.e.)	coefficient	(s.e.)	coefficient	(s.e.)
Legacies	-.139 *	(.046)	-.099 *	(.043)	-.023	(.041)
College degree parents	-.094 *	(.035)	-.054	(.034)	-.037	(.033)
No degree parents	-.256 *	(.053)	-.045	(.051)	-.037	(.047)
Major field area:						
Natural sciences	.060	(.052)	.125 *	(.050)	.114 *	(.047)
Social sciences	.067	(.051)	.149 *	(.049)	.164 *	(.047)
Arts/humanities	.175 *	(.067)	.237 *	(.063)	.251 *	(.062)
Other/undecided	.066	(.049)	.112 *	(.048)	.147 *	(.045)
Race/ethnicity:						
Black			-.290 *	(.046)	-.197 *	(.047)
Latino			-.074 †	(.040)	-.040	(.039)
Asian			-.011	(.039)	-.030	(.037)
Other			-.063	(.060)	-.012	(.054)
Female			.073 *	(.029)	.034	(.028)
US Citizen			-.081 †	(.048)	-.073	(.045)
Household income			.000	(.000)	.000	(.000)
High school type:						
Public			.010	(.037)	-.039	(.036)
Religious			-.032	(.054)	-.026	(.051)
SAT score (math. + verbal)			.001 *	(.000)	.001 *	(.000)
AP credit			.084 *	(.041)	.057	(.038)
Admissions evaluation					.078 *	(.008)
Pre-college human capital:						
Academic skills					-.006	(.004)
Ability (math.)					.041 †	(.021)
Hard work (math.)					.061 *	(.030)
Overall satisfaction					.034 †	(.018)
Good student identity					.026 †	(.016)
Constant	3.300 *	(.045)	1.204 *	(.207)	.086	(.254)
R^2	.028		.207		.302	

Source: Campus Life and Learning (n = 1181)
Note: * $p < .05$, † $p < .10$ (two-tailed tests); reference categories include professional degree parents, engineer major, white, and private high school; admissions evaluation combines scores for achievement, curriculum, essay personal qualities, and recommendation.

the CLL exhibit severe academic underperformance – less than two percent of students have cumulative GPAs below 2.0 ("C" average) after the first year – or low absolute levels of human capital. Attributing success in a challenging course to hard work (t = 2.02), self-assessed ability (t = 1.91), overall life satisfaction (t = 1.89), and the importance of a good student identity (t =1.67) each have consistent positive effects on first year grades. Relative to other students with college graduate parents, legacies have lower grades early in the college career and this is attributable to lower levels of pre-college human capital.

During the first and second years, students spend about 23-24 hours in a typical week in class, studying or doing other coursework (Table 4.13). By the fourth year, this figure declines to about 20 hours each week. There are no significant differences for time use in school activities, although early in college legacies spend the most time each week with friends or partying. During the first year, legacies spend about 17 hours each week in social activities, over four hours more than do students from no degree households.[36] Legacies are the only group to consider being a social person to be more important than being a good student during the college years (Table 4.11). Legacies are more likely to join a fraternity or sorority than students with no degree parents. With extensive ties and family connections to Duke, legacies can be expected to show a higher degree of loyalty and respect for institutional traditions (Bowen et al. 2005; Karen 1991a). In the second and fourth years, legacies consider being a "Blue Devil" to be slightly more important than do other students, but these differences are not significant. At the end of their

[36] In results not shown, across all college years legacies and students with professional degree parents consider alcohol to be more important to their enjoyment of campus life and present more often at social events they attend.

undergraduate career, legacies report levels of satisfaction with their undergraduate education that are comparable to other students from college graduate households.[37]

Table 4.13: Social life and satisfaction with Duke (means), by legacy status and parent's degree

		Non-alumni parent(s) with:		
	Legacies	Advanced degree	College degree	No college degree
Hours/week in school activities				
First year	23.42	24.02	24.66	24.18
Second year	23.56	23.11	23.06	23.28
Fourth year	19.22	20.59	19.59	20.20
Hours/week in social activities:				
First year *	17.04	16.85	15.66	12.63
Second year †	15.70	14.94	14.67	12.17
Fourth year	14.81	15.30	15.20	13.26
"Blue Devil" identity				
First year	3.28	3.22	3.33	3.43
Second year	2.89	2.70	2.77	2.65
Fourth year	2.90	2.74	2.73	2.78
Social person identity				
Pre-college *	4.05	4.34	4.21	3.93
First year *	3.95	4.10	3.94	3.65
Second year *	4.00	4.10	4.95	3.56
Fourth year *	3.86	4.05	4.02	3.51
Fraternity/sorority member				
First year *	.40	.43	.32	.17
Second year *	.42	.43	.37	.22
Fourth year	.37	.41	.38	.24
Overall satisfaction with undergraduate career	7.69	7.73	7.74	7.44

Source: Campus Life and Learning (n = 793 to 910)
Note: Significant intergroup differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests)

[37] A different item in the fourth year survey asks students if they would attend Duke if they were to enter college again. About 68 percent of legacies responded yes to this question, compared to 68 percent of students from advanced degree households, 76 percent from college degree households, and 70 percent from no degree households.

After the first college year, legacies and other students with college graduate parents grow increasingly similar in terms of achievement and college activities, and this trend continues with immediate post-graduation plans. Table 4.14 describes end of college academic outcomes and work and education plans for the years following graduation. Bowen, Kurzweil and Tobin (2005: 171) report little end of college academic underperformance by legacies, and the Duke results generally confirm this finding. Legacies are less likely to graduate with honors and achieve somewhat lower grades in each semester than students with advanced degree parents, the group that legacies most resemble in their socioeconomic profile. After the first college year, legacies show similar levels of academic achievement as students with college degree parents. Over one-third of students with advanced degree parents graduated with honors, compared to about one-quarter of legacies and students with college degree parents and about one-sixth of students with no degree parents.

Students' plans for after graduation, collected in the spring semester of the fourth college year, offer a final view of how legacies may differ from other students. Legacies are somewhat less likely to report plans for attending school full-time in the fall after graduation, and more likely to report plans other than school or work. While there are few significant differences for immediate post-graduation plans, legacies are more likely to report the use of family or personal contacts for their post-graduation plans. About two-thirds of legacies report the use of personal contacts, compared to about 54 percent of students with college degree parents, 46 percent of student with no degree parents, and 45 percent of students with advanced degree parents.

Table 4.14: Final college academic outcomes and post-graduation plans (means), by legacy status and parent's degree

		Non-alumni parent(s) with:		
	Legacies	Advanced degree	College degree	No college degree
Major field area:				
Engineering *	.07	.20	.18	.12
Natural sciences	.17	.19	.17	.23
Social sciences (BS)	.11	.12	.13	.09
Social sciences (AB) †	.39	.29	.35	.33
Arts/humanities †	.26	.20	.17	.23
Graduation with honors *	.24	.35	.23	.17
Final (cumulative) GPA *	3.38	3.46	3.38	3.28
Plans for the fall after graduation				
Use family/personal contacts *	.65	.45	.54	.46
Primary activity:				
Attend school full-time	.30	.40	.38	.42
Work	.55	.52	.53	.57
Other *	.15	.08	.09	.01
If attending school, degree:				
Bachelor's	.07	.05	.12	.12
Master's	.20	.16	.16	.21
Professional (MD, JD, PhD)	.73	.79	.71	.67
Plans for five years after graduation				
Highest degree earned or in progress:				
Bachelor's *	.17	.07	.13	.03
Master's	.39	.32	.35	.37
Professional *	.44	.61	.52	.60
Occupation:				
Lawyer	.17	.19	.18	.17
Executive/manager	.16	.17	.18	.11
Medical doctor *	.10	.22	.12	.21
Professor/scientist	.08	.09	.11	.15
Engineer *	.02	.03	.08	.08
Other occupation	.20	.16	.14	.18
Occupation plans missing *	.25	.13	.18	.11

Source: Campus Life and Learning (n = 793 to 1181)
Note: Significant intergroup differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests); post-graduation plans are from the fourth year survey; graduation honors and major field are from official transcripts.

Plans for five years after graduation reveal stronger differences between legacies and other student groups. Legacies have lower degree expectations and are less likely to

expect a high-status professional occupation than other student groups. For example, about 44 percent of legacies plan to obtain an advanced degree, compared to about 60 percent of students from advanced degree or no degree households and about 52 percent of students from college degree households. Legacies are not significantly different from other students in plans for being a lawyer or executive, administrator, or business manager. Compared to other students, legacies are less likely to major in engineering, and are somewhat more likely to major in an arts, humanities or social science discipline. Accordingly, legacies are less than half as likely to plan to be a medical doctor compared to students from advanced degree or no degree households, and about one-fourth as likely to plan to be an engineer compared to students with college degree and no degree parents.

In sum, due to their relative human capital deficit at admissions, legacies have lower grades than other students with college graduate parents early in the college career. After the first year, legacies have similar levels of achievement and show comparable levels across several human capital measures. Unlike the pre-college socioeconomic and admissions profiles, there are few differences in post-graduation plans, although legacies are less likely to plan on being a medical doctor or engineer and have lower degree aspirations than other students. Across the college years, legacies are slightly more active in social activities, and report a greater use of family and personal contacts for post-graduation plans.

4.11 Advantaging the Advantaged

Soon after the Supreme Court's June 2003 rulings (Gratz v. Bollinger; Grutter v. Bollinger), an ultimately failed Senate bill included a reporting requirement to draw

attention to admissions policies that favor students from wealthy families. This proposal was designed to challenge the idea of a purely meritocratic admissions process and to counter opponents of affirmative action programs that favor underrepresented minorities (Golden 2006: 227-258). As part of the Higher Education Act (S.1793, 108th Cong., §302), this proposal called for postsecondary institutions to report the number, racial ethnic group, sex and Federal Pell Grant eligibility of legacies and students who were admitted as part of an early decisions program. Similar to figures available at other selective colleges and universities, about one-fifth of Duke students have a parent or family member who also attended Duke, and over five-sixths of these legacies are white. While the CLL does not include information on Pell Grant eligibility, legacies were least likely of the four groups to report an interest in receiving financial aid, and expect to rely on parents and family members for most college expenses. Less than five percent of legacies enter college from households with a reported annual income of $35,000/year or less, compared to about 40 percent of students with no degree parents.[38]

Legacies are most distinctive as a status group in their pre-college profiles, largely representing constituencies that monopolized higher education at the beginning of the twentieth-century: affluent white Protestants. However, upon matriculation legacies have a human capital deficit relative to other students with college graduate parents, evidenced by lower test scores, admission evaluation scores, and lower levels across five of six

[38] About 46 percent of legacies reported an interest in receiving financial aid in their college admissions form, compared to nearly half of students with advanced degree parents, about 59 percent of students with college degree parents and about 65 percent of students with no degree parents. While there is no absolute family income threshold to determine Pell Grant eligibility (other factors include assets, household size and number of family members in college), about 73 percent of students at private universities during the 2003-2004 academic year with a pre-college family income of less than $35,000/year received a Pell Grant (Berkner et al., 2005).

human capital measures. During the first college year, legacies achieve lower than expected grades and this underperformance is attributable to legacies' pre-college human capital deficit. Legacies consider a good student identity to be less important than other students, and are also less likely to major in the natural sciences or engineering. There are few differences between student groups in immediate post-graduation plans, although legacies are less likely to plan to become a medical doctor, engineer or scientist, and have lower degree aspirations. Across the college career, legacies exhibit an activation of social capital: first, through college admission despite lower performance on a variety of admissions criteria, and finally in the prevalent use of personal contacts for career plans.

Legacies appear undeterred by their relative underperformance during the first year, and go on to achieve high grades in subsequent semesters. During high school, legacies have an abundance of cultural capital available in the home, including images of academic success in the family (McClelland 1990). By definition, legacies have a family member with an elite academic credential, and thus legacies likely grew up in households that encourage the tastes, lifestyles and interpersonal skills rewarded by educational institutions (Bourdieu 1973a; Bourdieu and Passeron 1990). Further, legacies have the unique resource of being able to turn to family members who have direct experience at the university – and established social networks – as alumni.

In other ways, legacies reveal a benefit afforded by an abundant supply of capital: the ability to be flexible or uncertain about future plans. In their pre-college admissions profiles and post-graduation plans, legacies are more likely to be uncertain about education and occupation plans. Pre-college, over 39 percent of legacies do not know

their expected major field, compared to about 28 percent of students with college degree parents and 31 percent of students with advanced degree parents. At the end of the fourth year, legacies are most likely to report plans other than school or work for the fall immediately following graduation, and are least likely to report future career plans.

In high profile moves, Harvard and Princeton recently dropped their early decisions programs, arguing that they put low-income and minority students at a disadvantage (Finder and Arenson 2006; Finder 2006). Admissions preference remain a contentious issue, with some commentators and politicians calling for legacy preferences to be abolished (Bowen et al. 2005: 167-171). At present, there appears little impetus for private elite colleges and universities to abandon legacy preferences.

What are the costs and benefits of admissions preference for legacies at selective colleges and universities? An admissions preference for legacies entails a cost to diversity, although campuses today are far more diverse and inclusive than half a century ago (Karabel 2005). Over the past two decades, the legacy advantage has declined slightly at selective colleges and universities, while the admissions boost for recruited athletes has increased (Espenshade et al. 2004: 1442-1443; Bowen and Levin 2003; Shulman and Bowen 2001). Howell and Turner (2004) determine that the costs to diversity will continue to decline over the coming decades, due to changes in the racial ethnic composition of the alumni and legacy pools. Espenshade and Chung (2005: 299-300) estimate that eliminating affirmative action programs would reduce acceptance rates for underrepresented minority students at selective universities by as much as two-thirds

Yet, eliminating preferences for legacies or athletes would only modestly increase the share of admitted students from minority groups.

Admission into elite colleges and universities has never been based on purely academic or meritocratic criteria. While affirmative action programs that favor underrepresented minority students are more visible and generate more controversy, admissions committees regularly give preferences to other groups of applicants, notably recruited athletes and legacies. To date, there has been little attention in the research literature to legacies after students have received their admissions decision and arrived on campus. The CLL allows comparisons among matriculants at an elite university, but prevents empirical judgments about the students who would have been accepted had there not been an admissions preference for legacies. A contribution of this analysis is to provide a detailed description of legacies' pre-college socioeconomic and admissions profile, and experiences across the college career.

On the one hand, by the end of college legacies achieve relatively high academic standards and largely close the initial human capital deficit. About one-quarter of legacies graduated with honors, a similar proportion as students with college degree parents but lower than students with advanced degree parents. Further, legacies could provide benefits that I was unable to consider fully.[39] For example, legacies can help colleges and universities meet financial objectives as well as maintain a sense of historical continuity or tradition on campus (Bowen et al. 2005; Wunnava and Lauze

[39] For example, Dean of Undergraduate Admissions Christoph Guttentag argues that a legacy admissions preference helps preserve valued traditions and alumni connections across generations: "From our perspective, the Duke community extends for generations, and one of the ways that bond is maintained is by paying attention when children of alumni apply to Duke" (quoted in Mao 2009).

2001).[40] Comparisons from the CLL provide only weak, suggestive evidence in support of this position. In the second and fourth college years, legacies consider a "Blue Devil" identity to be slightly more important than do other students, although these differences are not significant. During the final semester before graduation, students are encouraged to donate as part of a "senior gift campaign" to benefit the Duke Annual Fund. Legacies, like other students with college graduate parents, are more likely to donate than are students with no degree parents. Of the four groups, legacies are the most likely to give more than the suggested amount (about $20) and donate on multiple occasions.[41]

On the other hand, legacies comprise a distinct high status group, characterized by an abundance of economic, cultural and social capital, but relatively lower levels of human capital. Legacies attach the least importance to being a good student across all

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[40] Admissions preference for legacies are often justified by private institutions' reliance on alumni financial support. However, critics argue that this argument is less than persuasive considering the large and growing endowments enjoyed by many elite colleges and universities (Karabel 2005: 550-551). In June 2007, Duke University's endowment was valued at $6.1 billion, less than one-fifth the market value of Harvard's ($34.6 billion) and about one-quarter the size of Yale's ($22.5 billion), but over twelve times greater than the average for national postsecondary institutions (NACUBO 2007). Following the 2008 financial crisis, Duke's endowment contracted by about 20 percent contributing to a projected annual budget shortfall of about $125 million (Duke University 2009a). To the extent that expected financial contributions are an accepted justification for legacy admissions preference, it is likely that the practice will continue if not become more pervasive in coming years as institutions adjust to a less favorable economic climate.

[41] The Duke Annual Fund provides unrestricted dollars for a variety of needs, such as financial aid, faculty salaries, research funding, curriculum initiatives, and campus programs. The senior gift campaign represents only a small source of immediate contributions for this fund. Typically, alumni giving patterns do not become substantial until more than a decade after graduation (Clotfelter 2003; Okunade, Wunnava, and Walsh 1994). During the period from college entry to three years after graduation, the two cohorts included in the CLL (the graduating classes of 2005 and 2006) each donated less than $40,000 to the Duke Annual Fund. As a comparison, in 2008 roughly 44,000 individual donors contributed $26 million (Duke University 2009b). About two-thirds of legacies and students with professional degree parents gave any donation, compared to 64 percent of students with college degree parents and 56 percent of students with no degree parents. About 35 percent of legacies donated on multiple occasions, compare to 32 percent of students with professional degree parents, 29 percent of students with college degree parents, and 20 percent of students with no degree parents. A similar pattern is found for average donation amount. Legacies ($30.81/donation) give more than students with professional degree ($25.66), college degree ($27.39) and no degree parents ($13.07).

college years, are least likely to major in the natural sciences, and are least likely to plan to become a medical doctor, engineer or scientist. As a group, legacies largely replicate the profiles of past generations of Duke students, and are disproportionately white, Protestant and from affluent households. An admissions preference for legacies advantages an already advantaged group, and may serve to undermine goals of equity and excellence in higher education and at elite institutions in particular.

4.12 Conclusions

The college years serve as an important time for accumulating social capital. Across all class backgrounds and racial ethnic groups, students report more extensive campus networks as they continue through the college years. By the fourth college year, the average campus network has ties to 70 percent more positions than in the first year, and 25 percent more positions than in the second year. The use of close, personal networks is also quite prevalent among these elite university students, and more than half of students used family contacts for their post-graduation plans. More than two-thirds of students reported an existing tie to Duke before arriving on campus, including about one-fifth of students with legacy connections to the university.

This chapter has examined two species of social capital present on the elite university campus. In the practical or immediate state, social capital exists as the information, support and other resources that are available through a broad range of campus positions, peer networks, and personal contacts. An example of institutionalized social capital that periodically appears at the center of legal and policy debates is an admissions preference for legacies, or students from families with alumni ties to the

college or university. I consider these forms of social capital as part of a Bourdieusian capital framework in association with economic, cultural, and human capital (e.g., Farkas 1996). A contribution of this chapter is to show the usefulness a resources-in-networks approach to social capital for studies of educational outcomes (e.g., Horvat et al. 2003; Lee and Brinton 1996; Stanton-Salazar 1997). I examine the effects of social capital on achievement and other academic outcomes by incorporating an established methodology from studies of social capital and occupational attainment (i.e., the position-generator; Lin et al .2001). Additionally, I add to the current literature by providing a detailed social portrait of legacies across the college years.

While there is little evidence of effects of social capital on early college achievement, extensive campus networks predict a greater likelihood of graduating with honors and plans to attend graduate school. Family or personal contacts are used more frequently by students with lower final grades, and appear more important for aspiring lawyers and graduates planning to enter the workforce directly. Students with extensive campus networks and extracurricular memberships are more likely to aspire to high status occupations, especially as medical doctors. These campus networks include experts that can provide access to specialized knowledge to facilitate the transition into graduate study and entry into high status careers. For elite university students, investments in social capital and extensive campus ties facilitate final college achievement and pathways toward high status professional careers.

As a symbolic resource, social capital is similar in many respects to cultural capital. Social and cultural capital take a variety of forms, gain meaning and value

through exchanges within fields, and can be converted into other resources and material advantages. Importantly, the economic implications of symbolic exchanges often pass misrecognized as differences in natural talent, dispositions, or sociability (Bourdieu 2001). Responding to the high degree of ambiguity surrounding applications of Bourdieu's concepts, Lamont and Lareau (1988: 156) propose a general definition of cultural capital that emphasizes its exclusionary character and consider cultural capital "as institutionalized, i.e. widely shared, high status signals (attitudes, preferences, formal knowledge, behaviors, goods and credentials) used for social and cultural exclusion." This definition removes cultural capital from strong connotations of "highbrow" sensibilities, and emphasizes the role of cultural capital in exclusion from jobs, resources and high status groups. There is little evidence that elite university campus networks contribute to class-based exclusion or social reproduction (DiMaggio 1982; Goldthorpe 2007; Kingston 2001). Extensity of campus ties does not vary significantly across social class, and appears to benefit students across all sociodemographic backgrounds.

Other forms of social capital have a stronger association with high status groups and dominant class backgrounds. Students from subordinate class households have fewer pre-college ties with the university, and are less likely to report the use of family or personal contacts for post-graduation plans. Legacies constitute an affluent, high status group that benefits from an admissions preference for applicants with family ties to the university. Legacies show a distinct configuration of high levels of economic, cultural, and social capital, but lower than expected levels of pre-college achievement. Due to this human capital deficit at admissions, legacies have lower grades than other students with

college graduate parents early in the college career. Across the college career legacies exhibit an activation of their social capital: first, through admission to an elite university despite less than spectacular scores on a variety of admissions criteria, and later through the prevalent use of personal contacts for career plans.

Sociological inquiry regarding social capital has developed along two general perspectives. Following Coleman, the dominant trend in the sociology of education has been to emphasize social capital as a source of positive community norms and social control. Using indicators included in large national datasets, such as the NELS, recent studies have shown positive effects of family resources on educational outcomes for secondary students. However, Coleman's perspective has received considerable criticism, largely stemming from its structural-functional foundation (Dika and Singh 2002). In particular, Coleman insufficiently distinguishes between the resources that act as social capital and individuals' ability to access these resources through social networks and memberships (Portes 1998).

Like Coleman, Bourdieu points to social networks as sources of social capital and locates the family as key in providing students with resources that facilitate success in the educational system and future occupations. To Bourdieu, social capital is the sum of resources – material and symbolic, actual and potential – accessible through networks of institutionalized relationships. Unlike Coleman, Bourdieu works from a conflict perspective, and is particularly concerned with structural constraints and inequalities regarding access to resources. A similar resources-in-networks perspective has been widely applied to studies of occupational attainment (Lin 1999), and a few studies of

educational outcomes (e.g., Lee and Brinton 1996; Stanton-Salazar and Dornbusch 1995). A Bourdieusian capital framework considers social capital in connection with other forms capital, including the various family and household resources that Coleman emphasizes as types of social capital.

During the past few decades, the concept of social capital has been one of sociology's most prominent theoretical "exports" to other disciplines, public discourse, and policy debates (Portes 2000). Yet, social capital has been subject to a broad range of applications and definitions, contributing to a measure of confusion and ambiguity. Various scholars emphasize social capital as a source of social control (Coleman 1988), an attribute of communities (Putnam 2000), and the resources accessible through networks (Lin 2001). Given the lack of consistent support for intergenerational closure (e.g., Morgan and Sørensen 1999a), and in response to growing criticism of Coleman's approach to social capital, a resources-in-networks approach is beginning to emerge as the dominant perspective in the sociology of education (Dika and Singh 2002; Horvat et al. 2003). This chapter has shown the usefulness of distinguishing family resources from an operational definition of social capital in a study of postsecondary academic outcomes.

5. Capital Accumulation and Conversion

> While it is no doubt true that agents construct social reality and enter into struggles and transactions aimed at imposing their vision, they always do so with points of view, interests, and principles of vision determined by the position they occupy in the very world they intend to transform or preserve … The use of statistics enables us to bring to light processes such as those that lead to the differential elimination of students from different backgrounds, processes that exhibit such regularity in their complexity that one might be tempted to use mechanistic metaphors to describe them.
>
> Pierre Bourdieu, *The State Nobility*

As mentioned in Chapter 1, Bourdieu's core concepts have infiltrated several key areas and disciplinary subfields. Most prominently, the concept of cultural capital – or the high status signals, attitudes, knowledge and credentials that promote social and cultural exclusion (Lamont and Fournier 1992; Lamont and Lareau 1988) – is now firmly entrenched in the sociology of education (Lareau and Weininger 2003). Although it has grown increasingly popular to cite Bourdieu in leading journals, much of the treatment in the secondary literature has only limited engagement with Bourdieu's broader theory (Sallaz and Zavisca 2007). For example, *Reproduction* quickly became a citation classic and was the most popular of Bourdieu's major works throughout the 1980s. Following DiMaggio (1982) and other pioneering applications of the concept of cultural capital, it became customary to cite this treatise in studies of high school achievement and educational attainment (e.g., Eitle and Eitle 2002; Kalmijn and Kraaykamp 1996; Roscigno and Ainsworth-Darnell 1999). Despite the availability of English translations, there have been few attempts to incorporate insights from Bourdieu's major empirical studies of French higher education (e.g., Bourdieu et al. 1994; Bourdieu and Passeron

1979), in particular the important revisions, clarifications and extensions contained in his later investigations (e.g., Bourdieu 1988a; 1996).

The early formulations of the theory of cultural reproduction (i.e., Bourdieu 1973a; Bourdieu and Passeron 1990) have been the subject of much criticism. Some argue that Bourdieu overstates the role of the educational system in preserving social inequalities (Goldthorpe 2007; Halsey 1980; Robinson and Garnier 1985), and that his theoretical reach extends too far beyond his supporting evidence (DiMaggio 1979; Goldthorpe 1980; Jenkins 2002; Kingston 2001). Others criticize an overly complex writing style and a reliance on elementary or descriptive statistical methods (Jenkins 2002: 162-172; Sullivan 2002). Many issues pertaining to Bourdieu's theory await a rigorous test and in-depth examination. Notably, few studies have applied Bourdieu's ideas to postsecondary education in the United States, even as Bourdieu himself focused nearly exclusively on French higher education. In this final chapter, I build upon prominent quantitative applications of Bourdieu's concepts to provide a more complete and thorough examination of the theory of cultural reproduction.

This chapter revisits Bourdieu's theoretical model to gain a better understanding of how class influences achievement and patterns of campus social life at elite, private universities. First, I review the theory of cultural reproduction and compare this model to a cultural mobility perspective, as is characteristic of conventional uses Bourdieu's concepts in the sociology of education. Additionally, I contrast Bourdieu's theory and approach with how active student involvement is typically conceptualized in studies of college students. Next, I consider the effects of different types of cultural capital,

campus activities and other resources across the college years. More specifically, I examine how "highbrow" participation, pre-college plans and expectations, social and recreational activities, and patterns of major selection affect academic achievement and overall satisfaction with college life. Overall, I find qualified support for several aspects of Bourdieu's theory of cultural reproduction. To improve upon Bourdieu's model, I recommend an integrative approach to the forms of capital that considers human capital as a distinct, important resource (Farkas 1996; Lareau and Weininger 2003). The dissertation concludes with discussion of the implications of my results for current debates regarding the merits of Bourdieu's theory and concepts for educational research.

5.1 Cultural Reproduction and Social Reproduction

Through his studies of French universities and society, Bourdieu outlines a theory of cultural reproduction (Jenkins 2002: 103-127; Lamont and Lareau 1988; Harker 1984; Swartz 1997: 189-217). To simplify, Bourdieu argues that class position is associated with unequal access to forms of cultural capital. Further, the educational system views cultural capital as a marker of individual ability or merit, and treats all students as if they had equal access to these resources and experiences. Due to an imperfect correspondence between the distribution of cultural capital and the distribution of economic capital, schools can appear to encourage social mobility and hide any implicit class bias. However, the expansion of higher education has not led to broadening social opportunity for working class students, but instead has supported the rise of school-mediated reproduction strategies (Bourdieu 1996). In contrast to the direct, uninterrupted transfer of wealth and power across generations, cultural reproduction is at least as effective at

preserving the dominant social hierarchy, but appears more legitimate and is less susceptible to public challenges or dissent.

Figure 5.1 presents a simplified representation of Bourdieu's theory of cultural reproduction.[1] Starting with social class, Bourdieu argues that class position is associated with access to different levels and configurations of forms of economic, social and cultural capital. In general, dominant class students have a greater quantity of all forms of capital in comparison to middle or subordinate class students, although the particular mix or composition of economic and cultural resources serves to reinforce boundaries between distinct class fractions within these broad categories. Class shapes the early family and school experiences that are important for the development of the habitus, or the internalization of a group's culture into a durable set of embodied dispositions. Due to class differences in family upbringing and early socialization, dominant class students begin formal schooling with more experience with the cultural practices valued by the educational system (Lamont and Lareau 1988). Working class students, who are less likely to possess elite forms of cultural capital, tend to have less academic success, leading to lowered expectations by both student and teacher. This cycle reinforces the habitus, as expectations and probabilities come to match actual experiences.

[1] At the end of *Reproduction* (pp. 255-258), Bourdieu illustrates this cycle of transformations and retranslations of initial class membership to the objective probabilities of entering different tiers of secondary schools and postsecondary institutions, as well the likelihood of academic success at each level of education. In other words, Bourdieu depicts "some of the mechanisms through which the structure of class relations tends to reproduce itself by reproducing those habitus which reproduce it" (Bourdieu and Passeron 1990: 259). By cycling and recycling across four book pages, Bourdieu emphasizes how class membership structures decisions and aspirations throughout the educational career. For ease of presentation, and to draw attention to how these processes operate relative to the college years, Figure 5.1 combines primary and secondary school experiences into a single step.

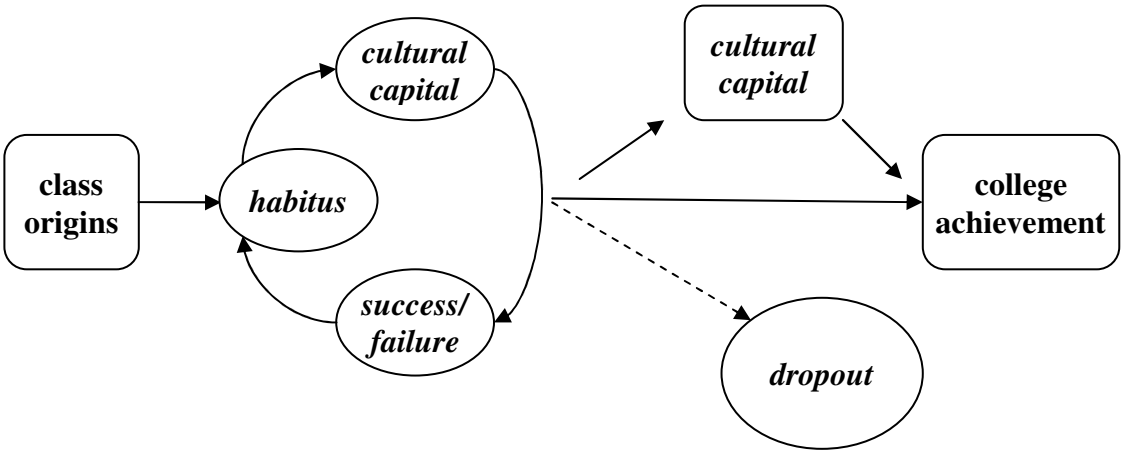

Figure 5.1: Class, cultural capital, and social reproduction

Further, at each transition point in the educational career, working and lower class students are more likely to dropout and discontinue schooling or, for example, be tracked to the lower tiers of the postsecondary system (Rosenbaum 2004). Although schools do not actively dissuade working class students from attending the most prestigious colleges and universities, the end result is much the same. Due to the many subtle linkages between the field of education and the underlying class structure or field of power, only the most talented and highly motivated students from subordinate class positions overcome an initial cultural capital deficit and continue on to postsecondary education, and even fewer enter elite colleges and universities.

Next, within a particular educational setting, cultural capital mediates the relationship between social origins and educational outcomes. Dominant class students not only have greater access to cultural capital, but also achieve greater returns for the cultural capital they possess. In contrast, working and lower class students are less able to profit from their limited contact with cultural capital. Thus, initial capital deficits and

inequalities give rise to a cycle of cumulative advantage and disadvantage (McClelland 1990). Dominant class students enter postsecondary education with a greater supply of cultural capital, as well as a habitus that facilitates successful interactions with elite institutions. Bourdieu provides the analogy of a poker game to describe this relationship between class origins, habitus and forms of capital (e.g., Calhoun 1993: 77; Lareau and Horvat 1999: 39). Dominant class students have a greater supply of betting chips (i.e., forms of capital), allowing a more aggressive strategy and providing additional chances for winning across multiple hands. Additionally, class background is akin to occupying a more advantageous seat or position relative to other players at the table (Bourdieu and Wacquant 1992: 98-99). Like a poker player acting in last position, dominant class students have more information at their disposal to assess the likelihood of success, and can therefore wager their chips more effectively. At the other extreme, subordinate class students are like a novice player who must focus intently just to follow the basic rules – which can change at the whim of the dealer – and are less able to appreciate the subtle hints and tips acquired through successive hands, wagers and interactions.

In arguing that schools and educational institutions contribute to social reproduction – or the reestablishment of the relationship between social classes over time and across generations – Bourdieu's theory bears some similarity to Marxist critiques of education within modern capitalism (e.g., Althusser). For example, Bowles and Gintis (1976) argue that a primary function of the educational system is to legitimate existing economic disparities. Further, education supports the capitalist order by imparting technical skills to increase the productive capacity of the labor force and by rewarding

certain student traits and behaviors to create a depoliticized, obedient working class. Willis (1977) argues that Bowles and Gintis fail to account for the many ways working class students actively participate in the development of their own culture. Further Willis observes that, contrary to social reproduction arguments, working class "lads" in a British industrial center often show strong opposition to teachers and other authority figures. Cultural production is both a dominant and subordinate class activity, and the everyday lives of youth from all social backgrounds involve much creative activity and expression (Hogan 1982; Willis 1981; 1990). In a sense, Bourdieu bridges these two positions, and argues that the educational system maintains an independent relationship to the organization of economic life, but that many aspects of school culture are more consistent with the tastes, interests and experiences of certain high-status groups (e.g., Collins 1979; Entwistle 1978). To Bourdieu, the educational system accomplishes social reproduction not by replicating the social conditions of the workplace, but by offering implicit rewards to the cultural production of certain dominant class fractions.

In a recent essay, John Goldthorpe (2007) argues that quantitative researches have applied Bourdieu's theory and concepts with two different understandings, which he labels Bourdieu "domesticated" and Bourdieu "wild." Goldthorpe points out that most applications of Bourdieu's concepts have relied on a "domesticated" understanding of cultural capital that underemphasizes social reproduction. Research in this tradition focuses on the effects of "highbrow" activities, such as visiting an art museum or attending the opera or ballet, on educational outcomes. A considerable literature shows that socioeconomic background is associated with access to cultural capital, and that

cultural capital encourages academic success. However, the returns to cultural capital appear to be consistent across social groups, and may even yield greater advantages for students from lower-status backgrounds. For example, DiMaggio (1982) finds that male high school students from low-status backgrounds receive the greatest advantages for participating in cultural activities. Thus, a "domesticated" use of Bourdieu's concepts reveals that schools can transmit cultural capital and encourage social mobility, rather than primarily supporting social reproduction. Subsequent studies largely replicate DiMaggio's results, and find that "highbrow" participation and access to educational resources are associated with higher levels of academic achievement and attainment (e.g., Aschaffenburg and Maas 1996; De Graaf 1986; De Graaf, De Graaf, and Kraaykamp 2000; DiMaggio and Mohr 1985; Dumais 2002; Eitle and Eitle 2002; Ganzeboom, De Graaf, and Robert 1990; Katsillis and Rubinson 1990; Mohr and DiMaggio 1995; Roscigno and Ainsworth-Darnell 1999; Sullivan 2001).

On the other hand, Goldthorpe (2007: 18) argues that a "wild" or more authentic reading of Bourdieu's theory has received little empirical support. Further, Bourdieu's theory of cultural reproduction is challenged by the real gains in educational opportunity experienced in many advanced societies across the last half-century. In most quantitative applications of Bourdieu's concepts, cultural capital is considered in isolation of other important concepts, namely class habitus and other forms of capital. There has been less concern for how cultural capital contributes to social reproduction, or relates to class inequalities in postsecondary education. By using cultural capital variables to build upon the conventional status-attainment model, a domesticated understanding ignores a crucial

element of Bourdieu's theory: the role of schools and educational institutions to social reproduction and the transmission of resource advantages across generations (Savage, Warde and Devine 2005). Given the lack of support for Bourdieu's "wild" theory of cultural reproduction, Goldthorpe suggests that "domesticated" applications adopt the term "cultural resources" to distinguish this approach from Bourdieu's bolder claims and predictions regarding social reproduction.

Goldthorpe's review is largely in accord with other recent comments of the uneven and inconsistent use of Bourdieu's concepts in the quantitative education literature (e.g., Kingston 2001; Lareau and Weininger 2003). However, Goldthorpe fails to note qualitative studies that incorporate a "wild" understanding to examine primary and secondary schooling (e.g., Anyon 1980; Blackledge 2001; Carter 2003; Lareau 2000; Mickelson 1987; Reay 1998; Weininger and Lareau 2003) and the transition into postsecondary education (e.g., Devine 2004; Lareau and Weinginger 2008; McDonough 1997; Persell and Cookson 1985; Reay, David and Ball 2005). These qualitative studies illustrate how class position influences how students and parents approach schooling and negotiate with educational institutions. Consistently, working and lower class students are disadvantaged for having less access to important school information, and for adopting a passive and deferential attitude towards teachers and other education professionals.

In short, cultural reproduction (Bourdieu "wild") and cultural mobility (Bourdieu "domesticated") both stress that forms of cultural and social capital common to elite status groups are important for educational outcomes. Although, a cultural reproduction

argument makes bolder predictions about who can benefit from the cultural and social capital within elite institutional settings. Under cultural mobility, dominant status groups come to monopolize a series of styles, traits and preferences. However, within advanced, highly differentiated societies, individuals are free to draw on a wide range of cultural repertoires (DiMaggio 1982). While elite groups work to maintain control of their cultural and economic resources, individuals from low status and subordinate positions may gain access to these resources. Thus, a cultural mobility perspective allows for a degree of upward mobility for disadvantaged students who gain exposure to elite forms of cultural capital.

A cultural reproduction perspective, in contrast, predicts that cultural capital will mediate the relationship between class origins and educational outcomes. Dominant class students arrive on campus not only with an abundant supply of forms of capital, but also with a more or less unconscious understanding of how to use this capital to maintain or improve upon an advantaged social position. While a cultural mobility perspective predicts a positive association between academic achievement and participation in dominant class activities, a cultural reproduction perspective argues that dominant class students, who possess the prerequisite habitus to locate symbolic resources within the field of elite university education, come to monopolize the academic and social benefits of cultural capital.

Cultural mobility and cultural reproduction perspectives are both in contrast to how student activities and campus involvement is commonly viewed in research of college life and achievement. Typically, education scholars view active campus

participation as a type of human capital that adds to and reinforces the learning that takes place in the classroom or lecture hall. As viewed in the literature, eager participation in extracurricular activities should lead to success in coursework and campus life, as students who are more involved have access to helpful social networks and opportunities for personal development (Astin 1993; Astin, Sax and Avalos 1999). Generally stated, an involvement perspective predicts that students will benefit from campus activities in relation to the time and effort they devote to their participation (Astin 1984). For example, studies show that college extracurricular participation is associated with leadership skills, individual self-esteem and well-being, and overall satisfaction (Kuh 1995; Smith, Wolf and Morrison 1995; Walpole 2003). An involvement perspective predicts positive effects for all students, irrespective of class or socioeconomic background. Students who spend more time in campus academic and extracurricular activities should receive higher grades, net of other factors.

5.2 Class, Capital and the College Years

In Chapter 4, I examined two types of social capital at an elite, private university: immediate social capital, or the resources available through extensive campus networks, and institutionalized social capital, in the form of an admissions preference for legacy students. Although all students can benefit from immediate social capital, students with institutionalized social capital are more likely to be white and from dominant class households. In this chapter, I consider the effects of different types of cultural capital and active campus involvement across the college years. More specifically, I examine how greater familiarity with "highbrow" culture, pre-college plans and expectations,

differences in within-college human capital, and participation in social and recreational activities affect overall satisfaction with college life and academic achievement across the college years.

5.3 "Highbrow" Activities and College Grades

In his early studies of French higher education, Bourdieu describes a distinctive pattern of academic performance by social origin. Compared to students from upper or dominant class households, most working and lower class students show lower levels of verbal ability and achievement (Bourdieu et al. 1994). Working class students enter college with less familiarity with cultural works and artists, and as a result have less success in the prestigious arts and sciences disciplines (Bourdieu and Passeron 1979). Additionally, due to the uneven distribution of cultural capital across the dominant classes, competing class fractions have different relationships to schooling and the educational system (Bourdieu 1973a; Bourdieu and Passeron 1990). Professionals, and especially teachers and artists, show the greatest commitment to educational success, and most value the cultural practices rewarded in schools. These class fractions owe their dominant position to the legitimacy of the cultural capital rewarded by schools. Business owners and executives possess less of these valued forms of cultural capital, as their dominant position is due primarily to economic wealth. As a result, executives view elite academic credentials more as an efficient and effective means to eventually secure and accumulate economic capital (Bourdieu and Passeron 1979).

In this section, I examine class differences in achievement at elite, private universities, and consider the role of "highbrow" participation on college grades. Most

applications of Bourdieu's concepts to quantitative studies of educational outcomes have remained close to Bourdieu's own empirical examples from the French case. Typically, these studies have examined the effects of "highbrow" participation, such as museum attendance, on grades or test scores. This literature has largely ignored the postsecondary level, and there has been less attention to social class differences in achievement. As a first step to address these gaps in the literature, Figure 5.2 presents average semester grades across the college years by social class, using the Duke (CLL) data. Student grade point averages (GPA) were collected from institutional records, and have been adjusted for major area and schedule difficulty.[2]

Across all class backgrounds, average grades are stable over the first few college years and then increase steadily as students settle into major areas and smaller classes. Average class size declines from about 66 students in the fall semester of the first college year to 39 students in the senior year.[3] Additionally, there are persistent and regular achievement gaps by social class across the college years, although narrowing in the fourth year. In nearly every semester, professional class students have the highest

[2] This figure graphs average semester GPA across eight semesters for students with full-time active status (n = 1091 to 1181), as reported in official transcripts and student records. Grade averages are adjusted by OLS models that include variables for major field area (engineering, natural sciences, social sciences, arts and humanities, or other major/undecided) and a measure for schedule difficulty. Schedule difficulty is calculated from course transcript information for all CLL respondents (n = 1365), and represents the average grades awarded in the students' fall semester courses for each survey year, as z-scores. Patterns of achievement are highly consistent with unadjusted GPA values. During the early college years, arts, humanities and social science majors have grades that are about one-tenth to one-twentieth of a letter grade higher than engineering majors, but these differences are only marginally or sporadically significant. Schedule difficulty does not have a significant effect on semester grades across any of the eight models.

[3] Average class size is collected from the in-college surveys, which include modules that ask students to describe their course schedule for the previous (fall) semester and to report class size and the racial/ethnic and gender composition of the instructor(s) and other students. Unfortunately, the CLL does not contain information about class size in spring semester courses or during the fall semester of the third year. There are no significant ($p < .05$) interclass differences across available measures of average class size.

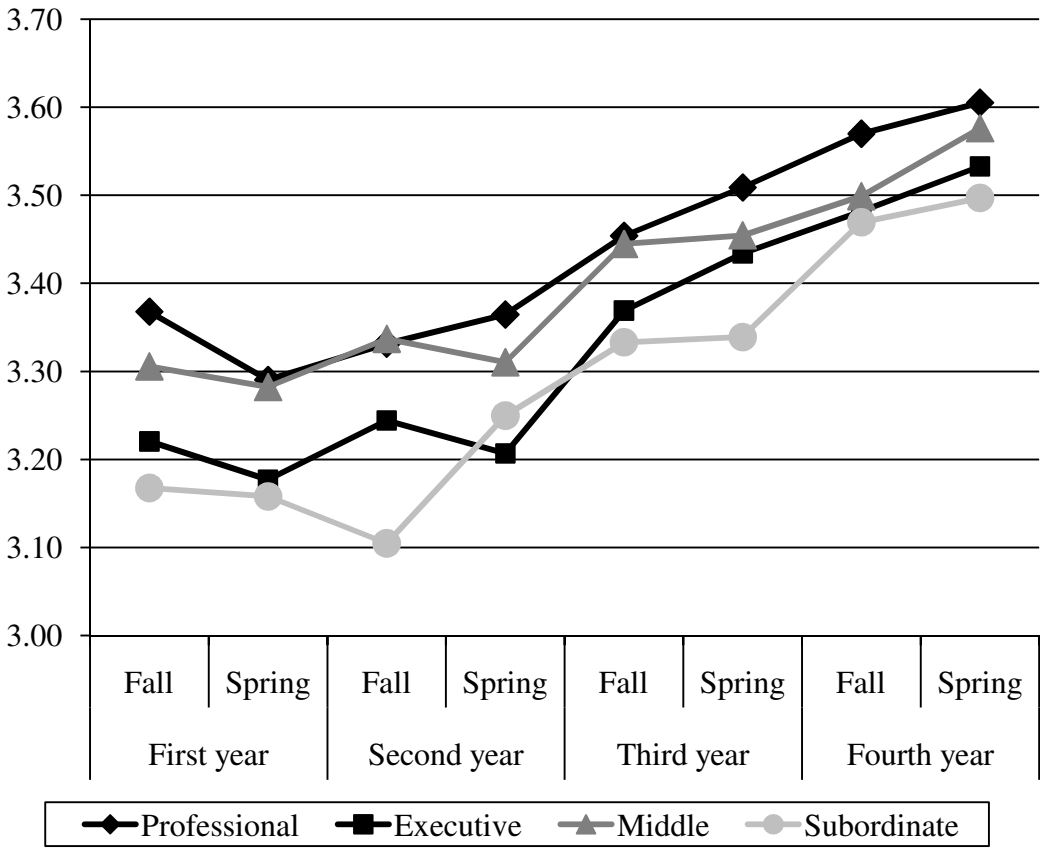

Figure 5.2: Semester grades across four college years, by social class

average grades, slightly higher than the grades of middle class students. With the exception of the spring of the second college year, subordinate class students have the lowest average semester grades. After the first semester, subordinate class students have an achievement gap of one-fifth of a letter grade relative to professional class students. In the fall of the second year, this gap has increased to nearly one-quarter of a letter grade, before declining to about one-tenth of a letter grade in the fourth college year.

A more unexpected achievement gap is found between professional and executive class students, the two primary dominant class fractions. In terms of pre-college profiles, executive class students most resemble students from professional class households. As

mentioned in Chapter 3, executive class students report annual household incomes that are more than five times greater than the family incomes of subordinate class students (about $352,000/year and $68,000/year, respectively). One-third of executive and one-quarter of professional class students enter college from private high school, compared to less than one-eighth of subordinate class students. More than three-quarters of executive and professional homes contain enough books to fill at least three bookcases (more than 200 books), compared to 43 percent of subordinate class homes.[4]

However, executive class students most resemble subordinate class students in terms of college achievement. Across the college years, executive class students have an achievement gap of about one-tenth of a letter grade relative to professional class students. With the exceptions of the fall semester of the second year and the spring of the third year, average semester grades for executive and subordinate class students are each within .05 of a letter grade, or less than one-eighth of a standard deviation. This pattern of college achievement is consistent with class differences in academic evaluations at admission. During the review of applications, admissions committees rank executive class students' high school record as significantly lower than the achievement of professional, middle or subordinate class students. Across six dimensions, admissions committees assign higher scores to professional and middle class students than to executive or subordinate class students (Table 3.11).

A similar pattern characterizes final college grades and other indicators of academic performance (Table 5.1). Compared to executive and subordinate class

[4] In this section, due to small sample size (n = 96), I limit discussion of precarious professionals to footnotes. Across the four college years, CLL students from precarious professional households have average semester grades that are slightly higher than subordinate class students' grades.

Table 5.1: Final college academic outcomes (means), by social class

	Professional	Executive	Middle classes	Subordinate classes
Final (cumulative) GPA *	3.44	3.35	3.41	3.30
Engineering	3.36	3.34	3.40	3.39
Natural sciences *	3.47	3.21	3.50	3.34
Social sciences (BS)	3.43	3.43	3.45	3.28
Social sciences (AB) *	3.49	3.31	3.37	3.27
Arts/humanities *	3.44	3.47	3.40	3.24
Graduation honors *	.39	.27	.32	.23
Engineering	.34	.40	.37	.40
Natural sciences *	.41	.15	.51	.29
Social sciences (BS)	.48	.25	.34	.19
Social sciences (AB) *	.35	.22	.22	.14
Arts/humanities †	.48	.36	.30	.21
Any double major	.08	.04	.11	.05
Any minor *	.17	.05	.17	.08
Any certificate	.05	.02	.06	.03
Final status (fall 2007)				
Complete	.96	.98	.96	.94
Active	.00	.00	.00	.01
Discontinued	.04	.02	.04	.05

Source: Campus Life and Learning (n = 1132 to 1181)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests); graduation honors includes Latin honors (*cum laude, magna cum laude and summa cum laude*) and other official honors distinctions; final status is as of September 2007, from institutional records.

students, professional and middle class students have higher final college grades and are more likely to be awarded honors distinctions at graduation.[5] This general pattern holds for natural science and social science majors. Among engineering majors, at the end of college there are no significant achievement gaps by class background. About 40 percent of subordinate class students who complete a degree in engineering receive an honors

[5] Honors distinctions, collected from official transcripts, include Latin honors as well as other official designations such as departmental honors or prizes. Latin honors are calculated separately for students in the schools of engineering and arts and sciences, and are determined as the top five percent (summa cum laude), top fifteen percent (magna cum laude), or top quartile (cum laude) thresholds in GPA, based on the final GPA for the previous year's graduating class.

distinction, compared to 34 percent of professional, 40 percent of executive, and 37 percent of middle class students. The achievement gap between subordinate and professional class students is largest among arts, humanities, and social sciences (AB) majors.[6] In addition to college grades, other graduation credentials could act as signals of high levels of performance and academic ambition to potential employers and graduate or professional schools, such as completing second majors, minors or certificate programs. Like executive class students, subordinate class students are less likely to complete a minor degree than are professional or middle class students. A similar pattern holds for other graduation credentials, although differences are not significant. It is important to note that there is little severe underperformance among students at elite, private universities. For example, within six years of matriculation, only about four percent of students who completed the pre-college survey had not finished a degree at Duke, including transfers, dismissals and withdrawals. There are no significant class differences for degree completion or college dropout (Appendix A).

Comparisons with the national sample show a similar pattern of college achievement by class background. A single question in the CIRP Senior Survey asks students to report their college grades in one of six categories, from "C- or less" to "A."

[6] Variables for major field combine individual disciplines into broad area categories. Final major area is taken from official transcripts. More than half of natural science majors studied biology. Other popular natural science fields include chemistry, biological anthropology and anatomy, and mathematics. The modal arts and humanities major is history, and other popular fields include English, literature, philosophy and religion. Duke offers both Bachelor of Arts (AB) and Science degrees (BS) in economics and psychology. Other popular social science fields include public policy studies, political science, sociology, cultural anthropology. In the case of double majors (about one-quarter of CLL respondents), major area was coded as the most difficult of the two majors, determined by the average grades in all courses in a given major from the fall semester of 2001 to the spring of 2006. Courses in engineering had the lowest average grades, followed in ascending order by the natural sciences, social sciences, and arts and humanities. The use of more highly detailed measures for major field yields highly consistent results and does not alter any substantive conclusion.

Very few students (n = 10) at highly selective, private universities report grades lower than "B- or C+." Consistent with results from the Duke sample, about 14 percent of subordinate class students report college grades of "A," compared to 13 percent of executive, 17 percent of middle, and 20 percent of professional class students. About 7 percent of subordinate class students report grades of "B- or C+" or lower, compared to 5 percent of executive and middle class students, and 4 percent of professional class students. Among natural science, social science and arts and humanities majors, subordinate class students report significantly lower grades than professional class students do. As above, there are no significant class differences in achievement among engineering majors.[7]

Table 5.2 presents ordered logistic regression models predicting final college grades for the national sample of students at elite, private universities.[8] All models include controls for major field area (not shown). Relative to students in engineering, students in the natural sciences, business, social sciences, and arts and humanities have higher grades at the end of college. A baseline model includes dummy variables for class background, with professional class serving as the reference category. At the end of college, executive and subordinate class students have significantly lower grades than

[7] Students from precarious professional households report end of college grades that are higher than subordinate class students but somewhat lower than professional or middle class students. About 19 percent of precarious professional students report average grades of "A," similar to professional class students. However, like subordinate class students, 7 percent or students from precarious professional households report grades of "B- or C+" or lower.

[8] Ordered logistic regression, a special case of the generalized linear model, uses maximum likelihood estimation, and thus requires a larger sample size than does OLS regression. Additionally, results from ordered logistic regression are sensitive to cells with few or zero observations. For the analysis described in Table 5.2, I combine racial ethnic categories of black, Latino and other, and exclude precarious professional class students. I recode the outcome variable, student reported college grades (cumulative) in the spring of the senior college year, to four categories: "B- or less", "B," "B+ or A-," "A."

professional class students do. More precisely, the odds of being in a higher category of the dependent variable decline by a factor of .23 when comparing professional to executive class students, and the odds decline by a factor of .38 when comparing professional to subordinate class students.[9] Model 2 adds controls for socioeconomic background. Female students report higher college grades than male students do, and white students report higher grades than black or Latino students. Student-reported high school grades and SAT scores, collected in the Freshman Year Survey, are strongly associated with average grades at the end of college. A one standard deviation increase in SAT scores (about 111 points) is associated with a 55 percent increase in the odds of being in a higher GPA category. Coefficients for executive and subordinate class background remain significant with the addition of other socioeconomic characteristics and high school background.[10]

Model 3 adds variables for frequency of visiting art galleries or museums during the college years and meeting with faculty outside of class or office hours. The former variable is an example of "highbrow" cultural participation, often treated as cultural

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[9] The interpretation of odds-ratios when logistic regression coefficients are negative can present challenges and difficulties to researchers. The use of the inverse odds-ratio (IOR) provides a more readily interpretable result that can allow direct comparisons with the odds-ratios produced when estimated coefficients are positive (DesJardins 2001). In Model 1, professional class students have odds of being in a higher grade category that are 30 percent greater than executive class students (IOR = 1.300), and 63 percent greater than the odds for subordinate class students (IOR = 1.626). In Model 2, white students have odds of being in a higher grade category that are 55 percent greater than the odds for underrepresented minority students (IOR = 1.553)

[10] Alternative model specifications include measures for citizenship, sources of financial aid, and schedule difficulty. In no case did the effects of these variables approach significance. By changing the reference category to subordinate class, I find significant, positive coefficients for professional and middle class background, and a positive but insignificant coefficient for executive class background. Including separate dummy variables for black and Latino yields significant, negative coefficients. Under an otherwise identical specification as Model 2, white students have odds of being in a higher grade category that are 2.34 times greater than the odds for black students (IOR = 2.336), and 37 percent greater than the odds for Latino students (IOR = 1.374).

Table 5.2: Ordered logistic regression of college grades on student background and cultural, social and human capital

	Model 1 odds-ratio (z-score)	Model 2 odds-ratio (z-score)	Model 3 odds-ratio (z-score)	Model 4 odds-ratio (z-score)
Social class (ref. professional)				
Executive	.769 *	.756 *	.773 *	.783 *
	(-2.50)	(-2.60)	(-2.39)	(-2.27)
Middle	.893	.856 †	.869	.890
	(-1.26)	(-1.71)	(-1.54)	(-1.27)
Subordinate	.615 *	.680 *	.685 *	.707 *
	(-4.25)	(-3.27)	(-3.19)	(-2.93)
Race/ethnicity (ref. white)				
Asian		.808	.811	.826
		(-1.45)	(-1.42)	(-1.29)
Black/Latino/other		.644 *	.641 *	.653 *
		(-3.54)	(-3.58)	(-3.42)
Female		1.479 *	1.438 *	1.351 *
		(5.40)	(4.99)	(4.07)
SAT score (total)		1.005 *	1.005 *	1.005 *
		(13.89)	(13.97)	(14.15)
High school grades		7.757 *	7.788 *	7.326 *
		(15.15)	(15.14)	(14.65)
Cultural and social capital				
Museum attendance			1.181 *	1.121 †
			(2.59)	(1.76)
Meet with faculty			1.406 *	1.295 *
			(5.06)	(3.91)
Human capital				
Hours studied per week				1.031 *
				(5.32)
Academic skills				1.047 *
				(3.94)
Psuedo-R^2	.007	.094	.100	.106

Source: Cooperative Institutional Research Program (n = 3117)

Notes: * $p < .05$, † $p < .10$ (two-tailed tests); socioeconomic background, test scores and high school grades are from the Freshman Year Survey; cultural, social and human capital variables are from the College Senior Survey; college grades are student-reported (1 = "B- or less", 2 = "B", 3 = "B+ or A-", 4 = "A"); all models include controls for major field area (engineering, natural sciences, business, social sciences or other); frequency of museum attendance and meeting with faculty outside of class or office hours are measured as three categories (1 = never, 3 = frequently); academic skills is a scale of self-reported changes in seven skill domains over the college years.

capital in prominent applications of Bourdieu's concepts.[11] The latter serves as an indicator of immediate social capital, comparable to the extensive campus ties discussed in Chapter 4 and Martin (2009b). Professional class students at elite, private universities visit art museums more frequently than other students do. During the college years, about 9 percent of professional class students report frequent attendance at art museums, compared to 6 percent of executive and 7 percent of middle and subordinate class students. Less than one-quarter of professional class students report that they never attended art museums or galleries during the past year, compared to 29 percent of executive, 27 percent of middle, and 31 percent of subordinate class students. Consistent with results with the CLL data, there are no significant differences by social class in frequency of meeting with faculty during the college years.

These indicators of campus cultural and social capital have significant, positive effects on average college grades. A unit increase in frequency of museum attendance is associated with an 18 percent increase in the odds of being in a higher category of the outcome variable (i.e., student-reported average college grades), and a unit increase in meeting with faculty is associated with a 41 percent increase. Under an alternative specification, I replace these cultural and social capital variables with dummy variables for "occasional" and "frequent" activity, treating "never" as the reference category. Students who visit art museums frequently have odds of being in a higher grade category

[11] For example, DiMaggio (1982) and DiMaggio and Mohr (1985) – using information from Project Talent, a study of white, American high school students who were first surveyed in 1960 – operationalize cultural capital as a factor scale for frequency of attendance at symphony concerts and arts events, experience with stage performances, and identification with a "cultured" image. Roscigno and Ainsworth-Darnel (1999), in an analysis of two waves of the National Education Longitudinal Survey, define cultural capital as student trips to art, science or history museums, attendance at art, music or dance classes, and access to household educational resources.

that are 28 percent greater than the odds for students who never visit museums (z = 1.66), and students who occasionally visit art museums have odds that are 20 percent greater (z = 2.37). Students who frequently meet with faculty outside of class or office hours have odds of being in a higher grade category that are 2.04 times greater than the odds for students who never meet with faculty (z = 5.58), while the odds for students who occasionally meet with faculty are 49 percent greater (z = 3.95). The effects of "highbrow" cultural capital and campus social capital remain positive when measures of within-college human capital are added to the model (Model 4), although the effect of museum attendance is reduced to marginal significance ($p < .10$). Hours spent in a typical week studying or doing homework and self-assessed academic skill gains during the college years both have strong, positive effects on final grades.[12]

"Highbrow" participation during the college years has a positive effect on final grades, but this effect is small in comparison to the social and human capital acquired during the college years.[13] Unfortunately, the CLL does not include information about

[12] Results are robust across a variety of alternative models and specifications. The use of an ordinal rather than interval dependent variable violates a key assumption of OLS regression. However, results from OLS models are entirely consistent. Museum attendance and faculty contact each have a positive effect on final college grades (beta = .037 and .081, respectively), although the effect of museum attendance is not significant when measures for human capital are included in the model. Similar results are found with logistic regression models that predict the odds of an "A" average (n = 519; 17% of the CIRP sample) with the same explanatory and control variables as above. Relative to professional class students, executive and subordinate class students are less likely to report very high grades. Visiting an art museum and meeting with faculty have significant, positive effects on the odds of an "A" average, but museum attendance is only marginally significant ($p < .10$) when measures for human capital are included in the model.

[13] A key assumption of ordered logistic regression is that the effects of the independent variables are the same for each level of the dependent variable. Violation of this assumption can lead to biased estimates (Garson 2009). A Brant test of the parallel lines assumption for the full model yields a significant χ^2statistic (87.41 with 36 degrees of freedom), providing evidence that the assumption has been violated. Individual variables with a significant χ^2 values, suggesting that their effects vary by outcome level, include major area, sex, high school grades, and time spent studying. An alternative set of specifications that A) restricts the sample to non-engineering majors, B) drops the high school grades variable, and C) runs separate models for male and female students (n = 1259 and 1540, respectively) appears to satisfy the

"highbrow" participation during the college years, preventing tests or replication with the Duke sample. During the middle and high school years, professional and executive class students and their parents visit art museums and attend the opera, symphony or ballet more often than subordinate class students and their parents do (Table 3.9). Although, no class or class fraction is associated with more than occasional participation in "highbrow" activities, and a similar pattern is found with "popular" activities, such as going to the movie theater and attending a music concert or sports event. Participation in pre-college cultural activities does not have a significant effect on first year college grades (Table 4.2). These resources could have been important during the admissions process, but there is no evidence in the CLL of a substantial effect on college achievement.

In sum, this analysis reveals distinct patterns of achievement by class background. Across the college years, professional and middle class students have higher grades than executive and subordinate class students do. This pattern of achievement holds across the college years, from first semester grades to final graduation honors and for all major areas except engineering. Although the black-white and Latino-white achievement gaps decline substantially across the college years (Spenner, Mustillo and Martin 2008), class differences in achievement are nearly as large in the fourth year as they are in the first year. Additionally, within all racial ethnic groups and for both male and female students,

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parallel lines assumption. Most results under this alternative specification are consistent with Table 5.2, with a few important differences. Frequency of museum attendance does not have a significant effect on college grades for female students. For male students, frequency of meeting with faculty is not significant when measures for human capital are included in the model. In further analysis, models using various combinations of the outcome categories (e.g., 1 = "B or lower," 2 = "B+ or A-," and 3 = "A") also violate this assumption. Another option is to switch to multinomial logistic regression, which provides less power but requires less stringent assumptions. Results from multinomial logistic regression are generally consistent with the main results described above, although the effect of museum attendance is not significant across all outcome categories or when measures of human capital are included in the model.

professional and middle class students have higher college grades and are more likely to graduate with honors in comparison to executive and subordinate class students (Table 5.3).[14] While participation in "highbrow" activities does have a positive association with college grades, this effect is small in comparison to varieties of social and human capital and does not explain class differences in achievement.[15] If "highbrow" participation and knowledge acts as a form of cultural capital for students at elite universities, it is during the admissions process and not in the classroom or lecture hall.

The significant and enduring achievement differences between professional and executive class students would remain obscured with schemas based on occupational categories or conventional labels. For example, with the EGP schema – a prominent Weberian approach to class analysis – the majority of middle, professional, and executive students are combined into a single category (Class I: higher grade professionals, administrators and officials, as well as owners of large firms). Nearly all professional and middle class students, and about 90 percent of executive class students, are classified

[14] In general, class differences in achievement appear to be stronger for male and white students than for female and black, Latino and Asian students. Due to small samples for some comparison groups, caution is appropriate when examining class by racial ethnic differences in achievement and other outcomes. For example, only 7 black, 11 Latino and 13 Asian students are from executive class households in the CLL sample, and 6 black and 18 Latino students are from executive class households in the CIRP sample.

[15] DiMaggio (1982: 196-197) finds that the effects of cultural capital on high school grades are stronger for male students with fathers who had earned a high school diploma or less than for males with college graduate fathers, but stronger for female students with college graduate fathers than for females with less educated fathers. Roscigno and Ainsworth-Darnell (1999: 168-169) find several significant interactions suggesting that black students receive less return to their high school achievement for cultural trips, while students from high SES families receive greater returns. In analysis not shown, I build on Models 3 and 4 in Table 5.2, and test for significant interactions between class, sex and racial ethnic background, and frequency of visiting art museums and meeting with faculty. In no case (under a variety of model and measurement specifications) did interaction terms approach significance, suggesting consistency in returns. For the national sample of elite university students, "highbrow" participation and frequent contact with faculty affect grades in a similar manner for dominant and subordinate class students, for male and female students, and for white and underrepresented minority students.

Table 5.3: Final college achievement (means), by social class, sex and race/ethnicity

	Professional	Executive	Middle classes	Subordinate classes
Campus Life & Learning				
Final (cumulative) GPA *	**3.44**	**3.35**	**3.41**	**3.30**
Female *	3.49	3.44	3.44	3.30
Male *	3.41	3.24	3.38	3.28
White *	3.47	3.33	3.47	3.39
Black *	3.23	2.84	3.10	2.94
Latino	3.34	3.40	3.23	3.27
Asian	3.48	3.50	3.43	3.43
Graduation honors *	**.39**	**.27**	**.32**	**.23**
Female †	.38	.33	.35	.21
Male *	.40	.20	.30	.25
White *	.44	.24	.36	.26
Black *	.02	.15	.18	.04
Latino	.20	.21	.16	.22
Asian	.40	.47	.37	.36
Cooperative Institutional Research Program				
Average grades: "A" *	**.20**	**.13**	**.17**	**.14**
Female	.18	.18	.18	.13
Male *	.22	.09	.17	.15
White *	.21	.14	.18	.16
Black/Latino/other	.10	.00	.11	.06
Asian	.24	.12	.17	.11

Sources: Campus Life and Learning (n=1181) and Cooperative Institutional Research Program (n=3140)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests); CLL data is from institutional files; graduation honors includes Latin honors (*cum laude, magna cum laude and summa cum laude*) and other official honors distinctions; CIRP grade information is student-reported average grades, collected in the spring of the fourth college year.

as Class I or II in the EGP schema (Tables 3.7 and 3.12). Espenshade and Radford (2009) combine "upper-middle" and "upper class" students into a single category, and find no significant effects of class on graduation rates or class rank.[16] Nearly 26 percent

[16] Espenshade and Radford (2009) conduct a detailed study of race and socioeconomic background at highly selective colleges and universities with the National Study of College Experience (NSCE) database, which builds institutional files into a subsample of ten College & Beyond institutions (Bowen and Bok 1998). The primary measure of social class in the NSCE is students' response to the question, "Which one of the following categories best describes your family's social class during your senior year in high school?" Response categories include lower class, working class, middle class, upper middle class, and upper class.

of graduating upper or upper-middle class students finished in the top quintile of percentile class rank, compared to 20 percent of middle class and 13 percent of lower and working class students (Espenshade and Radford 2009: 234-235, 247, 250-251). In contrast, I find that subordinate class students at elite universities are at least as likely to report "A" average grades as are executive class students. The persistent professional-executive achievement gap across the college years is consistent with Bourdieu's studies of French university students (e.g., Bourdieu 1973a; Bourdieu and Passeron 1979), and suggestive of different academic orientations for two dominant class fractions.

5.4 Social Life, Extracurricular Activities, and College Satisfaction

In his studies of French higher education, Bourdieu illustrates an institutional field that appears as foreign and unfamiliar terrain to working and lower class students. Conducting surveys of college students, Bourdieu finds that the children of business managers and professionals are more likely to have strong family support for their college plans and interests. Working class students are more likely to live at home and work part-time while taking courses, and as a result participate less often in campus activities or discussions with classmates (Bourdieu and Passeron 1979: 16). Outside of class, there is little social interaction between working and dominant class students (Bourdieu and Passeron 1979: 35-38). In an analysis of his own biography, Bourdieu (2007: 100) describes how his cultural upbringing caused him to feel out of place during his years at selective boarding schools and while attending École Normale Supérieure, even as he regularly scored excellent grades. Even among highly talented and motivated students, experiences at elite universities can magnify the salience of class background,

due to a "very strong discrepancy between high academic consecration and low social origin, in other worlds a *cleft habitus*, inhabited by tensions and contradictions."

In this section, I examine class differences in academic and social activities during the college years, and consider how campus experiences influence overall satisfaction with college life. In general, students at selective colleges and universities report high levels of satisfaction, relative to a representative cross-section of postsecondary students (Espenshade and Radford 2009: 323-325). Most students at selective colleges and universities report very high levels of satisfaction with college academic and social experiences (Bowen and Bok 1998: 194-205; Espenshade and Radford 2009: 317, 320). Students who report high levels of college satisfaction have higher graduation rates and are more generous with financial and other support to their alma mater (Bowen and Bok 1998; Brown 2000; Donohue and Wong 1997).

Existing studies that use student survey data to predict college satisfaction find positive effects of perceptions of learning (Pike 1993), frequent interactions with faculty (Fischer 2007: 145-146; Umbach and Porter 2002), and high levels of involvement in campus life, including academic and recreational activities (Astin 1993; Pascarella and Smart 1991). I add to this literature by considering a broader range of college activities and by giving greater attention to how the effects of campus involvement differ by class background. I provide a detailed portrait of how students at elite universities approach postsecondary education and spend their time across the college years. To what extent do subordinate class students feel lost – like Charlotte Simmons at the fictional DuPont

University – in an environment where academics can appear secondary to maintaining an active social life, characterized by material and physical indulgence?[17]

Class background is associated with different plans and expectations for the college years. Items from the CLL Pre-College Survey ask students to rank the importance of different college expectations (Table 5.4). Relative to professional and executive class students at Duke, subordinate class students consider expectations for meaningful social relationships, dating relationships, or an active social life to be less important. For example, about 76 percent of executive class students rank expectations for meaningful social relationships as very or extremely important, compared to 58 percent of subordinate class students. Subordinate class students assign the greatest importance to career preparation.[18] Middle and subordinate class students consider college goals for personal growth and awareness, establishing an identity, and developing a sense of life direction or purpose to be more important than dominant class students do. In comparisons not shown, there are no significant differences by social class for

[17] In Tom Wolfe's novel *I Am Charlotte Simmons,* DuPont University serves as an amalgamation of several elite, private universities – including obvious similarities with Duke, where his daughter graduated in 2002. Although set in rural Pennsylvania, DuPont boasts a strong academic reputation and a nationally prominent men's basketball team, with "roseate Gothic spires and manicured lawns suffused with tradition." The title protagonist, a female scholarship student from rural North Carolina, enters college naïve and unaccustomed to upper-class lifestyles or wealthy excess. A major theme in *Charlotte Simmons*, as well as in media exposés of contemporary student life (e.g., Reitman 2006), is a student "hook up" culture characterized by frequent, casual sexual encounters (Wolfe 2000) often fueled by rampant alcohol use. Data availability prevents an in-depth examination of this feature of campus life, and discussion is limited to conventional aspects of the college experience (e.g., Bogle 2008; England, Shafer and Fogarty 2007; Hamilton and Armstrong 2009; Morgan, Brynildsen and Shanahan 2010).

[18] Additionally, subordinate class students consider expectations related to cultural and racial ethnic diversity to be more important than other students do. About 31 percent of subordinate class students consider expectations for meeting people of different cultural backgrounds to be very important, compared to about 25 percent of other students. Subordinate class students rank expectations for learning to interact with the majority culture, learning about one's cultural heritage, and establishing racial ethnic identity to be more important, relative to middle and dominant class students. Stearns, Buchmann and Bonneau (2009), in an analysis of the CLL data, find no significant effect of socioeconomic status on interracial friendships during the first college year.

Table 5.4: Importance of expectations for the college years, by social class

	Professional	Executive	Middle classes	Subordinate classes
"Students have different expectations about what they would like to gain during their college years. Please think about what you want to gain from your experiences at Duke. For the following statements, please indicate the extent to which each of these expectations is important (not at all important, somewhat important, important, very important, extremely important):"				
Personal growth and awareness				
Mean *	4.54	4.54	4.68	4.70
% very important *	64.3	66.2	72.5	75.4
Career preparation				
Mean *	4.52	4.60	4.55	4.74
% very important *	62.1	64.8	67.1	78.3
Meaningful social relationships				
Mean *	4.63	4.73	4.58	4.43
% very important *	68.3	76.1	67.3	58.0
Developing a sense of life direction and purpose				
Mean *	4.20	4.27	4.34	4.53
% very important *	52.0	55.2	57.5	65.8
Establishing an identity				
Mean †	4.10	4.01	4.19	4.30
% very important *	46.9	41.0	48.5	57.9
Meeting people from different cultures and backgrounds				
Mean *	3.66	3.50	3.75	3.91
% very important †	24.9	19.6	28.7	31.1
Having a very active social life				
Mean *	3.83	3.86	3.65	3.52
% very important	29.8	34.0	27.3	24.9
Social and community responsibility				
Mean †	3.59	3.46	3.64	3.76
% very important *	26.2	13.9	22.0	26.2
Dating relationships				
Mean *	3.58	3.60	3.37	3.25
% very important	23.0	20.0	19.1	19.3

Source: Campus Life and Learning (n = 1181)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests)

academic skill or achievement expectations. About 70 percent of students rank expectations for academic and intellectual skills as very important and 41 percent

consider expectations for developing leadership skills to be very important. In short, students from all class backgrounds have strong expectations for academic achievement and skill development. However, subordinate and middle class students place more emphasis on intrapersonal growth, while professional and executive class students assign greater importance to social life and interpersonal relationships.

The CIRP Freshman Year Survey asks students to describe the likelihood of certain events or college activities (Table 5.5). At the start of the first year, about 70 percent of subordinate class students report that there is a very good chance they will be satisfied with their college education, compared to 78 percent of professional class students. To pay for a private university education, subordinate class students are less reliant on parents and other family members for financial assistance (Tables 3.8 and 3.12). Nearly half of subordinate class students plan to get a job to help pay for college expenses, compared to less than one-quarter of professional class students and less than one-third of executive class students. As above, professional and executive class students first arrive on campus intending to have an active social life and to participate frequently in social organizations and activities. About 25 percent of dominant class students expect to join a fraternity or sorority, compared to about 20 percent of middle and 18 percent of subordinate class students.

With a few exceptions, available comparisons for academic expectations reveal no significant class differences. Keeping in mind the results for college achievement from the last section, subordinate class students arrive on campus with optimistic academic expectations. About 21 percent of subordinate class students report that there is

Table 5.5: Expected college activities and outcomes, by social class

	Professional	Executive	Precarious professional	Middle classes	Subordinate classes
"What is your best guess as to the chances (no chance, very little chance, some chance, or very good chance) that you will:"					
Be satisfied with your college?					
Mean	3.81	3.75	3.73	3.77	3.72
% very likely	78.4	73.1	74.1	74.2	70.3
Participate in volunteer work?					
Mean	3.41	3.40	3.54	3.40	3.31
% very likely	51.4	49.8	61.6	49.1	45.5
Get a job to pay for college expenses?					
Mean	2.69	2.85	3.36	3.08	3.31
% very likely	24.3	30.6	48.2	41.3	49.3
Change career choice?					
Mean	3.03	2.90	2.92	2.93	2.73
% very likely	26.4	21.3	25.0	23.7	17.5
Join a fraternity or sorority?					
Mean	2.69	2.65	2.63	2.56	2.41
% very likely	25.4	24.2	20.5	19.8	17.3
Change major field?					
Mean	2.97	2.83	2.79	2.86	2.70
% very likely	23.4	18.3	19.6	20.4	15.2
Play varsity athletics?					
Mean	2.49	2.31	2.14	2.36	2.26
% very likely	23.7	17.8	17.9	19.8	16.0
Be elected to an academic honors society?					
Mean	2.87	2.82	2.88	2.94	2.95
% very likely	13.6	11.9	18.7	16.3	20.6

Source: Cooperative Institutional Research Program (n = 3286), Freshman Year Survey
Notes: all reported interclass differences are significant ($p < .05$).

a very good chance they will be inducted into an academic honors society, compared to 14 percent of professional and 12 percent of executive class students.[19] As will be

[19] Few students expect low levels of achievement across the college years. More than one-quarter of students – across all class backgrounds – report that there is a very good chance they will graduate with honors, about two thirds strongly expect to maintain at least a "B" average, and 85 percent strongly expect to complete a bachelor's degree. Only two percent of students think there is a very good chance that they will need extra time to compete their degree, and less than one percent expect to fail a college course, dropout (temporarily or permanently), or transfer to another school.

discussed in the next section, more than half of students at elite universities eventually change major fields during the early college years. Yet, only 15 percent of subordinate class students expect to change majors at the start of college, compared to 23 percent of professional, 18 percent of executive and 20 percent of middle class students. Similarly, subordinate class students are less likely to expect to change career plans during the college years. Compared to dominant class students, subordinate class students begin college with firmer plans for their major field of study and eventual career.

To what extent do students' experiences and activities during the college years reflect these expectations? Tables 5.6 and 5.7 describe time spent in academic, social and other activities across the college years for the Duke and national samples, respectively. Academic time use for postsecondary students has declined steadily over the past half century, and today's students spend more time in social and recreational activities than did prior generations (Bok 2006). Babcock and Marks (2009), examining six waves of data from four national surveys, find that the average time spent in class or studying by college and university students in the United States has declined from about 40 hours per week in the early 1960s to about 26 hours per week in 2004. In the first year, Duke students spend about 26 hours per week in academic activities – including time spent attending classes or labs, studying or doing homework, and meeting with faculty or teaching assistants – and this figure declines to about 22 hours per week by the fourth year. Students at other elite universities report spending about 25 hours per week studying, doing homework, or attending classes or labs during the fourth college year.[20]

[20] Charles and colleagues (2009: 82-90) report considerably higher estimates of time use for students at national selective colleges and universities participating in the National Longitudinal Study of Freshmen

Over the past half century, academic time use has declined from basically the equivalent of a full-time to a part-time job. During a typical week, the average elite university student spends as much time in academic activities as he or she spends socializing with friends, partying, and exercising or playing sports combined.[21]

Consistent with pre-college expectations, subordinate class students spend less time each week in social activities (Table 5.6). During the first year, subordinate class students at Duke spend about five hours less each week socializing with friends or partying in comparison to executive class students, and about three hours less than professional class students. Additionally, subordinate class students spend about an hour less each week in clubs and activities than other students do.[22] Across the college years, middle and subordinate class students spend two to three hours more each week working than professional or executive class students do.

(NLSF). The NLSF College Wave questionnaires ask students to estimate the total number of hours spent in the past week (from Monday to Friday) and weekend in various activities. In general, students in the NLSF report spending more time in both social and academic activities than do students in the CLL or CIRP surveys (who selected from six or nine discrete time-use categories). Across all racial ethnic backgrounds, students in the NLSF report spending about 27 hours each week (19 during weekdays, 8 during the weekend) studying or doing homework, and about 18 hours each week attending classes or labs (45 hours each week in all academic activities, combined). Additionally, NLSF students report spending about 21 hours each week attending parties or socializing with friends.

[21] In results not shown, executive class students watch about 5 hours of television each week, compared to about 4 hours for subordinate and professional class students, and about 3 hours for precarious professional students. There are no significant interclass differences in time spent using a computer (about 10 hours per week on average), volunteering (1.5 hours), reading for pleasure (1.3 hours), or housework/childcare, community, playing video games, or prayer meditation (each 1 hour or less).

[22] In the fourth year, there no significant difference for time spent on post-graduation career preparation (about 3.5 hours per week), but subordinate and professional spent about an hour more than executive students do on post-graduation academic preparation (e.g., applying for graduate or professional school). During the second year, middle class students spend about a half hour more each week meeting with faculty or TAs (outside of class or office hours), compared to less than one hour per week for other students. There are no significant class differences for meeting with faculty during the first or fourth years. In remaining items not shown, there are no significant differences across any college year for: meeting with faculty or TAs during office hours (about 1 hour per week), watching television (2 hours, first year; 4 hours, fourth year), reading for pleasure (1 hour), attending religious services (less than 1 hour), playing video games or using the internet (about 4.5 hours).

Table 5.6: Hours per typical week in selected activities during the college years (means), by social class

	Professional	Executive	Middle classes	Subordinate classes
"During the past semester, how much time have you spent during a typical week doing the following activities?"				
Attending classes and labs				
First year	13.50	13.21	13.84	13.20
Second year *	13.15	11.44	12.77	13.07
Fourth year	10.27	10.30	10.16	10.85
Socializing with friends				
First year *	11.90	12.47	11.27	10.21
Second year *	10.32	11.53	10.44	9.20
Fourth year	10.49	11.19	10.37	9.54
Studying and homework				
First year	11.11	10.60	10.66	10.93
Second year	11.01	10.05	10.62	10.88
Fourth year	9.74	10.15	9.56	9.43
Exercising or sports				
First year	5.32	6.02	5.46	5.27
Second year	4.96	5.46	5.31	5.28
Fourth year	4.84	5.57	4.22	4.36
Partying				
First year *	5.24	6.03	4.33	3.72
Second year *	5.05	5.85	4.36	3.66
Fourth year	5.13	5.33	4.77	4.13
Working (for pay)				
First year *	1.80	.94	3.12	4.29
Second year *	2.90	2.09	4.49	4.71
Fourth year *	3.90	4.30	6.35	6.80
Participating in student clubs and groups				
First year *	3.18	2.79	3.01	2.21
Second year	3.79	3.13	3.70	3.36
Fourth year †	4.62	3.85	4.49	3.61

Source: Campus Life and Learning (n = 793 to 910)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests); time-use variables are recoded from eight discrete categories to the midpoint of each category range (using linear interpolation for the top category, ("16 hours or more").

Patterns of time-use are largely consistent between Duke and other elite, private universities (Table 5.7). In the national sample, subordinate class students spend about

two hours more each week working at a job than dominant class students do.[23] In results not shown, subordinate class students are more likely to report that there were times during college when job commitments interfered with studying and coursework (35 percent of subordinate class students, compared to 25 percent of other students). Professional and executive class students spend about 21 hours in a typical week partying or socializing with friends, roughly two hours more than middle class and four hours more than subordinate class students do. Subordinate class students at national elite universities spend more than one hour less each week exercising or participating in sports than dominant class students do. Subordinate class students at Duke also spend less time exercising or playing sports, but the difference is not significant.

To pay for college expenses, subordinate class students are more likely to have a job and work more each week in comparison to dominant class students. This extra time at work is offset by less time socializing with friends, partying, and exercising. Stevens (2007: 95-139) notes the strong emphasis in elite education for physical fitness and attractiveness, especially among the upper and upper-middle classes.[24] Selective colleges and universities not only have relatively high rates of participation in varsity sports, but

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[23] Espenshade and Radford (2009: 274) note that during the early-1990s about 84 percent of lower and 77 percent of working class students at selective college and universities worked during the first college year, compared to 61 percent of middle, 35 percent of upper-middle, and 12 percent of upper class students.

[24] In his ethnography of the admissions office at a highly selective New England liberal arts college – coincidentally, the winner of the inaugural Pierre Bourdieu Award for best book in the sociology of education by the American Sociological Association – Stevens (2007: 137-138) describes the nearly uniform emphasis on physical attractiveness and fitness, creating a scene almost from a fashion catalogue: "… I can confirm that on warm spring days a stroll across campus offered the surreal impression of a world engineered by J. Crew, Banana Republic, and Abercrombie & Fitch. The look was athletically preppy and generally tidy, though a bit of just-out-of-bed rumple was *de rigueur* for the men … Skin was unblemished, teeth were braces-straight, bodies firm and trim … New students sometimes confessed to being impressed, and intimidated, by the good looks of the student body. 'A candy museum' is how one young faculty wryly described it. Look, please, but do not touch without expressed permission."

Table 5.7: Hours per typical week in selected activities during high school and college (means), by social class

	Professional	Executive	Precarious professional	Middle classes	Subordinate classes
"During the past year (during your last year in high school), how much time did you spend during a typical week doing the following activities?"					
Attending classes or labs					
College *	11.75	11.96	12.58	12.12	12.13
Socializing with friends					
High school *	12.75	12.57	11.56	11.29	11.44
College *	13.92	13.82	12.88	13.07	11.94
Studying or homework					
High school *	10.93	10.35	10.44	10.49	9.57
College *	13.01	12.55	14.45	12.87	12.43
Exercising or sports					
High school *	10.87	10.54	9.64	10.09	9.40
College *	6.90	6.64	5.76	6.10	5.54
Partying					
High school *	4.24	3.94	3.00	3.15	3.17
College *	6.92	7.05	5.23	6.14	5.39
Working (for pay)					
High school *	3.74	4.84	5.34	5.08	6.67
College *	4.64	5.15	6.77	6.07	7.38
Student clubs or groups					
High school	3.96	4.00	5.14	4.19	4.01
College	3.17	3.02	4.02	2.99	2.90

Source: Cooperative Institutional Research Program (n = 3286), College Senior Survey
Notes: * $p < .05$, (two-tailed tests); time-use variables are recoded from eight discrete categories to the midpoint of each category range (using linear interpolation for the top category, "over 20 hours/week").

also encourage students to exercise by requiring physical education, sponsoring numerous fitness clubs and activities, and providing state-of-the-art gyms and fitness centers (Bowen and Levin 2003; Shulman and Bowen 2001; Stevens 2007). While professional and executive class students devote at least as much time and energy to social activities as to coursework and studying, subordinate class students arrive on campus less concerned with campus social life. Due to a combination of financial

constraints and different goals for the college years, subordinate and middle class students spend less time participating in an important part of dominant class campus life.

Table 5.8 describes trends in extracurricular memberships across the college years, by social class. Students enter college with records of active extracurricular participation during the high school years. In the CLL Pre-College Survey, nearly all students report membership in at least one activity during high school, and three-quarters of students report at least one leadership position. Students continue this high level of participation into the college years, and about 95 percent of students report membership in at least one activity in the first and second years (Bryant, Spenner and Martin 2006: 98-105). Subordinate class students are least likely to participate in social fraternities or sororities and intramural sports teams, the two most popular activities for professional and executive class students across all survey waves. About 16 percent of subordinate class students report membership on a varsity sports team during the first year, compared to 14 percent of executive, 7 percent of professional and 8 percent of middle class students.[25] Consistent with pre-college expectations for meeting people of different cultures and backgrounds, subordinate class students are more likely to be a member of a cultural or ethnic club. There are no significant social class differences in participation in community service, student government, or campus publications.[26]

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[25] Institutional records provide information on scholarship athlete status during the first college year for students in the CLL. About 7 percent of subordinate class students received an athletic scholarship, compared to 4 percent of executive and middle class students and 2 percent of professional class students. These differences are not significant.

[26] Additionally, there are no significant class differences in membership in religious clubs or organizations. About one-quarter of Duke students report membership in religious clubs in the first year, declining to less than one-fifth of students by the fourth year.

Table 5.8: Membership in extracurricular activities (percents), by social class

	Professional	Executive	Middle classes	Subordinate classes
Fraternity or sorority				
First year *	45.4	38.3	32.3	22.2
Second year *	46.1	47.4	34.1	30.1
Fourth year *	42.3	45.4	34.2	28.9
Intramural sports team				
First year *	36.9	42.2	39.0	15.8
Second year †	34.4	24.5	30.5	22.1
Fourth year	31.9	27.8	27.6	23.4
Cultural or ethnic club				
First year *	12.7	7.5	18.6	34.4
Second year *	12.9	7.2	24.2	24.5
Fourth year *	13.3	6.3	17.9	26.6
Community service club				
First year	29.9	27.7	25.4	24.1
Second year	25.7	26.5	18.5	22.1
Fourth year	28.3	24.7	19.6	22.2
Intercollegiate sports team				
First year *	7.0	14.4	8.3	16.2
Second year *	5.6	11.7	9.7	15.6
Fourth year	5.2	9.0	4.6	7.8
Student government				
First year	7.7	3.4	9.4	5.6
Second year	6.5	8.0	7.7	4.7
Fourth year	8.0	9.7	6.7	7.0
Campus newspaper or magazine				
First year	5.8	4.8	5.5	6.9
Second year	6.7	8.6	7.5	4.2
Fourth year	9.2	4.2	8.6	6.2

Source: Campus Life and Learning (n = 910 to 792)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests)

Subordinate class students are less likely to participate in two other aspects of campus life very common to professional and executive class students: studying abroad and drinking alcohol (Table 5.9). More than half of professional class students spend at least part of the junior year studying abroad, compared to 45 percent of executive and middle class students, and less than one third of subordinate class students. As Stevens,

Armstrong and Arum (2007: 141) observe, the study abroad experience – which is growing in popularity in recent years, particularly at elite colleges and universities – is part of a century's old tradition among American elites of sending young people to Europe to acquire cultural sophistication.

Table 5.9: Romantic relationships and campus social life, by social class

	Professional	Executive	Middle classes	Subordinate classes
Romantic relationship (%)				
First year	39.9	43.1	36.4	31.7
Second year	30.3	37.3	36.3	37.3
Fourth year	53.1	59.5	48.9	46.6
Study abroad (%) *	53.4	44.8	45.2	31.3
"How important (not at all important, a little important, somewhat important, very important, extremely important) is alcohol to your enjoyment of campus life?"				
First year				
Mean *	2.51	2.57	2.15	1.91
% very important *	26.1	27.6	16.4	12.3
Second year				
Mean *	2.51	2.67	2.46	2.19
% very important	25.3	26.3	23.3	21.0
Fourth year				
Mean †	2.62	2.55	2.68	2.34
% very important	27.4	20.1	28.1	20.4
"How often (never, rarely, sometimes, often, always) is alcohol present at social events you attend?"				
First year				
Mean *	3.92	4.00	3.62	3.46
% often or always *	77.3	81.4	65.8	61.0
Second year				
Mean *	3.85	4.08	3.64	3.49
% often or always *	73.5	87.1	62.6	58.2
Fourth year				
Mean †	3.89	4.02	3.80	3.68
% often or always *	74.1	81.8	67.5	66.3

Source: Campus Life and Learning (n = 910 to 792)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests)

Additionally, alcohol plays a bigger role to dominant class students' social lives on campus. Professional and executive class students report that alcohol is more important to their enjoyment of campus life and is present more often at the social events they attend. In the first year, one-quarter of professional and executive class students report that alcohol is very or extremely important to the enjoyment of campus life, compared to one-eighth of subordinate class students.[27] Across all college years and for all class backgrounds, students who report that alcohol is very or extremely important to the enjoyment of campus life spend about two hours less each week studying or doing homework, and about three hours more each week socializing with friends.[28]

In comparison to campus social life, there are few significant or consistent differences by social class for measures of human capital (Table 5.10), including self-esteem and feelings of personal control (Table 5.11). Social class differences along these dimensions are largest early in the college years, and most comparisons decline to insignificance by the fourth year. During the first year, subordinate class students report lower levels of academic skills and success from hard work than other students do, as well as lower levels of academic abilities and self-confidence in comparison to professional and middle class students. However, subordinate class students consider being a good student to be more important to their overall identity, relative to executive class students. During the first and fourth years, executive class students report higher

[27] There are no significant interclass differences in drug use or presence (including marijuana). In general, drugs are not very important to campus social life. Two percent of students rank drugs as very or extremely important to their enjoyment of campus life, and about 12 percent report that drugs are often or always present at social events.

[28] As Oscar Wilde famously quipped, "Work is the curse of the drinking classes."

Table 5.10: Dimensions of human capital from high school to the fourth college year (means), by social class

	Professional	Executive	Middle classes	Subordinate classes
Academic skills				
High school †	32.38	32.28	32.05	31.46
First year *	29.29	30.13	28.91	28.10
Second year	29.45	29.50	29.28	28.38
Fourth year	31.91	32.56	31.84	31.45
Good student identity				
High school	4.35	4.26	4.34	4.45
First year *	4.16	3.86	4.11	4.22
Second year *	3.99	3.74	4.08	3.85
Fourth year †	4.11	3.84	3.93	3.87
Ability comparisons				
High school (math) *	4.25	4.07	4.08	4.18
High school (English)	4.07	4.03	4.07	4.15
First year *	3.36	3.21	3.22	3.06
Second year †	3.37	3.13	3.23	3.15
Fourth year	3.44	3.43	3.37	3.26
Academic confidence				
High school (math) †	3.76	3.60	3.55	3.70
High school (English)	3.68	3.63	3.69	3.85
First year *	2.71	2.37	2.50	2.32
Second year	2.61	2.43	2.56	2.40
Fourth year	2.78	2.86	2.78	2.62
Success from hard work				
High school (math)	.70	.72	.73	.71
High school (English) †	.67	.70	.60	.61
First year *	.83	.78	.81	.70
Second year	.83	.73	.80	.79
Fourth year	.79	.89	.83	.84

Source: Campus Life and Learning (n = 910 to 792)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests)

levels of self-respect and personal satisfaction than subordinate class students do.[29]

Executive class students report stronger internal locus of control in the fourth year,

[29] There are no significant interclass differences in the second college year for all items included in Table 5.10. An additional item, included in the second and fourth year surveys only, asks students to indicate the extent to which they feel well liked by their peers. Nearly all students, across all class backgrounds, agree or strongly agree with this statement.

relative to subordinate and middle class students. In sum, there are relatively few significant or enduring differences for academic time-use or individual self-esteem, and most gaps in within-college human capital decline to insignificance after the early college years. There are stronger and enduring class differences in patterns of campus social life, participation in recreational and extracurricular activities, study abroad and alcohol use. [30]

Available comparisons with the national data show similar patterns of results across social classes, reinforcing initial conclusions from the Duke sample (Tables 5.12 and 5.13). Subordinate class students are more likely to report having a job and joining a racial ethnic student organization during the college years, while dominant class students are more likely to join a fraternity or sorority, study abroad, and be a member of an intercollegiate sports team. During the fourth year, subordinate class students more frequently feel depressed or homesick, and professional and executive class students more frequently drink alcohol, discuss politics, or visit art galleries or museums. Few students report severe academic underperformance during the college years, although subordinate class students are most likely to take a remedial course or fail one or more classes.[31] Additionally, about one-third of professional class students enroll in an honors

[30] Other items ask students to rank the importance of various sub-identities to their overall identity. In comparison to dominant class students, subordinate class students consider being someone who socializes well to be less important across all college years. In the first year, about 23 percent of subordinate class students report that being a social person is very important, compared to 43 percent of executive and 36 percent of professional class students. In the fourth year, subordinate class students consider being a volunteer or politically active to be more important than executive class students. Across all college years, there are no significant differences by social class for the importance of being a good athlete, religious affiliation, gender, age, sexual orientation, nationality, physical appearance, or being a "Blue Devil."

[31] In other comparisons not shown, there are no significant difference in the likelihood of taking a women's studies course, taking a leave of absence during the college years, attending religious services, reading newspaper editorials, feeling overwhelmed, missing a class or appointment because of oversleeping, smoking cigarettes, seeking personal counseling, or participating in a demonstration.

or advanced course during the college years, compared to one-quarter of executive and more than one-fifth of subordinate class students.

Table 5.11: Self-esteem and locus of control (means), by social class

	Professional	Executive	Middle classes	Subordinate classes
"For the following statements, please indicate the extent to which you agree or disagree (1 = strongly disagree, 5 = strongly agree):"				
On the whole, I am satisfied with myself				
First year †	3.92	4.05	3.76	3.77
Fourth year	4.22	4.33	4.11	4.12
I certainly feel useless at times				
First year	2.92	2.76	3.06	2.93
Fourth year	2.65	2.47	2.93	2.89
I wish I could have more respect for myself				
First year *	2.56	2.39	2.74	2.79
Fourth year *	2.38	2.36	2.69	2.73
I don't have control over the direction my life is taking				
First year	1.92	1.82	1.96	1.95
Fourth year *	1.92	1.85	2.15	2.17
Most of my problems are due to bad breaks				
First year	2.40	2.35	2.38	2.36
Fourth year *	2.02	1.74	2.05	2.07
The really good things that happen to me are mostly due to luck				
First year	2.05	2.05	2.10	1.97
Fourth year	1.96	1.82	2.03	2.07

Source: Campus Life and Learning (n = 910 or 792)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests)

How do these college activities and experiences affect overall satisfaction with college life and the undergraduate experience? Table 5.14 presents nested OLS regression models predicting overall satisfaction with college life for students in the national sample. The outcome variable in this analysis is a scale combining responses for

Table 5.12: Participation in selected college activities (percents), by social class

	Professional	Executive	Precarious professional	Middle classes	Subordinate classes
"Since entering college have you: (check all that apply)"					
Had a part-time job *	71.9	70.2	85.7	79.1	86.1
Participated in study abroad program *	53.0	46.2	42.0	45.0	37.0
Participated in an internship program	47.2	48.1	45.5	46.0	47.4
Member of intercollegiate team *	33.0	28.5	25.9	27.9	23.3
Enrolled in honors or advanced courses *	33.1	25.0	35.7	27.2	21.8
Joined a fraternity or sorority *	32.4	29.8	23.2	23.3	19.5
Student government	14.6	14.3	14.3	16.2	16.4
Joined racial/ethnic student organization *	14.5	12.4	28.6	14.3	26.8
Failed one or more course *	4.6	6.5	12.5	7.7	11.6
Taken a remedial course *	1.9	1.8	4.5	1.8	3.7
Had a full-time job †	1.9	1.4	1.8	1.0	2.7

Source: Cooperative Institutional Research Program (n = 3286), College Senior Survey
Notes: * $p < .05$, † $p < .10$ (two-tailed tests); percent of students who report participation in selected activities during the college years.

student satisfaction across eleven areas of undergraduate education.[32] In line with expectations at the start of college, subordinate class students report slightly lower levels

[32] The college satisfaction scale (alpha = .82) is from principal factor analysis conducted on 28 different items related to satisfaction in different areas of campus life and undergraduate education. Two factors emerge with an eigenvalue greater than one and, after varimax rotation, items with factor loadings greater than .40 are combined into scales. The first scale, overall satisfaction with undergraduate education and campus life, combines responses for 11 categories: general education courses, major field courses, relevance of coursework to everyday life, overall quality of instruction, sense of community on campus, academic advising, amount of contact with faculty, class size, interaction with other students, ability to find a faculty/staff mentor, and overall college experience. A different pattern of results emerges from models predicting the second scale, satisfaction with campus services (alpha = 70). For example, using the same variables as Model 2 in Table 5.13, subordinate and middle class students (betas = .10 and .05, respectively) report higher levels of satisfaction with campus services, such as library and computer facilities and career placement services, relative to professional class students. Business majors (beta = .09) report greater satisfaction with campus services, relative to engineering majors, and black and Asian students (betas = .06 and .05) report greater satisfaction than white students do.

Table 5.13: Frequency of participation in selected activities, by social class

	Professional	Executive	Precarious professional	Middle classes	Subordinate classes
"For each of the activities listed below, please indicate how often (frequently, occasionally, or not at all) you engaged in each during the past year."					
Socialized with someone of another racial/ethnic group					
Mean †	2.50	2.47	2.57	2.47	2.54
% frequently †	50.1	49.8	58.0	49.3	56.1
Drank beer					
Mean *	2.46	2.49	2.29	2.37	2.23
% frequently *	55.0	58.3	42.9	49.7	41.6
Drank wine or liquor					
Mean *	2.38	2.46	2.35	2.36	2.26
% frequently *	43.9	49.8	40.2	44.0	37.0
Discussed politics					
Mean *	2.26	2.23	2.25	2.20	2.14
% frequently	33.4	31.7	35.7	32.0	29.3
Performed volunteer work					
Mean	1.99	2.01	2.05	1.94	1.97
% frequently	18.2	20.4	21.4	17.1	19.1
Felt depressed					
Mean †	1.66	1.67	1.78	1.69	1.74
% frequently *	6.4	6.4	10.7	7.1	11.4
Visited an art gallery or museum					
Mean *	1.84	1.77	1.81	1.80	1.76
% frequently	9.0	5.9	5.4	7.4	7.0
Felt lonely or homesick					
Mean *	1.62	1.62	1.74	1.64	1.73
% frequently	5.0	5.3	3.6	5.1	7.9

Source: Cooperative Institutional Research Program (n = 3286), College Senior Survey
Notes: * $p < .05$, † $p < .10$ (two-tailed tests)

of satisfaction than dominant class students do. For example, 42 percent of subordinate class students report that they are very satisfied with their overall college experience, in comparison to 53 percent of professional and 46 percent of executive class students.[33]

[33] The CLL Senior Year Survey asks students if they would repeat the decision to Duke, if they were able to do it all over again. About 73 percent of executive and 68 percent of professional class students would repeat their decision to come to Duke, while about 6 percent would choose another postsecondary plan. In comparison, about 66 percent of subordinate class students would still come to Duke in this hypothetical

A baseline model includes only dummy variables for class background (Model 1). Relative to professional class students, other students report significantly lower levels of satisfaction at the end of the college years. Model 2 adds variables for major area, sex, final college grades, student expectations for being satisfied with college (from the Freshmen Survey), and racial ethnic group (not shown).[34] Engineering majors are considerably less satisfied with college life in comparison to students in other fields; female students report higher levels of satisfaction than male students do; and college grades and expected satisfaction are strongly associated with overall college satisfaction. By adding these controls, the coefficient for executive class background reduces in size by 38 percent and the effects of middle and subordinate class background decrease by 31 percent and 50 percent, respectively.

The next three models add variables for time-use, extracurricular memberships, and other college activities to this baseline model. In general, students who are more active in campus social life report higher levels of college satisfaction. Net of major field and controls for socioeconomic background, weekly time spent socializing with friends, studying or doing homework, exercising or playing sports, and participating in extracurricular activities all have significant, positive effects on satisfaction (Model 3). Hours spent during a typical week working for pay has a significant, negative effect.

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scenario, 12 percent would not, and the remaining 22 percent are not sure. However, across a range of measures for satisfaction in different aspects of the college career, there are no significant differences by class background. Subordinate class students consistently report slightly lower levels of satisfaction than professional or executive class students do, but these differences are not significant.

[34] To be consistent with other analyses in this chapter, the relatively small group of precarious professional class students are excluded from final models. Under alternative specifications, the effect of precarious professional background is significant, negative, and of a smaller magnitude that are the effects for subordinate and middle class students. There are no significant coefficients for racial ethnic background, and these results are excluded from Table 5.13 because of space limitations.

Table 5.14: OLS regression of overall satisfaction with college life on social class and campus activities

	Model 1		Model 2		Model 3	
	Coef. (s.e.)	*beta*	Coef. (s.e.)	*beta*	Coef. (s.e.)	*beta*
Social class (ref. professional)						
Executive	-1.04 (.31) *	*-.07*	-.66 (.30) *	*-.05*	-.59 (.29) *	*-.04*
Middle	-1.14 (.26) *	*-.10*	-.78 (.25) *	*-.07*	-.60 (.25) *	*-.05*
Subordinate	-1.42 (.33) *	*-.09*	-.71 (.32) *	*-.05*	-.36 (.32)	*-.02*
Major area (ref. engineering)						
Natural sciences			2.84 (.38) *	*.18*	2.93 (.38) *	*.19*
Business			2.44 (.37) *	*.16*	2.82 (.37) *	*.19*
Social sciences			2.92 (.36) *	*.22*	3.15 (.36) *	*.24*
Arts and humanities			3.12 (.36) *	*.23*	3.24 (.36) *	*.24*
Other			2.97 (.43) *	*.15*	3.17 (.43) *	*.17*
Female			1.02 (.20) *	*.09*	.88 (.20) *	*.08*
Final college grades			1.11 (.11) *	*.15*	1.02 (.12) *	*.14*
Pre-college satisfaction			2.01 (.22) *	*.16*	1.92 (.22) *	*.15*
Time allocation						
Socialize with friends					.07 (.02) *	*.08*
Studying or homework					.11 (.01) *	*.13*
Exercise or sports					.07 (.02) *	*.07*
Working (for pay)					-.04 (.02) *	*-.04*
Extracurricular clubs					.06 (.02) *	*.05*
Memberships and activities						
Fraternity or sorority						
Part-time job						
Student government						
Varsity sports team						
Honors course						
Internship						
Study abroad						
Activities in the past year						
Felt lonely or homesick						
Felt depressed						
Volunteered						
Visited art museum						
Constant	45.24 (.21) *		35.07 (.71) *		32.57 (.75) *	
R^2	.01		.11		.14	

Source: Cooperative Institutional Research Program (n = 3174)
Notes: * $p < .05$, † $p < .10$ (two-tailed tests)

Table 5.14 *continued*

	Model 4		Model 5		Model 6	
	Coef. (s.e.)	*beta*	Coef. (s.e.)	*beta*	Coef. (s.e.)	*beta*
Social class (ref. professional)						
Executive	-.56 (.29) *	*-.04*	-.63 (.29) *	*-.04*	-.53 (.29) †	*-.04*
Middle	-.66 (.25) *	*-.06*	-.75 (.25) *	*-.07*	-.55 (.24) *	*-.05*
Subordinate	-.51 (.38)	*-.03*	-.54 (.32)	*-.03*	-.18 (.32)	*-.01*
Major area (ref. engineering)						
Natural sciences	2.83 (.38) *	*.18*	2.64 (.38) *	*.17*	2.79 (.37) *	*.18*
Business	2.52 (.37) *	*.17*	2.26 (.37) *	*.15*	2.70 (.37) *	*.18*
Social sciences	2.78 (.36) *	*.21*	2.77 (.35) *	*.21*	2.94 (.36) *	*.22*
Arts and humanities	3.09 (.37) *	*.23*	2.96 (.36) *	*.22*	3.16 (.36) *	*.23*
Other	2.86 (.43) *	*.15*	2.79 (.42) *	*.15*	3.01 (.42) *	*.16*
Female	.95 (.20) *	*.08*	.98 (.20) *	*.09*	.81 (.20) *	*.07*
Final college grades	.88 (.13) *	*.12*	1.05 (.12) *	*.15*	.77 (.13) *	*.11*
Pre-college satisfaction	1.94 (.22) *	*.15*	1.79 (.22) *	*.14*	1.71 (.21) *	*.13*
Time allocation						
Socialize with friends					.06 (.01) *	*.06*
Studying or homework					.10 (.01) *	*.12*
Exercise or sports					.05 (.02) *	*.05*
Working (for pay)					-.03 (.02) *	*-.04*
Extracurricular clubs					.05 (.02) *	*.04*
Memberships and activities						
Fraternity or sorority	-.06 (.22)	*-.00*			-.23 (.22)	*-.02*
Part-time job	-.39 (.21) †	*-.03*			-.26 (.21)	*-.02*
Student government	.69 (.26) *	*.04*			.56 (.26) *	*.04*
Varsity sports team	.91 (.22) *	*.07*			.43 (.23) †	*.03*
Honors course	.70 (.22) *	*.06*			.51 (.22) *	*.04*
Internship	.89 (.19) *	*.08*			.78 (.19) *	*.07*
Study abroad	.45 (.20) *	*.04*			.27 (.20)	*.02*
Activities in the past year						
Felt lonely or homesick			-2.02 (.45) *	*-.08*	-1.78 (.44) *	*-.07*
Felt depressed			-2.69 (.39) *	*-.12*	-2.49 (.38) *	*-.12*
Volunteered			.67 (.24) *	*.05*	.55 (.24) *	*.04*
Visited art museum			1.66 (.36) *	*.08*	1.32 (.36) *	*.06*
Constant	32.00 (.94) *		35.69 (.70) *		31.82 (.95) *	
R^2	.13		.14		.18	

Adding these variables reduces the effect of subordinate class background by a further 49 percent and to insignificance. The coefficients for executive and middle class backgrounds decline slightly relative to Model 2 (by 11 and 23 percent, respectively), and the effects remain significant. In sum, subordinate class students' lower levels of satisfaction with college life and instruction can be explained by class differences in time allocation during the college years.

Similarly, the effect of subordinate class background declines to insignificance when variables for extracurricular memberships and other college activities are added to the model. Participation in student government, intercollegiate sports and internships, enrollment in honors courses, and study abroad all have significant, positive effects on college satisfaction, but having a part-time job has a marginally significant, negative effect (Model 4). Feelings of depression and loneliness are negatively associated with overall satisfaction, while volunteering and visiting an art museum are positively associated (Model 5). The effects of all time allocation and most college activities are robust in a final model, which includes all sixteen explanatory variables, although the effects of part-time employment and study abroad become insignificant (Model 6). This final model explains 18 percent of the variation in overall college achievement, an improvement of nearly 64 percent in comparison to Model 2. Further, the effect of subordinate class background is reduced by 75 percent, relative to the baseline model, while other class effects remain significant. In the final model, the effect of being from a professional (versus middle or executive) class household is equivalent to the effect of

participating in student government or spending an additional 45 minutes each week socializing with friends.

To explore potential interactions between social class and college activities, I conduct separate models by social class. Some college activities have significant effects for all students, such as hours spent studying or doing homework and feelings of loneliness or depression. Other variables reveal different patterns across class backgrounds. For middle, executive and professional class students, there is a significant, positive effect of participation in extracurricular activities on overall satisfaction. For subordinate class students only, there is a significant, negative interaction with hours spent working (beta = -.10) and having a part-time job (t = -1.89; beta = -.08).[35] Subordinate class students at elite universities report lower levels of satisfaction at the end of the college years, relative to professional class students, and this is explainable by differences in campus involvement. In particular, subordinate class students spend more time working for pay and less time socializing with friends, exercising or playing sports, or participating in extracurricular activities.[36]

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[35] In addition to the significant effects described above, for subordinate class students (n = 481) participating in an internship program and visiting an art museum each have a positive effect on overall satisfaction. For middle class students (n = 1361), time spent socializing with friends, exercising, volunteering, and visiting an art museum have positive effects. Participation in internship and study abroad programs predicts satisfaction for executive class students (n = 628), and taking an honors course has a positive effect for professional class students (n = 704).

[36] Similar results are found with the CLL sample, using all available variables included in Table 5.14. In OLS models predicting overall satisfaction in the college experience – a scale (alpha = .79) combining responses to student satisfaction in thirteen areas – final college grades has a positive effect on satisfaction (beta = .17, $p < .001$), hours spent in a typical week studying and socializing with friends both have large, positive effect on satisfaction (beta = .09, $p < .05$ and beta = .08, $p < .05$), and feeling satisfied with self has a large, positive effect (beta = .31, $p < .001$). In contrast to results above, study abroad is negatively associated with final college satisfaction (beta = .13, $p < .001$).

Astin (1993), in an analysis of CIRP data for the entering class of 1985 at national postsecondary institutions (including less selective four-year colleges and universities, and two-year institutions), finds negative effects of majoring in engineering and feeling depressed on student satisfaction at the end of college. Additionally, female students report higher levels of satisfaction than male students do, and socioeconomic status is positively associated with satisfaction. Astin (1993: 302-310) concludes, however, that student satisfaction depends more on institutional characteristics and campus activities than on student characteristics and socioeconomic background. Instead, college satisfaction is enhanced by active participation in campus life, frequent interactions with faculty and fellow students, and living in campus residence halls.

Espenshade and Radford (2009: 325), in an analysis of student satisfaction at selective colleges and universities, find that working and lower class students report lower levels of satisfaction in comparison to upper and upper-middle class students. Additionally, students with a job during the first college year report less satisfaction than other students do. Espenshade and Radford (2009: 322) suggest that a combination of financial constraints and general discomfort with elite surroundings and unavoidable signs of affluence are responsible for lower levels of satisfaction for students from less privileged backgrounds. In addition to tuition and living expenses, students at elite colleges and universities such as Duke spend about $825 each month on clothes, dining, entertainment and other nonacademic discretionary items – about $225 more each month than the national average for postsecondary students (Kaufman 2001). Even with a part-time job and other financial assistance, a dominant class lifestyle is out of reach for

subordinate class students during the college years. Employment leaves less time for socializing and participating in extracurricular clubs and activities, and cannot keep up with unlimited access to a parent's credit card or a monthly allowance.

To summarize this section, subordinate and dominant class students arrive on campus with different goals for the college years. Consistent with these expectations, professional and executive class students spend more time socializing with friends, partying, and exercising or playing sports. Subordinate class students are more likely to have a part-time job and substitute time in recreational activities with more hours at a work. Although durable achievement gaps underscore the college years, there are few significant class differences in academic expectations or the amount of time spent attending classes and labs or completing homework and studying. After the second year, there are no significant differences by class background across several dimensions of human capital. Across the college years, dominant class students are more likely to be a member of a fraternity or sorority, and subordinate class students are more likely to participate in cultural or ethnic clubs and organizations. More than half of professional class students spend time studying abroad during the junior year, compared to roughly one-third of subordinate class students. In line with popular stereotypes and media portrayals, alcohol plays an important role to dominant class students' enjoyment of campus life. This pattern of campus involvement explains subordinate class students' lower levels of overall satisfaction at the end of the college.

5.5 "Collegiate" Capital and Navigating Campus Life

An involvement perspective views participation in campus activities as a type of human capital, and predicts positive effects on achievement for all students, irrespective of class or socioeconomic background. Students who spend more time in campus academic and extracurricular activities should receive higher grades, net of other factors. In contrast, cultural mobility and cultural reproduction perspectives draw on Bourdieu's theory and concepts, and argue that aspects of dominant class habitus (i.e., cultural capital) lead to rewards within the educational system. Dominant class students feel more comfortable navigating campus social and academic terrain, and can convert an ease and familiarity with elite institutional settings to success in the classroom. However, these perspectives make different claims in regards to the role of class background. A cultural mobility perspective stresses that even if subordinate class students are less likely to have cultural capital, they should benefit from the cultural capital they do possess at least as much as middle and dominant class students do. A cultural reproduction perspective, on the other hand, predicts significant interactions between class background and cultural capital. Dominant class students are rewarded with higher grades for participating in elite status activities, but subordinate class students do not share these advantages and may even receive a grade penalty for failing to adhere to implicit expectations for college success.

The next two sections of empirical results consider the role of a broad range of college activities on achievement at elite, private universities. By considering how social class shapes a variety of campus experiences, I move beyond a narrow definition of

cultural capital as "highbrow" competencies. Instead, "collegiate" cultural capital is a resource that enables dominant class students to have a satisfying and successful college experience, while subordinate class students are seemingly punished for the same types of campus involvement across the college years. Subordinate class students receive lower grades due to a combination of financial constraints and a failure or inability to acknowledge the rules that govern the field of elite university education. In the analyses to follow, I find that participating in social and recreational activities and selecting a major field of study are uniquely troublesome to subordinate class students.

The *Campus Life & Learning* project follows two recent cohorts of elite university students with three in-college survey waves. Panel study designs provide both methodological challenges and advantages for making causal inferences about student achievement (Allison 1994). For example, pooling observations for all respondents and using OLS regression to predict semester college grades would lead to biased estimates and incorrect standard errors (Hsiao 2003; Wooldridge 2002). Consider the standard linear regression model in the form

$$y_{it} = \alpha + x'_{it}\beta + \varepsilon_{it}$$

where y_{it} is the semester grade point average for student *i* during survey wave *t;* α is a constant or general intercept term; x'_{it} and β represent the K regressors and regression coefficients, respectively; and ε_{it} is an error term, which includes all unmeasured characteristics that influence y_{it} other than the specified explanatory and control variables. In standard linear regression, key assumptions are that observations are independent and error terms are uncorrelated, and that disturbances have an expected value of zero.

However, in a panel design it is expected that errors for the same individual will be correlated across time. A student with higher than expected first semester grades, due to some unobserved traits and characteristics, is likely to achieve higher grades across subsequent semesters. To address this challenge, and to take advantage of panel data to account for omitted or unobservable variables, researchers make use of fixed effects (FE) and random effects (RE) regression (Hsiao 2003; Rabe-Hesketh and Skrondal 2005).

Fixed effects regression exploits within-unit variation to estimate coefficients, and has the advantage of being able to control for the stable, unmeasured characteristics of individuals (Halaby 2004). In a sense, FE models consider each individual as his or her own control, as if a dummy variable were included for each respondent (Allison 2005). As a slight modification to the standard regression model, a constant term representing all time-invariant characteristics for individual *i* replaces a general intercept term:

$$y_{it} = \alpha_i + x'_{it}\beta + \varepsilon_{it}$$

In other words, the regression line is raised or lowered by a fixed amount for each individual. Equivalently, the dependent and independent variables are considered as deviations from the within-unit means:

$$(y_{it} - \bar{y}_\iota) = \beta'(x_{it} - \bar{x}_\iota) + (\varepsilon_{it} - \bar{\varepsilon}_\iota)$$

By finding the difference between the observed variables and the unit means, this transformation "sweeps out" the unit effects and suppresses the intercept term. As a limitation, FE models cannot consider time-invariant characteristics, which may be of substantive importance to the question at hand. Additionally, FE models are highly sensitive to specification problems, especially measurement error (Green 2003).

Instead of considering each unit or individual to have a unique intercept term, RE regression assumes that each individual has a unique random disturbance that is constant over time. In other words, in RE models the constant term is a function of a mean value (α) plus a random error (μ_i):

$$y_{it} = \alpha + u_i + x'_{it}\beta + \varepsilon_{it}$$

RE models consider individual differences to be random disturbances from a specified distribution, not fixed and estimable, as is the case with FE models. A major assumption for RE regression is that the random intercept μ_i is uncorrelated with the residual error term ε_{it} or the regressors x'_{it}. Typically, a Hausman specification test is used to determine if this key assumption is satisfied. As an advantage, RE models require fewer degrees of freedom in comparison to FE models, and are capable of considering the effects of stable background and demographic characteristics. Statistically, FE models provide consistent results but are less efficient and give less accurate *p*-values in comparison to RE models.

Given that RE and FE regression both have relative strengths and weaknesses, my approach is to compare results for both FE and RE models predicting average semester grades. I use measures for college activities and experiences, human capital, time allocation, and extracurricular memberships described in the previous section. In this way, I provide a rigorous test of Bourdieu's theory of cultural reproduction and competing perspectives to explain patterns of achievement across the college years at elite, private universities.

Table 5.15 displays regression coefficients for FE and RE models predicting semester GPA with measures for academic skills and motivation, time allocation and extracurricular activities, collected in each survey wave. Models 1a and 1b include results for the full sample from FE and RE regression, respectively. Next, to examine interactions with class background, successive pairs of models examine the effects of college activities separately for professional, executive, middle and subordinate class students**.** All models include dummy variables for current major area (engineering, natural sciences, social sciences, arts and humanities, or undecided/other).[37] In general, results are consistent between FE and RE models, although FE models reveal fewer significant coefficients (given the larger standard errors). Hausman tests examine if the coefficients from the more efficient RE model are the same as the less efficient but consistent FE model. Significant χ^2 values indicate that there is correlation between explanatory variables and unobserved individual characteristics, contrary to the key RE assumption. Hausman tests reject the null hypotheses that RE coefficients are consistent for the full sample ($\chi^2 = 73.31$, $p < .001$) and for middle class students ($\chi^2 = 47.01$, $p < .001$), but do not require FE models for professional ($\chi^2 = 27.68$, $p = .090$), executive ($\chi^2 = 30.89$, $p = .042$), or subordinate class students ($\chi^2 = 21.46$, $p = .312$).

For students from all class backgrounds, average semester grades increase steadily across the college years (Figure 5.2). Across all model specifications, each successive survey wave is associated with roughly one-tenth of a letter grade higher

[37] First year (expected) major area is collected in the pre-college survey; second year major area is collected in the second year survey; fourth year (final) major area is taken from official transcripts. Major area has an insignificant effect on semester GPA in all models presented in Table 5.15 and various other specifications. In FE models including only dummy variables for major area, arts and humanities have significantly higher grades, relative to engineering majors.

Table 5.15: Random effects and fixed effects parameter estimates of human capital and college activities on semester grades across the college career

	Full sample		*Professional*		*Executive*	
	Model 1a	Model 1b	Model 2a	Model 2b	Model 3a	Model 3b
	FE	RE	FE	RE	FE	RE
Survey wave	.097 *	.097 *	.106 *	.103 *	.126 *	.122 *
	(.008)	(.007)	(.013)	(.012)	(.022)	(.020)
Human capital						
Academic skills	.008 *	.014 *	-.008	.002	-.001	.005
	(.003)	(.003)	(.006)	(.004)	(.010)	(.007)
Good student identity	.014	.039 *	.012	.028	.100 *	.117 *
	(.012)	(.010)	(.023)	(.019)	(.040)	(.028)
Success from hard work	.032	.074 *	.040	.057	.056	.029
	(.024)	(.021)	(.045)	(.039)	(.068)	(.058)
Satisfied with self	.011	.030 *	.044 †	.046 *	-.003	-.039
	(.013)	(.010)	(.026)	(.020)	(.040)	(.030)
Feel useless at times	-.018 *	-.019 *	-.033 *	-.026 *	.024	-.025
	(.009)	(.007)	(.026)	(.013)	(.029)	(.022)
Time allocation						
Socialize with friends	-.003	-.005 *	-.006	-.006 †	(-.001)	-.003
	(.002)	(.002)	(.004)	(.003)	(.007)	(.005)
Studying or homework	.000	.005 *	.008 †	.011 *	.002	.007
	(.002)	(.002)	(.004)	(.003)	(.007)	(.005)
Exercise or sports	-.002	-.004 †	.002	-.001	.002	.004
	(.003)	(.002)	(.006)	(.004)	(.008)	(.006)
Working (for pay)	-.005 *	-.007 *	.003	.000	-.019 *	-.013 *
	(.002)	(.002	(.004)	(.003)	(.007)	(.005)
Extracurricular clubs	-.003	-.002	-.000	.002	-.017 †	-.012
	(.003)	(.002)	(.005)	(.004)	(.009)	(.007)
Extracurricular activities						
Fraternity or sorority	.001	.018	.008	.026	.073	.012
	(.032)	(.022)	(.058)	(.038)	(.121)	(.061)
Community service	.031	.040 *	.001	.055 †	.021	.104 †
	(.023)	(.020)	(.040)	(.031)	(.074)	(.058)
Student government	.013	.010	.048	.032	-.208 †	-.127
	(.038)	(.033)	(.070)	(.059)	(.117)	(.101)
Varsity sports team	-.041	-.061	-.093	-.051	-.075	-.165 †
	(.050)	(.040)	(.102)	(.079)	(.124)	(.090)
Hausman chi-square	73.31 (.0000)		27.68 (.0898)		30.89 (.0415)	

Source: Campus Life and Learning (n = 2525 observations and 1046 respondents)
Notes: * $p < .05$, † $p < .10$ (two-tailed tests); FE = OLS fixed effects, RE = GLS random effects

Table 5.15 *continued*

	Middle		*Subordinate*	
	Model 4a	Model 4b	Model 5a	Model 5b
	FE	RE	FE	RE
Survey wave	.085 *	.082 *	.094 *	.107 *
	(.012)	(.011)	(.020)	(.017)
Human capital				
Academic skills	.014 *	.020 *	.018 *	.019 *
	(.005)	(.004)	(.001)	(.006)
Good student identity	-.007	.032 *	.044	.043 †
	(.020)	(.015)	(.030)	(.025)
Success from hard work	.024	.086 *	.007	.049
	(.038)	(.034)	(.055)	(.047)
Satisfied with self	.005	.026 †	.016	.047 *
	(.018)	(.015)	(.029)	(.023)
Feel useless at times	-.007	-.014	-.021	-.013
	(.014)	(.012)	(.021)	(.018)
Time allocation				
Socialize with friends	.003	-.002	-.009 †	-.010 *
	(.003)	(.003)	(.005)	(.004)
Studying or homework	-.005	-.001	-.003	.004
	(.003)	(.003)	(.005)	(.004)
Exercise or sports	.003	.001	-.017 *	-.016 *
	(.005)	(.004)	(.008)	(.006)
Working (for pay)	-.007 *	-.007 *	-.009 *	-.015 *
	(.003)	(.002)	(.005)	(.004)
Extracurricular clubs	.000	.001	-.010	-.010 †
	(.004)	(.004)	(.007)	(.006)
Extracurricular activities				
Fraternity or sorority	.001	-.021	-.009	.046
	(.048)	(.036)	(.080)	(.057)
Community service	.024	.015	.052	.019
	(.036)	(.031)	(.056)	(.048)
Student government	.027	-.031	.095	.100
	(.057)	(.050)	(.092)	(.082)
Varsity sports team	-.023	-.068	.021	.018
	(.079)	(.064)	(.126)	(.100)
Hausman chi-square	47.01 (.0004)		21.46 (.3117)	

semester GPA. This significant and steady effect of survey wave is interpreted as the increase in semester grades that occurs as students gain more experience with the postsecondary curriculum and begin taking electives and seminars in their major field of study. With the full sample, all measures of within-college human capital, and study hours have significant effects in the RE model (Model 1b). In the FE model, academic skills have a significant, positive effect on semester grades, and feelings of uselessness have a significant, negative effect (Model 1a).

Across all class specifications, at least one measure of within-college human capital has a significant effect on semester GPA. For professional class students, self-esteem and hours spent studying have significant effects on college grades (Models 2a and 2b). In FE and RE models, a one standard deviation increase in feelings of satisfaction and in weekly study hours is associated with increases of .04 and .06 of a letter grade, respectively, and a one standard deviation increase in feelings of uselessness is associated with a .04 of a letter grade decline. For executive class students, importance of a good student identity has a significant, positive effect on grades (Models 3a and 3b). For middle and subordinate class students, self-assessed academic skills, good student identity, and life satisfaction have significant, positive effects on semester grades in RE models (Models 4b and 5b). In sum, within-college human capital predicts academic performance for students of all class backgrounds at elite, private universities. Although selected dimensions of human capital have significant effects in different model specifications, results are generally consistent for professional, executive, middle and subordinate class students. Net of other factors, students who have high levels of self-

esteem, value a good study identity, or report high levels of academic skills and perseverance achieve higher grades across the college years.[38]

In comparison to within-college human capital, campus social and extracurricular activities have smaller and more sporadic effects on academic performance. In the RE model with the full sample (Model 1b), weekly time allocation to socializing with friends and working for pay have significant, negative effects on semester GPA, and time studying and membership in a community service organization have significant, positive effects. However, only part-time employment during the college years has a significant effect across class backgrounds. Community service membership has a marginally significant, positive effect on grades for professional and executive class students in RE models only. For executive, middle and subordinate class students, time spent at work has a significant, negative effect on achievement, equivalent to between .04 and .07 of a letter grade decrease per standardized unit change. Across all specifications, coefficients for fraternity or sorority membership are insignificant and generally positive. Results for college activities are consistent under a variety of specifications, including if human capital variables are excluded from the model.[39] There is evidence that working at a job

[38] Unlike FE models, RE models can consider the effects of time-invariant characteristics. In results not shown, I include variables for social class, racial ethnic group, sex, citizenship and SAT scores to Model 1b. Under this alternative specification, results for all human capital, time allocation and extracurricular variables are entirely consistent with above. Socioeconomic characteristics show a familiar pattern of effects on achievement. Relative to white students, black (coef. = -.28, s.e. = .04) and Latino students (coef. = -.11, s.e. = .04) have significantly lower semester grades, and female students (coef. = .07, s.e. = .03) have higher GPAs than male students do. A one standard deviation increase in SAT scores is associated with one-ninth of a letter grade increase in average semester grades.

[39] Coefficients for extracurricular memberships and time use variables (with the exception of hours spent at work) do not reach significance under any FE model condition. In RE models that exclude measures for within-college human capital, membership on a varsity sports participation has a significant, negative effect on semester grades (coef. = -.09, s.e. = .04). Under alternative model specifications, presence of alcohol at campus social events and importance of drugs to enjoyment of campus life have significant, negative

detracts from the college experience and leads to lower grades, but most college activities do not have consistent significant effects on achievement. Among this talented and highly motivated group of elite university students, dimensions of human capital – including academic skills, abilities, motivation, effort, and self-esteem – are more strongly associated with college grades.

Other results are consistent with Bourdieu's cultural reproduction perspective. Unlike professional, executive or middle class students, subordinate class students receive a significant grade penalty for time spent in social and recreational activities, as well as working for pay (Models 5a and 5b). Subordinate class students attach more importance to goals for academic and personal development than to building social relationships, and during the college years have less time available for campus social activities, due to greater work commitments. Yet, for subordinate class students only, time spent socializing with friends and time spent exercising or playing sports have significant, negative effects on semester grades. A one standard deviation increase in weekly hours in extracurricular activities is associated with .04 of a letter grade decrease in semester GPA, but this effect is only marginally significant ($z = -1.72$). To examine this interaction between class background and participation in social and recreational activities, I add interaction terms for class background and time spent socializing with friends and exercising to Models 1a and 1b. For subordinate class students only, there

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effects on semester grades in both FE and RE models, and external locus of control has a negative effect on achievement in RE models.

are significant, negative interactions with time spent in campus social or recreational activities in both FE and RE models.[40]

By taking advantage of detailed panel data and measures of campus life collected across the college years, this analysis provides a rigorous examination of how campus experiences influence achievement at elite, private universities. Results from RE and FE models support two general conclusions.[41] First, dimensions of human capital have consistent, reliable effects on average semester grades for students from all class backgrounds. Net of other factors, students who report higher levels of academic skills, abilities, motivation, or self-esteem earn higher grades at the end of the semester. In contrast, there are fewer significant effects of time use or extracurricular participation on college grades. Although studies of adolescents and high school students find positive effects of extracurricular participation a range of educational outcomes (e.g., Broh 2002; Eitle and Eitle 2002; Guest and Schneider 2003; Hanson and Kraus 1998; Mahoney and

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[40] In the full RE model, a one standard deviation increase in time spent exercising or playing sports is associated with .06 of a letter grade decrease in subordinate class students' average semester GPA (coef. = -.012, s.e. = .005), and a one standard deviation increase in socializing with friends is associated with .03 of a letter grade decrease (coef. = -.007, s.e. = .003). In the full FE model, a one standard deviation increase in exercising is associated with .09 of a letter grade decrease for subordinate class students only (coef. = -.012, s.e. = .005), and a one standard deviation increase in socializing is associated with .05 of a letter grade decrease (coef. = -.007, s.e. = .003).

[41] These conclusions are supported by analysis with the national data. With the available measure of college achievement – student reported average grades at the end of the fourth college year – I use logistic regression to predict the likelihood of having an "A" average with the same measures for time allocation and college activities as in Table 5.14, plus the college life satisfaction scale. Results are consistent, although the CIRP includes fewer measures of within-college human capital and more college activities have significant effects in final models. Average weekly hours spent socializing with friends (OR = .98, z= -2.79), fraternity or sorority membership (OR = -.42, z= -6.19) and being on an intercollegiate sports team (OR = -.77, z = -1.95) have negative associations with final achievement. Time spent studying or doing homework (OR = 1.04, z = 5.05), participating in a study abroad program (OR = 1.33, z = 2.60), and volunteering (OR = 1.40, z = 2.62) have positive effects on average grades. For middle and subordinate class students only, there is a significant, negative interaction with time spent socializing with friends and final college achievement, although employment during the college years does not have a significant effect on the likelihood of "A" average grades for students of any class background.

Cairns 1997; Marsh 1992; McNeal 1995), I do not find substantial effects for this sample of largely talented and motivated students. Most students at elite, private universities arrive on campus with considerable leadership experience in high school extracurricular activities, and nearly all students participate in at least one club or group during the college years. By the fourth college year, more than three-quarters of CLL respondents spend at least three hours each week in extracurricular activities, and participation in clubs and campus groups is positively associated with overall satisfaction with college life. However, relative to dimensions of human capital, patterns of extracurricular involvement are not appreciably associated with achievement.[42]

Second, participation in social activities has a negative effect on achievement for subordinate class students only. In comparison to dominant and middle class students, subordinate class students have a more tenuous relationship with campus life. Subordinate class students are more likely to have a part-time job while completing postsecondary coursework, which leaves less time available for social and recreational activities. Employment during the college years is not only associated with lower levels of overall satisfaction with campus life, but also has a significant, negative effect on

[42] Logistic regression models predicting the likelihood of graduating with an honors distinction describe a similar pattern of results. Including dummy variables for class background, racial ethnic group, sex, and SAT scores, and fourth year measures of all human capital, time allocation and extracurricular activity variables from Table 5.15, I find significant, positive effects of good study identity (OR = 1.99, z = 4.29) and hours spent studying (OR = 1.05, z = 2.11). Additionally, there are significant, negative effects of time spent at work (OR = .96, z = -2.09) and feelings of uselessness (OR = .83, z = -2.08) on the odds of graduating with honors. Participation in community service activities is positively associated with final achievement, but the effect is not significant under most model conditions. Similar and generally robust results are found with first and second year measures of college activities. Academic skills, effort and motivation are strongly associated with achievement, while low levels of self-esteem and employment are associated with lower levels of achievement at the end of college. Under most specifications, there is a significant, negative interaction between subordinate class background and weekly hours at work, but there are no significant class interactions with time in social or recreational activities. For middle class students only, there is a significant, negative effect of participating in a fraternity or sorority (in the second or fourth year) on the likelihood of graduating with honors.

semester grades.[43] Further, when subordinate class students do participate in campus activities, semester grades decline as a result. There are significant, negative interactions between subordinate class background and time spent during a typical week socializing with friends or exercising and playing sports. Subordinate class students spend less time in social and recreational activities in comparison to dominant class students, but this limited involvement leads to lower grades. Overall, campus activities and experiences outside of the classroom or formal curriculum have smaller effects on college achievement than is predicted by the cultural mobility or cultural reproduction perspectives. However, consistent with Bourdieu's observations of French higher education, subordinate class students are penalized for engaging aspects of campus life that form an important part of the college experience for dominant class students.

5.6 "Collegiate" Capital and Navigating Major Changes

Bourdieu finds a strong pattern of field of study by class background in his studies of the French postsecondary system, which consists of a multiplicity of small institutions, each specializing in a particular set of disciplines. Despite considerable expansion of higher education, working and lower class students remain severely underrepresented in lucrative, high-status areas, such as law and medicine (Bourdieu and Passeron 1979: 3). Due to strong a correspondence – or "homology" – between the underlying class

[43] Existing studies of postsecondary students find relatively small or no effects of employment during the college years. Espenshade and Radford (2009: 234-235, 254) report a significant, negative effect of working ten or more hours each week on the odds of graduating within six years, and a negative, insignificant effect on first year class rank. Pascarella and Terenzini (2005: 196-197) conclude that work responsibilities have only a trivial impact on cognitive or intellectual development during college. Other studies report slight negative or no significant effects of on- or off-campus employment on critical thinking skills (Inman and Pascarella 1998; Kuh 1995; Pascarella et al. 1996; Pascarella et al. 1998). Nationally, students from low-income families are more likely to live at home and work during the first college year, and consequently are more likely to dropout or take a leave of absence (Bozick 2007).

structure and space of lifestyles (Bourdieu 1984) and the academic field (Bourdieu 1988a), the cultural fractions of the dominant class are overrepresented in prestigious arts and humanities disciplines, such as philosophy, while the economic fractions of the dominant class are more numerous at top business schools (Bourdieu 1996). In other words, class habitus leads students to gravitate towards disciplines that reward the dispositions acquired from the family and early schooling (Bourdieu 1996: 140-141).

In comparison to the French system, higher education in the United States does not contain such clear horizontal stratification by discipline, and elite universities typically support several prominent schools or colleges. Yet, important gaps and inequalities persist by socioeconomic background in terms of enrollment in particular fields of study. Patterns of course selection have substantial effects on learning and skill acquisition during the college years and the choice of major field of study has a significant impact on early career earnings and occupational status (Pascarella and Terenzini 2005: 604-613). Although women have outnumbered men among new college graduates since the early-1980s, female students remain underrepresented in business, engineering, and the natural sciences –physics and computer science, in particular – contributing to the gender gap in earnings (Buchmann, DiPrete and McDaniel 2008; Gerber and Cheung 2008; Jacobs 1996).[44] Charles and colleagues (2009: 44-45) find a

[44] In the CLL, about 7 percent of female students complete an engineering major, compared to 23 percent of male students. Male students are more likely to complete a BS degree in economics, while female students are more likely to complete a degree in other social science areas and arts and humanities. There are no significant gender differences among natural science majors. A similar pattern is found with the CIRP data. In the national sample, about 5 percent of female student report an engineering major at the end of the fourth year, compared to 17 percent of male students. Additionally, 20 percent of male students report a business major, compared to 15 percent of female students. Female students are somewhat more likely to major in the social sciences or arts and humanities, but there are no significant differences in the likelihood of a natural science major.

distinct pattern of major selection at national selective colleges and universities across different racial ethnic groups. Relative to white students, Asian students are more likely to declare a major in engineering and much less likely to major in the arts or humanities. Black and Latino students are less likely to major in natural sciences and, to a lesser extent, engineering, and more likely to major in social and health sciences.[45] This section adds to the existing research literature and explores how social class affects patterns of major selection and change across the college years.

As mentioned in Chapter 3, when students first arrive on campus there are relatively few significant class differences in expected major area or future career. Table 5.16 describes patterns of major area selection and change across the college years. Compared to other students, students from executive households are somewhat less likely to major in engineering or natural science disciplines and more likely to major in the social sciences or arts and humanities, but these differences are not significant in the CLL. At the start of college, about 42 percent of executive class students are undecided about a field of study, compared to 33 percent of professional and subordinate class students and 29 percent of middle class students. Nearly all students select a final major by the second year, and there are no significant differences by class background after the first year. Most students who were undecided prior to matriculation settle into social science or arts and humanities majors by the end of the second year. Of those students

[45] Additionally, Charles and colleagues (2009: 61-64) find that male students are significantly more likely to major in mathematics, computer science and engineering and significantly less likely to major in the humanities. In multinomial logistic regression models predicting major area at the end of the second year, most effects of parental education, citizenship status, and economic wealth or income are insignificant. Although, the value of the home of the student's custodial parent (student-reported) is negatively associated with natural science and engineering majors.

Table 5.16: Major selection and change (percents), by social class

	Professional	Executive	Middle classes	Subordinate classes
Major discipline area				
First year (expected)				
Engineering	18.1	14.5	17.2	21.1
Natural sciences *	19.7	13.8	23.1	18.6
Social sciences	21.1	25.6	22.3	19.9
Arts and humanities	8.2	4.9	8.2	7.9
Other/undecided †	32.9	41.2	29.3	32.7
Second year (current)				
Engineering	16.7	14.0	16.8	18.2
Natural sciences	18.2	13.5	16.8	21.4
Social sciences	43.2	48.4	44.9	37.0
Arts and humanities	20.8	21.9	19.4	18.8
Other/undecided	1.1	2.3	2.0	4.6
Fourth year (final)				
Engineering	16.0	11.9	16.2	18.4
Natural sciences	18.8	13.2	18.3	21.1
Social sciences (BS)	10.5	9.9	14.3	10.4
Social sciences (AB)	33.2	39.8	32.8	31.6
Arts and humanities	21.5	25.2	18.4	18.4
"Since arriving at Duke, has your major choice changed? If yes, please indicate why your major choice has changed." (Second Year Survey)				
Major has changed	42.6	48.6	48.4	37.4
If yes, reason:				
Academic interests/ values have changed	83.2	76.9	78.8	75.0
Academic difficulty in major courses *	17.4	19.7	22.2	38.1
Career interests/values have changed	23.1	19.6	30.5	25.3
Lack of precollege academic preparation	12.5	15.2	14.4	18.1
Lack of internships/ research opportunities	5.8	4.8	3.8	2.6
Other reason	11.8	17.6	16.5	9.5

Source: Campus Life and Learning (n = 1181 to 891)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests)

who were undecided about a major at the start of college, nearly one-half declare a social science major by the spring of the second year, and more than one-quarter choose an arts and humanities major.[46] In contrast, more than three-quarters of students who expect to major in engineering at the start of classes are majoring in an engineering discipline in the second year. Of students who expect to major in the natural sciences pre-college, 46 percent report a natural science major in the second year, while 28 percent report a social science major and 17 percent report an arts and humanities major.[47]

Although subordinate class students are less likely to expect to change majors, there are no significant differences in the likelihood of actually changing majors during the college years. In the spring semester of the second college year, about 37 percent of subordinate class students report a change in major field of study, compared to 43 percent of professional and 48 percent of executive or middle class students.[48] The CLL Second

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[46] See Tables 3.10 and 3.14 for additional comparisons of expected major and career plans at the start of the first college year for the Duke and national samples, respectively. Business is not offered as a major area at Duke. Among students in the national (CIRP) sample, executive class students are nearly twice as likely to major in business in comparison to professional or precarious professional students. About 23 percent of students from executive households majored in business, compared to 12 percent of professional or precarious professional class students and about 17 percent of middle or subordinate class students. Consistent with patterns from the CLL, subordinate class students are relatively less likely to major in the arts and humanities, and more likely to major in engineering. About 28 percent of professional and precarious professional class students majored in the arts and humanities, compared to about 21 percent of other students. About 14 percent of subordinate class students report an engineering major at the end of the fourth college year, compared to 13 percent of middle, 9 percent of precarious professional, 7 percent of executive, and 6 percent of professional class students. Additionally, about 21 percent of professional class students report natural science major, compared to 18 percent of precarious professional, 16 percent of middle, 14 percent of executive and 12 percent of subordinate class students. There are no significant class differences in reporting a final social science major (about 23 percent of students in the national sample).

[47] Additionally, about 81 percent of students who expect to major in the social sciences prior to matriculation report a social science major at the end of the second year, and 64 percent of pre-college arts and humanities majors report an arts and humanities major after four semesters. Corresponding figures for the national sample are: 63 percent for engineering, 61 percent for business, 60 percent of arts and humanities, 54 percent of social science and 46 percent of natural science majors.

[48] Unlike the CLL, the CIRP does not include an item that asks students directly if they have changed majors since beginning college. Among students in the national sample, more than 80 percent of students

Year Survey asks students who report changing majors to describe the reason. For students from all class backgrounds, the most popular reason for changing majors during the early college years is a change in academic interests or values. Nearly 80 percent of students who change majors by the end of the second year do so because of changing academic interests, while only 23 percent cite academic difficulty and 15 percent report a lack of pre-college academic preparation. However, subordinate class students are significantly more likely to attribute major changes to academic difficulty than are other students. About 38 percent of subordinate class students report changing majors due to academic difficulty, roughly twice the proportion of dominant class students.[49] In short, subordinate class students are more likely to change majors due to academic difficulty, but there are few other readily apparent differences among dominant, middle and subordinate class students in patterns of major selection and change.

However, closer inspection reveals that changing majors during the early college years is uniquely negative and harmful for subordinate class students. Table 5.17 presents nested regression models predicting cumulative GPA at the end of the second college year. Model 1 presents the baseline effects of class background on early college grades. As before, executive and subordinate class students have significantly lower

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reported a different major (from a list of 84 categories) in the beginning of the first year and the end of the fourth year. Using an aggregated variable of 16 categories, 59 percent of students report a different major at the end of college. As above, there are no significant class differences in the national sample in the likelihood of changing majors during the college years.

[49] There are no significant class differences in major field of study for students who report academic difficulty during the early college years. More than 55 percent (n = 60) of students who change majors due to academic difficulty eventually choose a major in a social science discipline, while 28 percent switch to arts or humanities and 15 percent switch to the natural sciences. No student in the CLL who cites academic difficulty as a reason for changing majors completes a degree in engineering. Of those who subsequently change majors due to academic difficulty, about 30 percent report an expected natural science major in the summer prior to matriculation, 17 percent report an expected social science major, 14 percent report an expected engineering major, and 38 percent are undecided or unsure.

grades, relative to professional class students. Model 2 adds controls for racial ethnic group, sex, high school achievement, and major area (as reported in the second year survey). Including these controls reduces the effect of subordinate class background by more than one-third and to marginal significance ($p = .09$), while the coefficient for executive class background remains robust. Adding measures for human capital – academic skills, importance of a good student identity, effort and self-esteem – explains an additional 61 percent of the total variance in second year GPA (Model 3). Dimensions of human capital are more strongly associated with early college achievement, relative to major area.[50] For example, and a standardized unit increase in the importance of a good student identity has an effect that is similar in magnitude to the black-white achievement gap. As above (Tables 5.2 and 5.15), within-college human capital is an important predictor of academic performance at elite, private universities.

Net of the effects of socioeconomic background and dimensions of within-college human capital, patterns of major change are significantly associated with early college grades (Model 4). Attributing a major change to course difficulty is associated with a decline of nearly one-quarter of a letter grade, and changing from a natural science or engineering major to a social science or arts and humanities major is associated with an decline of one-tenth of a letter grade. Students who switch majors due to changing

[50] Effects of major area are consistent across a variety of model specifications. Replacing second year (current) major area with indicators for first year (expected) major area in Model 3, I find that social science and arts/humanities majors have significantly higher grades, relative to engineering major s (betas = .13 and .14, respectively), and natural science and other/undecided majors have marginally significantly higher grades ($p < .10$; betas = .08 and .10, respectively). Average class size during the fall semester of the first year has a significant, negative effect on second year cumulative GPA, although the second year measure has an insignificant effect. Similarly, first year schedule difficulty – calculated as the average grades awarded across each of the students first year course subjects – has a relatively small, positive effect on early college grades, although second year schedule difficulty has an insignificant effect. In no instance did having a double major have a significant effect on early college grades.

Table 5.17: OLS regression of second year cumulative GPA on social class, human capital and patterns of major change

	Model 1		Model 2		Model 3	
	Coef. (s.e.)	*beta*	Coef. (s.e.)	*beta*	Coef. (s.e.)	*beta*
Social class (ref. professional)						
Executive	-.13 (.06) *	*-.10*	-.12 (.05) *	*-.10*	-.10 (.04) *	*-.08*
Middle	-.07 (.03) †	*-.07*	-.03 (.03)	*-.04*	-.03 (.03)	*-.03*
Subordinate	-.23 (.05) *	*-.20*	-.07 (.04) †	*-.07*	-.04 (.04)	*-.04*
Race/ethnicity (ref. white)						
Black			-.29 (.04) *	*-.18*	-.35 (.04) *	*-.21*
Latino			-.10 (.04) *	*-.06*	-.13 (.04) *	*-.08*
Asian			-.05 (.04)	*-.04*	-.04 (.04)	*-.04*
Other			-.14 (.08) †	*-.06*	-.16 (.06) *	*-.06*
Female			.09 (.03) *	*.10*	.06 (.03) *	*-.07*
SAT score (math. + verbal)			.00 (.00) *	*.36*	.00 (.00) *	*.31*
AP credit			.04 (.03)	*.04*	.03 (.03)	*.02*
Major area (ref. engineering)						
Natural sciences			.07 (.05)	*.06*	.06 (.05)	*.06*
Social sciences			.08 (.04)	*.08*	.08 (.04) †	*.09*
Arts and humanities			.04 (.05)	*.04*	.04 (.05)	*.04*
Other/undecided			.11 (.11)	*.04*	.20 (.09) *	*.07*
Human capital						
Academic skills					.01 (.00) *	*.13*
Good student identity					.10 (.01) *	*.22*
Success from hard work					.11 (.04) *	*.10*
Overall satisfaction					.06 (.01) *	*.14*
Patterns of major change						
Changed major because:						
Course difficulty						
Interests/values changed						
Changed from natural sciences/engineering						
x Executive						
x Middle						
x Subordinate						
Constant	3.43 (.03) *		1.21 (.23) *		.39 (.02) *	
R^2	.03		.23		.37	

Source: Campus Life and Learning (n = 891)

Notes: * $p < .05$, † $p < .10$ (two-tailed tests); second year (spring semester) cumulative GPA is collected from official transcripts; major area, human capital, and major change variables are from the second year survey.

Table 5.17 *continued*

	Model 4		Model 5	
	Coef. (s.e.)	*beta*	Coef. (s.e.)	*beta*
Social class (ref. professional)				
Executive	-.09 (.04) *	*-.07*	-.11 (.04) *	*-.08*
Middle	-.03 (.03)	*-.03*	-.02 (.03)	*-.02*
Subordinate	-.04 (.04)	*-.03*	-.01 (.04)	*-.01*
Race/ethnicity (ref. white)				
Black	-.32 (.04) *	*-.20*	-.32 (.04) *	*-.19*
Latino	-.10 (.04) *	*-.06*	-.11 (.04) *	*-.07*
Asian	-.02 (.04)	*-.01*	-.02 (.04)	*-.02*
Other	-.14 (.06) *	*-.06*	-.13 (.06) *	*-.05*
Female	.06 (.03) *	*.07*	.06 (.03) *	*.07*
SAT score (math. + verbal)	.00 (.00) *	*.30*	.00 (.00) *	*.31*
AP credit	.02 (.04)	*.02*	.02 (.04)	*.02*
Major area (ref. engineering)				
Natural sciences	.08 (.05) †	*.07*	.08 (.05) †	*.07*
Social sciences	.11 (.04) *	*.13*	.11 (.04) *	*.13*
Arts and humanities	.08 (.05) †	*.08*	.08 (.05)	*.07*
Other/undecided	.23 (.09) *	*.08*	.26 (.09) *	*.09*
Human capital				
Academic skills	.01 (.00) *	*.12*	.01 (.00) *	*.12*
Good student identity	.09 (.01) *	*.21*	.09 (.01) *	*.21*
Success from hard work	.10 (.03) *	*.10*	.10 (.04) *	*.09*
Overall satisfaction	.05 (.02) *	*.12*	.05 (.02) *	*.12*
Patterns of major change				
Change major because:				
Course difficulty	-.23 (.04) *	*-.16*	-.22 (.04) *	*-.16*
Interests/values changed	.06 (.03) *	*.07*	.06 (.03) *	*.06*
Change from natural sciences/engineering	-.10 (.05) *	*-.08*	-.06 (.09)	*-.05*
x Executive			.09 (.14)	*.03*
x Middle			-.04 (.11)	*-.02*
x Subordinate			-.25 (.12) *	*-.08*
Constant	.53 (.21) *		.50 (.21) *	
R^2	.40		.41	

academic interests or values have somewhat higher grades after four semesters of study. As mentioned above, subordinate class students are about twice as likely as are dominant class students to change majors due to course difficulty. Further, only subordinate class students receive a significant grade penalty for changing majors from natural science or engineering (Model 5).[51] Switching from a more challenging major area during the early college years does not have a significant effect on overall levels of achievement for professional, executive, or middle class students. However, for subordinate class students such a change is associated with a decline of one-quarter of a letter grade in second year cumulative GPA. In the final model, the coefficient for subordinate class background is indistinguishable from zero, while the effect of executive class background remains significant, negative and robust. Thus, subordinate class students' relative underperformance relative is attributable to differences in human capital and patterns of major change during the first two college years.[52]

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[51] Alternative specifications with the CLL data yield consistent results. Although a dummy variable indicating any major change is insignificant across a variety of model conditions, there is a marginally significant (p = .09), negative interaction between any major change and subordinate class background only (beta = -.07). There are no significant interactions between class background and major changes due to changing interests or course difficulty. Replacing the major change variables in Model 4 with a dummy variable indicating a switch to an easier major -- defined in terms of average course grades by subject area, across all CLL respondents – yields a significant, negative coefficient (beta = -.11).

[52] The CIRP College Senior Survey does not collect detailed information about major changes during the early college years. Available comparisons with the national sample support the conclusions above. In logistic regression models predicting the likelihood of "A" average college grades, including controls for social class, racial ethnic group, sex, final major area, SAT scores and high school grades, a major change between the first and fourth year is associated with lower levels of college achievement. Additionally, compared to students who report a natural science or engineering major at wave one but a social science or arts and humanities major at wave two, other students have odds of reporting "A" average grades that are two-thirds greater, net of other factors (IOR = 1.67; z = -2.89). An inspection of possible interactions with social class yields no significant coefficient, although the interaction between changing from a natural science/engineering major and subordinate (IOR = 1.52; z = -.68) and executive (OR = 1.29; z = .48) class students are identically signed as in Table 5.15 (Model 5).

Few students at elite, private university are without family support for college plans (Table 5.18). About 98 percent of students report strong or very strong family support for college plans, and more than 90 percent of students agree that friends and relatives support plans to attend Duke in particular. Only 2 percent (n = 4) of subordinate class students report little or no family support for plans to go to college, and 5 percent (n = 13) report that friends and relatives are unsupportive of plans to attend Duke. Despite the substantial degree of selection that occurs during the application and acceptance, subordinate class students arrive on campus with less "collegiate" capital in comparison to middle and dominant class students. As a type of embodied cultural capital, collegiate capital is the informal or tacit information about academic institutions that facilitates an effortless and more rewarding college experience.

Although nearly all students, across all class backgrounds, enter college highly motivated and with ambitious career goals, subordinate class students are less likely to accumulate collegiate cultural capital during adolescence and the high school years. All dominant class students have at least one parent with a college degree, compared to half of subordinate class students (Table 3.4). In comparison to dominant class students, subordinate class students have fewer sources of advice or support for problems at school, but firmer plans and expectations for the college years.[53] Subordinate class students are more likely to arrive on campus with a defined major and less likely to

[53] In the CLL Senior Survey, about 28 percent of subordinate class students report that they experienced a change of financial status during the college years, compared to 9 percent of dominant class students. There are no significant class differences in college experiences of dismissal from the university (about 2 percent of all students), death of a parent (2 percent), parents' divorce (4 percent), alcohol or substance abuse (8 percent), serious family injury or illness (19 percent), serious medical or psychological condition (25 percent), death of a close family member or friend (30 percent), or relationship break-up (56 percent).

Table 5.18: College goals and preparation, by social class

	Professional	Executive	Middle classes	Subordinate classes
"For the following statements, please indicate the extent to which you agree (strongly agree, somewhat disagree, neutral, somewhat agree, strongly agree):"				
My family has always wanted me to go to college				
Mean †	4.96	4.94	4.96	4.80
% strongly agree *	97.7	95.7	97.1	88.4
My friends and relatives feel I should go to Duke University				
Mean	4.69	4.68	4.62	4.56
% strongly agree	78.9	81.6	77.8	73.3
I want a chance to prove myself academically				
Mean †	4.38	4.31	4.45	4.53
% strongly agree *	54.9	46.9	59.0	66.0
If I run into problems concerning school, I have someone who would help me				
Mean *	4.32	4.50	4.28	4.16
% strongly agree *	51.6	60.2	48.4	43.6
I have studied things about my major field (or favorite subject) on my own				
Mean	4.15	4.15	4.13	4.22
% strongly agree	46.7	45.5	43.8	47.9
I have talked about my career goals with someone who works in that career				
Mean †	3.53	3.54	3.31	3.53
% strongly agree	25.4	24.9	19.9	26.3
I know what I want to be doing ten years from now.				
Mean †	2.96	2.72	2.96	3.16
% strongly agree *	16.4	10.0	16.0	22.3
If tutoring is made available at college at no cost, I would attend regularly				
Mean *	3.27	3.30	3.37	3.66
% strongly agree *	12.4	12.6	13.8	24.4

Source: Campus Life and Learning (n = 1181)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests)

expect to change majors during the college years, relative to executive class students (Tables 3.10, 3.14, and 5.5). Additionally, more than 22 percent of subordinate class students are highly certain of plans for ten years in the future, compared to 10 percent of executive class students (Table 5.19). Generally entering college from less rigorous, public high schools, subordinate class students are more likely to encounter a rupture

between academic expectations and actual experiences. As a result, subordinate class students are uniquely penalized for initial plans and curricular decisions, leading to lower grades during the early college years.[54]

Disciplinary boundaries fulfill an important function to Bourdieu's studies of French higher education and theory of cultural reproduction. To Bourdieu, disciplinary boundaries – reinforced by institutional divisions – serve to reproduce a fundamental homology across different fields that elevate and legitimate the cultural practices of certain dominant class fractions (e.g., Bourdieu 1988a; 1996). In comparison to the stratifying dimensions of sex or race and ethnicity, this analysis finds that there is little class inequality across major areas within contemporary elite university education in the United States. Although gender inequality in higher education has declined considerably in the past few decades, women remain underrepresented in several natural science and engineering disciplines (Buchman et al. 2008; Jacobs 1996). Relative to white students, Asian students are more likely to major in engineering and less likely to major in the arts or humanities, and black and Latino students are underrepresented in the natural sciences and engineering (Charles et al. 2009). In contrast, there are few substantial class differences across major area. Subordinate class students are somewhat more likely to major in engineering and less likely to major in business or the arts and humanities, relative to professional and executive class students. However, social class is associated with significant differences in how students approach the selection of a major field of

[54] Items from the CIRP College Senior Survey ask students to rate their success in different areas of college life. Relative to professional class students, subordinate class students report lower levels of success adjusting to academic demands, understanding professors expectations, managing time effectively, utilizing campus services, developing effective study skills, or getting to know faculty. As the sole exception, there are no significant class differences in developing close relationships with other students..

study during the early college years. In two respects, subordinate class students' pre-college expectations fail to match experiences in the early college years: first, in the underestimation of the likelihood of changing majors; and second, through overly optimistic achievement expectations, especially among initial natural science and engineering majors.

Table 5.19: College success and post-graduation plans (percents), by social class

	Professional	Executive	Precarious professional	Middle classes	Subordinate classes
"Since entering college, how successful have you been in:"					
Utilizing campus services					
% very successful *	37.4	30.9	38.3	31.3	32.1
Understanding professors expectations					
% very successful *	69.0	65.9	66.4	63.5	57.3
Developing effective study skills					
% very successful *	56.5	50.0	44.9	46.8	37.6
Adjusting to academic demands					
% very successful *	69.5	64.9	67.3	65.2	60.3
Managing time effectively					
% very successful *	50.3	45.0	43.0	46.0	37.3
Getting to know faculty					
% very successful *	34.8	27.9	35.5	31.1	25.1
Developing close relationships with students					
% very successful	79.4	81.3	77.6	77.9	78.1

Source: Cooperative Institutional Research Program (n = 3286)
Notes: Significant interclass differences are noted as * $p < .05$, † $p < .10$ (two-tailed tests)

Bourdieu (2001) positions his concept of cultural capital in opposition to the human capital perspective characteristic of neoclassical economics, as well as the status attainment tradition within American sociology. As discussed in Chapter 4, Becker (1975) defines human capital as the knowledge, skills, health and values that individuals possess and can invest for later educational and occupational rewards. In contrast, Bourdieu emphasizes that all knowledge and skill is socially constructed and legitimated

– at least from a certain level of abstraction or historical vantage point – and instead focuses on the role of shared group cultural understandings to educational success. Results from this chapter support an integrative approach (e.g., Farkas et al. 1990; Farkas 1996; Lareau and Weininger 2003) that incorporates the concept of human capital into a Bourdieusian framework alongside forms of economic, social and cultural capital (Figure 4.1). In this manner, human capital includes the individual skills and behaviors that schools and instructors reward in accordance with the explicit curriculum and a meritocratic ideology. Human capital accumulated during college facilitates achievement for students from all class backgrounds. An integrative approach does not shy away from the empirical reality that variations in academic effort or ability offer the strongest explanations for patterns of achievement across the college years. Yet, only subordinate class students receive a significant grade penalty for spending additional time in social or recreational activities, and for changing major areas early in the college career. Net of the effects of human capital, differences in collegiate cultural capital help explain the relative academic underperformance of subordinate class students.

5.7 Conclusions

Through a detailed analysis of campus academic and social life, this chapter examines the lasting imprint of class background at elite, private universities. From first semester grades to final graduation honors, professional and middle class students have higher levels of achievement in comparison to executive and subordinate class students. These achievement gaps hold for all racial ethnic groups, both male and female students, and for all major areas except engineering. The enduring executive-professional gap

suggests contrasting academic orientations for two dominant class fractions. Both executive and professional class students enter college from households that contain an abundance of economic capital, but executive class students have relatively lower levels of high school achievement. Additionally, executive class students assign less importance to being a good student, and instead emphasize maintaining an active social life and personal contacts. In contrast, the underperformance of subordinate class students is due to differences in financial support for college, participation in social and recreational activities, and collegiate cultural capital.

In line with expectations, class background predicts significant differences in how students spend their time and participate in campus life. At the start of college, subordinate and middle class students place more emphasis on personal growth and development, while professional and executive class students assign greater importance to social life and interpersonal relationships. Across the college years, dominant class students spend roughly four to five hours more each week socializing with friends, partying, and exercising or playing sports, in comparison to subordinate class students. Subordinate class students substitute time in social and recreational activities with part-time jobs to help pay for college expenses. Additionally, subordinate class students are less likely to participate in three popular aspects of dominant class campus life: fraternities or sororities, study abroad, and drinking alcohol. Relative to social activities, there are few significant differences by social class in time spent in academic activities, and there are no significant differences across several dimensions of human capital after

the second year. Patterns of engagement with campus social life explain subordinate class students' lower levels of college satisfaction.

Some forms of capital facilitate college achievement for students from all class backgrounds. Across the college years, human capital has consistent, reliable effects on average semester grades for all students. Net of other factors, students who report higher levels of academic skills, motivation, or self-esteem earn higher grades. Similarly, participation in "highbrow" activities has a positive association with college grades for dominant, middle and subordinate class students, although this effect is small in comparison to campus social and human capital. Bourdieu highlights "highbrow" knowledge and participation as an important form of cultural capital within the French educational system, but activities such as visiting an art museum or attending the opera and symphony do not explain class differences in achievement at elite universities in the United States. If "highbrow" participation acts as a form of cultural capital, it is during the admissions process and not in the classroom or lecture hall. Instead, within-college human capital provides a stronger explanation for subordinate class students' lower levels of achievement, especially in the early college years.

Due to differences in family background and experiences at earlier stages in the educational career, subordinate class students enter college with relatively less collegiate cultural capital. As a result, subordinate class students have a more tenuous relationship with campus life in comparison to dominant and middle class students. Subordinate class students are more likely to have a job during the college years, which is associated with lower levels of college satisfaction and achievement. Further, when subordinate class

students do participate in social and recreational activities, semester grades decline as a result. Subordinate class students spend relatively less time in campus social activities, but this limited involvement leads to lower grades for subordinate class students only. Additionally, class background is associated with significant differences in how students approach the selection of a major field of study during the early college years. Upon matriculation, subordinate class students underestimate the likelihood of changing majors, a common event for all postsecondary students, and overestimate the likelihood of success in challenging natural science and engineering majors.

An interesting contrast to subordinate class students' frustrations with campus life is the experiences of legacies across the college years (see Chapter 4). Legacies arrive on campus with an abundance of economic and cultural capital, but less human capital in comparison to their dominant and middle class peers. Throughout the college career, legacies demonstrate an almost lackadaisical coziness with college life, remaining detached from the student identity and placing less emphasis on academic success. At the start of the first semester, legacies are more likely to be uncertain about their future major area of study or career plans, compared to other students. At graduation, legacies are less likely to describe career or educational plans for the next fall. During the early college years, both legacies and subordinate class students have significantly lower levels of achievement relative to professional class students (Figures 4.5 and 5.1). After the first year, legacies have an achievement gap of about one-eighth of a letter grade, compared to a gap of one-fifth of a letter grade for subordinate class students. By the final semester, legacies have largely closed this gap, but subordinate class students –

who, across the college years, are most committed to the good student identity, spend less time partying or socializing with friends, and consider alcohol to be less important to campus social life – continue to have lower grades, relative to professional class students and their own pre-college expectations.[55] Although initial human capital deficits explain much of the relative underperformance of both legacies and subordinate class students during the early college years, unequal access to collegiate cultural capital explains the persistently lower levels of achievement for subordinate class students.

[55] Legacies' fourth year, spring semester GPA is 3.58, compared to 3.61 for (non-legacy) professional class students and 3.48 for subordinate class students.

6. Conclusion

To date, quantitative applications of Bourdieu's concepts have underappreciated social class. Despite tremendous expansion of postsecondary education across much of the last century, elite universities remain under dominant class purview. In Chapter 3, I describe the underlying class structure of elite, private universities. More than half of Duke University students, and 44 percent of students at other elite universities, have dominant class origins (i.e., professional, executive, or precarious professional). Most students at highly selective, private universities enter college from households that are considerably more affluent and more highly educated than the typical American family. Consistent with Bourdieu's observations, but in a less obvious or severe manner in the United States than in France, the field of elite university education maps along two primary dimensions: the overall volume and relative composition of economic and cultural capital. Important distinctions between dominant class fractions – in particular, the enduring professional-executive achievement gap – would be missed with conventional class schemas or treatments of socioeconomic background.

Bourdieu's concept of cultural capital – namely, the role of "highbrow" activities to social reproduction, as described in his early studies (e.g., Bourdieu 1973a; Bourdieu and Passeron 1990) – has stimulated much research and discussion in the sociology of education (Kingston 2001; Lamont and Lareau 1988; Lareau and Weininger 2003; Sullivan 2002). In his subsequent work, Bourdieu develops a broader understanding of different forms of capital, with "highbrow" cultural capital being only one of a potentially endless variety (e.g., Bourdieu 1984; 1996; 2001). While Bourdieu's later insights await

incorporation into the research literature, there has been too little attention to the role of social and cultural capital at the postsecondary level (Stevens et al. 2008: 141). Schools – and elite universities in particular – are sites to the accumulation and conversion of several different types of cultural and social capital, as well as important dimensions of human capital. In Chapter 4, I examine two types of social capital at Duke University. In the practical or immediate state, social capital exists as extensive campus networks. Like dimensions of human capital, immediate social capital is available and valuable for students of all class backgrounds. In contrast, dominant class students are more likely to benefit from a type of institutionalized social capital: admissions preferences for legacy applicants.

In Chapter 5, I find that class shapes access to collegiate cultural capital and predicts how students navigate the college years. Nearly all students enter college with ambitious career goals and strong expectations for academic success. However, dominant class students' pre-college expectations are more in harmony with actual academic and social experiences. Prior to matriculation, professional and executive class students expect to have active social lives and place considerable emphasis on forming meaningful relationships. During the college years, dominant class students devote more time and energy to social and recreational activities. Subordinate class students are more likely to have a job to help pay for college, leaving less time for social activities and detracting from academic performance and overall satisfaction. Surprisingly, subordinate class students' firmer plans for the college years result in lower grades.

Professional class students enter college from households with an abundance of economic, social and cultural capital, as well as the highest levels of high school achievement and human capital. During the admissions process, professional class students benefit from excellent test scores, strong evaluation ratings, and regular ties to campus. Consistent with expectations, professional class students have the highest grades across the college year and are more likely to receive an honors distinction at graduation. Professional class students are heavily involved in all aspects of campus life, including honors societies, fraternities or sororities, intramural and intercollegiate sports teams, study abroad and alcohol. By balancing a commitment to academic excellence with active involvement in social and extracurricular activities, professional class students embody the "collegiate scholar" tradition of American elite education that aims to prepare well-rounded students for leadership roles and positions of power (e.g., Clark and Trow 1966; Ellis, Parelius and Parelius 1971).

In comparison to professional class students, middle class students enter college with moderate levels of family and educational resources. Across the college years, middle class students receive grades that are slightly lower than professional class students' grades, while outperforming other dominant class fractions. It is important to note that "middle" class students at elite, private universities arrive on campus from families are still considerably more affluent than the median US household. The median pre-college household income for Duke students ($125,000/year) is more than two and a half times greater than the national median household in 2005 ($44,389/year). All middle class students at elite, private universities have at least one parent with a college degree.

Rising tuition prices have more strongly impacted college decisions for lower, working and middle class students than for upper-middle or upper class students (Heller 2001). Across recent decades, middle class students at highly selective colleges and universities have accounted for a declining share of the student body (Espenshade and Radford 2009).

Relative to other students, subordinate class students enter college with less access to cultural, social and economic capital. Further, few subordinate class students have direct or family experience of success at elite institutions. The typical subordinate class student attended public primary and secondary schools, providing a less rigorous curriculum with fewer college preparatory opportunities (e.g., AP credit, admissions guidance counselors). During the admissions process, subordinate class students have less contact with faculty or administrators than do professional or executive class students. Relatively few subordinate class households have an advanced degree or legacy tie to campus. Across the college years, subordinate class students remain excluded from dominant campus life, partly by choice – as indicated by differences in pre-college expectations – and partly out of necessity, due to time and financial constraints.

Balancing an active social life with academic success comes more naturally for dominant class students, who arrive on campus expecting to devote considerable energies to fostering social relationships. Yet, this "work hard, play hard" lifestyle is both less attainable and less desirable for subordinate class students. Subordinate class students have less time for social activities, due to more frequent part-time employment, and less interest in popular aspects of campus life, drinking alcohol in particular. Lower levels of campus involvement result in a less satisfying college experience for subordinate class

students. Further, when subordinate class students do spend more time in social and recreational activities, grades decline as a result. In comparison to other students, subordinate class students have less experience with cultural activities, such as visiting art museums and attending the symphony, opera or ballet. However, "highbrow" participation has only a small effect on college grades, and does not explain class differences in achievement. Instead, differences in collegiate capital and expectations for the college years offer subtle advantages for already advantaged class backgrounds.

Subordinate and professional class students differ in terms of the overall volume of capital, including financial support for college and dimensions of human capital. In contrast, the boundaries between executive and professional class fractions are defined by a secondary dimension related to the ratio of symbolic to material resources. Like professional households, executive households have very high incomes and considerable wealth, but fewer graduate degrees and elite credentials. Executive class students assign less importance to being a good student, and do not appear distressed by an enduring achievement gap with professional class students (Tables 5.11 and 5.13). Executive class students receive fewer honors or awards upon graduation, and are less likely to complete a second major, minor or certificate program. For example, about 11 percent of professional class students completed an honors thesis, compared to 2 percent of executive class students.[1] This academic underperformance is only relative, however, and 98 percent of executive class students receive a degree from an elite university within

[1] The CLL fourth year survey asks students about activities students used to prepare for post-graduation plans. About 7 percent of middle and 8 percent of subordinate class students completed an honors thesis. There are no significant differences for testing preparation, using the career center, internship, utilizing family or personal contacts, research opportunities, independent study course, or teaching experiences.

five or six years of matriculation (Table 5.1). An advantage afforded by an abundance of capital is the ability to transfer success from one field to another in order to compensate for deficits in a particular area, or to complete "double plays" and maximize profits (Bourdieu 1996: 271). Executive class students neither expect a high GPA nor require a demonstration of exceptional achievement for their career plans and objectives, at least beyond a bachelor's degree from an elite university. By approaching postsecondary education with a practical eye to cultural capital investment, executive class students can devote more energy to forming interpersonal relationships, maintaining social networks and personal contacts, and enjoying campus life.

6.1 Cultural Mobility or Cultural Reproduction?

Bourdieu's theory and concepts have stimulated considerable criticism and debate. Among the more prominent criticisms are that Bourdieu's conclusions lack sufficient empirical support (Sullivan 2002), that his theory and concepts are too specific to the French case (Jenkins 2002), and that he overstates the role of the educational system to social reproduction (Halsey 1980; Robinson and Garnier 1985). Goldthorpe (2007) makes a distinction between Bourdieu "wild" – or Bourdieu's theory of cultural reproduction, which has received little empirical support in the quantitative literature – and Bourdieu "domesticated," or how researchers typically use his concepts in practice. Despite a growing influence across several areas and subfields, Bourdieu's potential contribution to the sociology of education remains an open question. In this final section, I add to this discussion and consider the implications of my results for Bourdieu's theory and competing perspectives. Do Bourdieu's theory and concepts offer a major

contribution with broad applicability across national contexts, commensurate with his celebrity and status as a leading figure in the sociology of education? Or, as Goldthorpe and other critics conclude, is Bourdieu's theory of cultural reproduction an embellishment to an otherwise unoriginal perspective, incapable of withstanding close empirical scrutiny?

One the one hand, Bourdieu "wild," or the bolder claims of his theory of cultural reproduction, receive little or only tentative support in a few respects. For example, some forms of social and cultural capital appear to be equally accessible to students from all class backgrounds. Subordinate class students are less likely to participate in "highbrow" activities, but frequent attendance at art museums is associated with somewhat higher college grades for all students at elite, private universities. Recent citation trends indicate that researchers are beginning to replace a narrow focus on "highbrow" cultural capital with greater attention to Bourdieu's (2001) other forms of capital, social capital especially (Sallaz and Zavisca 2007). Campus social capital – in the form of extensive ties to faculty, administrators and other students – has positive effects on achievement and is associated with high-status, professional career aspirations. Again, the benefits of extensive networks are open to male and female students, and to students from all class and racial ethnic backgrounds. Consistent with the Bourdieu "domesticated" literature (e.g., DiMaggio 1982; Roscigno and Ainsworth-Darnell 1999), these types of social and cultural capital facilitate higher achievement and course performance. However, as a challenge to Bourdieu's broader theory, there is no evidence that a dominant class habitus

facilitates the conversion of immediate social capital or "highbrow" cultural capital, and these effects are small in comparison to dimensions of human capital.

Human capital has strong, reliable effects on achievement across the college years. Net of other factors, students who report higher levels of academic skills, motivation, or self-esteem earn higher grades. Within-college variations in dimensions of human capital help explain a substantial portion of the black-white and Latino-white achievement gaps (Spenner et al. 2008). Bourdieu is very critical of the human capital perspective (e.g., Becker 1975; Schultz 1961), and argues that it fails to recognize the role of educational institutions in reproducing existing inequalities. Instead, Bourdieu (2001) considers academic skills and abilities as examples of embodied cultural capital. An alternative, integrative approach places human capital within a framework of economic, social and cultural capital (Farkas 1996; see Figure 4.1). Human and cultural capital share several properties, and both suggest a combination of deliberate and habitual actions that are developed and reinforced in the family and school, accumulated over time, and capable of being converted into other resources. An integrative approach has the advantage of distinguishing between the traits and capabilities that students develop as part of the formal curriculum and in support of a meritocratic ideology (e.g., academic skills and effort) from those that are largely developed as part of early socialization (e.g., tastes and dispositions). Importantly, an integrative approach stresses that boundaries between different forms of capital are often fluid and contested. The location and classification of valued forms of capital present within a particular field are key steps in the research process.

Some elements of Bourdieu's theory and argument are specific to the French case. Bourdieu stresses that the organization of disciplines bears a strong correspondence to the underlying class structure and serves to elevate and legitimate the cultural practices of the dominant classes (e.g., Bourdieu 1988a; 1996). In contrast, I find little class inequality across major areas at elite, private universities, in comparison to the stratifying dimensions of sex or race and ethnicity. In France, class origins strongly predict field of study as well as institutional status or prestige, a consequence of the characteristic organization of postsecondary education. In comparison, I find that subordinate class students face additional difficulties selecting a final major area. As mentioned above, Bourdieu presents "highbrow" knowledge and experience as a particularly salient form of cultural capital within French education. These activities may have been important at other levels of education or during the college admissions process, but Bourdieu's examples from the French case weakly apply to elite universities in the United States. Instead, domestic elites show broad and varied cultural tastes (Aldersen, Junisbai and Heacock 2007; Bryson 1996; Lamont 1992; Peterson and Kern 1996; Peterson and Simkus 1992), and have developed a range of skills to facilitate interactions with schools and other institutional settings (e.g., Lareau 2000; 2003).

On the other hand, other findings are more consistent with Bourdieu's theory of cultural reproduction. Bourdieu places social class at the center of his analysis, although the role of class background has been neglected in the quantitative literature. After decades of expansion of higher education, very few students at elite universities are from traditional working class or poor households, while dominant class students are

overrepresented at the top tiers of the postsecondary system. Across the college years, there are enduring class-based differences in how students approach campus social life, as well as persistent achievement gaps attributable to the relative supply or composition of forms of capital. The informal cultural knowledge, educational resources, and institutional advantages that are common to middle and upper class households play an important role in facilitating success during the college application process (e.g., Cookson and Persell 1987; Karabel 2005; Lareau and Weininger 2008; McDonough 1997; Stevens 2007). Beyond admissions, class continues to matter for students at elite, private universities. Across the college years, dominant class students are more engaged in campus life, leading to a more successful and satisfying college experience.

Immediate social capital encourages cultural mobility, but admissions preferences for legacy applicants – an example of institutionalized social capital at elite universities – supports cultural reproduction. Given legacies' distinctive profile of affluent, high status backgrounds paired with lower than expected levels of achievement, legacy preferences represent a challenge to goals of equity and excellence in higher education (Bowen et al. 2005; Golden 2006; Howell and Turner 2004; Karabel 2005; Karen 1991a). Available data prevent direct empirical judgments about the students who would have been admitted had there not been an admissions preference for legacies (cf. Espenshade, Chung and Walling 2004). Based on comparisons of students attending elite universities, it is reasonable to assume that abolishing legacy preferences would present financial challenges to admissions officers, as legacies are less likely to receive any financial aid and more likely to donate as alumni. Alternatively, admitting fewer legacies would lead

to a diverse student body (Espenshade and Chung 2005; Howell and Turner 2004). By providing an explicit advantage to an already advantaged group, elite universities demonstrate a tendency to act as conservative force, and offer implicit support for the dominant social hierarchy and traditions characteristic of earlier generations of students.

Subordinate class students are doubly disadvantaged within the field of elite university education due to initial deficits of financial resources and collegiate cultural capital. With less support from parents to pay for college expenses, subordinate class students are more likely to have a job while taking courses, leaving less time for academic and social activities. Less interested in many popular aspects of campus life, subordinate class students report lower levels of overall satisfaction upon graduation. Entering college with fewer personal or family experiences of successful interactions with elite institutions, subordinate class students encounter further difficulties as expectations for college diverge from actual experiences. Subordinate class students' firmer initial plans for major field of study result in a more difficult college transition and lower levels of achievement. For subordinate class students only, participation in social and recreational activities leads to lower grades. Across the college years, subordinate class students remain strongly committed to being a good student and report high levels of use of and satisfaction with academic support services. However, subordinate class students face additional challenges in keeping up with a more rigorous curriculum while adjusting to a campus social environment that bears a stronger relation to dominant class students' prior experiences, interests, and expectations.

In sum, with a few adjustments and modifications, Bourdieu provides a useful perspective for understanding class inequalities at elite universities in the United States. Bourdieu's ardent supporters have been slow to concede shortcomings with the theory of cultural reproduction, and instead charge Bourdieu's critics with misinterpreting or misrepresenting Bourdieu's complex theory and convoluted prose (e.g., Lizardo 2008; Wacquant 1989). Critics have focused attacks on prominent early applications of some of his concepts, creating a caricature of Bourdieu in the quantitative literature that fails to acknowledge key revisions and developments from his later studies (e.g., Bourdieu 1984; 1996; Bourdieu and Wacquant 1992). By either ignoring Bourdieu's weaknesses or fixating on the most vulnerable aspects of his theory, this debate attaches little emphasis on improving the quality of research Bourdieu's legacy has inspired (DiMaggio 2008). Bourdieu offers an ambitious social theory that integrates multiple levels of analysis with a range of methodological strategies, based primarily on observations from a single, highly differentiated society. If for no other reason than the sheer scope of Bourdieu's statements and predictions, there are certain to be problems and deficiencies when applying the theory of cultural reproduction to other national contexts.

To constitute a progressive research program based on the critical analysis of social institutions, a Bourdieusian sociology must explain anomalies or shortcomings and offer reformulations when necessary (cf. Burawoy 1990). To paraphrase Bourdieu's (1988b: 779-780) own heterodox approach to classic sociology, researchers should use Bourdieu against Bourdieu to go beyond Bourdieu. This dissertation offers several suggestions to guide future research. As is more characteristic of qualitative applications

of his theory and concepts, I argue that social class – and not cultural capital – sits at the center of a Bourdieusian analysis. Considered alone, various forms of social and cultural capital offer an incomplete and inadequate explanation for patterns of achievement at elite, private universities. An integrative approach that includes human capital as a distinct resource alongside other forms of capital adds clarity to the concept of cultural capital and provides a rigorous test of Bourdieu's theory. An important research task is to determine which types of cultural, social and human capital support achievement for all students, which types are only available to students from certain backgrounds, and which types require certain embodied dispositions to realize potential benefits. In this view, cultural reproduction and cultural mobility are not mutually exclusive perspectives, and instead act as complementary, concurrent processes. Clear, obvious rewards based on academic skill and merit can deflect attention from how elite schools subtly and imperfectly reward certain social backgrounds and perpetuate a cycle of elite domination and privilege.[2] A task of the sociologist is to untangle the processes and programs that promote goals of excellence and fairness from those that serve interests contrary to the academic and social missions of our leading institutions of higher learning.

[2] Similarly, when combined into a single "upper/upper-middle" category, professional class students' high levels of academic skills, motivation and achievement masks the relative underperformance of the executive fraction of the dominant class.

Appendix A. Non-Response, Dropout, and Missing Values

The *Campus Life & Learning* (CLL) project is a prospective panel study of two recent cohorts of Duke University students. The CLL target population is all undergraduate students in the Trinity College of Arts & Sciences and the Pratt School of Engineering. The study design incorporated survey methodology that closely follows Dillman's (1978) Total Design Method. This method provides for up to 12 sequential contacts with non-respondents via mail, telephone and e-mail reminders, multiple mailings of the survey instrument, and a modest incentive payment for their participation.

Table A.1 provides response rates across the four survey waves (Bryant, Spenner and Martin 2007: 91). The full sample included 833 students in the incoming class of 2001 (cohort one) and 700 students in the incoming class of 2002 (cohort two). Across both cohorts, about 89 percent (n = 1365) of sample members responded to at least one wave, and 42 percent (n = 651) responded to all four waves. Refusals were low, and included less than 2 percent (n = 27) of sample members. Overall response rates are acceptable and comparable to other large panel studies, but still lower than ideal. Two complications could be responsible for declining response rates across successive survey waves. First, the rapid diffusion of cell phones across the study period made it increasingly difficult to contact non-respondents during the latter waves. Second, after the second survey wave, changes in residential hall policy prevented graduate assistants from delivering questionnaires to non-respondents in campus dormitories in person. In the fourth college year, students were given the option of completing a paper or web survey. In both cohorts, about one third of respondents opted to complete the web

survey. There does not appear to be any significant differences between web and paper survey respondents across a range of sociodemographic characteristics or achievement measures (Bryant et al. 2007: 87-92).

Table A.1: Response rates by cohort, *Campus Life & Learning*

	Cohort one		Cohort two	
	n	%	n	%
Total sampled	833	100.0	700	100.0
Completed all four waves	353	42.4	298	42.6
Completed three waves	168	20.2	109	17.6
Completed two waves	111	13.3	109	15.6
Completed one wave	109	13.1	94	13.4
Completed at least one wave	741	89.0	624	89.1
Response rate by wave				
Pre-college	673	80.8	508	72.6
First year	600	72.0	491	70.1
Second year	569	68.3	434	62.0
Fourth year	465	55.8	440	62.9

The enduring effects of high school experiences and family background are a central focus of this dissertation. Therefore, the analytic sample is restricted to students who responded to the pre-college survey in the summer prior to matriculation. About 77 percent (n = 1181) of sample members completed the pre-college survey. In-college surveys were administered in the spring semester of the first, second and fourth college years. Many Duke students study abroad during their junior year, making the administration of a survey during the third college year impracticable. Among members of the analytic sample, 77 percent (n = 910) also completed the first college year survey, 75 percent (n = 891) completed the second year survey, and 67 percent (n = 793) completed the fourth year survey.

The CLL study design randomly selected about 300 and 200 white students from the first and second cohorts, respectively, as well as all black and Latino students and two thirds of Asian students from each cohort. Table A.2 provides sample characteristics and response rates for the pre-college survey, by racial ethnic group (Bryant, Spenner and Martin 2006: 135-136). Racial ethnic assignment was based on students' response to the Duke Admissions application form, which asks students to select from the categories white, black, Hispanic, Native American, Asian and bi-multiracial (Bryant et al. 2006: 134-139). The sampling frame is based on responses to the Admissions Form, although all analyses use information collected in the pre-college survey. These survey items use Census-type questions to ask the respondent if he or she is Hispanic, and then to select from white, black, Asian, bi-multiracial, and other categories. Students who selected bi-multiracial or other categories were asked to specify a racial ethnic label. Additionally, a separate item asked all students how they would describe their race or ethnicity if there were no set labels or categories. An advantage of the Census-type measure is that it allows for the identification of white and black Hispanic categories. However, among

Table A.2: Population, sample, and wave one response rates, by racial ethnic group, CLL

	White	Black	Latino	Asian	Other
Population	1965	350	245	478	216
Sampled	598	335	236	292	57
% of population	30.4	95.7	96.3	61.1	26.4
Responded pre-college	459	260	183	221	41
% of sample members	76.8	77.6	77.5	75.7	71.9
Refusals	16	1	3	4	3

Note: Sampling fractions are less than 100% for black and Latino students, and less than 66.7% for Asian students because of late changes in intention to matriculate.

CLL sample members, no student who identified as Hispanic also identified as black, and all students who identified as Hispanic are considered in the Latino group in the text, tables and figures. Due to small numbers, Native American, bi-multiracial and no response categories were combined into a single other group.

Registrar's Office data provided student enrollment information for the spring semesters of each survey year. Non-enrollment (or dropout) might occur for multiple reasons including academic or disciplinary probation, medical or personal leave of absence, dismissal or transfer. At the end of the first college year, fewer than one percent (n = 12) of sample members were not enrolled, three percent (n = 48) by the end of the second year and five percent (n = 81) by the end of the senior year. Table A.3 provides tests for dropout bias for the full sample, using selected admissions file information to compare enrolled and non-enrolled students in the full sample in the spring semester of each college survey year. The test variables included racial ethnic group, citizenship, parental education, SAT verbal and mathematics score, parental education, financial aid applicant, type of high school attended, and high school rank (where available). Only one comparison across the three college waves results in a significant ($p < .05$) difference. At the end of the first college year, dropouts had higher SAT scores than enrolled students.

Comparisons with the analytic sample, restricted to respondents to the pre-college survey, also provide no evidence for substantial dropout bias (Table A.4). In addition to the information from institutional records described above, tests with the analytic sample include information available for all wave one respondents, including sex, major field,

social class, and legacy status. At the end of the fourth year, dropouts in the analytic sample were less likely to have a parent with a college degree and to have declared a social science major. At the end of the first year, dropouts in the analytic sample were more likely to be female than were enrolled students. Across all available comparisons, no other difference is significant.

Table A.3: Tests for dropout bias (full sample), CLL

	Enrolled (W2)		Enrolled (W3)		Enrolled (W4)	
	Yes	No	Yes	No	Yes	No
n	1,520	12	1,484	48	1,391	81
Dropout rate (%)		.78		3.13		5.50
Cohort one		.72		2.75		6.13
Cohort two		.86		3.58		4.97
Race/ethnicity (%)						
White		.78		3.29		5.70
Black		.67		2.34		7.19
Latino		.00		2.86		3.38
Asian		.36		2.55		4.71
Other		1.45		4.35		2.94
US Citizen (%)						
Yes		.58		3.25		5.51
No		.70		1.40		4.76
Parent college graduate (%)						
Yes		.52		2.84		4.90
No		1.27		3.18		7.89
SAT score (mean)						
Mathematics	702.57	717.50	703.27	684.89	702.46	698.68
Verbal	679.92	733.75*	680.66	667.50	680.22	671.00
Financial aid interest (%)						
Yes		.57		2.86		4.75
No		.61		3.23		6.26
Class rank (mean)	94.76	97.00	94.76	94.97	94.90	92.86
High school type (%)						
Public		.60		3.18		4.98
Private		.60		3.00		6.90
Religious		.56		1.67		4.00

Source: Institutional records (application form and admissions files)
Notes: Results from t-tests for significant mean differences (chi-square tests for dichotomous variables) are noted as * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests); high school percentile class rank is available for 55 percent (n = 837) of analytic sample members.

Table A.4: Tests for dropout bias (analytic sample), CLL

	Enrolled (W2)		Enrolled (W3)		Enrolled (W4)	
	Yes	No	Yes	No	Yes	No
n	1,173	8	1,153	28	1,086	49
Dropout rate (%)		.68		2.37		4.31
Cohort one		.89		3.15		5.17
Cohort two		.39		1.78		3.69
Race/ethnicity (%)						
White		.78		2.73		5.10
Black		.92		.92		4.76
Latino		.00		3.06		3.66
Asian		.50		2.01		3.23
Other		1.79		3.57		1.79
US Citizen (%)						
Yes		.65		2.60		4.51
No		.95		.00		2.17
Parent college grad (%)						
Yes		.58		2.30		3.80 *
No		1.52		3.03		8.66
SAT score (mean)						
Mathematics	705.40	707.14	705.81	690.00	705.03	709.21
Verbal	683.44	730.00	684.12	669.63	683.38	680.00
Sex (%)						
Male		.00 **		2.30		4.40
Female		1.30		2.44		4.25
Social class (%)						
Professional		.29		3.46		3.92
Executive		.81		1.63		2.50
Middle		.67		1.79		4.21
Subordinate		1.14		2.27		5.95
Duke Legacy (%)						
Yes		.53		2.65		4.97
No		.71		2.34		4.23
Major field area (%)						
Engineering		.00		.00		1.82
Natural sciences		.48		1.90		1.00
Social sciences		.72		1.08		3.04 *
Arts and humanities		.00		.91		2.80

Sources: Campus Life & Learning and institutional records (application form and admissions files)
Notes: Results from t-tests for significant mean differences (chi-square tests for dichotomous variables) are noted as * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

Comparing respondents and non-respondents across the four survey waves reveals a few significant differences but overall little evidence for substantial non-response bias. Table A.5 provides tests for non-response bias for the full sample. Across all four waves, respondents had higher test scores than non-respondents, and respondents were less likely to have attended private high schools. Other comparisons show no significant or only sporadic differences. Students in the first cohort were more likely to respond to the first and third waves (pre-college and second college years, respectively), while the second cohort was more likely to respond to the second and fourth waves. Black and Asian students, as well as students with college graduate parents, were less likely to respond to the pre-college survey. Additionally, students who reported interest in financial aid on their admission form were more likely to respond to the third survey wave.

Table A.6 provides tests for non-response bias, restricted to students who responded to the pre-college wave. As above, students in the second cohort were more likely to complete surveys administered in the first and fourth college year. Across the three in-college waves, female students were more likely to respond than were male students. At each wave, respondents had higher average verbal test scores than non-respondents. Honors graduates (summa, magna or cum laude) had higher response rates. Additionally, survey respondents had somewhat higher grades in the previous semester (by about one-quarter of a letter grade) compared to non-respondents. There are no significant differences by citizenship status, high school class rank or legacy status. Professional class students in the analytic sample were somewhat more likely to respond to the fourth wave (72 percent of professional class students versus 65 percent of other

Table A.5: Tests for non-response bias (full sample), CLL

	All respondents		Responded (W1)		Responded (W2)	
	Yes	No	Yes	No	Yes	No
n	1,365	168	1,181	352	1,031	502
Non-response rate (%)		10.96		22.96		32.75
Cohort one		11.04		19.21***		35.17 *
Cohort two		10.86		27.43		29.86
Race/ethnicity (%)						
White		11.27		19.72 *		32.39
Black		13.04		27.42 *		36.12
Latino		6.94		20.00		31.43
Asian		8.76		27.37 *		28.83
Other		13.04		18.84		34.78
Parent college grad (%)						
Yes		10.68 *		22.11*		32.64
No		4.46		15.92		27.39
SAT score (mean)						
Mathematics	704.22	689.51 *	705.41	693.49 *	705.83	696.05 *
Verbal	682.46	660.79 **	683.75	668.14 **	686.16	667.89***
High school type (%)						
Public		8.36***		19.50***		28.46***
Private		19.52***		34.23***		43.54***
Religious		5.56 *		15.56 *		33.89

Sources: Campus Life & Learning and institutional records
Notes: Results from t-tests for significant mean differences (chi-square tests for dichotomous variables) are noted as * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

students), but there are no other significant class differences in survey response rates. Engineering majors were more likely to respond to the third wave.

I handled missing data as follows. For variables with less than five percent missing, I replaced missing values with mean imputation (Cohen et al. 2002). In the CLL sample, variables with more than five percent missing included family income (8.2 percent missing) and SAT scores (18.4 percent). I replaced missing values for family income with a regression-predicted score using variables for racial ethnic group, parents' education and occupational status, and interest in financial aid. Missing values for SAT

Table A.5 *continued*

	Responded (W3)		Responded (W4)	
	Yes	No	Yes	No
n	1,003	530	905	628
Non-response rate (%)		34.57		40.97
Cohort one		31.69 *		44.18 **
Cohort two		38.00		37.14
Race/ethnicity (%)				
White		34.43		41.63
Black		38.80		42.81
Latino		31.84		40.82
Asian		31.02		39.05
Other		34.78		28.99 *
Yes		34.20		40.18
No		30.57		40.76
SAT score (mean)				
Mathematics	707.53	693.45 **	706.12	697.46 *
Verbal	685.58	669.96***	687.55	669.30***
High school type (%)				
Public		30.45***		38.51 *
Private		46.25***		49.25***
Religious		32.22		36.67

scores were replaced with a corresponding ACT score (Dorans 1999), if available. About ten percent of students did not have a complete SAT or ACT score available in their admissions files. I replaced these remaining missing values with a regression-predicted score using variables for racial ethnic group, six admissions committee rankings (high school achievement, high school curriculum, personal essay, recommendation letters, standardized test scores) and high school class rank. In the *Cooperative Institutional Research Program* sample, variables with more than five percent missing included family income (9.5 percent missing) and parents' occupational status score (6.7 percent

Table A.6: Tests for non-response bias (analytic sample), CLL

	Responded (W2)		Responded (W3)		Responded (W4)	
	Yes	No	Yes	No	Yes	No
n	910	271	891	290	793	388
Response rate (%)						
Cohort one		26.00 **		22.88		35.22 *
Cohort two		18.90		26.77		29.72
Race/ethnicity (%)						
White		22.81		23.78		32.75
Black		25.35		27.19		34.10
Latino		26.53		26.02		35.20
Asian		17.59 *		22.61		33.17
Other		21.43		23.21		19.64 *
Parent college grad (%)						
Yes		22.82		24.35		32.02
No		23.48		26.52		39.39
SAT score (mean)						
Mathematics	706.60	701.36	708.03	697.30 *	701.87	707.07
Verbal	688.08	669.30***	687.11	673.44 **	688.12	674.60 **
High school type (%)						
Public		20.27***		22.74 *		32.01
Private		27.85		30.14 *		35.62
Religious		30.26 *		26.32		33.55
Sex (%)						
Male		30.80***		30.44***		42.48***
Female		15.75		19.16		24.03
Social class (%)						
Professional		23.63		28.24		28.53 *
Executive		23.58		30.08		31.71
Middle		22.20		21.52		35.65
Subordinate		23.11		22.35		34.47
Duke legacy (%)						
Yes		24.34		24.34		31.75
No		22.76		24.70		33.13
Graduation honors (%)						
Yes		13.46***		15.90***		22.02***
No		26.58		27.87		37.00

Sources: Campus Life & Learning and institutional records (application form and admissions files)
Notes: Results from t-tests for significant mean differences (chi-square tests for dichotomous variables) are noted as * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

missing). I imputed regression-predicted scores from equations including other variables for sociodemographic background, including racial ethnic group and parents' education. Prediction equations explained more than 60 percent of the variance in each imputed outcome, suggesting that minimal bias will be present in models using these imputed variables (Landerman, Land and Pieper 1997).

Appendix B. Descriptive Statistics and Measurement Notes

Table B.1: Descriptive statistics and measurement notes, *Campus Life & Learning*

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group				
		White	Black	Latino	Asian	Other
Race/ethnicity	US Census categories (pre-college survey and admissions records)	n = 513	n = 217	n = 196	n = 200	n = 56
Demographic characteristics (pre-college survey)						
Parent's education	Years of education (more highly educated parent, if available for both parents); from admissions records if missing	18.30 (2.07)	16.82 (2.81)	17.52 (2.62)	18.45 (2.68)	17.55 (2.08)
Parent's occupation	Status score (higher score, if available for both parents) assigned to 3-digit 1990 US Census Classified Index of Occupations code (TSEI; Hauser and Warren 1997)	68.18 (14.24)	54.92 (15.04)	57.28 (15.74)	58.83 (13.27)	56.03 (14.47)
Household income	Student-reported pre-tax household income, recoded from 11 categories to the midpoint of each category range ($US thousand)	229.55 (162.62)	118.66 (123.17)	171.85 155.50	151.30 134.64	167.18 153.88
Sex	1 = female, 0 = male (from admissions records if missing)	.48 (.50)	.69 (.46)	.47 (.50)	.46 (.50)	.61 (.49)
Citizenship	1 = US citizen, 0 = other (from admissions records if missing)	.97 (.16)	.93 (.26)	.93 (.24)	.72 (.45)	.89 (.31)
Family and high school background (pre-college survey)						
English in home	1 = English primary language spoken in home, 0 = other language	.96 (.18)	.98 (.15)	.70 (.46)	.44 (.50)	.93 (.26)
Religious affiliation						
Catholic	1 = yes, 0 = no	.19 (.40)	.08 (.27)	.57 (.50)	.12 (.33)	.30 (.46)
Protestant		.43	.71	.21	.17	.29

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
		(.50)	(.45)	(.41)	(.38)	(.46)
Jewish		.14	.00	.07	.00	.04
		(.35)	(.00)	(.25)	(.00)	(.19)
Other		.23	.21	.16	.71	.38
		(.42)	(.41)	(.37)	(.45)	(.49)
Grade school attended						
Public	1 = yes, 0 = no	.75	.73	.57	.70	.64
		(.44)	(.44)	(.50)	(.46)	(.48)
Private		.16	.09	.17	.15	.13
		(.37)	(.29)	(.38)	(.36)	(.33)
Religious		.09	.18	.27	.15	.23
		(.29)	(.38)	(.44)	(.36)	(.43)
Middle school attended						
Public	1 = yes, 0 = no	.70	.78	.59	.79	.75
		(.46)	(.41)	(.49)	(.41)	(.44)
Private		.19	.08	.12	.15	.09
		(.40)	(.28)	(.32)	(.36)	(.29)
Religious		.11	.13	.29	.06	.16
		(.31)	(.34)	(.46)	(.24)	(.37)
High school attended						
Public	1 = yes, 0 = no (from admissions records if missing)	.67	.75	.62	.71	.70
		(.47)	(.43)	(.49)	(.45)	(.46)
Private		.23	.11	.14	.20	.14
		(.42)	(.31)	(.35)	(.40)	(.35)
Religious		.10	.14	.24	.09	.14
		(.29)	(.35)	(.43)	(.29)	(.35)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group				
		White	Black	Latino	Asian	Other
Economic capital and family resources (pre-college survey)						
Financial difficulties	1 = self or family experienced financial difficulties during high school years, 0 = no	.11 (.31)	.43 (.50)	.32 (.47)	.14 (.35)	.20 (.40)
Financial aid interest	1 = interest in financial aid (from admissions records), 0 = no interest	.50 (.50)	.74 (.44)	.59 (.49)	.54 (.50)	.66 (.48)
Share of college expenses						
Parents	Proportion of college expenses (including tuition, room/board, books, etc.) covered by each source; recoded, if necessary, so total expenses equal 100%	.44 (.25)	.25 (.23)	.38 (.25)	.44 (.23)	.32 (.24)
Grants		.16 (.14)	.30 (.24)	.23 (.21)	.20 (.18)	.22 (.21)
Scholarships		.14 (.17)	.17 (.20)	.12 (.16)	.12 (.14)	.17 (.22)
Loans		.09 (.08)	.13 (.15)	.12 (.13)	.10 (.11)	.11 (.16)
Family members		.06 (.12)	.03 (.04)	.04 (.08)	.03 (.04)	.04 (.05)
Personal savings		.04 (.07)	.03 (.07)	.03 (.05)	.03 (.04)	.04 (.05)
Work-study		.02 (.02)	.04 (.03)	.03 (.02)	.03 (.02)	.04 (.04)
Other employment		.03 (.02)	.03 (.02)	.03 (.04)	.02 (.02)	.04 (.03)
Other source		.02 (.05)	.03 (.05)	.03 (.06)	.02 (.03)	.01 (.01)
Family own home	1 = yes, 0 = no	.85 (.35)	.66 (.47)	.82 (.38)	.83 (.38)	.77 (.43)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
Family own second home	1 = yes, 0 = no	.24	.11	.17	.22	.18
		(.43)	(.31)	(.38)	(.41)	(.39)
Family own business	1 = yes, 0 = no	.35	.20	.32	.36	.18
		(.48)	(.40)	(.47)	(.48)	(.39)
Intact family	1 = lived with both parents during senior year of high school, 0 = no	.86	.57	.74	.91	.64
		(.35)	(.50)	(.44)	(.29)	(.48)
Mother work full-time	1 = mother worked full-time (30 or more hours/week) during senior year in high school, 0 = other	.41	.72	.51	.47	.59
		(.49)	(.45)	(.50)	(.50)	(.50)
Number of siblings	Total number of siblings (including step and half brothers and sisters)	1.59	2.01	1.64	1.37	1.79
		(.88)	(1.38)	(1.00)	(.80)	(1.55)
Parent-school involvement						
Check homework	"During middle school, how often did you and your parents or other adults:" (1 = never, 2 = rarely/sometimes, 3 = often/very often)	1.47	1.48	1.44	1.42	1.45
		(.50)	(.50)	(.50)	(.49)	(.50)
Help with homework		1.57	1.53	1.53	1.46	1.43
		(.50)	(.50)	(.50)	(.50)	(.50)
Parent-teacher org.		1.47	1.33	1.40	1.32	1.43
		(.50)	(.47)	(.49)	(.47)	(.50)
Other school activity		1.62	1.44	1.50	1.37	1.55
		(.49)	(.50)	(.50)	(.48)	(.50)
Talk with friends		1.66	1.48	1.67	1.48	1.68
		(.47)	(.50)	(.47)	(.50)	(.47)
Parent-child interaction						
Discuss political or social issues	"In general, how often do you and your parents:" (1 = never or very rarely, 2 = a few times a year/once a month, 3 = several times	1.51	1.45	1.49	1.48	1.59
		(.50)	(.50)	(.50)	(.50)	(.50)
Discuss books, films,		1.56	1.52	1.56	1.45	1.57

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
or TV programs	a month)	(.50)	(.50)	(.50)	(.50)	(.50)
Listen to music		1.48	1.38	1.46	1.29	1.45
		(.50)	(.49)	(.50)	(.46)	(.50)
Eat the main meal		1.25	1.39	1.31	1.21	1.34
together		(.43)	(.49)	(.46)	(.40)	(.48)
Spend time just talking		1.30	1.38	1.35	1.40	1.35
		(.46)	(.49)	(.48)	(.49)	(.48)
Work with you on your		1.27	1.18	1.20	1.13	1.20
homework		(.44)	(.39)	(.40)	(.34)	(.40)
Discuss your progress		1.49	1.47	1.47	1.41	1.46
in school		(.50)	(.50)	(.50)	(.49)	(.50)
Cultural capital and educational resources (pre-college survey)						
Parent's cultural capital						
Visit a museum or art	"During middle school, how often did your	1.99	1.57	1.83	1.72	1.77
gallery	parents (either with or without you)	(.59)	(.61)	(.58)	(.54)	(.63)
Attend opera, ballet,	participate in the following activities:" (1 =	2.04	1.61	1.83	1.67	1.84
play or symphony	never/hardly ever, 2 = sometimes, 3 = often	(.62)	(.58)	(.67)	(.64)	(.63)
Read a book for	or very often)	2.77	2.35	2.58	2.25	2.64
interest or pleasure		(.47)	(.73)	(.63)	(.71)	(.55)
Student's cultural capital						
See a movie at the	"During middle school, how often did you	2.74	2.46	2.68	2.43	2.63
movie theater	participate in the following activities, either	(.46)	(.61)	(.52)	(.58)	(.56)
Visit a museum or art	in or outside of school:" (1 = never/hardly	2.03	1.86	1.96	1.95	2.04
gallery	ever, 2 = sometimes, 3 = often or very often)	(.45)	(.44)	(.46)	(.40)	(.47)
Attend a popular music		1.53	1.35	1.51	1.32	1.55
concert		(.54)	(.50)	(.58)	(.50)	(.57)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group				
		White	Black	Latino	Asian	Other
Attend opera, ballet, play or symphony		1.83 (.55)	1.66 (.55)	1.70 (.59)	1.77 (.56)	1.84 (.53)
Attend a sporting event (not your own team)		2.42 (.64)	2.11 (.70)	2.26 (.66)	1.84 (.65)	2.25 (.61)
Visit a zoo, science center or aquarium		2.02 (.49)	1.88 (.54)	2.03 (.43)	2.00 (.38)	2.07 (.50)
More than 200 books	1 = more than 200 books in home during high school years (enough to fill 3 or more bookcases), 0 = no	.78 (.42)	.40 (.49)	.55 (.50)	.54 (.50)	.66 (.48)
Educational resources	Total number of items present in home during high school years (max. 10)	9.42 (.91)	8.70 (1.56)	9.10 (1.26)	9.16 (.98)	9.18 (.96)
College preparation activities						
Taking AP course(s)	"Please indicate all of the resources that you and your family used in preparing for and applying to Duke University" (1 = yes, 0 = no)	.95 (.21)	.94 (.25)	.98 (.14)	.90 (.31)	.95 (.23)
Receiving AP credit		.86 (.34)	.65 (.48)	.81 (.39)	.85 (.35)	.77 (.43)
Having a private tutor		.08 (.28)	.09 (.28)	.06 (.24)	.14 (.34)	.23 (.43)
SAT prep course		.45 (.50)	.45 (.50)	.50 (.50)	.54 (.50)	.38 (.49)
SAT private tutor		.19 (.40)	.08 (.27)	.16 (.37)	.12 (.33)	.16 (.37)
College course for credit		.22 (.41)	.26 (.44)	.26 (.44)	.30 (.46)	.25 (.44)
Educational consultant		.30 (.46)	.33 (.47)	.31 (.46)	.23 (.42)	.27 (.45)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
Have a family member that graduated from Duke (legacy)		.25 (.44)	.08 (.27)	.08 (.27)	.11 (.31)	.11 (.31)
Visit to campus		.89 (.31)	.71 (.45)	.77 (.42)	.64 (.48)	.86 (.35)
Speak with Admissions representative		.63 (.48)	.60 (.49)	.60 (.49)	.43 (.50)	.54 (.50)
Speak with recruiter in hometown		.19 (.40)	.23 (.42)	.20 (.40)	.11 (.31)	.21 (.41)
Speak with recruiter at Duke		.38 (.49)	.31 (.46)	.34 (.47)	.20 (.40)	.38 (.49)
Speak with recruiter over phone		.14 (.35)	.17 (.37)	.13 (.33)	.07 (.25)	.18 (.39)
Speak with a faculty or staff member		.35 (.48)	.31 (.46)	.28 (.45)	.27 (.44)	.34 (.48)
Family ties to the university		.23 (.42)	.06 (.25)	.09 (.29)	.09 (.29)	.15 (.35)
Admissions profiles (admissions records)						
SAT score	Mathematics plus verbal (max. 1600); see Appendix A for note on missing data	1415.59 (100.51)	1275.00 (102.89)	1343.89 (100.74)	1457.50 (95.70)	1372.13 (126.21)
High school class rank	Percentile class rank	95.24 (5.94)	94.22 (7.32)	95.09 (5.71)	95.23 (9.16)	95.69 (6.56)
Class rank missing	1 = class rank missing, 0 = not missing	.46 (.50	.37 (.48)	.42 (.50)	.48 (.50)	.43 (.50)
Admissions evaluation						
Achievement	Average admissions committee evaluation	4.23	3.66	4.05	4.56	4.03

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
	(1 = lowest, 5 = highest)	(.89)	(.83)	(.80)	(.61)	(.98)
Curriculum		4.65	4.33	4.69	4.88	4.64
		(.59)	(.71)	(.52)	(.37)	(.50)
Essay		3.44	3.14	3.26	3.49	3.32
		(.56)	(.40)	(.48)	(.58)	(.45)
Personal qualities		3.46	3.24	3.23	3.43	3.32
		(.58)	(.45)	(.43)	(.59)	(.57)
Recommendation		3.80	3.46	3.47	3.90	3.54
		(.63)	(.57)	(.52)	(.55)	(.57)
Test scores		3.67	2.08	2.79	4.05	3.13
		(1.19)	(1.05)	(1.22)	(1.16)	(1.43)
Scholarship athlete	1 = scholarship athlete (first year), 0 = no	.05	.03	.02	.00	.02
		(.22)	(.18)	(.14)	(.00)	(.13)
Social capital (college years surveys)						
Campus ties						
First year	Number of campus positions to which the	2.81	3.45	3.49	2.82	3.57
	student reports access by knowing at least	(2.38)	(2.80)	(3.20)	(2.74)	(1.78)
Second year	one person (max. 12)	3.80	4.43	4.19	4.43	4.47
		(2.42)	(2.71)	(2.69)	(3.09)	(2.35)
Fourth year		4.79	6.07	4.97	4.97	5.73
		(2.59)	(2.96)	(2.69)	(3.06)	(2.98)
Dorm ties						
First year	Number of on-campus dorms or residence	10.16	11.49	10.97	10.06	10.91
	halls to which the student reports access by	(3.10)	(2.49)	(2.74)	(2.95)	(3.18)
Second year	knowing at least one student (max. 13, first	7.28	7.24	7.39	7.08	7.33
	year; max. 8, second and fourth year)	(1.80)	(1.67)	(1.67)	(1.80)	(2.12)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group				
		White	Black	Latino	Asian	Other
Fourth year		5.38	4.99	5.32	5.86	6.07
		(2.89)	(2.89)	(2.72))	(2.53)	(2.45)
Use family contacts	1 = used family or personal contacts to	.56	.47	.57	.37	.62
	prepare for post-graduation plans	(.50)	(.50)	(.50)	(.48)	(.49)
Human capital (pre-college and college years surveys)						
Academic skills						
Pre-college (α = .758)	Eight item scale of self-assessed abilities:	32.46	30.92	28.79	31.68	31.73
	factual knowledge, understanding concepts,	(3.82)	(3.75)	(3.84)	(3.59)	(3.60)
First year (α = .785)	applying knowledge, analyzing arguments,	29.26	27.99	28.79	28.77	29.36
	synthesizing information, conducting	(3.88)	(3.45)	(3.84)	(3.70)	(3.88)
Second year (α = .788)	research, oral expression, and writing skills	29.37	28.68	29.17	28.54	29.74
	(max. 40)	(4.02)	(3.36)	(3.72)	(4.04)	(3.68)
Fourth year (α = .790)		32.11	31.60	28.54	31.18	32.35
		(3.83)	(4.28)	(4.04)	(3.71)	(3.57)
Good student identity						
Pre-college	Importance of good student-identity to	4.29	4.64	4.52	4.37	4.56
	overall identity (1 = not at all important, 5 =	(.81)	(.60)	(.82)	(.93)	(.78)
First year	extremely important)	4.01	4.40	4.26	4.25	4.52
		(.91)	(.69)	(.92)	(.92)	(.70)
Second year		3.88	4.24	4.08	4.15	4.19
		(.99)	(.82)	(.87)	(1.01)	(.93)
Fourth year		3.94	4.08	4.02	4.11	4.09
		(.95)	(.90)	(1.00)	(.98)	(1.04)
Ability comparisons						
Pre-college (math.)	Ability comparisons to other students in	4.15	3.94	4.11	4.36	4.07
	most challenging fall semester course (1 =	(.81)	(.75)	(.74)	(.69)	(.76)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group				
		White	Black	Latino	Asian	Other
Pre-college (English)	very much below average, 5 = very much above average)	4.08 (.79)	4.04 (.77)	4.17 (.74)	3.99 (.75)	4.18 (.72)
First year		3.25 (.85)	2.78 (.81)	3.15 (.78)	3.40 (.90)	3.39 (.72)
Second year		3.29 (.89)	2.80 (.86)	3.18 (.84)	3.38 (.94)	3.16 (.90)
Fourth year		3.41 (.80)	3.16 (.84)	3.29 (.78)	3.41 (.88)	3.45 (.74)
Academic self-confidence						
Pre-college (math.)	Confidence in most challenging fall semester course (1 = not at all confident, 5 = extremely confident)	3.67 (1.02)	3.43 (1.08)	3.67 (1.08)	3.72 (1.06)	3.46 (.95)
Pre-college (English)		3.71 (1.04)	3.69 (1.06)	3.79 (1.02)	3.52 (1.06)	3.86 (1.05)
First year		2.53 (.97)	2.23 (.90)	2.43 (1.00)	2.58 (1.03)	2.66 (.99)
Second year		2.56 (1.04)	2.27 (.88)	2.53 (.96)	2.56 (1.01)	2.53 (.98)
Fourth year		2.77 (1.01)	2.72 (1.01)	2.88 (1.04)	2.62 (.95)	3.10 (1.01)
Success from hard work						
Pre-college (math.)	1 = succeeded in most challenging fall semester course due to hard work, 0 = no	.71 (.46)	.79 (.41)	.72 (.45)	.76 (.43)	.75 (.44)
Pre-college (English)		.63 (.48)	.66 (.47)	.66 (.47)	.65 (.48)	.64 (.48)
First year		.80 (.40)	.76 (.43)	.82 (.39)	.76 (.43)	.86 (.35)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
Second year		.80	.84	.80	.79	.84
		(.40)	(.37)	(.40)	(.41)	(.37)
Fourth year		.82	.77	.79	.84	.88
		(.39)	(.42)	(.41)	(.37)	(.33)
Overall satisfied with self						
Pre-college	Extent to which the student agrees that, on the whole, he or she is satisfied with self (1 = strongly disagree, 5 = strongly agree)	4.30	4.02	4.31	4.01	4.16
		(.85)	(.95)	(.84)	(.90)	(.83)
First year		3.90	3.70	3.95	3.69	3.82
		(.96)	(1.14)	(.93)	(.95)	(.79)
Second year		4.08	4.07	4.20	3.79	4.09
		(.96)	(1.01)	(.94)	(.98)	(.95)
Fourth year		4.20	4.10	4.26	4.06	4.31
		(.95)	(1.02)	(.83)	(.91)	(.79)
Feel useless at times						
Pre-college	Extent to which the student agrees that he or she certainly feels useless at times (1 = strongly disagree, 5 = strongly agree)	2.69	2.55	2.70	3.08	2.71
		(1.29)	(1.40)	(1.27)	(1.23)	(1.29)
First year		2.93	2.68	2.94	3.18	3.20
		(1.22)	(1.32)	(1.26)	(1.11)	(1.27)
Second year		2.84	2.57	2.80	3.01	2.93
		(1.29)	(1.38)	(1.30)	(1.14)	(1.26)
Fourth year		2.75	2.43	2.79	2.98	2.93
		(1.29)	(1.28)	(1.27)	(1.20)	(1.19)
Semester grades and graduation honors (from official transcripts)						
Semester GPA						
Year one (fall)	A = 4.0, B = 3.0, C = 2.0, D = 1.0	3.32	2.84	3.15	3.43	3.30
		(.52)	(.55)	(.49)	(.46)	(.47)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
Year one (spring)		3.30	2.87	3.14	3.35	3.16
		(.52)	(.59)	(.52)	(.47)	(.46)
Year two (fall)		3.38	2.94	3.18	3.37	3.21
		(.49)	(.51)	(.51)	(.53)	(.51)
Year two (spring)		3.39	2.96	3.18	3.42	3.19
		(.49)	(.57)	(.52)	(.47)	(.53)
Year three (fall)		3.47	3.07	3.34	3.48	3.39
		(.47)	(.52)	(.52)	(.48)	(.55)
Year three (spring)		3.49	3.16	3.31	3.51	3.44
		(.44)	(.49)	(.49)	(.43)	(.42)
Year four (fall)		3.58	3.29	3.45	3.52	3.57
		(.37)	(.43)	(.37)	(.42)	(.36)
Year four (spring)		3.61	3.41	3.48	3.54	3.62
		(.38)	(.42)	(.43)	(.46)	(.30)
Graduation honors	1 = Latin honors (*cum laude, magna cum laude and summa cum laude*) or other official honors distinctions	.35	.09	.19	.39	.23
		(.48)	(.29)	(.39)	(.49)	(.43)
Any double major	1 = any double major (final)	.28	.19	.30	.32	.16
		(.45)	(.40)	(.46)	(.47)	(.37)
Any minor	1 = any minor area (final)	.47	.50	.52	.47	.55
		(.50)	(.50)	(.50)	(.50)	(.50)
Any certificate	1 = any certificate (final)	.15	.23	.22	.14	.09
		(.35)	(.42)	(.41)	(.34)	(.29)
Weekly time allocation (college years surveys)						
Attending classes and labs						
First year	Hours spent in a typical week in each	13.32	13.86	13.28	14.46	14.48

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group				
		White	Black	Latino	Asian	Other
	activity; time-use variables are recoded from	(3.69)	(4.15)	(3.87)	(3.86)	(3.67)
Second year	eight discrete categories to the midpoint of	12.77	12.85	12.43	13.08	12.64
	each category range, using linear	(4.06)	(4.31)	(4.26)	(4.33)	(3.68)
Fourth year	interpolation for the top category ("16 hours	10.20	10.73	11.15	10.46	11.67
	or more")	(4.07)	(3.77)	(4.34)	(4.50)	(4.15)
Socializing with friends						
First year	Hours spent in a typical week	12.14	8.85	11.40	10.12	9.98
		(5.01)	(5.27)	(5.18)	(5.09)	(5.21)
Second year		11.07	8.07	9.95	8.32	9.95
		(5.17)	(5.20)	(5.33)	(4.94)	(5.68)
Fourth year		10.93	8.02	11.10	8.66	8.98
		(5.10)	(5.51)	(5.37)	(5.42)	(5.54)
Studying and homework						
First year	Hours spent in a typical week	10.71	10.50	10.20	11.58	12.09
		(5.10)	(5.18)	(5.22)	(4.92)	(4.97)
Second year		10.69	10.61	9.98	10.94	11.08
		(4.99)	(4.88)	(4.96)	(4.99)	(5.11)
Fourth year		9.93	8.95	9.22	9.10	9.40
		(5.28)	(4.98)	(5.33)	(5.25)	(4.69)
Exercising or sports						
First year	Hours spent in a typical week	5.96	3.94	5.22	3.95	5.49
		(5.03)	(4.52)	(4.90)	(3.66)	(4.19)
Second year		5.63	3.97	5.14	4.05	4.41
		(5.16)	(4.29)	(4.63)	(4.06)	(3.41)
Fourth year		5.09	3.19	4.81	3.21	4.02
		(4.54)	(3.30)	(3.95)	(2.74)	(2.84)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
Partying						
First year	Hours spent in a typical week	5.22	3.34	6.01	2.79	4.34
		(4.63)	(2.90)	(5.01)	(3.49)	(3.91)
Second year		5.32	2.96	5.39	2.09	3.97
		(4.88)	(3.18)	(4.35)	(2.52)	(4.30)
Fourth year		5.39	2.74	5.84	2.77	4.17
		(4.68)	(2.86)	(4.82)	(3.41)	(4.53)
Working (for pay)						
First year	Hours spent in a typical week	2.17	4.66	4.08	2.69	3.39
		(4.02)	(4.99)	(5.38)	(4.21)	(5.08)
Second year		3.30	5.89	5.74	3.28	6.05
		(4.63)	(4.91)	(5.55)	(4.41)	(5.94)
Fourth year		5.21	7.84	5.70	4.26	5.09
		(6.60)	(6.44)	(5.81)	(5.65)	(5.33)
Participating in student clubs and groups						
First year	Hours spent in a typical week	2.92	2.52	2.70	3.16	2.76
		(3.08)	(2.37)	(3.19)	(2.89)	(3.01)
Second year		3.36	3.56	4.27	3.93	3.80
		(3.62)	(3.20)	(4.56)	(3.58)	(3.73)
Fourth year		4.21	5.30	5.15	3.60	4.02
		(4.12)	(4.85)	(5.06)	(3.87)	(4.10)
Extracurricular memberships (college years surveys)						
Fraternity or sorority						
First year	1 = member, 0 = non-member	.44	.07	.42	.13	.30
		(.50)	(.25)	(.50)	(.33)	(.46)
Second year		.46	.12	.42	.18	.33

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group				
		White	Black	Latino	Asian	Other
		(.50)	(.33)	(.50)	(.39)	(.47)
Fourth year		.43	.21	.44	.17	.36
		(.50)	(.41)	(.50)	(.38)	(.48)
Intramural sports team						
First year	1 = member, 0 = non-member	.39	.25	.29	.24	.27
		(.49)	(.44)	(.46)	(.43)	(.45)
Second year		.33	.16	.32	.19	.26
		(.47)	(.37)	(.47)	(.40)	(.44)
Fourth year		.11	.10	.14	.14	.18
		(.31)	(.30)	(.35)	(.35)	(.39)
Cultural or ethnic club						
First year	1 = member, 0 = non-member	.03	.60	.35	.51	.36
		(.18)	(.49)	(.48)	(.50)	(.49)
Second year		.07	.51	.34	.46	.26
		(.26)	(.50)	(.47)	(.50)	(.44)
Fourth year		.04	.53	.34	.40	.31
		(.20)	(.50)	(.48)	(.49)	(.47)
Community service club						
First year	1 = member, 0 = non-member	.24	.36	.26	.36	.18
		(.43)	(.48)	(.44)	(.48)	(.39)
Second year		.21	.39	.26	.21	.28
		(.41)	(.49)	(.44)	(.41)	(.45)
Fourth year		.21	.36	.25	.28	.29
		(.41)	(.48)	(.44)	(.45)	(.46)
Intercollegiate sports team						
First year	1 = member, 0 = non-member	.11	.07	.07	.04	.11

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
		(.32)	(.25)	(.26)	(.20)	(.32)
Second year		.12	.06	.06	.02	.14
		(.32)	(.24)	(.23)	(.14)	(.35)
Fourth year		.07	.05	.05	.01	.04
		(.25)	(.22)	(.21)	(.12)	(.21)
Student government						
First year	1 = member, 0 = non-member	.07	.06	.09	.08	.05
		(.26)	(.23)	(.29)	(.28)	(.21)
Second year		.07	.09	.08	.06	.00
		(.25)	(.29)	(.28)	(.23)	(.00)
Fourth year		.08	.09	.06	.05	.07
		(.26)	(.29)	(.24)	(.22)	(.25)
Campus newspaper						
First year	1 = member, 0 = non-member	.07	.03	.03	.04	.05
		(.25)	(.17)	(.18)	(.20)	(.21)
Second year		.06	.06	.08	.08	.02
		(.24)	(.24)	(.27)	(.27)	(.15)
Fourth year		.08	.08	.04	.07	.02
		(.28)	(.28)	(.20)	(.25)	(.15)
Romantic relationships and campus social life (college years surveys)						
Romantic relationship						
First year	1 = currently in a romantic relationship, 0 = not in a relationship	.41	.27	.39	.24	.36
		(.49)	(.45)	(.49)	(.43)	(.49)
Second year		.38	.27	.35	.26	.31
		(.48)	(.45)	(.48)	(.44)	(.47)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
Fourth year		.54	.41	.57	.44	.49
		(.50)	(.49)	(.50)	(.50)	(.51)
Importance of alcohol						
First year	"How important is alcohol to your	2.48	1.51	2.60	1.65	2.23
	enjoyment of campus life" (1 = not at all	(1.26)	(.99)	(1.35)	(1.09)	(1.20)
Second year	important, 5 = extremely important)	2.64	1.73	2.74	1.86	2.49
		(1.28)	(1.10)	(1.31)	(1.08)	(1.22)
Fourth year		2.70	1.93	2.93	2.12	2.54
		(1.23)	(1.08)	(1.25)	(1.24)	(1.27)
Presence of alcohol						
First year	"How often is alcohol present at the campus	3.86	3.28	4.14	3.18	3.59
	social events you attend?" (1 = never, 5 =	(1.04)	(1.14)	(.97)	(1.30)	(1.15)
Second year	always)	3.87	3.32	4.00	3.23	3.56
		(1.01)	(1.11)	(.95)	(1.25)	(.91)
Fourth year		3.99	3.26	4.03	3.32	3.73
		(.89)	(1.08)	(.93)	(1.21)	(1.14)
Study abroad	1 = yes, 0 = no (senior year survey)	.53	.32	.46	.19	.33
		(.50)	(.47)	(.50)	(.40)	(.48)
Major field area						
First year (expected)	From pre-college survey					
Engineering	1 = yes, 0 = no	.18	.07	.09	.28	.13
		(.39)	(.25)	(.28)	(.45)	(.33
Natural sciences		.16	.32	.30	.25	.32
		(.36)	(.47)	(.46)	(.43)	(.47)
Social sciences		.22	.29	.26	.16	.23
		(.41)	(.45)	(.44)	(.37)	(.43)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
Arts and humanities		.09	.08	.07	.04	.04
		(.28)	(.28)	(.25)	(.20)	(.19)
Other/undecided		.35	.24	.30	.27	.29
		(.48)	(.43)	(.46)	(.45)	(.46)
Second year (current)	From second college year survey					
Engineering	1 = yes, 0 = no	.16	.06	.10	.31	.12
		(.37)	(.23)	(.31)	(.46)	(.32)
Natural sciences		.17	.20	.12	.24	.23
		(.37)	(.40)	(.33)	(.43)	(.43)
Social sciences		.42	.54	.55	.35	.44
		(.49)	(.50)	(.50)	(.48)	(.50)
Arts and humanities		.24	.16	.21	.06	.19
		(.42)	(.37)	(.41)	(.25)	(.39)
Other/undecided		.02	.04	.01	.03	.02
		(.14)	(.19)	(.12)	(.18)	(.15)
Fourth year (final)	From official transcripts					
Engineering	1 = yes, 0 = no	.15	.06	.09	.29	.13
		(.36)	(.24)	(.28)	(.45)	(.33)
Natural sciences		.17	.16	.14	.24	.21
		(.38)	(.36)	(.35)	(.43)	(.41)
Social sciences (BS)		.10	.16	.12	.15	.05
		(.30)	(.37)	(.33)	(.05)	(.23)
Social sciences (AB)		.33	.41	.45	.20	.38
		(.47)	(.49)	(.50)	(.40)	(.49)
Arts and humanities		.22	.18	.18	.10	.21
		(.41)	(.39)	(.38)	(.30)	(.41)

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
Patterns of major change (second year survey)						
Major has changed	1 = yes, 0 = no	.43	.44	.55	.41	.47
		(.50)	(.50)	(.50)	(.49)	(.50)
If yes, reason:						
Academic interests and values have changed	1 = yes, 0 = no	.83	.65	.82	.75	.75
		(.39)	(.48)	(.38)	(.44)	(.44)
Academic difficulty in major requirements		.17	.41	.35	.31	.25
		(.38)	(.49)	(.48)	(.47)	(.44)
Career interests have changed		.40	.46	.44	.41	.45
		(.49)	(.50)	(.50)	(.50)	(.51)
Lack of academic preparation		.16	.12	.13	.11	.10
		(.37)	(.33)	(.33)	(.31)	(.31)
Lack of internship opportunities		.04	.04	.06	.03	.05
		(.19)	(.21)	(.24)	(.18)	(.22)
Other reason		.16	.07	.13	.09	.15
		(.37)	(.26)	(.33)	(.29)	(.37)
Post-graduation plans (fourth year survey)						
Primary activity next fall						
Attend school	1 = yes, 0 = no	.36	.43	.33	.50	.33
		(.48)	(.50)	(.47)	(.50)	(.48)
Work		.54	.50	.59	.47	.53
		(.50)	(.50)	(.49)	(.50)	(.50)
Other plans		.10	.08	.08	.04	.13
		(.30)	(.27)	(.27)	(.19)	(.34)
Highest degree aspirations						
Bachelor's	Expected highest degree earned or in	.11	.04	.04	.07	.07

Variable name	Measurement notes	Mean (standard deviation) by racial ethnic group White	Black	Latino	Asian	Other
	progress about five years after graduation (1	(.32)	(.20)	(.20)	(.25)	(.25)
Master's (incl. MBA)	= yes, 0 = no)	.39	.19	.36	.24	.29
		(.49)	(.39)	(.48)	(.43)	(.46)
Advanced (MD, JD,		.48	.76	.60	.29	.60
PhD, etc.)		(.50)	(.43)	(.49)	(.46)	(.50)
Career aspirations						
Lawyer	Expected career about five years after	.19	.20	.19	.14	.13
	graduation (1 = yes, 0 = no)	(.39)	(.40)	(.39)	(.34)	(.34)
Executive/manager		.17	.10	.17	.18	.16
		(.38)	(.31)	(.37)	(.39)	(.37)
Medical doctor		.10	.25	.17	.37	.22
		(.31)	(.44)	(.37)	(.48)	(.42)
Professor/scientist		.11	.09	.10	.05	.16
		(.32)	(.29)	(.29)	(.21)	(.37)
Engineer		.06	.02	.03	.05	.04
		(.23)	(.14)	(.18)	(.21)	(.21)
Other occupation		.18	.11	.15	.13	.11
		(.38)	(.32)	(.36)	(.34)	(.32)
Plans missing		.18	.22	.20	.10	.18
		(.39)	(.41)	(.40)	(.30)	(.39)

Table B.2: Descriptive statistics and measurement notes, *Cooperative Institutional Research Program*

Variable name	Measurement notes	Mean (standard deviation)
Demographic characteristics and socioeconomic background (Freshman Year Survey)		
Race/ethnicity	From College Senior Survey, if missing	
White	1 = yes, 0 = no	.84
		(.36)
Black		.03
		(.17)
Latino		.05
		(.21)
Asian		.06
		(.24)
Other		.02
		(.13)
Parent's education	Years of education (more highly educated parent, if available for both parents)	19.36
		(3.34)
Parent's occupation	Status score (higher score, if available for both parents) assigned to 3-digit 1990 US Census Classified Index of Occupations code (TSEI; Hauser and Warren 1997)	58.90
		(13.84)
Household income	Student-reported pre-tax parental income, recoded from 14 categories to the midpoint of each category range ($US thousand)	117.74
		(62.57)
Sex	1 = female, 0 = male (from College Senior Survey if missing)	.52
		(.50)
Citizenship	1 = US citizen, 0 = other	.97
		(.18)
Family and high school background (Freshman Year Survey)		
English primary language	1 = native English speaker, 0 = no	.96
		(.20)
Intact family	1 = both parents live together, 0 = other	.85
		(.35)
Sources of financial aid		
Parents, relatives	1 = over $3,000 towards first year's educational expenses , 0 = less than $3000	.83
		(.38)
Personal savings		.20
		(.40)
Work during college		.06
		(.23)
Scholarships/grants		.42
		(.49)
Loans		.22

Variable name	Measurement notes	Mean (standard deviation)
High school activities		
Attended public recital or concert	"For the activities below, please indicate which ones you did in the past year." (1 = not at all, 2 = occasionally, 3 = frequently)	2.12 (.61)
Played a musical instrument		1.76 (.86)
Visited art gallery or museum		1.83 (.57)
Participated in demonstrations		1.31 (.57)
Performed volunteer work		2.32 (.59)
SAT scores	Mathematics plus verbal (max. 1600)	1343.40 (111.48)
High school grades	A = 4.0, B = 3.0, C = 2.0, D = 1.0	3.79 (.29)
Took college course	1 = yes, 0 = no	.12 (.32)
Pre-college academic and career expectations (*Freshman Year Survey)*		
Expected first career	Recoded from 48 original categories	
Business executive	1 = yes, 0 = no	.15 (.36)
Engineer		.11 (.31)
Lawyer		.07 (.25)
Medical doctor		.17 (.38)
Professor		.05 (.37)
Other occupation		.19 (.39)
Missing		.26 (.44)
Expected highest degree		
Bachelor's		.13 (.34)
Master's (incl. MBA)		.39 (.49)
Medical (MD, DDS, DVM, etc.)		.18 (.38)
Law		.09 (.28)

Variable name	Measurement notes	Mean (standard deviation)
Doctorate		.21 (.41)
Expected college activities and outcomes (Freshmen Year Survey)		
Be satisfied with college	"What is your best guess as to the chances that you will:" (1 = no chance, 2 = very little chance, 3 = some chance, 4 = very good chance)	3.77 (.46)
Participate in volunteer work		3.40 (.71)
Get a job to pay for college expenses		3.00 (.91)
Change career choice		2.92 (.79)
Join a fraternity or sorority		2.58 (1.04)
Change major field		2.85 (.79)
Play varsity athletics		2.35 (1.07)
Be elected to an honors society		2.90 (.68)
Weekly time allocation (Freshman and College Year Survey)		
Attending classes or labs	Hours spent in a typical week in each activity; time-use variables are recoded from eight discrete categories to the midpoint of each category range, using linear interpolation for the top category ("over 20 hours/week")	
College		12.02 (4.85)
Socializing with friends		
High school		11.52 (5.48)
College		13.23 (6.24)
Studying or homework		
High school	Hours spent in a typical week	10.14 (6.03)
College		12.83 (6.58)
Exercising or sports		
High school	Hours spent in a typical week	9.90 (6.49)
College		6.28 (5.73)
Partying		
High school	Hours spent in a typical week	3.51 (4.06)

Variable name	Measurement notes	Mean (standard deviation)
College		6.34
		(5.46)
Working (for pay)		
High school	Hours spent in a typical week	4.87
		(6.57)
College		5.80
		(5.86)
Student clubs or groups		
High school	Hours spent in a typical week	4.05
		(4.64)
College		3.06
		(4.54)
College activities (College Senior Survey)		
Ever participate:		
Had a part-time job	"Since entering college, have you:" (1 = yes, 0 = no)	.77
		(.42)
Participated in a study abroad program		.46
		(.50)
Participated in an internship program		.47
		(.50)
Member of intercollegiate team		.28
		(.45)
Enrolled in honors or advanced courses		.28
		(.45)
Joined a fraternity or sorority		.26
		(.44)
Student government		.15
		(.36)
Joined racial/ethnic student organization		.16
		(.37)
Failed one or more courses		.08
		(.26)
Taken a remedial course		(.02
		(.15)
Had a full-time job		.02
		(.12)
Frequency of participation		
Socialized with a different race	"For each of the activities listed below, please indicate how often you engaged in each during the past year" (1 = not at all, 2 = occasionally, 3 = frequently)	2.49
		(.55)
Drank beer		2.39
		(.70)

Variable name	Measurement notes	Mean (standard deviation)
Drank wine or liquor		2.37
		(.62)
Discussed politics		2.21
		(.61)
Performed volunteer work		1.97
		(.63)
Felt depressed		1.69
		(.60)
Visited an art gallery or museum		1.80
		(.55)
Felt lonely or homesick		1.65
		(.58)
Major field area		
First year (expected)	From Freshmen Year Survey	
Engineering	1 = yes, 0 = no	.16
		(.37)
Natural sciences		.26
		(.44)
Business		.15
		(.35)
Social sciences		.15
		(.36)
Arts and humanities		.14
		(.35)
Other/undecided		.14
		(.34)
Fourth year (final)	From College Senior Survey	
Engineering		.11
		(.31)
Natural sciences		.16
		(.37)
Business		.17
		(.38)
Social sciences		.23
		(.42)
Arts and humanities		.23
		(.42)
Other/undecided		.10
		(.30)

Variable name	Measurement notes	Mean (standard deviation)
Final college outcomes		
College success		
Utilizing campus services	"Since entering college, how successful have you been in:" (1 = not at all successful, 2 = somewhat successful, 3 = very successful)	2.29 (.54)
Understanding expectations		2.63 (.52)
Developing effective study skills		2.41 (.62)
Adjusting to academic demands		2.63 (.53)
Managing time effectively		2.38 (.62)
Getting to know faculty		2.17 (.64)
Developing close relationships with students		2.77 (.44)
Overall college satisfaction (α = .817)	Scale combining responses for 11 categories (max. = 55)	44.32 (5.63)
Final college grades	A = 4.0, B = 3.0, C = 2.0, D = 1.0	3.38 (.40)
"A" average	1 = yes, 0 = no	.16 (.37)

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Biography

Nathan Douglas Martin was born on November 14, 1980 in Washington Court House, Ohio. In May 2003, he graduated *magna cum laude* from Case Western Reserve University in Cleveland, Ohio with a Bachelor of Arts degree in sociology and psychology. As part of his graduate training in Duke University's Department of Sociology, Nathan's research has appeared in *American Sociological Review, Research in Higher Education, Research in the Sociology of Work,* and *Sociological Perspectives*. An early thesis, which grew into this dissertation, was awarded the 2006 Hines Award for best graduate student paper by the North Carolina Sociological Association. In 2007, he received the Vorsanger-Smith Award for overall excellence in the department's graduate program. With David Brady, Nathan received an American Sociological Association distinguished contribution to scholarship award in 2009 for their article examining recent trends in unionization across less developed countries. Next fall, Nathan will be an assistant professor in the Department of Sociology at the University of South Carolina.